

Atlantic States Marine Fisheries Commission

American Lobster Management Board

*November 2, 2015
8:00 – 10:30 a.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*D. McKiernan*) 8:00 a.m.
2. Board Consent 8:00 a.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 8:05 a.m.
4. Discuss Management Response to the 2015 American Lobster Benchmark Stock Assessment **Possible Action** 8:15 a.m.
 - Report from SNE Subcommittee (*D. McKiernan*)
5. Discuss Initiation of Addendum to Set Effort Controls for Jonah Crab-Only Trap Fishermen (*J. Gilmore*) **Action** 9:00 a.m.
6. Discuss Non-Trap Bycatch Limit and Claw Exemption Provisions of the Jonah Crab FMP (*M. Ware*) **Possible Action** 9:45 a.m.
7. Consider Approval of 2015 Lobster FMP Review and State Compliance (*M. Ware*) **Action** 10:20 a.m.
8. Review and Consider Approval of American Lobster Advisory Panel Membership (*M. Ware*) **Action** 10:25 a.m.
9. Other Business/Adjourn 10:30 a.m.

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

American Lobster Management Board Meeting
Monday, November 2, 2015
8:00 a.m. – 10:30 a.m.
St. Augustine, FL

Chair: Dan McKiernan (MA) Assumed Chairmanship: 08/14	Technical Committee Chair: Bob Glenn (MA)	Law Enforcement Committee Representative: John Cornish (ME)
Vice Chair: David Borden (RI)	Advisory Panel Chair: Vacant	Previous Board Meeting: August 4, 2015
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS (11 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Discuss Management Response to 2015 American Lobster Stock Assessment (8:15 a.m. – 9:00 a.m.) Possible Action
Background <ul style="list-style-type: none"> • The 2015 stock assessment showed the SNE lobster stock is at record low abundance and experiencing requirement failure • The SNE Subcommittee met in October 2015 to discuss objectives for the stock
Presentations <ul style="list-style-type: none"> • Report from the SNE Subcommittee by D. McKiernan (Supplemental Materials)
Board actions for consideration at this meeting <ul style="list-style-type: none"> • Board task the TC with questions on potential management of the SNE lobster stock

5. Discuss Initiation of Addendum to Set Effort Controls for Jonah Crab-Only Trap Fishermen (9:00 a.m. – 9:45 a.m.) Action
Background <ul style="list-style-type: none"> • The Jonah Crab FMP was approved by the American Lobster Board in August 2015 • The FMP allows Jonah crab-only trap fishermen to participate in the fishery; however, no effort controls were established for these fishermen
Presentations <ul style="list-style-type: none"> • Discussion of Jonah crab-only trap fishermen by J. Gilmore
Board actions for consideration at this meeting <ul style="list-style-type: none"> • Initiate an Addendum to set effort control for crab-only trap fishermen

6. Discuss Non-Trap Bycatch Limit and Claw Exemption Provisions of the Jonah Crab FMP (9:45 a.m. – 10:20 a.m.) Possible Action

Background

- Exemptions were made in the Jonah FMP for claw fishermen in NJ, DE, MD, and VA; however, there are more claw fishermen than previously thought and other states, including NY, have determined that they have participants in the claw fishery
- An incidental bycatch limit for non-trap gear was set at 200 crabs per day, 500 crabs per trip in the Jonah Crab FMP. GARFO and NEFMC have expressed concern that this limit may not be appropriate (**Briefing Materials**)

Presentations

- Discussion of non-trap bycatch limit and claw fishery by M. Ware

Board actions for consideration at this meeting

- Initiate an Addendum to address concerns regarding the claw fishery and incidental non-trap bycatch limit

7. Fishery Management Plan Review (10:20 a.m. -10:25 a.m.) Action

Background

- State Compliance Reports are due on August 1, 2015
- The Plan Review Team reviewed each state report and compiled the annual FMP Review.
- Virginia and Delaware have requested and meet the requirements for *de minimis*. Maryland requested *de minimis* status but did not meet the requirements.

Presentations

- Overview of the FMP Review Report by M. Ware. (**Briefing Materials**)

Board actions for consideration at this meeting

- Accept 2015 FMP Review and State Compliance Report.
- Approve *de minimis* requests

8. Advisory Panel Membership (10:25 a.m. -10:30 a.m.) Action

Background

- Grant Moore from MA has been nominated to the American Lobster Advisory Panel

Presentations

- Nominations by M. Ware

Board actions for consideration at this meeting

- Approve nomination

9. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
AMERICAN LOBSTER MANAGEMENT BOARD**

The Westin Alexander
Alexandria, Virginia
August 4, 2015

**These minutes are draft and subject to approval by the American Lobster Management Board.
The Board will review the minutes during its next meeting.**

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INDEX OF MOTIONS

Approval of Agenda by Consent (Page 1).

Approval of Proceedings of May 2015 by Consent (Page 1).

Motion to approve the 2015 Lobster Benchmark Assessment and peer review comments for management use. Motion by Mr. Adler, seconded by Mr. Keliher. Motion passes unanimously. (Page 25).

Motion to combine the reference points for the Gulf of Maine and Georges Bank to one. The new reference point will be for Gulf of Maine/Georges Bank. The reference years (1982 through 2003) would remain the same and the targets and thresholds would remain the same (below the limit/threshold if model abundance is less than the 25 percentile and requires action; if above the 75 percentile, the stock is in favorable condition. Overfishing is occurring if model exploitation is greater than the 75 percentile and requires action). Motion by Mr. Borden, seconded by Mr. Adler. Motion passes unanimously. (Page 25).

Motion that the board convene a subcommittee of state representatives, federal representatives, industry representatives, and technical committee representatives to devise input to the commission on goals and objectives to manage the Southern New England stock and the component fisheries. Report of the group should be submitted to the board at the annual meeting. Motion by Mr. Borden, seconded by Mr. Hasbrouck. Motion fails (2 in favor, 9 opposed, 1 abstention). (Page 33).

(Main Motion): Motion to adopt the following provisions to address the issues of commercial permitting and harvest limits of Jonah crab: Approve Section 4.1 (Issue 1) Option 5: Commercial Fisheries Management Measures, to limit participation in the trap fishery to only those vessels and permit holders that already hold a lobster permit; and further require all traps conform to specifications of the lobster plan (including trap tags), and establish an incidental permit for retention of Jonah crab; approve for Issue 6 (Incidental by-catch limit for non-trap gear) Option 1: No coast-wide possession limit. Motion by Mr. Adler, seconded by Mr. Train. Motion amended. (Page 48).

(Motion to Amend): Motion to amend to include Option 2 for Issue 6 (200 pounds per calendar day/500 pound trip limit). Motion by Mr. Grout, seconded by Rep. Kumiega. Motion passes (7 in favor, 5 opposed). (Page 49).

(Motion to Amend): Motion to amend to insert “or can prove prior participation in the crab fishery that can be demonstrated before the control date”. Motion by Mr. Gibson, seconded by Mr. Gilmore. Motion passes (11 in favor). (Page 51).

(Main Motion as Amended) Motion to adopt the following provisions to address the issues of commercial permitting and harvest limits of Jonah crab: Approve Section 4.1 (Issue 1) Option

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5: Commercial Fisheries Management Measures, to limit participation in the trap fishery to only those vessels and permit holders that already hold a lobster permit or can prove prior participation in the crab fishery that can be demonstrated before the control date; and further require all traps conform to specifications of the lobster plan (including trap tags); and establish an incidental permit for retention of Jonah crab. Approve for Issue 6 Option 2: Incidental Bycatch Limit for Non-Trap Gear, 200 pounds per calendar day up to a maximum 500-pound trip limit.

(Motion to Amend): Motion to amend to change 200 pounds to 200 pieces and 500 pounds to 500 pieces. Motion by Mr. Reid, seconded by Mr. Adler. Motion passes (11 in favor). (Page 54).

(Main Motion as Amended): Motion to adopt the following provisions to address the issues of commercial permitting and harvest limits of Jonah crab: Approve Section 4.1 (Issue 1) Option 5: Commercial Fisheries Management Measures, to limit participation in the trap fishery to only those vessels and permit holders that already hold a lobster permit or can prove prior participation in the crab fishery that can be demonstrated before the control date; and further require all traps conform to specifications of the lobster plan (including trap tags), and establish an incidental permit for retention of Jonah crab. Approve for Issue 6 Option 2: Incidental Bycatch Limit for Non-Trap Gear 200 pieces per calendar day up to a maximum 500 pieces per trip limit. Motion passes (11 in favor, 1 abstention). (Page 55).

Motion to adopt the following biological measures for commercial Jonah crab harvest: For Issue 2, minimum size, Option 5, a minimum size of 4.75 inches; for Issue 3, commercial minimum size tolerance, Option 1, no tolerance for undersize crabs; for Issue 5, egg-bearing females, Option 2, prohibit retention of egg-bearing females. Motion made by Mr. Adler, seconded by Mr. Keliher. Motion passes unanimously. (Page 55).

(Main Motion): Motion to adopt the following measure regarding landing of parts; Option 2, only whole crabs may be retained and sold. Motion by Mr. Adler, seconded by Mr. Gibson. (Motion amended). (Page 57).

(Motion to Amend: Motion to amend to exclude individuals who can prove a history of claw landings before the control date in the states of New Jersey, Delaware, Maryland, and Virginia from Option 2 (only whole crabs may be retained and sold). Motion by Mr. Luisi, seconded by Mr. Clark. Motion passes (6 in favor, 5 opposed, 1 abstention). (Page 61).

(Main Motion as Amended): Motion to adopt the following measure regarding landing of parts – Option 2: Only whole crabs may be retained and sold; and to exclude individuals who can prove a history of claw landings before the control date in the states of New Jersey, Delaware, Maryland, and Virginia from Option 2 (only whole crabs may be retained and sold). Motion passes (9 in favor, 2 opposed, 1 abstention). (Page 61).

Motion to adopt the following biological measures for recreational Jonah crab harvest: For Issue 1, possession limits, Option 2, 50 whole crabs per person; for Issue 2, prohibition on retention of egg-bearing females, Option 2, no egg-bearing females may be retained. Motion by Mr. Adler, seconded by Mr. Grout. Motion passes unanimously. (Page 61).

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Motion to adopt 3.4.1, Monitoring Programs. For Fishery-Dependent Data Collections, adopt Option 3, coast-wide mandatory reporting and fishery-dependent sampling with Sub-option 1, 100 percent mandatory dealer and 100 percent harvester reporting. However, jurisdictions that currently require less than 100 percent of harvesters to report are required to maintain at a minimum their current programs and extend them to Jonah crab. Motion made by Mr. Adler, seconded by Mr. Keliher. Motion carries unanimously. (Page 62).

Motion to adopt *de minimis* criteria: approve a modified Option 1 and Sub-Option 1A by establishing *de minimis* criteria allowing states to apply for *de minimis* status if that state lands less than 1 percent of the overall commercial landings only. Due to inadequate recreational catch data, no consideration shall be given to recreational landings for purposes of *de minimis* determination. Motion by Mr. Adler, seconded Mr. Abbott. Motion carries (11 in favor, 1 abstention). (Page 62).

Motion to recommend to the full commission to adopt the Jonah Crab Fishery Management Plan as modified today. Motion by Mr. Adler, seconded by Mr. Hasbrouck. Motion carries unanimously (Roll Call Vote: In favor – ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS). (Page 65).

Motion to table the motion of May 5, 2015, until a final decision by the National Marine Fisheries Service on the New England Fishery Management Council Habitat Omnibus Amendment. Motion by Mr. Grout, seconded by Mr. Simpson. Motion passes (11 in favor, 1 abstention). (Page 67).

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ATTENDENCE

Board Members

Steve Train, ME (GA)	James Gilmore, NY (AA)
Pat Keliher, ME (AA)	Emerson Hasbrouck, NY (GA)
Rep. Walter Kumiega, ME, proxy for Sen Langley (LA)	Katherine Heinlein, NY, proxy for Sen. Boyle (LA)
Douglas Grout, NH (AA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Tom Fote, NJ (GA)
G. Ritchie White, NH (GA)	Tom Baum, NJ, proxy for D. Chanda (AA)
William Adler, MA (GA)	Roy Miller, DE (GA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	John Clark, DE, proxy for D. Saveikis (AA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Michael Luisi, MD, proxy for D. Goshorn (AA)
Mark Gibson, RI, proxy for R. Ballou (AA)	Bill Goldsborough, MD (GA)
David Borden, RI (GA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Catherine Davenport, VA (GA)
David Simpson, CT (AA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
Rep. Craig Miner, CT (LA)	Peter Burns, NMFS
Lance Stewart, CT (GA)	Terry Stockwell, NEMFC

AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Bob Glen, Technical Committee Chair	Mark Robson, LEC Coordinator
John Cornish, LEC Representative	John Hoenig, Review Panel Chair

Staff

Megan Ware	Robert Beal
Toni Kerns	

Guests

Alli Murphy, NMFS GARFO	Jim Dawson, VA Fisherman
Chip Lynch, NOAA	Meghan Lapp, Seafreeze
Brandon Muffley, NJ DFW	Arnold Leo
John Bullard, NMFS GARFO	Drew Monkiewicz, KDF/FSF
Mike Ruccio, NMFS GARFO	Mark Alexander, CT DEEP MFD
Kevin Chu, NMFS GARFO	Derek Orner, NMFS
David Spencer, LCMT 3	Cheri Patterson, NHFG
Richard Allen, Little Bay Lobster	

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The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 4, 2015, and was called to order at 12:45 o'clock p.m. by Chairman Dan McKiernan.

CALL TO ORDER

CHAIRMAN DAN MCKIERNAN: Good afternoon, everyone. Welcome to the Atlantic States Marine Fisheries Commission and American Lobster Management Board Meeting. My name is Dan McKiernan, the chairman. We have a couple of introductions to start. Louis Daniel.

DR. LOUIS B. DANIEL, III: It gives me great pleasure to finally be able to introduce our new legislative appointment from the great state of North Carolina to the commission. Representative Bob Steinburg is a representative from Edenton, a lovely town on the coast. We'd love to see you come by and say hello. Please welcome Bob Steinburg.

CHAIRMAN MCKIERNAN: Another introduction; Peter Burns.

MR. PETER BURNS: Mr. Chairman, I just want to take a moment to introduce Allison Murphy. She is sitting here next to me. Allison is a fishery policy analyst with us, working on lobster. She is also the regional point of contact for the Jonah Crab Fishery Management Plan.

CHAIRMAN MCKIERNAN: Welcome, Allison. Staff have requested me to remind all the members and proxies that on final actions meeting-specific proxies are not allowed to vote. If that needs to be clarified, you can talk to Bob or Toni.

As far as the agenda goes, what I would like to do is I'd like to move Item Number 6, the Update on Federal Action Regarding the Omnibus Habitat; I would like to move that to after what is formally number nine, to become a new number nine, toward the back of the meeting so that we are guaranteed to get through some of the critical business, if there is no objection to that.

APPROVAL OF AGENDA

Other than that, the agenda is satisfactory to everyone? Seeing no objections; approval of the proceedings from May 2015.

APPROVAL OF PROCEEDINGS

Is there a motion to approve the proceedings from the last meeting? My good friend Bill Adler has made the motion to approve the proceedings; seconded by Steve Train of Maine. Any discussion? Seeing none; approved unanimously. Our next order of business is a big one. It is the stock assessment report. Today we have to review the assessment. Yes, Bill.

PUBLIC COMMENT

MR. WILLIAM A. ADLER: How about public comment?

CHAIRMAN MCKIERNAN: Bill, we didn't get any public comment from – no one has signed up in advance; but is there anyone here who wants to make public comment prior to our business meeting? Terry.

MR. TERRY STOCKWELL: Mr. Chairman, no public comment from me but just to remind the board I'm sitting at the table to represent the New England Fishery Management Council.

2015 AMERICAN LOBSTER BENCHMARK STOCK ASSESSMENT

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CHAIRMAN McKIERNAN: Very good; thank you, Terry. Let's get into the presentation of the lobster stock assessment; and I'll turn that over to Bob.

Presentation of Stock Assessment Report

MR. BOB GLENN: I thank the American Lobster Management Board for having me here today to present this. It is an honor to represent the committee who worked very hard. A lot of thanks go out to the assessment committee on this process to get this assessment done. I'm under strict orders to get this done within my allotted time.

It is about a 600-page documents, so fasten your seat belts. I'm going to try to go through this and give you sufficient detail and hopefully answer any of your questions at the end. Just a quick review on the management unit. Most of you are aware we have three different stock units; currently the Gulf of Maine, Georges Bank and Southern New England. That's divided into seven different management areas.

The figure that I have up above, the colors represented on the screen are the different lobster management areas. The different stippled patterns on the screen – it is a little hard to see from here, I apologize – represent the stock unit. What we have is three stock units and seven management areas of which many of the management areas span the stock units.

You guys have been pretty active on the management board; and since 1997 we have a total of 24 addenda to Amendment 3 that have been passed. This is just a matrix of all the different management measures in place for each of the management areas. The take-home message is that the management areas have kind of a mixed match of different biological measures, depending on where you are across the range.

Some of this makes it a little bit difficult to assess the lobsters. A quick reminder about our reference points; currently we used empirical-based reference points – well, I'm sorry, excuse me – we used model-based reference points that are based on time series. We have for the Gulf of Maine and Georges Bank the stock is in favorable condition if the reference abundance is over the 75th percentile.

If it is anywhere between the 25th and the 75th percentile, it is kind of a holding pattern. We monitor the stock; and then a stock would be considered in Gulf of Maine or Georges Banks depleted if the reference abundance were to go below the 25th percentile. We have slightly different abundance reference points for Southern New England; the main difference being that the target for Southern New England is the 50th percentile instead of the 25th – excuse me, instead of the 75th percentile.

We monitor the stock between the 25th and 50th percentile; and then the stock would be considered depleted if the reference abundance were to drop below the 25th percentile of the time series. For exploitation rates, all three stocks use the same reference point. The threshold is when the exploitation rate exceeds the 75th percentile. We monitor the stock and exploitation anytime it is between the 25th and the 75th.

The target for exploitation is when exploitation rates drop below the 25th percentile for the time series. Okay, just a quick brief overview of natural history, kind of the ten-cent tour. Lobsters are long-lived species. However, we can't reliably age them. We do know that from rearing studies they recruit to the fishery between five and eight years. Because we can't age them, it means that length-based methods to assess lobsters are still standard practice as is most all crustaceans.

Lobsters grow incrementally in distinct events. The growth parameters were updated for this

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assessment, but in general that's one of our most difficult life history parameters that we have trying to parameterize because we don't have a lot observations on growth increments or frequency for the larger animals or a lot of new information on that. We're still largely relying on older growth data.

It is important to understand that abundance and exploitation estimates as well as any biological references that we might look at are very sensitive to assumptions of growth. Because it is difficult to estimate growth in lobsters, you'd either have to do a rearing study or a tagging study to get sufficient reporting rates.

It is not possible for us to estimate time-varying growth although it is very likely that growth does vary with time based on environmental conditions; and we are all very aware that the environment has changed in the Northwest Atlantic. Similarly for sexual maturity water temperature has a direct influence on the rate of sexual maturation.

Typically in warmer waters lobsters mature earlier; and the figure that I have up on the screen shows three different maturity ogives for South New England, the Gulf of Maine and Georges Bank. The one to the farthest left is Southern New England; and you can see that the L-50 for maturity of Southern New England is 76 millimeters; whereas, for the Gulf of Maine and Georges Bank it is 91 and 100 millimeters, respectively.

Our current size at maturity estimates are based on data that were collected in the late 1980's and early 1990's; keeping in mind that this biological parameter is very sensitive to temperature and knowing also that we've seen some changes in the thermal environment in recent years. Looking at natural mortality, lobsters are long-lived, slow to reach maturity and generally considered to be a case-selected species.

Because of this, low and stable rates of M make sense when we have stable environments. For the Gulf of Maine and Georges Bank, M is held constant at 0.15 for all size classes. However, in recent years, in the last decade or so, or 15 years we've had a lot of empirical evidence of increasing rates of natural mortality in Southern New England.

This is believed to be related to prolonged exposure to water temperatures above the stress threshold of 20 degrees C., which causes increased physiological stress, increased disease rates. It has been related to hypoxic situations and large die-offs in Long Island Sound. It has been related to dramatic declines in young-of-the-year settlement; and also we've dramatic declines in adult indices.

For this assessment, we looked at the negative relationship between annual recruitment as measured in four Southern New England surveys and the number of days when the average temperature was 20 degrees C.; and we found a strong positive correlation with that increase in M . For Southern New England, we used an M of 0.29 during the most recent 15-year period or 16-year period, 1998 to 2014, due to this evidence.

Then we also found that based on sensitivity runs and model fitting that M 's of this magnitude allowed for the best model fits. There are four critical components to lobster habitat; temperature, salinity, dissolved oxygen and pH. Any changes in these critical habitat components can lead to both habitat contraction or possibly habitat expansion depending if those changes are favorable or negative.

Of the four, temperature probably has the most pervasive influence on American lobster. Instead of thinking of temperature in terms of like the annual mean or changes in the absolute magnitude of the temperature, for cold-blooded animals it probably makes more sense to look at how long temperatures are within or above

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certain temperature thresholds or within certain temperature ranges.

If you look at the lobster primary literature on the relationship between temperature and lobster physiology, you can find that a range between 12 and 18 degrees C. is considered an optimal temperature. Within this range we see faster rates of sexual maturation and egg development. Hatching occurs within this time period. We find faster larval development and higher larval survivorship. We also know that thermal preference for lobsters is 15.9 degrees C.

In addition to that, we know that lobsters will actively avoid water below 5 degrees C. and above 18 degrees C. On the flip side we have the stress threshold for lobsters; and in the last decade there has been a ton of research conducted in Southern New England waters, looking at 20 degrees C. and its effect on lobsters. It is pretty well defined that this is the stress threshold.

Prolonged exposure above this temperature we find increased physiological stress, depression of immune-competence, increased rates of disease, increased rates of larval mortality. We've also seen changes in the distribution of spawning females. The Northwest Atlantic has undergone pretty significant and widespread warming over the last century.

In the Gulf of Maine we have seen about a 1 degree increase in the mean water temperature over the last 100 years; and similarly, if you look at Southern New England in Woods Hole, we've seen a similar increase there. More recent work has shown that the rate of increase on the Northeast Shelf has accelerated in the last 35 years or so.

If we look at our own temperature data that we've collected in the last few decades, we find this warming trend has been very pronounced in coastal waters of New England since the 1990's.

Finally, climate projections for the Northeast Shelf predict that water temperatures will continue to warm over the next 50 years at a rate to what has been observed for the last 50 years.

Looking at some local examples of temperature trends, this is the sea surface temperature Boothbay Harbor, Maine, from 1960 to 2012. This is a count of the number of days between the optimal thermal range of 12 to 18 degrees C. The dashed line or the solid line across there represents the time series' median.

What you can see is from 1960 to roughly 2000 that the number of days within this temperature range kind of bounced around the median; and then in the late 1990's or 1998 we start to see some strong positive anomalies in the number of days have really increased. That is on the sea surface temperature; so a logical question is then, well, how does that reflect what happens on the bottom where lobsters primarily live?

We see similar trends on the bottom temperature. In this assessment we looked at probably a dozen different sources of water temperature data. I'm just highlighting a few of them today to show you some trends. This graph here is a similar one – this is in Cape Cod Bay in about 60 feet of water. It is going from 1988 to 2013. This is a count of the number of days in the optimal range.

The take-home message for this is that the number of days in the optimal range has been above average in 14 out of the last 20 years. As we switch gears and talk about going back to the temperature stress threshold, sea surface temperature anomalies from the number of days above 20 C. from 1945 to 2014 in Woods Hole, Massachusetts – so this is a nice, long time series – these anomalies are the count of days above the time series' average.

Over that long time series, the average number of days was roughly 75 days where the water would exceed that. What you see is those lines represent either the number above or the

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number below that average over the course of time. You can see some cold periods in the 1960's and late 1980's. What is very prominent is since 1998 we've basically had – 17 out of the last 18 years we've had positive anomalies in the number of days above 20 degrees C.

In some years you can see we have in excess of 90 days a year where the surface temperatures exceed that temperature. We see similar things when we look at bottom temperatures. This is data that was provided to us by the Dominion Nuclear Power Plant. This is Eastern Long Island Sound in about 11 meters or water or roughly 33 feet.

Bottom water temperature; the anomalies are the same – we're looking at the same piece of information. It is the number of days above 20 degrees C. relative to the time series' mean. Interestingly, just like the sea surface temperature, starting in 1998 you see a strong series of positive anomalies in only one out of the last – I don't have the count here, but it looks like 17 or 18 years all of those days had strong positive anomalies, meaning the thermal environment in Southern New England has changed pretty dramatically since the late 1990's.

The take-home points about temperature is that the waters of the Northwest Atlantic have warmed dramatically. In Southern New England this has had a negative effect on lobsters where we've seen higher rates of natural mortality, lower stock productivity, evidence of habitat contraction where we see many inshore areas like Buzzards Bay and Long Island Sound and parts of Narragansett Bay that once held very dense lobster populations no longer is really a viable lobster habitat.

It is important to remember that a stock that is under environmental stress is less resilient to fishing pressure. In the Gulf of Maine temperature changes have had a positive effect on lobster. We have seen higher rates of larval

survival, faster rates of sexual maturity, higher stock productivity. We have evidence in Eastern Maine of habitat expansions where areas that were once too cold to support lobster settlement are now seeing large increases in settlement and subsequent recruitment.

As such, it is important for the board to remember that stocks under favorable environmental conditions are more resilient to fishing pressure. Moving on to stock definitions, we don't have any clear genetic differentiation in American lobsters for which to divide the stocks up by. As a result, we use biological information like rates of growth, sexual maturity, location of spawners, patterns of abundance, similarities in size composition and size at sexual maturity to try to define the stocks.

Historically, we've had the three stock units from the last assessment in the Gulf of Maine, Georges Bank and Southern New England. One of our terms of reference in this last assessment was to assess the stock definitions; and the technical committee did – and based on the work that we did that I'll go over in a second; the technical committee for this assessment recommends combining the Gulf of Maine and the Georges Bank stock.

This information was based on looking at the National Marine Fisheries Trawl Survey Data. What we found is that there are large increases in the abundance of large egg-bearing females in Georges Bank in the fall but we don't see them in the spring. Conversely, when you look at the Gulf of Maine Survey Indices we see large increases in abundance in egg-bearing females in the spring but we don't see them in the fall.

If you coupled this with tagging data that we've looked at, historical work that was done in Massachusetts and Provincetown, which is really the border between the Gulf of Maine and the Georges Bank stock, is we find from that tagging data is we see easterly movements of lobsters in the fall from Gulf of Maine to Georges Bank and

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westerly movements of lobsters in the spring from Georges Bank to the Gulf of Maine.

This is just another piece that kind of relates back to those abundance trends that we're seeing. In addition to this, there is some anecdotal evidence that supports this. It is understanding from talking to several fishermen that fish on Georges Bank that v-notch lobsters are now fairly common on several parts of Georges Bank; yet this activity isn't widely practiced there, so we suspect that the large amount of v-notching that is conducted in the Gulf of Maine has kind of constructed an accidental experiment.

Then finally the management measures that the board took in the late 1990's in LMA 1 protect the brood stock, which included the five-inch maximum size, mandatory v-notching as well as a 100/500 possession limit on non-trap gear have really increased this segment of the population of large female animals. This is very evident when you look at all the survey indices.

It is our feeling based on these large increases and the fact that we have evidence of them moving back and forth between the boundary and the fact that they seem to disappear from Georges Bank and show up on the Gulf of Maine and vice-versa makes us feel very confident that the Gulf of Maine and Georges Bank stock should be combined.

That would simply change that map to look like this where the red area would be the new combined Gulf of Maine/Georges Bank stock and the blue area would be the new Southern New England stock. Just a quick overview on information used to assess each stock; the empirical data that we used can be classified into fisheries-dependent and fisheries-independent biological data.

We look at model-free indicators, which are mortality indicators, abundance indicators and fisheries' performance indicators. Then for the models we're looking at reference abundance

estimates, reference exploitation estimates and the threshold reference points. Our fisheries-dependent data include catch reports that most jurisdictions require their fishermen to fill out for the lobsters they harvest.

All the jurisdictions conduct sea-sampling programs to characterize the size distribution, sex ratio and discard rates. Similarly, some of the jurisdictions also conduct port-sampling programs, which collects similar information. In this assessment we were fortunate enough to have data provided to us by two industry groups; one, the Atlantic Offshore Lobstermen's Association and the other the Commercial Fisheries Research Foundation.

Both of these groups provided us with sea-sampling data that helped us fill in gaps in the offshore area where we don't have good sampling coverage. For fisheries-independent data we have our standard trawl surveys from the states of Maine, Massachusetts, Rhode Island, Connecticut, and New Jersey. We also used the National Marine Fisheries Service; and for the first time we also included the regional survey from the NEAMAP Program.

I'm very happy to report also for the first time we were able to directly integrate the survey indices from the Coast-wide Ventless Trap Survey run from Maine, New Hampshire, Massachusetts and Rhode Island and both the Gulf of Maine/Georges Bank run as well the Southern New England run. Then finally we also relied on Young-of-the-Year Larval Surveys from Maine, New Hampshire, Massachusetts, Rhode Island and Connecticut.

The stock indicator approach is what we call kind of a traffic light approach; and these are just commonsense stock indicators that are model free that we used to corroborate the model results and provide additional information and context about the overall health of the stock. These stock indicators are not used in the legal determination of stock status, but they just help inform both the technical committee and the

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management board as to other health indicators.

These can be broken down into mortality indicators, abundance indicators and fisheries' performance indicators. What we do is we characterize these time series into quartile ranges; and they characterized as positive, negative or neutral depending on where they rank. The strength of this approach is that the use of percentiles as objectives; and the focus on trends is robust to many biological and modeling assumptions.

For mortality indicators we looked at the exploitation rate. For abundance indicators we looked at recruit abundance, post-recruit abundance, spawning stock biomass, the settlement indices and the proportion of positive tows in the trawl surveys. The fisheries' performance indicators; the primary ones that we looked at gross catch-per-unit effort, and we also looked at a few revenue indicators as well.

The only model used in this assessment to assess all three stocks was the University of Maine Model that was developed two assessments ago and has been refined over time. The bookkeeping in this model basically keeps track of lobsters by quarter, sex and size in five millimeter bins. It employs a standard maximum likelihood statistics for comparing observed and predicted data.

Natural mortality, growth, seasonal progression of biological processes and discards are assumed to be known, and those are parameters that we feed into the model. The strength of this model is that it was specifically built for lobster. It is capable of using pretty much all the data streams that we can come up with; and the results tend to make sense.

They're plausible and they estimate trends reliably. Some of the weakness of the model is that there is probably more uncertainty than meets the eye from our model diagnostics. It is

hard to deal realistically with the spatial complexity and the stock in the fishery. It assumes that growth is known and biological sampling is representative; and so probably out of those weaknesses biggest one that could affect the magnitude of the estimates that we worry about is probably the growth. That is all the background information; and now I'm going to dive right into the results.

For the Gulf of Maine/Georges Bank stock, this represents the largest fishery that we have in the U.S. In 2013 it accounted for 98 percent of the U.S. landings. The largest portion of that harvest occurs in the inshore/nearshore portion with smaller amounts caught in the offshore area. Effort has remained high and stable at roughly 3.5 million traps around the last decade or so.

The majority of the boats in this fleet are smaller boats that make day trips, although there is also a larger-boat offshore component. This figure here depicts the commercial harvest of lobsters; the black line being females; the dashed line being males. You can see it has kind of been a one-way trip in this stock. Landings have continued to increase dramatically and seem to have no bounds.

If we look at some of the fisheries' performance indicators; looking at these indicators it is going to be fairly difficult for you to actually see any of the values in here without actually looking at the assessment; but what I find most valuable in trying to study these is actually looking at them from a distance probably is the way to do it.

The black areas characterize a negative trend. The gray area is a neutral trend and the white area is a positive trend. If you look at this table, what you see is there is a few negative trends going on. One of the major ones is the effort. The effort is measured by the number of traps fished and this stock is well above the 75th percentile; so it seems to be really high in recent years or for the last 15 years, anyway.

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Another important one is that the Consumer Price Adjusted Index of revenue is above the 75th percentile, showing that the overall revenue per pound is down quite a bit. Other than that, the total catch, the gross catch-per-unit effort and the total revenue are all characterized as positive. Looking at the relative exploitation rate, which is simply the survey index of lobsters over 77 millimeters divided into the landings; the surveys we looked at are the Northeast Fisheries Science Center, the Maine, New Hampshire and Massachusetts.

For the five-year terminal average, which you can see is that out of the six indicators for spring and fall that we presented, four out of the six are positive, one neutral, and one negative. Overall it looks like the exploitation rates are in a good-to-moderate area right now. Abundance indicators tell a pretty consistent story where we see positive trends for spawning stock abundance in all areas.

For full recruit abundance we see positive trends in all areas except for Massachusetts, which would be 514, the southern part of the Gulf of Maine, which is in a neutral category right now. Similarly, for recruit abundance we see positive trends for all of the indices' indicators with the exception of spring in 514, which would be characterized as neutral.

The one word of caution of the Gulf of Maine in recent years is in some areas we have seen a downturn in the young-of-the-year settlement; and that would be the table on the far right. What you can see in recent years is there is an increase in the number of gray and black cells; and especially in Southwest Maine, in Area 513, the last six years the settlement has been well below the 25th percentile; so we're seeing some declining trends in settlement. That's one thing in the Gulf of Maine and Georges Bank stock that we need to keep an eye on is that we have some disturbing settlement trends.

These are all the individual trawl survey indices. The reason I'm flashing them up there is just to show you a lot of the similarities between the direction of both the NMFS Survey, the Maine Survey as well as the Ventless Trap Survey. The one survey that kind of sticks out is the Massachusetts Survey, which is down in the southern end of the Gulf of Maine, which tends to have a flat trend; but the rest of the survey abundance indices show that the Gulf of Maine has dramatically increased.

These figures are the model outputs. What we have is that the solid gray line are both sexes combined. The upper left is the reference abundance. The horizontal dashed line is the threshold reference point for abundance. What you can see for the combined sexes, which is the solid gray line, is that the reference abundance for the Gulf of Maine is well above the threshold level. In fact it is above the target level for abundance in the Gulf of Maine.

You see similar trends when you break it down by sex in females and males. Females is the dotted line; males is the solid black line. You can see in general that the reference abundance has increased very substantially. Looking to the top right is the effective exploitation. This is a little bit different. We are kind of right at the threshold for effective exploitation.

It is technically the terminal three-year average, which is used for the legal definition. It is below the threshold, but it is pretty close. The lower left hand is the female spawning stock biomass, which shows similar dramatic increases in the biomass in the Gulf of Maine stock and things appear to be very healthy there.

For the Gulf of Maine/Georges Bank stock we've also seen really – in the lower right hand we've seen really dramatic increases in recruitment. If you look at a status determination plot, we are in kind of the quadrant that you want to be in, which is the lower right quadrant of this type of plot where you can see that the single dot

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represents the three-year average for this relationship; and it basically shows us that we are well above the threshold for abundance and just slightly below the threshold for exploitation.

To summarize this, the Gulf of Maine/Georges Bank biomass is high and the stock is not depleted and overfishing is not occurring in the Gulf of Maine/Georges Bank stock. If we look at the empirical indicators, the exploitation rate is mixed. We've seen some signs in the fall of increased rates. The spawning stock abundance is favorable above the 75th percentile. Recruit abundance is favorable. Full recruit abundance is favorable as well as the encounter rate, and the survey indices are favorable.

Okay, moving on to Southern New England; Southern New England represents a much smaller portion, especially in recent years. In 2013 the Southern New England stock accounted for only 2 percent of U.S. landings. Historically, inshore landings have dominated, but in recent years the offshore component has accounted for an increasing proportion of the stock.

There is an inshore fleet of smaller vessels as well as an offshore fleet of larger vessels. Since the early 2000's we've seen pretty dramatic declines in effort mostly due to attrition because of the poor stock conditions. This is the landings' trend; and again the black line represents female catch and the gray line represents male catch. You can see we have really dramatic increases in catch up until the late 1990's; and then since then we've had pretty dramatic declines in catch. In fact the last three years, it is the lowest three years of combined catch for Southern New England that we've seen on record since we've been monitoring the catch in a standardized fashion in the early 1980's.

If you break down the catch into an inshore/offshore component, you kind of get a better sense of the dynamics of what is going on. The dashed line in this graph represents the

inshore landings and the solid black line represents the offshore landings. What you see is that large increase in trend in the 1990's is largely driven by inshore catch, which has since declined dramatically.

The offshore catch has been more stable but in general slightly lower in recent years. If we look at the fisheries' performance indicators, out of these the only one that's positive is effort; and unfortunately it is not positive for a very good reason. The effort indicator is well below the 25th percentile. As I mentioned before, the effort declines are more related to attrition than anything else.

As far as total landings, gross catch-per-unit effort revenue for the stock; all of these are characterized in the negative category. Trawl survey indices – I'm showing a bunch of spring/fall – we used Northeast Fisheries Science Center, New Jersey, Rhode Island, Connecticut, Massachusetts and NEAMAP, as well as the Ventless Trap Survey.

What we found is a fairly consistent picture of low abundance in the early 1980's, increasing abundance through the 1990's and then pretty dramatic declines. In the shorter time series like NEAMAP and the Ventless Trap Survey, if you look here, fall females are up on the right. Since those were initiated in the mid-2000's, we've seen declines in those shorter time series as well.

It paints a pretty consistent picture in the overall abundance trends in Southern New England over a fairly broad area. Looking at exploitation rates; that gives a mixed signal. In the offshore areas, as measured by the NMFS Survey, they're characterized as positive to neutral; but in the inshore areas in Connecticut and Massachusetts in the fall they're characterized as negative and in the spring they're neutral; so it is kind of a mixed bag when it comes to looking at the relative exploitation rates.

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However, when we look at spawning stock abundance, it is a much more consistent picture. Out of the eight different indicators that we looked at, six out of the eight are characterized well into the negative category and two would be in the neutral. I wanted to kind of give you a graphic pictorial of what this has looked like when we map out all the trawl survey data, looking at spawning abundance.

This map represents – each dot represents a catch where egg-bearing females were found. We broke it down into five-year stanzas. This is 1996 and 2000, within the time period when the stock was near record-high abundance. The larger the dot the higher the concentration of egg-bearing females in this.

I'm going to scroll through in five-year stanzas and demonstrate kind of what we've seen. This is 2001 to 2005; 2006 to 2010, and you can see there is really a small numbers of egg-bearing females. These are all the trawl surveys combined, so this would be NMFS, Massachusetts, Rhode Island and Connecticut. Then finally in the most recent stanza there almost none. We see very, very few in any of the trawl surveys where in the late 1990's we used to see large amounts of them.

Looking at other abundance indicators, looking at full recruit abundance – so these would be legal-sized animals – depending on where you are, in the inshore areas like in Connecticut/Long Island Sound they're characterized as negative. In the other areas they're characterized as neutral. Recruit abundance is really concerning.

These are animals between 71 and 81 millimeters; so these typically would make the following year's commercial catch. What you can see is kind of a really consistent trend among all the eight different indicators that we looked at of very low recruit abundance with the exception of the fall survey in Massachusetts, which would be characterized as just barely neutral. It is very close to the cut point.

Then the other disconcerting trend is to the right. The young-of-the-year indicator indices, which show either both negative trends in Rhode Island and Connecticut and negative-to-neutral trends in Massachusetts, showing that in general we've seen really poor settlement in the last decade as well as really poor recruitment indices.

This lower right-hand table, when you see the area shaded in black where we see extremely low settlement, it is important for the board to understand that the year classes have yet to recruit to the fishery; so those are still yet to come. The very low landings that we've witnessed in the last two or three years came from year classes that were fairly moderate back in the early 2000's.

The expectation is that with this poor settlement is things are going to probably be worse for catch than what we've seen in the last couple of years. Then finally if we look at the survey encounter rate, which is the proportion of tows that have a lobster in them, you can see all but the offshore area is characterized as negative; so Massachusetts, Rhode Island and Connecticut have all been negative. We see the vast majority of tows have zero lobsters in them.

In the NMFS Survey relative to the time series it would be characterized as neutral; so the offshore is not quite as bad. Looking at the model outputs, the reference abundance, you can see the gray line at the top, the highest line is the reference abundance. The dashed line represents the threshold reference point for abundance; and you can see that the combined sex threshold abundance – I'm sorry, reference abundance for Southern New England is well below the threshold.

The lower dashed, dotted line and solid line represent males and females; and then the solid black line that is the combined sex reference abundance from the last assessment; so you can

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see where it ends there; and 2007 I believe is the terminal year in that. It gives you a sense of where we are relative to the last stock assessment. The last stock assessment we were already well below the reference abundance; but based on this, the stock is even in worse condition than it was from then.

Looking at the exploitation rate; the overall catch rates have been so low that the catch has dropped faster than what the stock abundance has; so the exploitation rates are in fact below the threshold for exploitation. The lower left-hand graph is the female spawning stock biomass; and that is at or near the time series low; as well as the recruitment indices, that lower right-hand graph, shows that the recruitment is at or near a time series low.

Looking at where we are on the status determination plot; in the lower left-hand quadrant it shows us that we are well below the threshold of abundance, but we are also well below the threshold exploitation currently. Just a quick synopsis on Southern New England; the stock is depleted. However, overfishing is currently not occurring.

Recruitment and spawning stock biomass are at all-time lows. Looking at the indicators for abundance, most of them are negative. Exploitation; they're moderate to negative. I should note that recruitment is extremely poor and they're at or below the 25th percentile. Finally, the Southern New England stock is in extremely poor condition and is substantially worse than what was reported in the previous assessment.

The low levels of catch observed over the last three years were derived from moderate year classes that settled between 2003 and 2007. The record low settlement observed between 2009 and 2013 has not yet recruited to the fishery. The technical committee expects that landings, full recruit abundance, spawning stock biomass and the overall condition of the Southern New

England will continue to decline in the coming years.

Environmental conditions in the inshore portions of Southern New England are stressful to lobsters; and the overall productivity of the stock is severely diminished. The technical committee continues to feel that the Southern New England stock is experiencing recruitment failure. I'll take questions.

CHAIRMAN McKIERNAN: Bob, should we postpone questions until Dr. Hoenig gives his review of your assessment?

MR. GLENN: That's fine with me.

CHAIRMAN McKIERNAN: Okay, does anyone object to that? Maybe you want to jot down your questions that you might have come up with the presentation. Dr. Hoenig.

Presentation of Peer Review Panel Report

DR. JOHN HOENIG: I couldn't resist putting two pictures of lobsters on the screen; a normal-looking one and one with epizootic shell disease on the right. The technical review took place in Woods Hole from June 8 to 12. There were three of us. I chaired the meeting and I worked with Dr. John Tremblay from Canada Department of Fisheries and Oceans – he has since retired, but I don't think it was because of the stress of the review – and also Dr. Robert Muller from Florida Fish and Wildlife Research Institute.

As you know, the Lobster Assessment Subcommittee and the Technical Committee developed the assessment and the Independent Review Panel was asked to focus on reviewing the science, meaning the biology and ecology of lobster and the assessment. We produced a 20-page report, which you should have in your briefing book; and if not, you can find it online on the commission's website.

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What I would like to do is put the cart before the horse a little bit and give you our overall conclusions and then I will justify those conclusions. The Stock Assessment Review Panel accepted the assessment in its entirety; that is to say both the model results and the results of looking at empirical stock indicators.

We concluded that the Gulf of Maine and Georges Bank stocks should be combined for assessment purposes, but we also spent quite a bit of time looking at what would happen if you assessed them separately. The conclusions really don't change if you do it separately or if you combine them. The panel agreed with the Stock Assessment Subcommittee that there was good reason to combine the two units.

The Gulf of Maine/Georges Bank combined stock is not overfished and overfishing does not appear to be occurring. The situation in Southern New England is quite a bit different. The stock is not only overfished but it appears to have the lowest biomass on record. Not only that, but it appears to be suffering from very poor recruitment, from recruitment failure.

Overfishing is technically not occurring in 2014 according to the criteria in place; but the subcommittee and the review panel thought that this was a very misleading result that may obscure the need for management action. Two other points are that forecasting for Gulf of Maine and Georges Bank is really not possible because it all depends upon what the recruitment is going to be like, and we don't know what will happen with recruitment.

To make a forecast would basically say, well, if it has been going up, it will continue to go up; and that will work for a while but it can't work forever. Finally, the panel finds that the stock assessment is acceptable for management use. We had nine terms of reference. The first one was to evaluate the thoroughness of the data collection in the presentation and the treatment

of fishery-independent and fishery-dependent data in the assessment.

The panel noted that almost all data sources were incorporated directly into the University of Maine Model or into the stock indicator tables. There were a couple of surveys that were not put into the assessment model mainly due to limitations of the assessment model. The model really should be rewritten to be a little bit more flexible, but this was really not serious. What was eliminated was viewed to be unimportant.

The data limitations were substantial. For example, in the early years there is missing data and the coverage is not uniform spatially, but the stock assessment subcommittee did a thorough job of filling in the gaps using a very resource-intensive approach. The data trends were so strong that it basically overcame any limitations of the data; so we felt that the results were robust.

We also noted that to understand the effects of reducing effort on stock status better information on fishing effort would be vital. The second term of reference dealt with evaluating the methods in the models used to estimate the population parameters and the reference points for each stock unit. The stock assessment subcommittee was thorough in its review and use of life history information and environmental data.

In fact, the panel the commended the stock assessment subcommittee for its use of temperature data to explore changes in natural rate in Southern New England and also to use temperature data to try to explain recruitment trends. The SASC used a wide variety of data types to examine the movements between Gulf of Maine and Georges Bank areas. We felt that was a thorough analysis.

There is a need for updated information on growth and maturity; and the panel concluded that the most appropriate model was used.

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Actually they were directed to use the University of Maine Model, but they used it in appropriate fashion with the proper parameterization. The next term of reference, TOR 4, was evaluate the methods used to characterize uncertainty in estimated parameters and were the implications of uncertainty clearly stated.

It was quite clear that the University of Maine Model gave confidence intervals that grossly understated the true uncertainty in the base case. This is because the confidence intervals from the model are conditional on the model being correct. You calculate them assuming the model is correct; and you assume that the data do not have any problems; and as such, it gives you a very low estimate of uncertainty. The uncertainty is much greater.

The stock assessment subcommittee recognized that and felt really the best thing to do would be to do a lot of sensitivity analysis runs and see how that affected the results. That's what they did. The panel concurred that was probably the best way to go. The trends turned out to be robust to all that uncertainty.

We also noted that retrospective patterns which plague a lot of stock assessment models did not seem to be a problem at all for this assessment; and I'll show that in a moment. The fifth term of reference is evaluate the diagnostic analyses performed, including the sensitivity analyses. The biggest problem that struck the review panel was that the data for the early years was quite sparse and there was some cleverness in trying to fill in the gaps.

We asked for a run where the early data were simply eliminated and start the model at a later point. You can see two lines on the graph on the screen; and basically they fall on top of each other, so eliminating the early data did not seem to change the results at all. This slide here shows the retrospective analysis; and essentially it is hard to find an example of less of a retrospective pattern than this. You do not see a systematic

revision of the conclusions as you collect more information, which is a very good thing.

The next term of reference is evaluate the preparation and interpretation of indicator-based analyses for stocks and sub-stock areas. The panel supports the use of indicators or model-free indicators. There is an example on the screen here, but Bob went into it in quite a bit of detail so I won't repeat it; but we did think it was appropriate.

We noted on the panel that the subcommittee used – sorry, we recommended that the subcommittee develop an environmental indicator table to also inform the managers of what to expect, especially based on temperature. Term of Reference 7 is a very important one; evaluate the current and recommended reference points and the methods used to calculate them and evaluate the stock status determination from the assessment in terms of these are alternative methods.

The panel agreed that the traditional reference points based on yield and spawning biomass per recruit and based on MSY considerations are not appropriate given the life history of the lobster and the recruitment trends. What this table here is showing is that for Gulf of Maine or a combined Gulf of Maine/Georges Bank, the current fishing mortality shown in red, 0.48, is way too high compared to any of those yield-per-recruit-based reference points.

That really doesn't make a whole lot of sense because it is saying you've got the highest abundance on record; therefore, you must be way, way overfishing the stock. Similarly, when you look at Southern New England, the value of 0.27 is green, saying it is low, but by that if it is really so low, then we shouldn't be in the current situation we are now.

Basically the reference points do not make a whole lot of sense because the recruitment is what is driving the system and these reference

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points are not dealing with that. Instead the panel agrees with the subcommittee that you should use trend-based abundance and exploitation reference points determined from the model; so you're basically getting quartiles of abundance and exploitation rate based on what was observed in the past and comparing the situation to those.

The panel agrees that the Georges Bank/Gulf of Maine combined stock is not overfished and overfishing is not occurring according to both the model results and the stock indicators; and it doesn't matter if you look at those two areas separately or combine them, although we think it is appropriate to combine them.

The Southern New England stock is clearly overfished according to both the model and the stock indicators, meaning that the abundance is at or near the lowest record, with the inshore abundance extremely low. It is apparently not due to fishing because the fishing mortality is low. There is recruitment failure in the inshore and it is believed that the offshore depends on the nearshore settlement for recruits.

I have here a quote because this is so important that I didn't want it to be my opinion, but this is actually from our report. It says the subcommittee and the panel believe the Southern New England stock has little chance of recovering unless fishing effort is curtailed. Essentially what we're saying is that the reference points defined by the time series of model outputs say that the exploitation rate for the entire Southern New England stock does not appear to lie in the overfishing zone; but this definition was created without considering the possibility that the stock could be brought to the lowest abundance level ever and that the production of recruits in the inshore area on which the offshore depends could be brought to extremely low level.

Hence, by any reasonable standard it is necessary to protect the offshore component of

the stock until increased recruitment can be observed. I'd like to tell you something that the late Ransom Myers used to say when talking about $F_{0.1}$, which was supposed to be a conservative way to manage a stock. Ransom would say that $F_{0.1}$ means that if you have two fish left, you can safely harvest 0.3 of them.

I think that is the point is when the abundance is extremely, extremely low, then what would normally be a reasonable fishing mortality rate may be a death blow. Essentially when abundance gets really low, you need all of your spawners to have any chance of keeping the thing from collapsing.

That led the panel and the subcommittee to conclude that looking at the fishing mortality rate now in Southern New England is really not the issue. The issue is the amount of spawners and where is the recruitment going to come from in the future. The eighth term of reference was to review the research and data collection and assessment methodology and make recommendations.

The panel looked at a long list of recommendations from the subcommittee and tried to boil it down to something you could deal with; so we came up with four. First is that updating the growth information is important. The report actually said imperative, so I'll say is imperative. The second is to investigate the stock connectivity to support the combined Georges Bank/Gulf of Maine analysis. A tagging program was suggested as a ways to do this.

The third priority was to increase sea sampling for biological data in the offshore. That's where most of the holes in the data collection appear to be at the moment. The fourth priority was to rewrite the University of Maine Model Computer Program because it is inflexible now; and when you want to make changes, it is a major task. It shouldn't be that inflexible.

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The last term of reference; review the recommended timing for the next assessment. For Southern New England the panel recommends close monitoring to try to save the stock. The stock indicators should be updated annually and reported to the management board for appropriate action. For the Gulf of Maine/Georges Bank, at the moment everything is booming; so it is not clear that you need to do a benchmark assessment every year. Given the good condition of the stock, a five-year interval may be appropriate for a benchmark. However, stock indicators should be updated frequently so that we can detect changes quickly. That's the panel report.

Discussion of Acceptance of Reports for Management Use

CHAIRMAN McKIERNAN: Before we take any questions from Bob or Dr. Hoenig, I do want to recognize all the members of the technical committee in addition to Bob. Bob got to give the long presentation, but he knows that so much effort went into this from so many members: Tracy Pugh, Burton Shank from NMFS, Jay McNamee from Rhode Island, Penny Howell from Connecticut, Kim McKown from New York, Larry Jacobson from NMFS, Carl Wilson from Maine, Kathleen Reardon from Maine, and Josh Carloni; really an outstanding job.

As someone who started their career as a junior lobster biologist, I'm really impressed with the level of accomplishment and also collaboration among the states and also with the industry to accomplish such a great assessment. Our hats off to you. (Applause) Let's take some questions of Bob and Dr. Hoenig. Dave Simpson.

MR. DAVID SIMPSON: A very good presentation. Early on, Bob, you emphasized the importance of modeling growth but recognized that time-varying growth rates couldn't be modeled. I'm wondering about how shell disease plays into this assessment and how much of that concern

is incorporated into the model both in terms of its effects on growth rate and on reproduction of females. As you know, shell disease tends to be most prevalent in the reproductive female because she is not molting. Is that an additional concern that we should have on top of what you've told us or has it really been incorporated already into this assessment?

MR. GLENN: It has been incorporated into the assessment in that we took increased disease rate along with all the other stressors that we saw for the Southern New England stock to help kind of characterize the increase in natural mortality. When we did that, we applied it across all year classes and size and sexes.

Specifically, we didn't increase it for that segment of the population, but the evidence suggests that demographic within the population experiences higher rates of shell disease than any other and that also – and actually based on some of Dr. Hoenig's work it would show that demographic also experiences probably higher mortality rates. We weren't able to integrate that at this time.

MR. JAMES J. GILMORE, JR.: That was a great presentation from both you guys. Either one of you can answer this. From both the presentations there is obviously the strong correlation to temperature in terms of what is happening with recruitment and the whole fishery. Having lived through the disaster in Long Island Sound – and we don't have a fishery there anymore – we can see that sort of moving its way north.

This is kind of a two-part question. Dr. Hoenig, you said that we can't forecast what is going to happen in the Gulf of Maine and Georges Bank into the future in terms of how the stock is going to perform. However, can we forecast temperature change; and if that is the biggest indicator, is that something will help us to maybe do management five or ten years out.

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Long Island Sound went pretty quick from when it was a viable fishery to the graphs you saw before in the nineties. It was good reproduction and then it was gone; and the concern is if climate change is happening as we're going into the Gulf of Maine, it is going to keep going; and the Gulf of Maine, it is its heyday right now; is that going to change later?

Secondly, you indicated that reduced mortality was needed to help the Southern New England stock recover and if there is such a strong connection for temperature; is there really anything we're going to be able to do? We talked about a moratorium five years ago, but is there anything we can actually do to bring that stock back?

DR. HOENIG: Okay, you asked a bunch of things, so let me see if I can answer them. If I missed something, please remind me. Climate change is not uniform; so you have on average warmer temperatures. That doesn't mean that every year is going to be warm. My personal feeling – and I think it can be substantiated – is that it seems Southern New England is more sporadic recruitment.

When you get a year with good temperatures, you might get some decent settlement, but it won't be every year because the trend is to get too warm. That is why what I was saying is you can get some good recruitment if you get a cool year or a year that is not favorable to all the causes of mortality provided you have some spawners left.

If you eliminate all the spawners, then even if you have a cool year or a good year conditions, without the spawners you won't get the recruitment. In terms of prediction, when I was saying you can't forecast the recruitment, what I was basically saying is you can't forecast how many settlers you will have.

If you have surveys like the ventless trap surveys and the settlement surveys and so on that can

quantify what your potential recruitment is because you see what has settled out, that you could project forward. But to say, well, how many are going to settle; that is hard. It has just been going up and up and up; and obviously it can't go up forever; because if it did, we could walk on the moon on the backs of the lobsters.

At some point it is going to have to stop going up; and we don't know where that is and that has been a big question for 20 years, maybe. Then beyond that, what I can report is that the subcommittee told us about quite exciting research they were doing in compiling the environmental indicators and checking the correlations with what is happening.

You have question of can we forecast the temperature changes over time; and there are climate models that can make some predictions and then translate that into what does that mean for Gulf of Maine/Georges Bank recruitment. I don't think we have very good ability to quantify that now, but the panel was very impressed with all the work that the stock assessment subcommittee did in compiling the environmental data and exploring how it was related to it. I think the next time you hear presentations like this, you probably will have some better indications of what we think climate will do.

MR. ADLER: Very good reports, both of you. I know it goes deep and a lot of stuff; and I keep going back to the last one and Southern New England. When you check for the young of the year trends, the settlement, is that something that is done close to shore or all the way out into that area? That is my first question, Mr. Chairman.

MR. GLENN: Our settlement surveys are focused on looking for lobster post-larvae in what would be considered optimal nursery habitat, which would be shallow water or less than ten meters and with rocky substrate most often with a southwesterly exposure. It does not include

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settling in deep waters because the technique requires divers, so we can't have divers out working in deeper waters to do that.

The large question is if those inshore-preferred habitat types, the habitat type that lobsters have evolved from millions of years to utilize, if those are no longer favorable for them and they're relying solely on lobsters that settle out in deeper water, you have to question the productivity of that based on overall productivity in deeper waters is typically lower.

The temperatures are going to be a little cooler, lower light penetration and probably less food availability. Also, it is possible that in the process of settling in deeper water they may experience higher mortality rates than they would in shallow water because it is a long way to dive down as opposed to being in 15 feet of water you can hit the bottom pretty fast.

CHAIRMAN MCKIERNAN: Bob, as a follow-up question, would your ventless trap survey also detect these broken year classes?

MR. GLENN: Yes; the ventless trap survey would actually detect them maybe three years after settlement; and when we see them right around 55 to 60 millimeters, it really targets that. That includes shallow and deep water; so we could look at that as another way.

CHAIRMAN MCKIERNAN: Bill, did you have a follow-up?

MR. ADLER: Yes. Okay, getting back to when we first had this disaster unfolding, it was said that – and I think the stock assessment said it again – that the temperature forced the lobsters out into cooler water. Therefore, it seems like even the eggers that were there went out into deeper water.

As you just indicated if they drop their eggs out there, there are problems with getting the recruitment out there because the tides take

them down south, outside; or as you just said, they have higher mortality on the babies. It is one of these things where I don't know how you can win here because they're not there to settle where you would check or where the checking would be done because that was shallow inshore.

Then the other comment that was made had to do if you shut the fishing down completely, there was no guarantee it would bring the stock back. That is because the amount of other issues could destroy what you're trying to get by stopping the fishing. The other issues will keep it down low. It is a quandary, but I just remember that those were the issues that came up.

If I may, Mr. Chairman, I'll make one more thing. This has to do with the combining of Georges Bank and the Gulf of Maine. If we were to do that – technical question, I guess – would we have to do a whole amendment/addendum stuff to change that particular section in the world or do we just do it?

CHAIRMAN MCKIERNAN: Bill, I have been advised that if we accept the stock assessment, we will be accepting the new stock units.

MR. ADLER: Okay, so it is not our bible that it has to be three sections; we can just accept it and it automatically will go to two?

CHAIRMAN MCKIERNAN: That's right. Mark Gibson next.

MR. MARK GIBSON: Mr. Chairman, we emphasize your compliments. This is a terrific piece of work. We've come an awful long way from the old length cohort analysis and EPR and all the things we used to do. Terrific work, not perfect, but it is the best that I've seen yet for lobster if not crustacean.

Bob, you had a four-panel graph I think to summarize Southern New England. Would you bring that back up? I'm thinking about some of the remarks that Dr. Hoenig made – no, that one,

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the four-panel one that had the exploitation rates, reference abundance. I'm looking at the exploitation rate graph, which clearly there was a major drop-off in the exploitation rate in the early 2000's; but it looks to me as though it bottomed out and actually have been somewhat of an uptick in recent years.

At the point you reach historic low abundance in the time series, certainly the reduction in mortality exploitation has not continued and actually have even ticked up. It is not unheard of in fisheries at very low abundance that last gasp of fishing effort can in fact do that. I've heard Dr. Hoenig use the term "the death blow" and I'm very concerned about that; that we have an action already approved that engages us on a trap-reduction schedule.

I think you showed in the indicators that was the one lone positive indicator of falling effort, falling number of traps fished. It looks to me like we have reached an inroad in terms of where fishing mortality is being influenced by reductions in effort and are being driven more now that abundance is falling faster than the catch is. I think that's a very dangerous place to be; and I just wanted to hear if either one or both of you expound a little more on that.

MR. GLENN: I'll take a first stab at it. Yes; it is a concern I have as well. In general it is a phenomena often seen in stocks of low abundance, especially in the case like Southern New England where there is good evidence of habitat contraction. What we've seen is that if you look at Southern New England, say, historically, it would include all the embayments like Long Island Sound and Buzzards Bay and Narragansett Bay, way up into the reaches of those areas.

Now if you think about it as the amount of total area where lobsters live in Southern New England, it has shrunk dramatically and now they live largely outside those areas and what main biomass is left is largely concentrated in deeper

water south of Rhode Island and Massachusetts and to the east of Long Island Sound. It is really concentrated there and then to lower densities offshore. The result of that often is that the fishery is sitting right top of it.

What remaining effort there is, even though effort has declined, it is focused on that remaining stock in a much smaller area. You almost have a little bit of shooting a fish in a barrel situation there where although the amount of fishing effort has declined, it is probably much more concentrated on the stock.

DR. HOENIG: I agree exactly with what Bob said; and I would just like to add that Bill Adler was pointing out that if you reduced the fishing effort that doesn't guarantee you'll save the stock; and that is entirely true. I don't have a crystal ball and it may be that nothing can save the Southern New England stock; but if you don't protect the spawners, it is not likely that the stock will persist. You need a certain amount of spawners in order to produce offspring; and that's why I think some thought should be given to how many spawners do we need.

DR. LANCE STEWART: Thanks for the great summary report and hearing again the dismal situation of Southern New England stocks really bothers me. It really makes me look at the differences between the Gulf of Maine and offshore stocks and Southern New England. We did work in the seventies, a long ago, but it was pretty comprehensive.

Some of the population differences and geographic differences for Long Island Sound are unique. Our lobsters in Southern New England we found to be a centimeter below the Gulf of Maine size at maturity. Not only were they much, much smaller; the populations undergo mass molts twice a year, in the spring and fall when temperatures go to 53 degrees.

This causes again mass reproduction during those two molt periods and their sizes increase appropriately. The other factor is that the

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populations that we studied in western Long Island Sound, central and east; the central and western portions showed very little movement – 1 to 5 percent of tag lost is essentially 10,000 lobsters in these different areas to the east.

The berried female index was tremendous. They live in a habitat that isn't brought out here. We look at surface temperatures when we mark it off to extreme temperatures. Essentially environment is much different. When you're diving and you go through 60 feet, there is a thermocline in western Long Island Sound in the middle into the summer. It is dark. The sun penetration and thermal range isn't at great.

The lobsters love it there. They have 24 hours of nocturnal conditions to feed. Their burrows are much different. Probably 80 percent of them in central and west of Stratford Shoal and Execution Rocks are in mud burrows that give them thermal protection. They have the cooling ground water, so to speak. During the nineties, mortality, which was tremendous, the density of lobsters per square meter would eclipse any area in the Gulf of Maine.

It was this crescendo effect that I don't believe was caused by temperature. The only things we can control are environmental inputs. I, as many of the fishermen, was strongly suspicious of pesticides. We're still 15 years later trying to determine absolutely what the tissues' level are or were in hepatopancreas.

Now, this brings me to the plight of the western Long Island and central Long Island to the lobstermen. They are essentially cut out of business because they have no alternative. They can't escape geographically. They're in a dead-end enclosure. We as the commission share responsibility for the water quality in the largest fishery along this coast that existed back 15 years ago. The only thing that bothers me further is that we say fishing mortality caused it. That is absurd in my thought of the issue.

The 10 percent closure has caused dramatic impacts on especially pressured industry. I would propose that we might even take off the 10 percent, have western and central Long Island Sound become a special management area where fishing is allowed the full term and monitored full term so can determine exactly when and where these mortality events are occurring along with water quality assessment; because we're speculating –

CHAIRMAN MCKIERNAN: Lance, I think that is part of the next section and sort of our management response to this decline; so maybe I'd ask you to hold off on that. If you have a specific question for these guys, I think maybe that's opportunity now.

DR. STEWART: My question would be how confident are you in citing the water temperatures or hypoxia or overfishing have been the main cause in Southern New England declines. Again, the pump of lobster that we saw going from Long Island Sound; our studies indicated five times the abundance of lobster larvae in Long Island Sound, we always considered it a recruitment pump for all of Southern New England. Now, if that has discontinued, we would expect it might affect the stocks to Block Canyon.

CHAIRMAN MCKIERNAN: Bob, why don't you take a crack at that quickly?

MR. GLENN: I believe the question is how confident is the assessment panel that temperature was one of the primary causes of the declines in Southern New England and also fishing mortality. Well, first I would clarify that neither the assessment panel nor the review panel attributed fishing mortality as the primary cause of the decline in Southern New England stock.

We attributed one of the primary causes to increase in natural mortality that we felt the preponderance of the evidence from the primary

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literature related back ultimately to temperature through increased rates of disease, through die-offs, through increased rates of physiological stress, depression of the immune system, increased rates of shell rates.

I think I mentioned disease rates. The combination of those factors we felt probably largely related to an increase in natural mortality and has contributed substantially to the decline of the Southern New England stock. That said, I would caution the board about the role of fishing mortality in this in that while it may not be the primary cause of the decline, a stock that's under extreme stress does not handle additional sources of mortality as well as one that is not under extreme stress.

I think as Dr. Hoenig pointed out, it is like an additional death blow. You have all these negative stressors going on, water quality issues in Long Island Sound as well as increases in temperature throughout the shelf waters. On top of that a fishery who is concentrating on a combination of those things have really probably contributed together to cause the stock to decline.

DR. HOENIG: I would just like to say that I believe what Bob just said was the opinion of the review panel; so it is an accurate characterization of what the review panel thought.

MR. MIKE LUISI: I can't argue. I wouldn't be able to do it with a straight face that there is not some problem in Southern New England as the assessment results and the evaluation of that assessment. I do have a concern, though, given the data sources that are going into the assessment and the focus of those sources in and around New York, Connecticut, Rhode Island with the addition of some information coming from the federal surveys.

I guess my question about that, given that there is very little information feeding into the assessment from areas south of New Jersey,

Delaware, Virginia and my state of Maryland, how reasonable is it to assume that what you're seeing as part of the results from the northern part of Southern New England, you can extrapolate that and just assume that the entire area, all the way down through Cape Hatteras, North Carolina, isn't having similar reactions to the indicators that you have said are problematic.

MR. GLENN: Well, the lobster distribution off the Mid-Atlantic is largely isolated out to the Continental Shelf and the canyon areas in deep-water environments and not in nearshore areas. It is the committee's belief that the Southern New England stock is interrelated in that lobsters throughout their range in both Southern New England, Gulf of Maine as well as Atlantic Canada seem to exhibit similar behavioral demographics in that they tend to settle out in shallow and nearshore waters and live there for the first three or four years in a very limited area.

As they reach sexual maturity, the range of their migrations tend to increase; and then as they get larger and older, they tend to make seasonal offshore/inshore migrations. Our concern about, yes, we're seeing slightly moderate trends in the offshore area compared to inshore areas, the abundance is higher in offshore areas right now than inshore areas.

Our feeling is that those lobsters with almost certainty did not settle out there and group up there and that those offshore areas are relying on settlement in the nearshore areas that eventually populate those areas. An analogy I would make would be for the offshore portions of Southern New England; my expectation is that we've shut the hose but all the water hasn't run out of it yet.

The abundance of larger animals that you're seeing offshore right now is fairly low compared to historically the highs that it was at, but not as low as inshore. Our expectation is that the recruitment that the offshore area receives is

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going to continue to decline and conditions there should – we would expect them to decline as well in the near term.

MR. ADAM NOWALSKY: Under the natural mortality heading in the stock assessment, there were a handful of paragraphs devoted to fish predation. The last line of those paragraphs concluded with data may understate consumption particularly for small juvenile lobsters. Now, that statement I think would lead us directly to think of its impact on recruitment.

I understand a lot of the conversation on natural mortality here today in the presentation has focused on temperature; but we do have this question of fish predation. I would be interested in hearing comment about the discussion during the stock assessment and the peer review about the level of predation, how it is contributing to recruitment; and depending on the level of that discussion, if it was not too in depth that you could report on, any personal feelings you might have on that.

MR. GLENN: The assessment committee; when we look at natural mortality, it is often hard to parameterize exactly where it is coming from so we try to look at it in a combination of factors, which would include environmental parameters which I characterize that we feel we're well out of the norm for lobsters and probably the primary contributor. Also, in addition to that finfish predation is something to be considered. In general when we put into the model, we're trying to account for all possible sources of it.

At that level and trying to model the results, it is almost academic as to whether you attribute that to environment or to finfish predation. It is a natural source of mortality. It has its impact on the stock and it also reduces that stock's resiliency to fishing mortality. We did discuss it and we did talk about a lot of the primary candidates are things like black sea bass, which have increased dramatically in abundance in recent years. There is no doubt that those do

prey on lobsters and they do contribute to the natural mortality.

MR. G. RITCHIE WHITE: Dr. Hoenig, the technical committee has recommended to us for a number of years a moratorium in Southern New England. My question to you is do you see anything short of that that would have the ability to potentially save what stock is left?

DR. HOENIG: Speaking personally, I don't see anything short of that. Speaking for the panel, we did not actually discuss that. I can report that the panel noted in the draft of the assessment the conclusions were not as strong as I might have expected. I asked the stock assessment subcommittee why aren't the conclusions worded more strongly, emphasizing not just that the biomass is in the lowest quartile but the lowest on effort, recruitment failure, the dependence of the offshore and so on.

I think they thought, well, what was the point. They didn't anticipate any action being taken. Especially they thought if the indicator says that the fishing mortality is in green zone, they've lost the battle. I said the fishing mortality being in the green zone is misleading. It is not that this is a normal fishing mortality for a normal stock; this is a fishing mortality on a stock at extremely low levels that is stressed.

I think they thought that if the rules say that you rate it green, then how are you going to tell them but it should be red? I think that the stock assessment subcommittee and the panel – I know the stock assessment subcommittee and the panel thought that some action was taken. We did not discuss what action should be taken because it is not our position to tell you what to do. Our job is to tell you there is a problem.

MR. JOHN CLARK: Thanks to the committee for this fine piece of work. This question will probably reveal my ignorance of lobster biology; but just to follow up on what Mike Luisi was saying, I was talking to Delaware's lobster fishery

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the other week, all one of him, and he has had steady increasing catches now for about the last five or six years. He is not going that far offshore. I was just curious again about whether the data is capturing what is going on in Southern New Jersey south to North Carolina.

MR. GLENN: We utilized all possible data sources that we have, which would be catch report data as well as trawl survey data from the NMFS survey down in that area and then any fisheries-dependent sampling that we can get, which would be I believe for Delaware or off the Mid-Atlantic it would be from any NMFS observing or port sampling that occurred.

We incorporated all data sources. We haven't seen any strong trends in any of the statistical areas for catch that we looked at. We don't have admittedly as high resolution in the Mid-Atlantic as we do up in Southern New England; but we haven't seen – any of the data that we reviewed, we have not seen anything to suggest that the stock condition is better in other places.

MR. CLARK: So you still feel it is all connected, then, so we're just maybe an artifact of the data that he is still seeing the lobsters that –

MR. GLENN: Yes; I think we have to be really careful about when we look at catch-per-unit effort indices. For example, right in my backyard that I'm familiar with in Lobster Management Area 2, I know several lobstermen who are still doing two pounds a pot throughout the entire summer; and that catch rate is reflective of what they did 20 years ago because they're fishing on where the remaining lobsters are and because there has been about a 60 percent attrition in the number of Massachusetts fishermen who fish next to them. We have a hard time interpreting what those CPUEs actually mean because they tend to be really hyper-stable.

REPRESENTATIVE CRAIG A. MINER: So not being any kind of a biologist or scientist, I do this kind of as a policymaker. One of the concerns that I

have is that when we get to the full red stoplight, the constituency that advocates on behalf on lobsters or advocates on behalf of something else – Dr. Stewart referred to it as kind of the economic value – I worry about whether that is lost forever; and in that loss the search for the reasons as to why this animal went away will be lost with it.

Agencies will put dollars into study, research, protection of animals that are still around and still alive and will check lobsters off a list somewhere. As a policymaker, is that a bad conclusion for me to be wrestling with or I guess does the red light – should the red light, let's say a full moratorium, we'd be discussing some enhanced study that goes beyond this group to get to the root cause of why this animal is not recovering.

Otherwise, if I think I hear what I'm hearing, it is not only going to affect Long Island Sound and southern states; the potential is that it will affect the Gulf of Maine eventually; and if these animals settle out in nearshore and not deep water, Georges Bank as well. Have I got this right or have I got it wrong?

CHAIRMAN MCKIERNAN: I'm not sure of the question.

REPRESENTATIVE MINER: So the question is as a policymaker should I be concerned about a full red light? I think the discussion that we're going to get onto is whether there should be some other decisions made by this group with regard to further reductions in harvest or a moratorium, which I understand is for a future point, but it is how we got there. It is the information and then the peer review with the information that has pointed this out as being not a shortcoming but a very risky assumption for us to be making that because it is a green light still, we're going to run out of time. Is that where we are?

DR. HOENIG: It is an interesting question. Sometimes when a stock crashes, the

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government response is to throw money at the problem; and so the researchers get a bonanza in terms of research dollars. Cod on the Grand Banks generated a big research fund. Sometimes the response is, well, if there is none left, then we don't need anybody to study something that doesn't exist anymore. It can go either way; but I think in the case of lobster the problems and the questions and the research won't go away.

Epizootic shell disease, which is very important in Southern New England in the inshore, is now found in the Gulf of Maine. About I think 1 percent in some places of the lobsters can have it, which went from a handful of reports to in some places now maybe 1 percent. Everybody is wondering is that disease going to spread into the Gulf of Maine and take off or is it not going to.

If it is related to the temperature, people want to know that, and I think that research is going to be going on trying to forecast temperature regimes into the future in the Gulf and where will it be the warmest and is that where we should see the disease and is the disease related to temperature and so on. I don't think any actions taken with regard to Southern New England are going to turn off the questions and the research about what happens in the Gulf of Maine and Georges Bank.

MR. THOMAS FOTE: The only two species that I can remember in the last ten years that we put almost a red flag on or red light or whatever you want to call it – because I made the motion on both of those species – was weakfish and winter flounder to set dramatic cutbacks. We didn't know where the natural mortality was supposed to be coming. We made guesstimates on them.

I have not seen any more research on why both of those happened; and I haven't seen any growth in either one of those populations since we really implemented that; and weakfish is now, what, four or five years old. Since they

spawn at one year, they should be coming back; winter flounder the same thing.

Is the technical committee looking at the red lights that we've already put in place and studying the effects of putting in a moratorium or close to a moratorium? When you talk about one fish and a couple thousand pounds on weakfish; and when you talk about two fish and then a couple of hundred pounds again on winter flounder, where are we going?

That is part of my concern here and I'm asking the question since we've done that. Now, with sturgeon we know is starting to come back; but that was put on a real long time ago. I think it was actually before I sat at this table in 1990 we started having moratoriums on that. Sometimes on winter flounder there were moratoriums put in many years before we put it in the final bill.

States did their own work on that. Has the technical committee basically looked back at those species and see how those red lights are working? In my estimation I don't in the stock assessment that they're basically coming back. That is my concern. With red lobster here, we put a red light in effect, we lose whatever gain that we have with fishery-dependent data and we don't basically know – we find no answers because we haven't found them in weakfish and winter flounder. That's my concern here.

CHAIRMAN MCKIERNAN: Tom, I appreciate that, but I'm going to consider that a rhetorical question and not a direct question for our technical experts.

MR. FOTE: Well, the question I asked is have we studied the other two species to help us do that.

CHAIRMAN MCKIERNAN: So you're asking the Lobster Technical Committee Chairman if he has studied the weakfish issue.

MR. FOTE: A lot of those technical committees – a lot of people sit on both. I know in New Jersey

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people sit on the lobster, they sit on the weakfish, they sit on the winter flounder, because we don't have that many people that we have to spread them out on a lot of technical committees; so that's why I'm asking the question.

DR. HOENIG: Speaking I guess professorially, it has been noted that species have a really annoying habit of not performing on command; so if you pass a law that says you have to rebuild the stock within ten years, the stock is very likely to be in Contempt of Congress because it will grow when it grows.

If you think about lobster, I would imagine that if you got a cold year, you might get some good settlement. If you can tell me when the cold year is going to come, I might be able to predict when the next good recruitment is going to come. Otherwise, you just have to wait, and it might come next year or it might come in three years or five years or who knows when.

It was thought that you could rebuild stocks on a regular schedule and there were questions about whether you should frontload it or whether you could backload the rebuilding schedule if you had to do it within ten years; and they realized the rate at which a stock rebuilds is highly variable and unpredictable.

If you think about Hokkaido herring; that took I think 80 years to recover and Georges Bank herring took about 50 years to recover. Herring are notorious for taking a very long time to come back. Other stocks will rebound very quickly; and I just do not know how long it takes a lobster stock to rebound.

CHAIRMAN McKIERNAN: At this point I really want to move this along and see if we can get this assessment accepted by the board. I have a couple of hands up, so, Rob, I'll recognize you, but I ask you not to be commenting and instead asking questions.

MR. ROB O'REILLY: No comment; question; and thank you for finally making eye contact. Mine is a follow-up to John Clark. I heard a nice scenario that the best information possible is cobbled together below New Jersey, so for the DelMarVa area. It doesn't like very strong data to me to be drawing the inferences that what happens in the northern part of the Southern New England stock happens in the southern part, which is a very small component.

I did hear a dismissal of the idea on catch-per-unit effort; that you had to be careful on how you look at that. At the same time I've listened to contrast about fishing mortality rates and just what is going on there, whether catchability really has increased and that discussion that the other board members had. The question is really how wise is it to simply assume that the DelMarVa area, which is a small component of the overall harvest now and before, has adequate data. I'm certainly not asking that adequate data appear. I just would like a good qualification on the adequacy.

MR. GLENN: Maybe I mischaracterized and led the panel to believe that we didn't look at sufficient data for the DelMarVa area. I can quickly review a few of the trawl survey indices that we included that would go down that far. We have the Northeast Fisheries Science Center Survey that goes down there.

More recent data would be – the far right panel would be from the NEAMAP Survey, which is kind of not inshore or not offshore, kind of a nearshore survey there. Then in addition we also have the New Jersey Trawl Survey, which is an inshore trawl survey. Since the inception of that, the trend in abundance has gone down dramatically. There were three fisheries-independent surveys that we looked at that would cover that area.

We also used all the catch data available for that area; and what we found was that what abundance indicators we do have, have declined

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and that the catches has stayed consistent to slightly declining. It hasn't declined at the same rate as the inshore; but the indicators are that we're seeing abundance in the survey indices decline. Our conclusion is that area is related to the rest of the Southern New England stock.

MR. ADLER: I was wondering if you wanted a motion to accept the benchmark assessment and peer review for management use.

CHAIRMAN MCKIERNAN: I would.

MR. ADLER: I so make that motion.

CHAIRMAN MCKIERNAN: Okay, Mark as the second. Any discussion on the motion? If this is approved, it means we do accept the new stock units as Southern New England versus Georges Bank/Gulf of Maine combined. Move to approve the 2015 Lobster Benchmark Assessment and peer review comments for management use. Motion by Mr. Adler; seconded by Mr. Keliher. That is what is up there. Tom Fote.

MR. FOTE: I think we should have a 30-second caucus.

CHAIRMAN MCKIERNAN: Certainly, I'll give you 30 seconds.

(Whereupon, a caucus was held.)

CHAIRMAN MCKIERNAN: All right, the 30-second caucus is completed. All in favor of the motion raise your right hand; opposed; abstentions; null votes. It passes unanimously. Thank you both, Dr. Hoenig and Bob Glenn. The next item on the agenda – and I'd like to complete this by 3:00 o'clock if possible because we have a lot of business on Jonah Crab – is to discuss our management response.

DISCUSSION OF POTENTIAL MANAGEMENT RESPONSE

Obviously, I've tried to focus some of this conversation and I've even cut some people off – this is the time to get into some of the substance beginning at this meeting and possibly going into the next meeting and even maybe something outside of this meeting. David Borden; did you have your hand up?

MR. DAVID V.D. BORDEN: Mr. Chairman, I would make a suggestion and then I probably have a motion. The suggestion is that we talk about the Gulf of Maine separately from Southern New England, because I think there are going to be two entirely different dialogues, if that is acceptable to the Chair.

CHAIRMAN MCKIERNAN: Sure; do you want to start with the Gulf of Maine at this time?

MR. BORDEN: And what I'd like to do is just clarify one point. Now that we've accepted the benchmark assessment; do we need to proceed with an addendum to combine the reference points for the Gulf of Maine and Georges Bank?

CHAIRMAN MCKIERNAN: I'll look for help from Toni on that. Toni or Megan; do you have any thoughts on that?

MS. MEGAN WARE: My understanding is that we do need an addendum. We do.

MR. BORDEN: Okay, I gave a motion to the staff. I would move to combine the reference points for the Gulf of Maine and Georges Bank to one. The new reference point will be for Gulf of Maine/Georges Bank. The reference years (1982 through 2003) would remain the same and the targets and thresholds would remain the same (below the limit/threshold if model abundance is less than the 25 percentile and requires action; if above the 75 percentile, the stock is in favorable condition. Overfishing is occurring if model exploitation is greater than the 75 percentile and requires action).

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CHAIRMAN McKIERNAN: Is there a second; Bill Adler. Toni, did you want to make a comment?

MS. TONI KERNS: I apologize; I was misunderstanding where we were going with this. The Lobster Board actually has the ability to change the reference points through board action. Essentially all you're doing is combining the – you're not making any changes to the reference points.

All you're really doing is combining the areas that you're referencing; so this can be completed through board action because it is the advice that came out of both the stock assessment and the peer review panel as well concurred.

The addendum that looks at reference points; the last time we went through them allowed us to make these changes as long as it concurred with the advice of the assessment and the peer review. Also, if you want to seek public comment on this, then you can go out for public comment through the addendum process.

CHAIRMAN McKIERNAN: Does anyone want to discuss the motion and make comments on whether we should go to public comment? Pat Keliher.

MR. PATRICK C. KELIHER: Mr. Chairman, I guess it has been my thought all along that this was going to start an addendum process to deal with reference points and to deal with potentially other management issues; so I would prefer to see this being recommendations potentially even to go to a PDT for further discussion and refinement to develop a document that would go out to the public.

MR. GIBSON: The only question I had – I'm generally supportive of the motion and what Pat just said. Retaining the original reference years, I'm just wondering what are the pros and cons given that we have stock assessment data now that goes through 2013. Is there any rationale for extending that window, shifting that

window? I don't have the answer to that; I just bring it up as a question for Bob.

MR. GLENN: That's a good question and a difficult one to answer. Usually when you have empirical-based reference point like that, you look for some period of stability and good stock productivity to set your reference period. The problem we have with the Gulf of Maine/Georges Bank stock is we don't have that stability. We have a one-way trip to the moon; so it is very hard for me to comment beyond what we already have is that current reference point of – I believe it is 1982 to 2003 is the reference period years.

CHAIRMAN McKIERNAN: So, back to you, Pat. If the board passes this, it seems like an addendum isn't necessarily warranted because the board would have taken action; so what were you hoping to get feedback on in the addendum?

MR. KELIHER: Honestly, Mr. Chairman, I was going to suggest to the board that we potentially hold the turn on any management actions until we come back to the next meeting this fall to discuss it and give us all a chance to go home and think about the ramifications about combining the management areas of the Gulf of Maine and Georges Bank and to think kind of a little bit more holistically about other components. I've had a lot of talk with my staff at home and there hasn't been much more talk beyond that with industry. I think it would be much more beneficial to think about potentially next steps instead of just rushing into making adjustments now.

CHAIRMAN McKIERNAN: So you're sort of pointing out that the peer review suggested you could keep them separate or you could combine them and you want to just not make a decision just yet on that?

MR. KELIHER: Yes; the reason I seconded it; I'm supportive of combining those management areas, but there are a lot of differences with

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some of the management between those areas that I think would be worthwhile having a thorough discussion about is there any benefit of creating any consideration of standardizing some of the work that has been done, whether it is minimum/maximum, v-notching and those things that are paramount to the management of lobster.

MR. BORDEN: To Pat's point, I just state from my perspective, this is not designed to commit us to a particular course of action. It just starts the action, and I think the dialogue that Pat wants to take place should play out over a number of months. Every time we have a meeting, we should have reports on the status of this. That is what my intent is, Mr. Chairman.

CHAIRMAN MCKIERNAN: Pat, to that point, we already have disparate rules within the Gulf of Maine now; so I'm not sure that it forces the hand to have common management measures. Would you object to this motion going forward?

MR. KELIHER: The reference years that are on the board within the motion now are consistent with the technical advice within the report; so if that's the case, I wouldn't have any objection to this particular piece moving forward.

CHAIRMAN MCKIERNAN: Any other comments on the motion? Seeing none; let's take a vote on the motion. All in favor of the motion put your right hand up; opposed, right hand up, please; any abstentions or any null votes. It passes unanimously. The second half of this trying to tackle the dreaded Southern New England problem. From my personal perspective, we've been working for almost a decade on the effort limitations and the trap limits; and that is one of the areas in green; those that were positive. We are on the verge in Southern New England especially in Area 3 and Area 2 where a lot of the fishing occurs about to implement the Trap Transfer Program working with the National Marine Fisheries Service and the ACCSP. This comes at a very difficult time because we are

about to reduce trap allocations by almost 50 percent over the next six years.

All this is being done on the backs of the permit holders. As Dr. Hoenig mentioned stocks collapse, typically politicians bring a lot of finances or aid to the fishermen or the industry. That has happened for the most part in Southern New England except for, of course, the Long Island issue about 15 years ago.

We have a situation where many of the fishermen are about to self-finance essentially a buyback; and we do expect to see substantial trap reductions further. Having said that, we clearly have a lot of different management regimes in Southern New England. We have some real disparate rules and I think they're worthy of sort of refocusing and taking a second look at.

It might be worthy to gather the folks who fish on this stock together between now and the fall meeting. I'd look to my Southern New England partners to think about that and maybe consider some kind of a gathering of those folks. Any thoughts on that? David.

MR. BORDEN: Mr. Chairman, I concur. I just point out to the board if you listened to the discussion that has already taken place here, when you start discussing Long Island Sound, the area by the DelMarVa, the actions that the Area 3 industry has been taking over the past ten years, the basically industry-funded buyback that the Area 2 industry has initiated, I think the dilemma I think for all us is we don't have a common objective for this area.

In fact, we have very different perspectives on what is needed to move forward. I think if we tried to put a motion on the table for a specific action today, it probably would go nowhere and not reach a consensus. I totally support this concept of convening the Southern New England states with their respective technical advisors and industry advisors and try to put together

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some common objectives for this area that are attainable.

Given the scientific advice we heard today, I think there is going to be a long dialogue over can you rebuild to some of the levels that previously existed particularly in the late nineties when we had this enormous pulse of lobsters come into the population. How fast could you rebuild; what is a reasonable timeframe? To me what you need is everyone needs to bring their perspectives to the table and try to put together a common perspective.

I have a motion that I would like to put up, and it is related specifically to Southern New England. I would move that the board convene a subcommittee of state representatives, federal representatives, industry representatives, and technical committee representatives to devise input to the commission on goals and objectives to manage the Southern New England stock and the component fisheries. Report of the group should be submitted to the board at the annual meeting. If I get a second, I'd just like to add a quick comment to that.

CHAIRMAN McKIERNAN: I've got a second from Emerson.

MR. BORDEN: Okay, I do not do this – and I want to be clear on the record; I'm not doing this to delay action by the commission. The stock is overfished. From my perspective we need to have a management response. I think that management response should look at all of the components of the fishery issue, all the environmental types of information that is available, but that is going to take some time and it is going to require I would think either a number of meetings or a number of conference calls on the issue to sort through with the collaboration of the industry and the technical people.

I realize that some people around the table are going to want to take immediate action, but I

think that this is the fast way to get to a state where we actually take action. Part of that action should consider – if you went back to Bob Glenn's PowerPoint and you looked at the regulations in Southern New England, you have five different management areas.

You have eight different jurisdictions including the federal government that manage the area. We have literally overlapping regulations. In some of the overlap areas we have fishermen fishing under two minimum sizes and two maximum sizes. There is a lot to discuss with this; and I think we need to get on with the discussion. Thank you.

CHAIRMAN McKIERNAN: Can I turn to Toni or Bob for some kind of feedback about whether this kind of a gathering of the Southern New England stakeholders; how do you envision this being accomplished in terms of resources or what is the best way to do it given your resources?

MS. KERNS: Is this a convening of your LCMTs? Are you utilizing that process? Are you going to just pick random representatives from – I shouldn't say "random", but I'm trying to figure out how we're choosing which industry representatives we're going to bring into the mix. Are we bringing in AP members? What is the number of individuals you anticipate bringing into this group? It was my understanding that the states were going to go back and convene their LCMT's; so this is a little bit different than the process that I thought we were going to go through.

MR. BORDEN: I recognize the constraints on travel and that type of thing; and I'm not trying to make more work for the staff. I think there is a simple way or methodology to do this is simply have each of the states take the lead collectively, probably.

In some cases, for instances, I could see Massachusetts and Rhode Island working

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together and some of the Mid-Atlantic states working together and meet with their industry representatives and technical advisors – this is kind of an open-ended charge – and then formalize some recommendations, submit it to the commission staff and then have the commission staff try to consolidate those suggestions into a common theme for Southern New England. I'm sure there are going to be differences of opinion; but at least we'll have a starting point for the dialogue.

CHAIRMAN MCKIERNAN: Does that help?

MS. KERNS: That does help. Is it the expectation that the states would want reimbursement for these meetings or not?

CHAIRMAN MCKIERNAN: Well, I guess one of the challenges you have is Area 3 goes all the way down to the Mid-Atlantic or to the DelMarVa Peninsula; so it all depends on what kind of resources you need to convene those groups even in a larger – I think maybe it is a conference call or webinar. Maybe that is the best way to do it.

MS. KERNS: And that works. The only reason I ask is to consider the budget and typically the commission does not have a hand in the LCMT process if that's the process that you're going to go through the states. The LCMT process was set up so that the states had full control of working with their advisors on that level and that the commission work with advisors on a coast-wide level and the LCMT's would be bringing back proposals to the board for their consideration. I'm just trying to make sure I understand.

CHAIRMAN MCKIERNAN: Why don't I recommend this; why don't the Chair, the Vice-Chair and the Technical Committee Chair speak to each of the individual LCMT chairmen in the individual states and try to create some kind of a white paper or some kind of a consensus document about what the problems are in terms of the disparate management, the lack of goals,

and we'll try to bring something together in the interim before the next meeting; does that make sense?

MR. ADLER: Yes; that's fine, Mr. Chairman, but I'm just a little bit concerned about "should be submitted to the board at the annual meeting"; people are fishing. You've got to try to get people together and hit them with another hardball. I don't know what you are expecting to have to submit by the annual meeting. If this was over the winter, that would be different. I'm not opposed to it, but trying to get this all together and get something out of it by the fall meeting I have my doubts.

MR. SIMPSON: In terms of what we do next, this is way down the road. This is too forward for me. I think first my need would be to address some of the fundamental issues that the technical committee brought forward, which I think was in caps. The environment has changed; and so our expectations for this resource, this fishery need to be realigned with new expectations of what recruitment might be.

Certainly it is not the 20-year-old time series median, 75th and 25th percentile. I'd like some insight into what the technical committee thinks this stock's productivity is currently and will be in the future, presuming these environment conditions persist. With that, I would like to be able to go back as a delegation in Connecticut and talk to our own constituents in Connecticut separate from a commission process. I know we have different rules, but we've had different rules for years.

The stock assessment is no reason to now go back and address the different rules by LCMA. That is how this FMP was designed that it would be customized to meet each Lobster Management Area's preferences. 50 percent reduction in traps; if that's what you want to do, that's great. To me that doesn't address fishing mortality; that's making the fishery more efficient, so it could actually be

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counterproductive in those terms, but I understand it as an objective.

I was hoping what we would do for Southern New England is charge the technical committee with giving us some advice on what to expect for productivity of this stock into the future given the environmental conditions that have persisted since 1998.

MR. FOTE: I guess it has always been quirk and I'm going to put it since we're talking about this and how we're going handle Southern New England. The name of Southern New England is a misnomer. If you think about it, you have Massachusetts, Rhode Island and Connecticut; and the other states of New York, New Jersey, Delaware, Virginia and Maryland all in the Mid-Atlantic.

It is like because McCluskey got mad at New England for calling it the New England Council. It is not really Southern New England. It is basically the Mid-Atlantic and part of New England. If we're going to start doing it this way, we should really get a different name to use. When you say Southern New England and try to tell a guy in Virginia or Maryland that you're in Southern New England it doesn't sound right.

CHAIRMAN MCKIERNAN: It is a fair point. Peter Burns.

MR. BURNS: Mr. Chairman, I guess just a suggestion. I liked what David Simpson said, but I think it is really important, too; that this is an important juncture here because we're implementing management measures now in Southern New England that we're trying to reduce exploitation. We're just starting to see the results of those and putting them in play.

Given the results we've heard from the stock assessment subcommittee today, likely we're going to have to think long and hard about what we're going to do next. I see the word "subcommittee" up there and I see "federal and

state representatives". I certainly think that NOAA Fisheries would want to be involved in any kind of subcommittee that is involved in this, especially because the Southern New England fishery takes place almost predominantly in federal waters.

We would like to be involved in any kind of discussion on this. This is something that maybe the plan development team could be involved in maybe on an initial basis to maybe put some parameters or management measures in place, working with the technical committee maybe to give some guidance before it goes out to the industry.

CHAIRMAN MCKIERNAN: So is the board comfortable if I work with the commission to put this group together at least initially through a conference call to develop some goals or a statement of the problem and then share that with the board as we work on it? Comments?

MR. SIMPSON: No, I'm not; I don't support the motion and I don't want to form a unique committee or assemblage or people that isn't part of a normal commission structure. If you want to assemble a subcommittee of board members with some technical committee people, a plan development team type of thing, that would be great, but not this. I'm not ready for this.

CHAIRMAN MCKIERNAN: Toni, who is on the plan development team?

MS. KERNS: Currently we don't have a plan development team. They got disbanded after the finalization of the last document. We haven't had a document out for a while so we could create a plan development team; either take nominations through the board now or through e-mail later on.

CHAIRMAN MCKIERNAN: Okay, do you want to reformulate the plan development team between now and the next meeting and do it

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after the next meeting; as Bill says during the winter when people might have some more time?

MR. SIMPSON: Well, I think something that is a more traditional body for the commission to work in with strong representation from the board and the technical committee. Yes; that kind of timeframe and structure helps me. Again, I hope we could, among the charges, ask the technical committee to give this board some insight into what we should expect in the future for lobster in Southern New England/Mid-Atlantic area. That will also give us time in our individual states to bring this news formally to the public and talk about where we are, what does this mean, where do you want to go with this? I don't think anyone could walk in front of their industry and say if we just addressed fishing mortality, we can rebuild the stock. I don't think anybody feels like that.

It is sort of the requiem for lobsters; what do we do now? We have the formal new word. It is even worse than last time. It is not getting better. It is a statement of the obvious to everyone in the fishery and around it, but I think a more measured approach, understanding that, yes, it is a collapsed stock so what do we do?

CHAIRMAN MCKIERNAN: To David Borden; do you want to respond to David and consider the motion?

MR. BORDEN: My response is simple that it is just my intent to get the dialogue going. I would be totally happy following the path that David is suggesting; but we need to very clear and I think we need to be consistent in our application of this. In other words, this is one stock in Southern New England.

If we have five different management areas, it is fine to have different management regulations in those areas; but I think the regulations have to be consistent and they should all be targeted on the same objective. All of us should be kind of

carrying our weight to reach a common goal for the stock. How you capture that in a motion – if you want to do that by consensus, that's fine with me. I defer to the Chair and I would be happy to withdraw the motion if that would expedite the deliberations.

CHAIRMAN MCKIERNAN: Emerson, if he withdraws the motion, is that acceptable to you?

MR. EMERSON C. HASBROUCK, JR.: Yes.

CHAIRMAN MCKIERNAN: Mark, did you want to comment?

MR. GIBSON: I was prepared to support the motion in general. I don't have any problem with convening whatever group or subcommittee that is workable within the commission's structure and budget and so on. But like Dave Simpson, I hope that they wouldn't take a very broad view of goals and objectives. That could take us all the way back to the original FMP.

I hope it quickly hones down into the thing that David Simpson is talking about; what is a regional abundance expectation for the Southern New England/Mid-Atlantic stock; what is the likelihood that our current suite of measures in place and coming down the road will reduce fishing mortality in accordance with what the assessment group has said and the peer review panel. If those are not going to get the job done, then where do we go from there? I would hope whatever group is constructed wouldn't have a very broad discussion of goals and objectives but a more focused one along those lines. Thank you.

MR. DOUGLAS E. GROUT: Mr. Chairman, I have difficulty with the process here of withdrawing the motion. This is a motion that has been made and seconded and there has been considerable discussion. I think a more proper way would either, one, be voted on it and decide whether it goes up or down or to table this motion to the annual meeting. At this point this is the board's

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motion and you'd have to have a motion to table this to – I don't think withdrawing is proper.

MR. WHITE: I agree with Doug; but to comment on this motion, it seems like this process is backwards to me. We're going out to the fishermen asking what do we do here. Doesn't it start with this board determining how much we're going to reduce mortality and then we take it out to the public to try to figure out how do you implement that.

It seems like we're going backwards to me. We just heard an assessment that suggested moratorium. Now maybe that's not totally appropriate, but I think it starts here that we have to figure out how much more reduction in mortality do we have to absorb and it goes out to how do we implement it.

REPRESENTATIVE MINER: Just to correct the record; I don't moratorium was in the assessment. I think there was a lot of discussion about whether it should have included that kind of language. I think that's part of what I'm wrestling with here is – I can tell you personally I'm not asking anyone's permission to go back to talk to constituents. I'm suggesting that we are in the middle of, just as other states are I think, trying to understand the management decisions that we made last time that was hopefully going to achieve a goal doesn't appear to be achieving a goal.

To change those right now before – I mean, in Connecticut I think we were talking here before is that one year or two years and I still get phone calls from people saying is there an opportunity here to expand, we see different things than what people are reporting. I am resistant to doing anything to relax what we've already done. In fact, I'm willing to consider more than what we've already done. I just want to correct the record; I don't believe the word "moratorium" was in that report.

MR. ADLER: I'm not opposed to moving ahead on something here, but first we're going to look at asking somebody how long or what do we have to do to get things back. I basically heard the report. The report is not going to change. They said what is wrong; they said why. They did not give a recommendation. As they've indicated, they don't do that. They just put in this is the situation, good, bad or ugly.

We're going to come back with some people meeting and coming back with I don't know what. I mean, they're going to come back and say, well, according to our models we can recoup this species if we do something; and we don't even know what that is. I'm not opposed to getting together to get started on however you want to do it, whether it is done here at the board first or second, but I just don't see what we're coming up with that we don't already know. I'm sorry; I just don't see it.

CHAIRMAN MCKIERNAN: Okay, why don't we do this; why don't we vote on the motion up or down and ask Toni to reconvene or reestablish the PDT and have the PDT try to set some goals and objectives for the Southern New England stock with input from the chair and the vice-chair and the technical committee; does that work? Dennis.

MR. DENNIS ABBOTT: Mr. Chairman, if I may, I haven't spoken on this issue yet and probably shouldn't be speaking on the issue; but this is so similar to where we were 15 years ago. Fifteen years ago they told the house was starting to burn and we ought to do something about it; and we're so many years down the road and we have a raging forest fire or house fire going, and we're going to go off and think about it again. I just think doing this isn't in my mind the correct thing to do at this point.

CHAIRMAN MCKIERNAN: Can we vote on this motion up or down and then convene the PDT? We have a motion and we have a second. Let's take a vote. Bill.

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MR. ADLER: What if I made a motion to table it?

CHAIRMAN McKIERNAN: You could do that, Bill, but I was thinking to Toni's point that the PDT has sort of evaporated, and I think we want to reestablish that. Maybe the PDT ought to take the first crack at this.

MR. ADLER: Okay, can I have a caucus before you vote?

CHAIRMAN McKIERNAN: Certainly, we'll give you a one-minute caucus.

(Whereupon, a caucus was held.)

CHAIRMAN McKIERNAN: All right, can we vote on the motion? All in favor of the motion, right hand up; opposed; abstentions. Terry, are you voting from Maine or as a council member?

MR. STOCKWELL: Council seat.

CHAIRMAN McKIERNAN: Council seat, okay. Null votes. All right, the motion fails two, nine, one, zero. Toni, can we reestablish the PDT?

MS. KERNS: Yes, Dan, you can reestablish the PDT. I would suggest that if you are looking at some specific goals and objectives; that you want to be looking to populate that PDT with individuals that can get you to goals and objectives so that you can task the technical committee to respond to those very specific goals and objections; and that we get that group together quite quickly so that we ask the technical committee to do a little bit of this work and so that they have specific tasks to get at instead of sort of going in a circular direction. Without having specific tasks, the technical committee doesn't know where to go and give you advice.

CHAIRMAN McKIERNAN: Historically, the PDT has been comprised of folks that are beyond this board, right?

MS. KERNS: Historically, but we also have done sometimes where we have board members as part of PDTs or special sub-groups.

CHAIRMAN McKIERNAN: And is that something you would recommend we do now?

MS. KERNS: I'm not saying you need to do it right at this moment, but let's try to get that group figured this week or next week.

CHAIRMAN McKIERNAN: All right, between now and the Policy Board Meeting?

MS. KERNS: We can do that, you and I.

MR. SIMPSON: At least my suggestion – I don't know if I brought the PDTs up – was only in defense for the motion that just failed. I don't really see it as being necessary. Again, in my view the question that we have is how to respond to this stock assessment that says the stock has collapsed in so many words. It is not likely to get back to where – this is my interpretation of what has been said – it is not likely to get back to the reference point that we currently have no matter what we do, because it is not caused by overfishing.

I was looking for the exact quote; 'stock abundance is low but it is not due to overfishing'. That's as close to the exact quote from the screen as I can get. What I think we need is to look our target, as we did a couple years ago, and adjusted the Southern New England target kind of seat of the pants. We know we can't get to here so maybe we should shoot for the 25th percentile.

I don't think we achieve the 25th percentile; so rather than the PDT – I won't make it as a motion now. I kind of want to hear what others think – simply charge the technical committee with taking into consideration the current environmental conditions that led us to where we are, what would a target be for biomass and

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fishing mortality under that new, much lower productivity condition?

I'd kind of like to hear what other board members think. I don't want the PDT to take us down the path of solving every other problem in lobster management. I think we could do that another day. Right now we need to know how to respond to this assessment. I hear different feelings depending on where you are within Southern New England about the sense of the problem and what should be done about it.

MR. GILMORE: Mr. Chairman, I generally agree with Dave; but I actually have a different point; just a point of order. We have eleven votes on this board and there is twelve on the thing. There was something about a New England vote; so could somebody explain that to me.

CHAIRMAN McKIERNAN: Well, as I understand it, Terry was representing the New England Council today on Jonah Crabs. I'll turn to Toni on the issue of Terry's participation as a council vote on lobster issues.

EXECUTIVE DIRECTOR ROBERT E. BEAL: The Charter provides for the opportunity for a board to invite any affected council to participate as a voting member. This board agreed to invite the New England Council to vote primarily on Jonah Crab issues. The Charter is silent on once you invite that person to participate on the Lobster Board; are they just voting on a subset of issues or all the issues that come before the Lobster Management Board. Maybe it is an issue that the Policy Board or Executive Committee needs to clarify given this board is dealing with multiple species now and in the past they weren't. As of right now, the New England Council was invited to have a voting seat to participate on this board.

CHAIRMAN McKIERNAN: To clarify David's point, he is asking the technical committee to prepare a response to the board about establishing new target biomass levels and F given the reduced productivity of the stock. I

turn to Bob to see if that's something that the technical committee would be willing to undertake between now and the next board meeting.

MR. GLENN: That would be a pretty tall order. We would need a lot of advice from the board as to what the direction is for those. Based on the biological evidence that the technical committee reviewed, if you were asking purely for biological advice and only taking that into consideration, I don't really see a scenario where we can justify any removals from fishing from the stock. If you want to consider other factors like socioeconomic factors, then I think that's something that the board needs to strongly consider; but that is kind of beyond the realm of what the technical committee really looks at.

The Southern New England stock is at record low abundance, record low settlement, record low recruitment, record low spawning stock biomass; and it is experiencing fishing mortality and unprecedented natural mortality. While I can't speak for the entire committee, I can't venture to guess that we could give you any more meaningful reference points that would be more than just arbitrarily lowering the bar.

CHAIRMAN McKIERNAN: All right, David, we need to wrap this up because we've got a bit Jonah Crab challenge so maybe we can continue this conversation in November in Florida. Tom.

MR. FOTE: I was not satisfied with the answer of why the New England Council voted on a lobster issue. New Jersey never invited them to basically participate in lobster on this issue. I don't remember Jonah Crabs, but it probably could have happened and I probably missed it. There is very strict criteria voting on this that we are going to basically invite somebody from the Mid-Atlantic Council. We don't do that on scup, summer flounder, and we have joint managed plans. I really think this needs to go before the Policy Board. I thank Terry for abstaining; but

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this would have been a real problem with a tie vote.

CHAIRMAN McKIERNAN: Tom, fair point; we'll ask the Policy Board to take it on. All right, I'm going to suspend – David.

MR. BORDEN: If I could, Mr. Chairman, just a question of process. Are you going to go straight through until five o'clock; is that what your intent is?

CHAIRMAN McKIERNAN: I would be willing to take a five-minute break before we do Jonah Crabs.

MR. BORDEN: If you're going to take a five-minute break, could I request you take a five-minute break now and a couple of us can talk; I can talk to Dave Simpson.

CHAIRMAN McKIERNAN: Sure, let's do that, take a five-minute break.

(Whereupon, a recess was taken.)

CHAIRMAN McKIERNAN: I'm going to turn to my good friend Toni Kerns to help us create a vision for what we want to do between now and November.

MS. KERNS: I think what we agreed is that we would convene a group of board members with a few technical committee members to give the technical committee some direction and follow up from the assessment; and we can allow the technical committee to have a dialogue with those board members to make sure that we're understanding what type of work that they want them to do. We'll have the technical committee report back to the board at the annual meeting, if that's enough time for them to do the work that has been tasked. If there is any other work that this small sub-group wants staff to do as any history, then we can also get that going at that time as well.

CHAIRMAN McKIERNAN: David Simpson, do you want to comment on that; do you concur?

MR. SIMPSON: Yes; I think that's a good idea.

JONAH CRAB FISHERY MANAGEMENT PLAN

CHAIRMAN McKIERNAN: Thank you, Toni, for getting us through that. It is 3:33; and I am really going to try hard to push all the rest of the agenda items through here. Specifically, I'd like to take on the Jonah Crab issues next. We have the draft management plan for final approval. I guess at this point I will turn it over to Megan for her presentation.

Review of Background and Options

MS. WARE: Just a brief overview of what I'm going to talk about today. First I will go through a timeline of where we are and we've been. I'll go through a bit of the fishery background and then I'll review the management options that are in the plan. Then I will go through the public comment that we received since the last board meeting.

In terms of timeline, this was all started in May 2014 when the board initiated the Jonah Crab Fishery Management Plan. Since that time we've had a Draft PID and we've also had the draft fishery management plan created. At the last meeting in May the board approved the document for public comment; and so since that time we've had a public comment period from May 22nd to July 24th. We also had a law enforcement meeting and an advisory panel meeting and we are now here to hopefully taken final action on this plan.

As a reminder to kind of what has led us to this place; the FMP has been initiated due to a rapid increase in landings in the fishery. The blue bars here are landings in millions of pounds and the red line is value in millions of dollars. Between 2000 and 2014 we've seen over a six and a half

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fold increase in landings; and we think that is due to a couple of things.

The first is that as the price of other crab such as Dungeness Crab have soared. Jonah Crab has kind of come in as an alternative to the market. Also we believe that given the poor condition of the Southern New England lobster stock that fishermen in that area are supplementing their income with the catch of Jonah Crab.

As I had mentioned, the majority of Jonah Crab are caught by lobster fishermen using lobster traps. This pie chart here shows that approximately 95 percent of Jonah Crab is caught with pot and traps. This has created a unique link between the lobster fishery and the Jonah Crab fishery; so it is a mixed crustacean fishery now.

In terms of stock status, there has not been a range-wide stock assessment; so we are unsure on the status of Jonah Crab. Size at maturity data; we also don't have a specific study yet for New England; but we believe the size at maturity is between four and five inches. Those values come from two studies; one in Virginia and one in Nova Scotia.

Currently data collection is quite variable among the states. We have a bit of a question as to liability of it given that sometimes Jonah Crab is called rock crab; and so when we see rock crab on landings we're not sure if it is rock crab or actually Jonah crab. This here is a table; it is Table 5 in the fishery management plan.

I realize it is a bit daunting on the screen here, but what I'm hoping to show is that most of the boxes are no; so most of the different states do not have specific management plans or management measures for Jonah Crab. When they do, it is in direct regulation to the lobster fishery. Also, the crab resource is not directly regulated in federal waters but regulated incidentally through lobster. These are kind of

the four issues that have led us to the fishery management plan.

We've had a rapid increase in landings and value. We have a stock status that is unknown. We have current management that is quite variable; and we have a Jonah Crab and lobster/crab fishery that are inherently tied together. This FMP seeks to cap effort and protect the spawning biomass in the absence of a stock assessment.

Now I will go through the different issues in the fishery management plan and their associated options. The first one is fishery-dependent data collection. We have three options here. The first is harvester reporting as catch, so this would be data recorded daily by fishermen and then reported into the states on a monthly basis. Some of the information in this include traps hauled, pounds, dates fished and soak time.

The next option is harvester and dealer reporting of catch; so there would be a hundred percent mandatory dealer report and X-percent harvester reporting. We have four options there that range between 100 percent and 10 percent. These two reports would be linked with a two-ticket system and they would each share a trip ID.

The third option built off of Option 2 so it adds port and sea sampling; so in total there would dealer and harvester reporting of catch and then port and sea sampling by federal or state agency staff. Some of the things that the state and federal agencies would be interested collecting information on are the shell condition, trap per trawl, bait type and soak time. Those are the three options for fishery-dependent data collection.

The next issues pertain to the commercial fishery; and we have six issues there, I believe. The first one is permits; and we have five options for permits; so I'll go through those now. The first is status quo; so in this case states would

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maintain their current permit requirements. In federal waters you would be required to possess a lobster license and lobster tags; or in the absence of a lobster license and lobster tags, an individual would be allowed to fish for Jonah Crab but you would not be able to retain lobster.

Option 2 builds off of Option 1; so again it is discretionary state permitting, but in federal waters we would recommend to NOAA Fisheries that there be a new federal Jonah Crab permit. This is a recommendation because we are only a regulatory authority in state waters. Option 3 is to create a new Jonah Crab license to participate in a state or federal Jonah Crab fishery.

How this would work is if you're a lobster fisherman with a crab endorsement, you would continue to fish as is. If you do not have that crab endorsement with your lobster license, you would have to obtain this new Jonah Crab permit; and then in federal waters you would need a new Jonah Crab federal permit.

Option 4 builds off of Option 3; selects this new crab license with a specific trap design. The trap design is to ensure that any additional traps have a minimal impact on the Southern New England stock, which we just heard is in poor condition. The trap would be created such that it would minimize the catch of lobster. Finally, the fifth option is to tie the Jonah Crab fishery to the lobster fishery.

It would require that if you direct fishing effort on the Jonah Crab fishery with traps; that you would need to have a lobster permit. Otherwise, you would need an incidental permit from the state or federal agency. Those are the five options for permits.

Another issue for the commercial fishery is minimum size. We have minimum size options that range from 4 inches to 5-1/2 inches. We have an option for no minimum size. The two charts that I have up on the slide are sea sampling; and they show the percent of female

or male crab that are under some of the different minimum size options.

For example, the majority of females are under 5 inches and approximately a third of males are under 5 inches. If a minimum size is chosen, there is also an option for tolerance. We have three options here. There would be no tolerance, a 5 percent tolerance or a 10 percent tolerance. How it is tentatively written in the FMP document is that tolerance would be determined through sampling procedures that the law enforcement would undertake.

The issue is crab part retention. There is a small but historic claw fishery in the DelMarVa Peninsula; and we believe it is less than 1 percent of total landings, but it is still there. There are two options. One is that crab parts such as claws may be retained and sold in any form; and the second option is that Jonah Crab fishery be strictly a whole crab fishery.

Another issue for the commercial fishery is the retention of egg-bearing females; and we have three options here. One is that there is no prohibition on the retention of egg-bearing females. The second option is that egg-bearing females may not be retained. The third option is that no females may be retained with a 1 percent tolerance.

The final issue for the commercial fishery is an incidental bycatch limit for non-trap gear; and there are two options here. The first is no coast-wide possession limit; and then the second is a limit of 200 pounds per day up to a maximum of 500 pounds per trip. How this second option will work is on your second day you would be able to have a limit of 500 pounds; and then on your third day, that's when that 500-pound limit would kick in.

There are two issues in the recreational fishery. The first is possession limits; and we have two options there. We could have no coast-wide possession limit or a 50 whole crab, 100 claw

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possession limit per person. Then we're also considering the retention of egg-bearing females in the recreational fishery; and it is the same three options that were presented for the commercial fishery; so either no prohibition on the retention of egg-bearing females; egg-bearing females may not be retained; or no females may be retained with a 1 percent tolerance.

Finally, the Draft FMP is considering de minimis criteria. In this case de minimis criteria would get a state out of fishery-independent sampling; and then if port and sea sampling is also chosen, a state would not be required to implement that. There are two options here for how we can define the de minimis criteria.

The first is that we keep the commercial and recreational landings separate; and they would have to be less than X percent of the three-year coast-wide average. That percentage could range between 1 and 3 percent. The second option is to combine commercial and recreational landings into one value; and that would have to be X percent under the three-year coast-wide average. Those are the issues and associated options that are up for discussion today in the Jonah Crab Fishery Management Plan.

Review of Public Comment

I'm now going to move on to the public comments that we've received since the last board meeting. Again, our public comment period was from May 22nd to July 24th. We received 12 letters from four groups and eight individuals; and then we had five public hearings in Maine, New Hampshire, Massachusetts, Rhode Island and Maryland.

For public comment on the fishery-dependent data collection, it was a bit varied, but a slight majority were in favor of Option 2, which is harvester and dealer reporting. This mostly came from Maryland fishermen who stated that

Option 2 aligns with their current processes. Those who were in favor of Option 3 generally pointed out this is a data-poor fishery and so there is a need for sampling.

We also had some letters that said it was important for sea sampling and to make sure we understand what the bycatch is in this fishery. For those who were in favor of Option 1, which is just harvester reporting, that was mostly from New Hampshire. They were concerned that a lot of their outlets for Jonah Crab are non-dealer related, so either restaurants or crab sales. They were concerned that if there was dealer reporting, the people they sell to would be required to have a dealer permit. That's why they were in favor of Option 1.

We didn't get too many comments on what the percentage of harvester reporting should actually be. We had those four options ranging from 10 percent to 100 percent. Some of the letters especially from the groups did request 100 percent harvester reporting. Then we had one letter which asked that harvester reporting, to make that in the lobster plan, so that would 100 percent dealer report and 10 percent harvester reporting.

Public comments on permits; the vast majority were in favor of Option 5, which is tying the Jonah Crab fishery to the lobster fishery. Some of the reasons for this was that Option 5 prevents the proliferation of traps. It can help cap effort and it is also just an easier way to implement this given the connection between the lobster fishery and the Jonah Crab fishery.

We did have several fishermen comment that they were in favor of the status quo; and they felt that there should be more biological studies on the Jonah Crab fishery before any changes to management occur; so that's why they were in favor of maintaining current state regulations. We did have comments that were against Option 4, which was the new Jonah Crab permit with the trap design.

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A lot of people felt that creating a trap that actually minimized lobster catch while maximizing Jonah Crab catch seemed a little impossible to them and so they didn't think that was a very practical option. We did have letters on this; and one of the letters said that they were in favor of any option that preserves existing levels of participation in the fishery.

In terms of public comment on minimum size, I would say that responses were kind of all over the board. A lot of times this was cited as the most important issue in this fishery management plan. The 5-inch minimum size was the majority; and people said that this was important because it would protect the vast majority of females. However, we had a lot of Rhode Island fishermen say that they would prefer a 4-inch minimum size; and that was because their catch Area 2 is smaller than the offshore catch. They were afraid that a 5-inch minimum size would really lock them out of this fishery. We did have people say that there should not be any minimum size; and that was because there is kind of this market standard for a 5-inch crab and this has de facto created a minimum size so that this management measure is not needed.

Then one of the topics of discussion at the Maryland public hearing was how does the claw fishery fit into this; how would a minimum size affect the claw fishery. In terms of tolerance, most fishermen at the public hearings preferred a 5 percent tolerance. They felt that this was important given the high volume of the fishery and how difficult it can be to actually measure all the crabs.

We did have some fishermen ask for a 10 percent tolerance especially in the infancy of the fishery management plan. Those who were against the tolerance generally were against it because they did not feel it would be enforceable. That was one of the common themes at public hearings and in the letters was how this would actually be

enforced. Some of the suggestions included a count or a volumetric standard.

Public comment on crab parts; the majority were in favor of a whole crab fishery; and not surprisingly it was the Maryland fishermen that were in support of a claw fishery. They pointed to their continued catch over the past 30 years as well as their stone crab claw fishery points that this is a sustainable practice.

We did have some suggestions on how to incorporate the claw fishery while maintaining a whole crab fishery. One of the suggestions was to create a potential conservation equivalency for those claw fishermen. Another letter suggested that those who can demonstrate significant history of catch in the claw fishery should be allowed to continue that process.

Public comment on egg-bearing females in the commercial fishery was the majority were in favor on no retention of egg-bearing females. This was mostly to protect the spawning stock. There was concern over zero tolerance of this; so someone asked if I have one egg-bearing female and I catch, what happens? Does that mean the whole catch gets thrown back? Do I get a ticket? There was concern over the zero tolerance with this.

We had several comments that with the correct minimum size, this management measure is not necessary since most of the females would already be protected. Those who were not in favor of a prohibition generally felt it was important to harvest sex equally and that there was no science yet to prove that protecting females in the Jonah Crab fishery was important; or, you know, some sort of magic bullet.

In terms of comment on incidental bycatch, everyone was unanimous that there should be a bycatch limit. I think most of the discussion was on how this limit should be implemented and what the actual level should be. We had many suggest that a count or a volumetric limit would

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be more appropriate, because boats do not have scales on them so they would not be actually able to weight how much Jonah Crab they have.

We also had one letter that suggested a thousand pound trip limit would be more appropriate. Oftentimes we had fishermen asking for clarification on what the definition of a trip is. In terms of the recreational measures for the possession limit, we had a majority who favored a recreational possession limit. They felt that it was important to have limit to keep the recreational fishery recreational. A lot of people asked that it only be a whole crab limit so it just read 50 whole crabs and that a hundred claw limit be eliminated from the option.

Then we had one person who did not want a possession limit. They felt that the recreational fishery was really just too small management so that this was not needed. Public comment on the recreational retention of egg-bearing females again was in favor of a prohibition on the retention of egg-bearing females. They felt that the recreational fishery should mimic the regulations in the commercial sector.

We also had some people say that a minimum size is needed for the recreational fishery. Finally, for de minimis criteria, we didn't have too many comments on this. They were kind over the board; but in general for the percentage in the criteria I found that groups were generally of favor of a 1 percent criteria where fishermen were generally in favor of a 3 percent criteria.

In terms of separating the commercial and recreational landings versus combining them, it was kind of split with a slight majority for keeping them separate. In Maryland state fishermen were asking how did the claw fishery account for this; how would the poundage of claws be converted so that could be comparable to the other states. T

These are just some of the other comments that people had in general on the fishery

management plan. They felt that there should be limits on the number of traps, their total catch. One person felt the FMP needed to include marine protected areas, total allowable catch, and rights-based management.

We had several fisherman say that the fishery is underutilized and we should not be limiting effort. Especially in Rhode Island this came up as an issue is that they suggested there be area management to mimic that in the lobster fishery. They felt this was important for the different regional aspects of the Jonah Crab fishery.

We had one person say that the Jonah Crab fishery is primarily in federal waters and should be jointly managed with the New England Fishery Management Council. We also had another one that said the board should recognize the baited-dropped trap in the Jonah Crab Fishery Management Plan and that incidental trap provision should be made for any trap capable of catching Jonah Crab.

Then we also had a letter that said that it was important to include escape vent specifications in the management plan so that we could reduce the juvenile catch of Jonah Crab. With that, I will take any questions on either the plan or the comments.

MR. GROUT: I had a couple of questions. The first one involves one of our monitoring options here. Option 3 has 100 percent dealer reporting with some percentage of harvester reporting; but there is also provisions for port and sea sampling. The wording is not really clear. It says, "States shall have port and sea sampling where possible."

Does that mean that it is a mandatory or not a mandatory provision of the plan? If I hadn't had "where possible" in there, I would say that is mandatory. Every time I see the word "shall", I think mandatory; and then it said "where possible"; so what is the "where possible" here. I would like to know because it may make a

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difference on which option I vote for. Then I have another question once I get an answer to this.

MS. KERNS: If I remember correctly, Mr. Chairman, I believe this comes straight from the lobster plan is how we worded it as well. The port and sea sampling, we do not hold states accountable to their port and sea-sampling programs for lobster either. It would be recommended "not held accountable to".

CHAIRMAN McKIERNAN: I suggest you make that motion. Well, when it comes up, you can clarify that.

MR. GROUT: Sounds good. Then if we get to Issue 6 on the incidental bycatch limit, it has a 200 pounds a day maximum, up to 500 pounds per trip. I think as we move forward here, if go with this option we have to be defining a day and defining a trip because obviously you could have some arguments as it the way it is worded right now that some people could have a trip that is less than a day and so maybe you could land more than 500 pounds.

Then I also wanted to get a feel, because I was not in attendance at the last board meeting, why did we come up with 200/500 pounds as opposed to what we have in the lobster plan is a 100/500. I know lobster is a count and this is pounds; that is fine with me, but why was it 200/500? Are these like 2-1/2 days if what you're figuring a trip will be? Those are the two questions. One, make sure we define a day and what a trip is if we go with this.

CHAIRMAN McKIERNAN: Those are good points and whoever makes motions on that, I hope they'll try to clarify that through the motion.

MR. GROUT: Is there anybody that remembers via the PDT or the board suggested why 200/500?

CHAIRMAN McKIERNAN: I don't see anyone nodding their head. Yes, Walter.

REPRESENTATIVE WALTER KUMIEGA, III: I don't know if that is why it is on there, but I believe those are the bycatch limits that the state of Maine has on trawlers.

CHAIRMAN McKIERNAN: Megan still has to present the AP Report; so are there more questions that we want to have at this point? We're not ready to take motions; but she is going to give an AP Report and then we have a Law Enforcement Report. There is plenty of time to discuss issues like the one Doug brought up. Jim Gilmore.

MR. GILMORE: Just a quick question; Megan, on the claw-only fishery; is there any mortality information on discards or is there not?

MS. WARE: As far as I know there is not.

CHAIRMAN McKIERNAN: All right, can we proceed, then, to the AP Report, Megan.

Advisory Panel Report

MS. WARE: The advisory panel met for the first time on July 22nd in Providence, Rhode Island. It was an in-person meeting. I am just here to report on some of the recommendations they had on the fishery management plan. In terms of data collection and permits, they were in favor of Option 3 for data collection, which is the harvester and dealer reporting along with port and sea sampling.

Even though they didn't specify a specific level of harvester catch, those in attendance did note that they currently do 100 percent harvester reporting. They wanted to keep that practice. For permits they were in favor of Option 5, which is requiring the lobster permit or incidental permit to participate in the Jonah Crab fishery. They said that this was the best option to cap effort and prevent the proliferation of traps.

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For minimum size and tolerance, this was primarily the two options that were discussed and took most of the time; and consensus was not reached. I'm going to go through all of the options that were discussed. We had one AP member that was in favor of a 4.75 inch minimum size with a tolerance. He didn't care if it was 5 or 10 percent; he just wanted a tolerance. He noted that a tolerance was particularly important in the beginning of this fishery management plan.

Another AP member favored a 4.75 inch minimum size. He did not support a tolerance. He did not support a tolerance because he questioned the enforceability of it. A third AP member liked the 5-1/2 inch minimum size with no tolerance. He thought the 5-1/2 inch minimum size is important as a starting point; so that if the minimum size is changed, the fishery is not getting pigeonholed into a minimum size that is too high.

The fourth AP member thought a 5-1/2 inch minimum size and a 5 percent tolerance was the best option. He felt that this combination was important because it provided flexibility for future changes in market demand. Then we also had one AP member who was not able to attend but did send a comment on this; so I'm going to give it even though he was not part of the discussion. He favored a 5-inch inch minimum with a 5 percent tolerance. He felt the 5 inches was important because that is the current market standard; so there was no need to go below that.

In terms of crab part retention, the AP did not really like either of the options that were presented so they created their own third option, which they're presenting to you today. This was to, quote, maintain the status quo. This alternative option would allow those who currently participate in the claw fishery to continue to fish and would institute a maximum

claw count to cap effort in this portion of the fishery.

The AP members felt that if a minimum size is instituted in the whole crab fishery that there should be some sort of cap in the law fishery. For the retention of egg-bearing females they were in favor of Option 2, which is the prohibition on the retention of egg-bearing females. For the incidental bycatch limit they were in favor of Option 2 as well, but they preferred a count instead of poundage; so they proposed a 200 crab count per day and a 500 crab count per trip.

For recreational measures they supported a possession limit, Option 2, but they felt that it should only read for the 50 whole crabs, so again eliminated that 100 claw limit. They were also in favor of the recreational prohibition on the retention of egg-bearing females. The AP did not have any comments on de minimis status criteria. That is the AP Report.

CHAIRMAN MCKIERNAN: Questions on the AP Report?

MR. WHITE: On the slide that showed the sizes; I think the slide said 4-1/2 and was that supposed to be 5-1/2?

MS. WARE: No, it is supposed to be 4-1/2.

MR. WHITE: Didn't you report 5-1/2 or wasn't I hearing you?

MS. WARE: Maybe I misspoke, but it was supposed to be 4.75, 4.75 and then two 4-1/2.

CHAIRMAN MCKIERNAN: Okay, next we have the Law Enforcement Report from Mark Robson and then I think John Cornish will also speak as well. The Law Enforcement Committee got together in New Bedford a couple of weeks ago to review this issue.

Law Enforcement Committee Report

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MR. MARK ROBSON: I'll go ahead and kind of briefly go through the process that the Enforcement Committee went through to evaluate this draft FMP and then Colonel Cornish can answer more specific questions you might have about some of the points that we discussed during our deliberations.

First starting with the process we went through, we had the opportunity and we thank Mr. McKiernan and also Mr. Borden for helping to facilitate and encourage an actual visit to a dockside facility. We had a subcommittee of Law Enforcement Committee members participate in that field visit. I wasn't there, but from everything I understand it really helped to inform and improve the process of the discussion that the Law Enforcement Committee had during the second part of our deliberation, which was a teleconference call with the entire committee.

We didn't have everybody on the committee there; but as we had that teleconference call, we prepared a written summary which is provided to you in your supplemental materials. We lay out the participants at the field visit from the committee and also who were on that teleconference call. We've tried to as quickly and briefly as we could summarize our perspective on the various management options that were presented in the draft FMP.

I will go through those first for the commercial. Again these are all laid out in the memorandum to you from the Law Enforcement Committee. The committee, after the teleconference call and hearing the report from the subcommittee, felt that we would recommend issuing permits through the lobster permit holders and the lobster permit fishery as it exists.

We feel this potentially eliminates the proliferation of more traps and lines and it allows us to manage this fishery without developing a whole new set of permit holders with the inherent complications of potentially different

kinds of traps. Essentially if the fishery is being prosecuted now under the existing lobster fishery, we felt that would be suitable and certainly would simply enforcement.

You might be surprised we would actually even have a recommendation on a specific minimum size. Certainly from an enforcement perspective whatever minimum size you choose, it doesn't necessarily have an enforcement implication. In this case we recommended the 4.75 inch minimum size because of our understanding and our information from the field visit and elsewhere; that this would be an optimal minimum size that obviate the need for any kind of size tolerance.

It is the size tolerance issue that gets to the enforcement discussions that we had. That gets to no size tolerance for undersized crabs; that is the recommendation coming from your Law Enforcement Committee. We've had these discussions over different fisheries where size tolerances are put into place. These are notoriously difficult things to enforce in the field.

We certainly understand the reason for size tolerances or other types of measurement tolerances of a catch; but they are notoriously difficult to enforce. In the case of this crab fishery you could have a very large offload; that to be effective in terms of a field enforcement effort to determine whether they have exceeded a size tolerance, it could require a fairly significant team of enforcement officers.

There is a significant effort in actually measuring that tolerance at the field level. There have also been indications that in some cases courts have questioned or not accepted a limited sampling as adequate for purposes of prosecution when you're looking at a size tolerance violation. Of course, in this particular fishery you have the opportunity for very legitimate sorting and separating of the catch; and as soon as that happens to a particular catch, it makes any enforcement of a overage or underage in terms of a tolerance almost impossible to deal with.

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Moving on to the next management option, we also recommended only whole crabs be retained and sold. We do not support the allowance for parts or claws. We just feel that this would complicate effective enforcement of minimum size standards. We don't say that it necessarily would all the time, but it could introduce an opportunity to move perhaps undersized crabs through the system in a way that's covered.

Adding the additional measurement standards for claws, if you go to a count per pound or something similar to that, it can also greatly complicate enforcement efforts for this particular fishery. We also do not recommend retaining egg-bearing females. We feel that it is fairly simple process to determine those crabs that are egg-bearing females and that it is a simple matter to enforce that in the field.

With regard to the bycatch, we don't have any concern or opposition to a bycatch limit, whether it is 200 pounds per day or whatever the limit that the board decides they would want to implement. We have commented – this is not in the memo, but it occurred to me that in the past the committee has commented on the relative difficulty of sampling and measuring a bycatch or any catch that is based on pounds versus counts or numbers.

Either way it can be done, but you have to keep in mind also that a bycatch limit based on pounds does require some calibration of scales and working with enforcement officers in the field to make sure that when they're checking those poundages; that they're accurate. Moving on to the recreational management measures, again we support the 50 whole crab limit.

There was an additional discussion at our teleconference call with this one in that not only do we support the 50 whole crab limit that would be consistent in terms of looking at whole crabs only; we also recommended that if there is going to be a minimum size limit in the commercial

fishery; that you go ahead and implement a minimum size limit that is the same for the recreational fishery and base the whole crab limit on a minimum size as well. We don't support the possession of claws or parts; and that would be recommended to be consistent again with a commercial restriction on the possession of claws or parts.

In general try to make sure you standardize your minimum sizes and your whole crab versus part restrictions between both the commercial and the recreational fishery. We feel this makes for much more effective enforcement in the field; and it eliminates any confusion and ambiguity about whether undersized crabs may have been caught commercially or recreationally.

We also again similar to the commercial fishery do not recommend retention of egg-bearing females. We feel this is consistent with our previous comment. There were just two other things in the memo that I will point out that we discussed are not necessarily things that are part of the existing management options in the FMP.

We did discuss the possible advantage or need of being able to really evaluate the Jonah Crab fishery. The Law Enforcement Committee didn't really take a position way or the other on this, but to the extent that if you were to implement some sort of an endorsement attached to the lobster or other gear permits; and if that would aid in the assessment, we didn't see a problem with implementing such an endorsement.

The other issue was – and this was really something that came out of the field visit – and I'm sure Colonel Cornish can elaborate a little bit more on that; but we saw that there could be very good value in making sure that the containers at these unloading facilities or at the fish houses; that you develop or encourage some kind of a marking system for those crabs coming off the vessels, particularly if it is a large catch, so that you can easily identify where that catch is coming from once it enters the dealer facility or processing site.

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There is a fairly separation and sorting that goes on; and so if you're going to start looking at things like tolerances or some kind of catch limits, you definitely need to have a way of keeping track of where those individual containers came from in terms of the fisherman. With that, I'll conclude my summary; and again, Mr. Chairman, if you have any questions, especially tough questions, Colonel Cornish can take those.

CHAIRMAN MCKIERNAN: John, would you like to make some comments?

COLONEL JON CORNISH: Yes; I just wanted to comment briefly here because it is getting late in the day, I know. This field trip was really valuable to us. Hopefully in the future we can continue to try to do those in assessing fisheries like this. John Williams, who runs Atlantic red crab, was nice enough to let us into his facility, view the operation, view the processing Jonah Crabs as well as red crabs. He does 11 million pounds a year.

He gave us a lot of good feedback about the whole process. From there we were able to go to a boat down the bay a little ways and talk to a couple of crab fishermen that had just landed Jonah Crabs that day and get some assessment from them. It was kind of nice. I think what came out of that was this 4-3/4 inch.

There was concern amongst the dealers that even though the market calls for a 5-inch crab, they're worried that they're going to get a lot of 4-15/16th or whatnot in crabs. Of course, when you have a 5 inch, 4-15/16th isn't enough to get through. There was concern about that. We thought by going with the 4-3/4 that it eliminate a lot of the need or push to have a tolerance. A tolerance is a big thing for us.

Kurt Blanchard, who is the law enforcement representative from Rhode Island and Pat Moran from Massachusetts, where 70 percent of these Jonah Crabs are landed, both had a big concern

with trying to enforce tolerances on the fishermen. There is just a lot of reasons for it; accuracy, time-consuming. Some of these catches are many, many thousands of pounds that are coming in.

The last thing that I thought was helpful to us that hasn't been mentioned is Massachusetts Environmental Police did some outreach to Oregon and Washington with a Dungeness crab fishery. They have zero tolerance there. It has worked out quite well for them. Some of their landings are 40 to 50,000 pounds, so it is a comparable fishery.

Their input was that if you have a tolerance, some fishermen will fish to that tolerance and you will have more crabs being landed than you would otherwise. I would say that my experience has been that is sometimes true and sometimes it isn't because it depends on the fishermen. In Maine we've had a lot of experience with tolerances; and sometimes they work like on shellfish and whatnot; but when it comes to – I can't imagine trying to do it in the lobster fishery or in this type of fishery. That's all.

CHAIRMAN MCKIERNAN: I just would like to add one comment about tolerances. I attended that meeting and was transpired was a presentation from Burton Shank from the National Marine Fisheries Service. What he did is he presented a statistical analysis of what proportion of the catch an officer would need to subsample in order to determine with certain statistical confidence that a violation had occurred; and I think the conclusion was whatever was proposed in the document, a few, quote-unquote, batches, which I was responsible for putting that language into the plan, is going to be grossly insufficient. Actually, this table is up on the board now; so, Bob Glenn, do you want to speak to that a little bit.

MR. GLENN: Yes; this is a nice power analysis that Burton Shank from the National Marine

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Fisheries Service put together looking at what is the potential for trying to enforce a tolerance in a manner that was statistically valid. What this represents is basically on the left-hand column is the sample size that the officer would take; and then each column for the first three are the confidence limits, 95 percent, 99 percent and 99.9 percent; how many lobsters they would have to detect out of an X number of crabs to detect a violation at the 5 percent level.

I will go across and say the officer were to measure a hundred crabs, if he were to find nine in violation, he would have 95 percent confidence that there was a violation of the tolerance; and then at the 99 percent, 11; and at the 99.9 percent, 13. However, there is a catch to this; and if you look over to the next three columns over, this is the proportion at which – the percentage tolerance that you’re actually enforcing at a 50 percent confidence rate.

What this means is that with these numbers – what this is telling you for that same row is that at the 95 percent confidence limit, if an officer were to find nine, he would actually be detecting a violation at the 9.7 percent level and not the 5 percent level; and moving to the right for 99 percent confidence, a violation wouldn’t actually be 5 percent; it would actually be someone who violating at the 13.7 percent level. This is only catching it half the time.

The take-home message, if you go down even down the scale and the number sample size going to a thousand, even if an officer were to measure a thousand crabs out of a catch, he would at best-case scenario only be able to detect a 7.5 percent violation 50 percent of the time. I know it is a little convoluted, but the take-home message here is that for an officer to truly detect a 5 percent tolerance violation, he would have to measure an extreme number of crabs and even then would only do so at about 50/50 percent chance of actually catching it.

CHAIRMAN McKIERNAN: I just wanted to share that with the board so you all kind of understood what went into the thinking when the Law Enforcement Committee brought this forward going with a de facto tolerance, which is simply a lower minimum size as opposed to a numerical tolerance on an enforcement action. Doug, do you have a question?

MR. GROUT: I appreciate that piece of information. This is a good piece of information for the board to have; and I was wondering if there would be a possibility at this point in time, after we make a final decision on this, to include that analysis as an appendix in the FMP. I think this may or may not have some deciding factor on how some members might vote on this; and it is not something that was brought out to the public. I think it would be a valuable piece of information if it is possible – I don’t know if we can do that kind of thing; but if it is, I think that and any kind of report that went with it should be put as an appendix.

CHAIRMAN McKIERNAN: It would certainly be valuable to a fisherman’s attorney. Mike.

MR. LUISI: Mr. Chairman, I’ve got just a point of clarification and then a couple of quick questions. The first point of clarification goes to the report that Megan gave regarding the public hearings. While in the report it was identified that Maryland held a public hearing and that there were comments from Maryland, stakeholders from both Delaware and Virginia attended that meeting. I just wanted the board to be clear that the information coming from that particular meeting mostly in reference to the crab part issue, which we will discuss, was from more than just my one fisherman in my state.

The question is to the Law Enforcement Committee. I just would be interested in hearing your perception or your feedback on whether or not a second means of measuring crab which could relate to the overall carapace width would

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be something that we might be able to work on, such as if we were to take samples and get claw lengths compared with carapace width and have enough samples to be relatively confident that a claw of a certain size equals – would have been equal to a crab of 4.3/4 or 5 inches, how enforcement would be able to handle something like that? I may have a follow-up depending on the answer, Mr. Chairman.

COLONEL CORNISH: We talked a little bit about that. I can't tell you where but I believe there is already existing – maybe Bill has the answer, but there are already existing places where there are crab measurements, leg measurements. It was a concern of ours because it would be a lot more – if there was no limit on them and someone came in with 2,000 crab legs, it would be quite an effort for us to have to go through and measure all those times two. That was our biggest concern, I think. I suppose if there is a method of doing it, we can measure anything if we have a certified measure.

MR. O'REILLY: Letting things roll on a little bit, I wanted to what Mike said a little bit more. We have had landings of claws in Virginia in five of the last ten years. There is one lobster permittee; his letter is in the packet. The average landings for the five out of the last ten years where there were claw landings is 80 pounds. The high amount is 133 pounds; the low amount is 11; so that has taken place. The other thing I wanted to comment on, but I know you're pushing time, was in looking at the public comments, there was a letter produced by Bradley Stephens, a Ph.D from the University of Maryland, Eastern Shore.

Having heard that Rhode Island has a preference or at least in the comments from the public comments on a fairly smaller minimum size limit and maybe some others; it was interesting to see that he had a five-point recommendation as to why minimum sizes really may not be the best route to go. I'd ask the technical committee if they looked at that and what kind of information

is there. It certainly isn't the classic MSP or SPR type of approach with a minimum size; so it is a little different than finfish.

Consideration of Actions for Final Approval of Jonah Crab FMP

MR. ADLER: Mr. Chairman, did you want to start to look at the options for this plan?

CHAIRMAN McKIERNAN: I do, Bill, but I actually want to take two comments. I want to take one from Terry because the New England Council has given an extensive letter. I think it would be valuable to get Terry's presentation of some of the key points in terms of what we do as a final action. Then I would like to recognize Peter Burns. Go ahead, Terry.

MR. STOCKWELL: Mr. Chairman, actually I was about to raise my hand; and that was specifically to address the comments questioning the New England Council's participation on this board. I do want to note that the Jonah Crab fishery is almost entirely in federal waters and that the final measures that this board votes on today are of direct interest to the council.

Pending the results, the council may well prioritize a Jonah Crab Amendment as a 2016 priority similar to the way the council manages red crabs. As Dan says, there is a letter written by Executive Director Nies in the package; and it is dated 7/10. I will highlight five of the issues that are in the letter.

One is that depending upon whether what gear or what licensing is selected, there is no proposed trap limit. There is no proposed total allowable catch. The council has concerns for adequate monitoring and reporting. The council has concerns about the FMP allocating to almost an entirely directed fishery with differential landings for the incidental fishery and also the differential gear type catch limits. I will comment specifically as the motions are made if needed, Mr. Chairman.

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CHAIRMAN McKIERNAN: Thank you, Terry; we want to certainly create a management plan that doesn't run afoul of the council; and we certainly don't want to have two different management plans on the same species. I turn to Allie Murphy, if you'd like to speak.

MS. ALLISON MURPHY: Mr. Chairman, during the comment period, NMFS submitted a letter on a Draft Jonah Crab FMP to the commission. We had several comments on the draft measures. I will quickly summarize those comments. We do believe that data collection programs are important and will give us better information on this fishery.

We support harvester reporting levels that match the Lobster FMP requirements. We believe that selecting otherwise would create conflicting reporting requirements between these FMPs and create confusion. With regards to permitting, we support options that preserve existing levels of participation in the Jonah Crab fishery. We believe it may be difficult for us to justify excluding any existing crab-only harvesters and doing so may open us up to potential litigation.

As Megan's presentation stated, there is not a lot of data on this fishery; so we felt that it was difficult to select many of the biological measures that were included in the draft plan; but we do think that protection of egg-bearing females is important. Similarly, we support a whole crab fishery; because there are no post-release survivability studies on crabs with one or both claws removed.

Finally, after consulting with our law enforcement folks, we do not support the inclusion of tolerances in this plan; and that has been extensively covered by the Law Enforcement Committee representative. Thank you for the opportunity to summarize our comments.

CHAIRMAN McKIERNAN: What I want to do going forward as use of discretion, I want to bundle issues that I think are related. I would like to bundle the issues of permitting and non-trap limits. I would like to bundle biological measures. I would like to then take the parts' issue, the recreational limits, the monitoring and the de minimis all separate. The first one is if I could get a motion on the issue of permitting and the non-trap limits. It looks like Bill Adler has got his hand up.

MR. ADLER: I will make that motion.

CHAIRMAN McKIERNAN: All right, the motion is on the board. Would you like to read the motion, Bill.

MR. ADLER: Motion to adopt the following provisions to address the issues of commercial permitting and harvest limits of Jonah crab: Approve Section 4.1 (Issue 1) Option 5: Commercial Fisheries Management Measures, to limit participation in the trap fishery to only those vessels and permit holders that already hold a lobster permit; and further require all traps conform to specifications of the lobster plan (including trap tags), and establish an incidental permit for retention of Jonah crab; approve for Issue 6 (Incidental by-catch limit for non-trap gear) Option 1: No coast-wide possession limit. That's my motion.

CHAIRMAN McKIERNAN: Thank you, Bill. Can I get a second on that motion? Steve Train from Maine has seconded the motion. Any discussion? Bill.

MR. ADLER: Yes; I wanted to ask Terry with his council hat on if we don't put a limit on non-traps in; is the council still going to go ahead and try to – excuse me – gum up the issue by putting their stuff forward or would this sort of leave that up to them or up to us later?

MR. STOCKWELL: The council is always good at gumming the issues. The lack of a coast-wide

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possession limit for the incidental bycatch would be perceived favorably by the council.

CHAIRMAN MCKIERNAN: Any other comments on the motion on the board? Doug Grout.

MR. GROUT: Move to amend that under Issue 6 we choose Option 2, which has the 200 pound/500 pound limit.

CHAIRMAN MCKIERNAN: You want to amend the motion to choose that other option, which is 200 per day with a 500 pound trip limit?

MR. GROUT: 200 pounds per calendar day.

CHAIRMAN MCKIERNAN: And 500 for any trip?

MR. GROUT: A trip that exceeds a calendar day.

CHAIRMAN MCKIERNAN: And if that trip were two days; would it be a 500 pound limit or would it have to be in the third day to get to 500?

MR. GROUT: Up to a maximum.

CHAIRMAN MCKIERNAN: Okay, can we get a second on that motion? Walter Kumiega seconded the motion. Discussion on that motion from Terry.

MR. STOCKWELL: Mr. Chairman, I guess I need to ask Doug what is the conservation benefit for limiting the incidental catch with no limits on the trap fishery?

MR. GROUT: The limits on the trap fishery are that we have trap limits based on the first part of this motion because it is tied to the lobster fishery. We have that and so now what I'm trying to do is provide some mechanism for limiting the effort in catch on the other fisheries as opposed to allowing it to be wide open.

CHAIRMAN MCKIERNAN: Any other comments? Yes, Dave Simpson.

MR. SIMPSON: I'll just say I'm opposed to the motion. I don't think this type of allocation at the outset is fair; and I don't think it is going to pass the federal muster.

MR. NOWALSKY: Just for clarification the move to amend to add Option 6; are we actually changing Issue 6 and using Option 2; is that the intent. I'm not clear on what –

CHAIRMAN MCKIERNAN: Yes; I believe that's what he is doing is replacing that option and that issue. Jim Gilmore.

MR. GILMORE: I don't have a comment on the second part; but are we going to go back to the first again because I do have a question on that?

CHAIRMAN MCKIERNAN: Well, we need to vote on this to decide going forward. Do we need to caucus; 30 seconds.

(Whereupon, a caucus was held.)

CHAIRMAN MCKIERNAN: Okay, it is a motion to amend include Option 2 for Issue 6 (200 pounds per calendar day/500 pounds trip limit). Motion by Mr. Grout; seconded by Representative Kumiega. David Borden, did you want to make a comment?

MR. BORDEN: Yes; just a quick comment, Mr. Chairman. I intend to recuse myself consistent with the rules as I have expressed in the past.

CHAIRMAN MCKIERNAN: We will vote on the motion. This is the motion to amend to introduce Doug Grout's trip limit on the non-trap gears. All in favor, put their right hand up; all opposed; abstentions; null votes. The motion passes seven to five to zero. All right, let's proceed on a vote on the motion as amended. All in favor of the motion as amended –

MR. HASBROUCK: Clarification, please; what are we voting on?

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CHAIRMAN McKIERNAN: We're going to vote on this new motion that Doug has successfully amended. David; question?

MR. SIMPSON: So the motion is to – a favorable motion here or a favorable outcome would limit participation in the trap fishery to currently lobster permit holders only; and that would include in federal waters. We have from both the New England Council and NOAA Fisheries that that is not something they would support in a federal waters fishery; is that right?

CHAIRMAN McKIERNAN: Well, I think what they said in their comments is that they want to maintain existing levels of participation. It is my personal perception that having attended the hearings and read the comments the existence of a directed Jonah Crab trap fisherman hasn't been well documented. In the absence of data I think they would have to document that should they decide not to proceed with this rule.

MR. SIMPSON: So potentially there are people who have been participating in this fishery maybe for a number of years who would be locked out of this fishery – kicked out of the fishery if this passed?

CHAIRMAN McKIERNAN: They would have to obtain a lobster permit and trap tags; but to my knowledge we didn't hear from them during the public comment period. Jim Gilmore.

MR. GILMORE: Okay, perfect timing because that's exactly my question. I have seven fishermen that are state-only fishermen. If this passes, they essentially will be locked out of the fishery unless – and I need clarification on this – establish an incidental permit now; so how I would get those seven guys not locked out of the fishery if this passes?

CHAIRMAN McKIERNAN: These are fishermen who do not have lobster permits?

MR. GILMORE: That's correct; they just have state crab permits and they fish in state waters; but they're fishing for Jonah Crabs. According to this if they don't have a lobster license now, they can't fish any longer.

CHAIRMAN McKIERNAN: And they are using a trap that is a Jonah Crab trap?

MR. GILMORE: Yes; correct.

CHAIRMAN McKIERNAN: Is it defined by the state of New York as a Jonah Crab trap?

MR. GILMORE: I'm not a hundred percent sure. I don't know that, Dan, but in any event the way it is right now we could adjust that. We could maybe change some rules within the state fishery; but right now this precludes them, so that's what I'm trying to get an answer for on how we would deal with this.

CHAIRMAN McKIERNAN: They would have to be part of the population of lobster permit holders and use a trap that meets the lobster plan's specifications and have a valid lobster trap tag in the trap.

MR. GILMORE: Right; but our fishery, there is a moratorium on the lobsters, so they can't get that so they're out of the fishery.

CHAIRMAN McKIERNAN: You don't allow transfers? No. Bill Adler.

MR. ADLER: Doesn't "and establish an incidental permit for retention of Jonah Crabs" allow for New York to do that to keep them in the fishery?

CHAIRMAN McKIERNAN: We need to check the language in the document, Bill. Bill, the language in the document says, "Landing of Jonah Crabs by all others", which I assume is non-trap fishermen. I guess that would have to be clarified whether the person without the lobster permit can continue to fish with an incidental permit; but we don't have any definition of a

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crab trap. That's a different option in the list. That is not Option 5. Terry Stockwell.

MR. STOCKWELL: Mr. Chairman, while the current landings from non-trap gear are only 3 to 4 percent of the current landings; many of them are landing well in excess of 500 pounds a day. The motion as amended will essentially lock this fishery out of the – this existing fishery out of the new fishery. I can fairly well guarantee the New England Council's involvement come the fall prioritizations. I will be voting against this.

MR. BORDEN: Mr. Chairman, one way to handle Jim's problem – and because of what I've said before, I'm not going to make this as a motion to amend – would be after the end of "permit" in the third line, then add some language that said "or can prove prior participation in the crab fishery" after that. If you did that, then individuals like the eight individuals in New York and I think there are four individuals in Rhode Island that are in a similar circumstance where the state agency actually has catch records that can prove that they participated in the fishery before the control date; the agencies would have the flexibility to issue permits to them. Thank you.

CHAIRMAN MCKIERNAN: Mark, do you want to make that as an amendment?

MR. GIBSON: Yes; I will move to amend so that after "already hold a lobster permit or can prove past participation in the fishery".

CHAIRMAN MCKIERNAN: Seconded by Jim Gilmore. Question on the amendment; does that mean New York would issue a crab trap tag to those individuals?

MR. GILMORE: Possibly. Now I have a mechanism to fix this; so, yes, I probably would, but I'd have to make it consistent with the rest of our crab stuff. Yes, I would probably do that, Mr. Chairman.

CHAIRMAN MCKIERNAN: And what would the trap limit be for those fishermen?

MR. GILMORE: I probably would use – you know, if they're going to document existing harvest, we would just go with their history as opposed to increasing. The idea was to not increase harvest but not throw anybody out of the fishery; so if we maintain it at the existing level, then I think that would be in the spirit of what we're trying to do with the addendum.

MR. O'REILLY: So it turns out there is more than just a couple of states with that situation and I'm not sure we've even identified all the states that have Jonah Crab harvest; so I think what Jim is indicating is a good suggestion; and whether it is a permitting or how it goes at the state level, I think that would be the way to go.

CHAIRMAN MCKIERNAN: Sorry, I couldn't hear you.

MR. O'REILLY: I was going to say a permitting situation could develop for those who have already been landing in the state. I wasn't really sure about the trap part of it because from what I read, that is a variable situation.

If they're not tied to the lobster permit directly and the lobster fishery and they fall in the incidental, it may be gear that is not exactly similar to a lobster trap, but it could be permitted based on their landings.

CHAIRMAN MCKIERNAN: I think some of the other options in the plan tried to get at this by defining a crab trap with some kind of specifications which no one has come forward with, which is kind of frustrating. I guess at this point, if there are no other comments, we can take a vote on the motion. Yes, Jim.

MR. GILMORE: Mark, maybe you should look at that because I don't think that's exactly what Mark said.

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MR. GIBSON: No, it is not what I said. The motion was to add some wording about demonstrating past participation in the fishery probably before the control date. It wasn't specific to a particular state or type of license.

MR. ERIC REID: Mr. Chairman, I don't know where it fits in, but I like the piece count and not the pounds. We've got a mess going on here now and I don't know where that fits in. Roberts Rules of Order could maybe help me out across the way there, but I prefer the piece count and I think enforcement would the piece count as well in the original motion.

CHAIRMAN MCKIERNAN: Well, we need to get this resolved. I'd like to get this amendment resolved and then we can come back to you. Mark, what is your amendment?

MR. GIBSON: My suggested wording – I can't see the main motion so I can't refer you to where it should go, but the additional language would say "or can prove prior participation in the crab fishery" and that would be inserted after the sentence that ended in "requirement to be in the lobster fishery with a lobster license and lobster trap tags".

CHAIRMAN MCKIERNAN: Mark, do you envision states grandfathering them into the lobster fishery or do you envision states creating a stand-alone fishery with its own limits and specifications and trap tags?

MR. GIBSON: We wouldn't be requiring – anybody who can demonstrate his past participation to our satisfaction wouldn't have to have a lobster permit with lobster trap tags.

CHAIRMAN MCKIERNAN: And you would issue them a Jonah Crab permit?

MR. GIBSON: The states would have to devise the documentation and proper permitting documentation to do that.

CHAIRMAN MCKIERNAN: And do you suggest that come forward in an amendment to this plan?

MR. GIBSON: It is an amendment to this motion.

CHAIRMAN MCKIERNAN: But it is a long-term strategy to have a separate fishery for Jonah Crabs and the document discusses that with specifications on traps with trap limits. That would all have to be resolved if you went forward with that.

MR. GIBSON: Only for those individuals that qualify relative to past participation. It wouldn't be new participants.

CHAIRMAN MCKIERNAN: I'll read the motion: motion to amend to insert the following quote, "or can prove prior participation in the crab fishery that can be demonstrated before the control date". Motion by Mr. Gibson; seconded by Mr. Gilmore. Discussion on this? Walter.

REPRESENTATIVE KUMIEGA: Would these be state-water permits only? I know that Mr. Gilmore said that New York is a state-water fishery only. I don't know about other states.

MR. GIBSON: That is the only jurisdiction the states have over permitting matters.

CHAIRMAN MCKIERNAN: True, Mark, but we do intend to give NMFS guidance on what they're going to do with the federal part of the fishery. Doug.

MR. GROUT: I have empathy with this and sympathy; but the part that I'm having problems with is the fact that we have the lion's share of the fishery that has trap limits has certain gear restrictions or the other part of this motion limits the poundage landed. This clearly does a good job of limiting the participants but does not put any limits on the effort that are put on the other parts of the fishery. Without that in there or some kind of limit on the effort, I can't support

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this even though I'm very sympathetic to the historical crab trap participants. I think they should be left in.

MS. MURPHY: Mr. Chairman, just a question. If multiple states are considering allowing participation of crab-only fishermen, would it be helpful to have a consistent set of criteria to demonstrate their participation?

CHAIRMAN MCKIERNAN: Certainly. We do have a control date so that's the first criteria. Do you have some in mind?

MS. MURPHY: Not specifically, but I didn't know if other states have ideas on a set poundage that folks have landed or anything else that they feel would be useful.

MR. STEPHEN R. TRAIN: Mr. Chair, very similar to Doug, I don't have a problem with the fact that some of these guys have got participation and they would like to stay in; but without effort controls on the exemption, I can't support the amendment. This leaves a very increase possibility of effort.

MR. GILMORE: I understand your concept, but you're talking seven permits in New York, a couple in Rhode Island, whatever, so this is not a large increase, Steve. This is like to cover those guys. If the shoe was on the other foot and we were eliminating your guys, I think New England would be screaming bloody murder.

We're just trying to cover again a limited number of guys in the fishery with limited take, and we can control that by their history. We're not opening this up to the Wild West of the Jonah Crab fishery. I think it would be really inappropriate for us to not to compensate for that. If you want stuff in here to put more harvest controls, then that's fine, but I think we're just making this way too messy for a limited number of guys that are going to be in the fishery.

CHAIRMAN MCKIERNAN: Jim, to Steve Train's point, I think what is missing here is all the other limits that already exist on the lobster fishery. The trap limit, the escape vent; none of that exists for a Jonah crab fishery. I think that's where people get uncomfortable. Is there some way that we can approve this and resolve this with something going forward? Toni.

MS. KERNS: Dan, this is sort of one of the options, which I don't have the plan in front of me so I can't say which one it is, but it talks about how we can create a crab plan; and that if we were to do that, then we would have to go down the road with an addendum that would look at all of those things if we were to indicate that was the direction we were going to go.

We would have to do an immediate follow-up addendum that would put together what would be your participation history that you would need to establish to go through this and would you need to do any crab trap limits, et cetera, that would meet the specifications of the board. That would go out for public comment just like any other document would. That was the indication that we gave the public when we went out for comments on this document that this was the road we would go down.

CHAIRMAN MCKIERNAN: Toni, that would be Options 3 or 4 on Page 17 of the document. Jim, is that what you have in mind, one of the existing options?

MR. GILMORE: It is now.

MR. SIMPSON: I think there are enough board members around the table that feel like there is going to be something else needed to add to this later on, and the process I think Toni just laid out, but I'm comfortable voting for this measure now to make sure that we don't cut out current participants.

Let's face it; we're going to let every lobsterman in whether or not they ever landed any Jonah

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Crab; so talk about a potential for an expanding fishery. I think in fairness we can pass this and then later on this afternoon initiate an addendum to talk about trap limits and the specifications that others may feel are important to add on.

CHAIRMAN MCKIERNAN: Well, I guess we should call the question. Jim, just one clarifying question before we vote. Is it your intent to propose in the future, whether it be this afternoon at the next meeting, the limits that would be placed on these vessels?

MR. GILMORE: Yes, Mr. Chairman.

CHAIRMAN MCKIERNAN: All right, let's cast vote. All in favor raise your right hand; opposed; abstentions; null votes. It passes by eleven, zero, one. All right, the next issue is I'd like to bundle our biological measures. All right, let's take a vote on the final motion. The motion is up with the new amendment.

Motion as amended: Move to adopt the following provisions to address the issues of commercial permitting and harvest limits of Jonah crab: Approve Section 4.1 (Issue 1) Option 5: Commercial Fisheries Management Measures, to limit participation in the trap fishery to only those vessels and permit holders that already hold a lobster permit or can prove prior participation in the crab fishery that can be demonstrated before the control date; and further require all traps conform to specifications of the lobster plan (including trap tags); and establish an incidental permit for retention of Jonah crab. Approve for Issue 6 Option 2: Incidental Bycatch Limit for Non-Trap Gear, 200 pounds per calendar day up to a maximum 500-pound trip limit. Eric.

MR. REID: Mr. Chairman, I'd like to propose an amendment to change 200 pounds to 200 pieces and 500 pounds to 500 pieces. Without beating a dead horse, it is for the ease of enforcement.

CHAIRMAN MCKIERNAN: Is there a second to his amendment? Bill Adler seconds. Discussion on the amendment? Dave Simpson.

MR. SIMPSON: That's a pretty big cut, it seems like. I don't know what the average weight of a Jonah Crab is, but I suspect that it is substantially less than a pound. Maybe Bob can shed light on that.

MR. GLENN: In talking to John Williams, one of the primary processors in New Bedford, for what they call an average run, they run about a pound apiece.

CHAIRMAN MCKIERNAN: Any other questions or comments on the motion? All right, let's vote on the motion. All in favor, right hand up; opposed, none opposed; abstentions; null votes.

MR. GROUT: Just to clarify for the record that when we're talking – since this has passed; that we're talking about whole crabs and not parts with pieces. Is everybody clear on that; is that the intent? Okay.

CHAIRMAN MCKIERNAN: Now we're going to vote on that main motion as amended. Allie, did you have a comment.

MS. MURPHY: Mr. Chairman, I know there was discussion going; and I just didn't know where we landed with allowing crab-only participants. In this motion now, will the board be developing criteria to determine a level of past participation that is acceptable in a future addendum?

CHAIRMAN MCKIERNAN: That's an excellent question, and I turn to those who seek grandfather in these unfortunate participants. Jim Gilmore.

MR. GILMORE: The answer is yes, but I think we're going to have to do an addendum is probably the cleanest way to do this. I think we're probably going to have to start this at best today and then maybe going to the next

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meeting. I'm not sure of the timing, but, yes, an addendum would make the most sense.

CHAIRMAN McKIERNAN: So you would consider coming forward with a proposed addendum at the next meeting?

MR. GILMORE: Yes, Mr. Chairman.

CHAIRMAN McKIERNAN: Allie, does that help?

MS. MURPHY: Should we add some language to the motion then to get assurances that will happen?

CHAIRMAN McKIERNAN: I think that's a fine idea, Jim. I think the issues are what level of participation and whether there would be a trap limit that would be levied on these folks. Toni.

MS. KERNS: I was just going to suggest we stay clear of initiating an addendum in a motion that's trying to finalize an FMP. If we could do that once we are completely done with the FMP and then talk about initiating the addendum; that would be much cleaner.

CHAIRMAN McKIERNAN: So Jim promises to bring that up in a follow-up motion.

MR. GILMORE: And cross my heart and hope to die.

CHAIRMAN McKIERNAN: All right, we're going to vote on the whole motion that's on the board.

(The following is the main motion as amended: Move to adopt the following provisions to address the issues of commercial permitting and harvest limits of Jonah crab: Approve Section 4.1 (Issue 1) Option 5: Commercial Fisheries Management Measures, to limit participation in the trap fishery to only those vessels and permit holders that already hold a lobster permit or can prove prior participation in the crab fishery that can be demonstrated before the control date; and further require all traps conform to

specifications of the lobster plan (including trap tags), and establish an incidental permit for retention of Jonah crab. Approve for Issue 6 Option 2: Incidental Bycatch Limit for Non-Trap Gear 200 pieces per calendar day up to a maximum 500 pieces per trip limit.)

All in favor of the motion as presented on the board; opposed; abstentions; null votes. It passes eleven to one. Now I'll move on to the bundle of biological measures. I suggest that we consider a set of motions for the minimum size, the tolerance and the egg-bearing females as one motion. Bill Adler.

MR. ADLER: I'll make a motion to adopt the following biological measures for commercial Jonah crab harvest: For Issue 2, minimum size, Option 5, a minimum size of 4.75 inches; for Issue 3, commercial minimum size tolerance, Option 1, no tolerance for undersize crabs; for Issue 5, egg-bearing females, Option 2, prohibit retention of egg-bearing females.

CHAIRMAN McKIERNAN: Is there a second; I've got one from Pat Keliher. Discussion on the motion? Steve Train.

MR. TRAIN: As I understand from the discussion we had, the 4.75 inches was for ease of enforcement to do away with the tolerance. Everything we've seen so far scientifically, although it is not much said 5 inches is biologically better and the market wants a 5 inch; so can we step in a 5-inch minimum in two or three years? Should it be in this motion to allow the enforcement and the use of enforcement on this and then get to where I think we probably should be or we just wait until we get our science back and then go to an amendment?

CHAIRMAN McKIERNAN: I want to ask Bob Glenn o give us sort of a synopsis of the research that you guys are going to be doing over the next 18 months.

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MR. GLENN: We recently received a grant to conduct a Jonah Crab Maturity Study, which the results should be out in about 18 months. Given the port sampling that we've done looking at over 9,000 crabs in Massachusetts primarily that come from the offshore as well as inshore crabs that were taken in Rhode Island Sound, we don't even see – less than 1 percent of the female crabs that we see are in excess of 4-3/4 inches.

Based on the lack of existence of them larger than that size, it is my anticipation that the size at maturity is going to be below that 4-3/4 inch or certainly that would encompass it. I can't envision a scenario where it wouldn't unless we're just not sampling that segment of the population; and then I don't know how we would detect that in a study.

CHAIRMAN MCKIERNAN: Steve, I guess we could do either. We could await the results of that study or and do an addendum in the future. It is an open question. Doug Grout.

MR. GROUT: I saw in our public comment, outside of what was in the AP, a lot of support for a 5-inch minimum size because they believed that would essentially preclude the harvest of females. One of the arguments was in that case you obviously wouldn't even to have an egg-bearing female prohibition because you'd be precluding most of the females. I would like to make a motion to amend and if I can get a second on this I'll provide a justification, but a motion to amend that we make the minimum size 5 inches. I believe that is Option 6.

CHAIRMAN MCKIERNAN: Doug, it was our understanding that a lot of those desires for a 5 inch also were asking for a tolerance. I'm asking that you re-bundle these, so just be aware of that.

MR. GROUT: It doesn't include a tolerance at least in my motion because of the report of the Law Enforcement Committee.

CHAIRMAN MCKIERNAN: Okay, is there a second for Doug's amendment to the motion?

MR. TRAIN: I'll second it if he makes it effective 2018.

MR. GROUT: No, I'm not.

CHAIRMAN MCKIERNAN: Your response?

MR. GROUT: No; it is as is.

CHAIRMAN MCKIERNAN: I don't see a second on that amendment; so we're back to the back motion. Any other comments? Yes, Emerson.

MR. HASBROUCK: Mr. Chairman, I would just like to bring to the board's attention that under 4.4.2, adaptive management includes size limits, so that is something that we can do relatively easily and quickly depending on the results of this upcoming research that's going to be conducted.

CHAIRMAN MCKIERNAN: Thank you; that's a good point. Are we ready to vote? I see David Spencer from the audience; would you like to comment before we take a vote on this?

MR. DAVID SPENCER: Mr. Chairman, I have two comments; one regarding tolerance and one regarding minimum size. I support in my perfect world a 5-inch minimum size with 5 percent tolerance. Understanding that we're not going to get tolerance today, I'm willing to go with 4-3/4; but what does not make any sense to me – it is well documented.

The vast majority of crabs landed are 5 inch or better; and we're putting in a conservational management plan at a lower standard. That doesn't make sense. I'm willing to start there, but I'd like to see it go up as Steve Train suggested. The other thing on tolerance; I understand it creates a problem for law enforcement; but I think what everybody needs to know with no tolerance, every time an

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offshore boat lands there is going to be a violation. That's the nature of this business.

I don't care what the minimum size is; that is just going to be the way it is. I don't think it is prudent to create a management plan knowing that every time a boat lands, you're going to have a violation. I would hope that we can continue the discussion of tolerance and try to come up with something because I don't think it is a good idea to move forward. I will go forward at 4-3/4 without it, but it really needs to be vetted and find a way to make it work. Thank you.

MR. ADLER: Very quickly; that toolbox that we have at the end of this thing; does that include that people can talk about a tolerance thing later if somehow we work it out? Is that in the toolbox?

CHAIRMAN MCKIERNAN: Measures subject to change, 4.4.2.

MR. ADLER: I just don't want to have to do another amendment.

CHAIRMAN MCKIERNAN: Yes, I would say minimum sizes can be amended and tolerances can be part of minimum sizes. I don't see any problem with that, Bill. Let's vote on this motion as presented on the board. All in favor; all opposed; abstentions; null votes. The motion passes unanimously. The next issue I'd like to take up is the landing of parts. Bill.

MR. ADLER: Motion to adopt the following measure regarding landing of parts; Option 2, only whole crabs may be retained and sold.

CHAIRMAN MCKIERNAN: Do I have a second on that motion; Mark Gibson. Discussion on the motion? Any discussion on the motion about landing of parts? Yes, Mike Luisi.

MR. LUISI: There have been a few points made regarding the crab claw issue. Rob O'Reilly

mentioned kind of what the scale of the catch is in the DelMarVa area, which has been a historically significant fishery to the fishermen who have participated.

Given that I think I read in the plan that only a couple percent of the overall catch of Jonah Crab come from our three states, I would like to amend this motion – I guess there is two ways to do it – amend the motion for Option 2 to exclude Maryland, Delaware, and Virginia.

CHAIRMAN MCKIERNAN: Can I get a second on that motion? John Clark seconds. Discussion on the motion? Tom.

MR. TOM BAUM: I would like to see New Jersey included in that amendment. We do land claws. Actually the most recent at-sea sampling confirm that these guys are still cracking claws and landing them.

MR. O'REILLY: Mr. Chairman, it looks like from our data that it has not only been Virginians that have landed in Virginia on the claws; but I know in your packet earlier on that went over the public comments, some of the justification that was provided is pretty obvious that as a bycatch compared to the vessel size to take the whole crabs, the practice has developed over many years with very limited individual – if I say one – to take the claws.

I did read some of the comments that were also talking about the perhaps detriments of taking claws, but I don't know of an exact study other than maybe stone crab that really has covered it very much in terms of growth rates, reproduction and feeding, whether they really are impacted. I'm aware that there could be some information that we could get as we go forward.

CHAIRMAN MCKIERNAN: I'm going to ask Bob Glenn to comment on that, Rob.

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MR. GLENN: I'm not aware of any specific studies on Jonah Crabs that have looked at post-release mortality after they've had their claws taken off. One other basic way to think about it is if you take the whole crab home, that would be a hundred percent mortality whereas taking the claws off and throwing them back would be potentially some proportion of less mortality.

MR. WHITE: Mr. Chairman, is the intent of this motion that fishermen licensed in these states landing in these states; is that the intent?

CHAIRMAN MCKIERNAN: I look for the motion maker to make the clarification.

MR. LUISI: That was my intent. It would be for Maryland, Virginia and Delaware – and I can't address the point that Mr. Baum made about New Jersey; but it was my intent that these would be licensed fishermen from these states who would be coming with the crab claws only.

REPRESENTATIVE KUMIEGA: A question on this; are these states claw-only fishery or do they land whole crabs and other fishermen land claws?

MR. LUISI: We had two fishermen last year. One landed the whole crabs; the other one just landed claws. The one who landed the whole crab just sold his entire operation. The boat is no longer in our port so now we're to one. I think Virginia has two fishermen and Delaware has one fisherman currently that would qualify under the provisions that we sent for the permitting portion of this meeting to catch Jonah Crab. I don't know about New Jersey. It is awfully lonely on this side of the room today. I have been talking a lot with my neighbors, but I haven't stretched out across the table yet. I'd ask Tom to clarify that.

MR. BAUM: Yes; we have both lobster fishermen who land claws and also whole parts; so different fishermen land different products, yes. Mr. Chair, would I be able to amend this motion or substitute it to include New Jersey right now or

ask the makers of the motion to include New Jersey?

MR. LUISI: Yes; we'd be happy to do that as a friendly amendment if that's okay with you, Mr. Chairman.

CHAIRMAN MCKIERNAN: Certainly, that's fine; yes from John Clark. David Borden.

MR. BORDEN: Mr. Chairman, there is a little bit of a divergence in the discussion there about whether or not the participants in the states would be allowed to do it or whether anyone that lands in that state; so if in fact a northern boat went down to New Jersey, could they participate in the claw fishery or would this fishery be capped at its current rate.

I think as everybody knows around the table, this is an extraordinarily limited fishery right now. Personally I don't see anything wrong with a provision that caps the current fishery and allows the current fishery to continue; but I'm opposed to allowing an expansion of this for a number of reasons, most of which relate to some of the enforcement concerns.

CHAIRMAN MCKIERNAN: I think we're going to have trouble when we ask the National Marine Fisheries Service to enact federal rules if we're going to have boats with different ports of landing to have different conservation standards. That's just my view. Yes, Rob.

MR. O'REILLY: What Mr. Gilmore brought forward earlier really applies here as well, the previous history, because there might be some states that really haven't looked at their data carefully enough. I don't know that; I don't mean that disparagingly. There could be some landings of claws in other states; but we could certainly look at holding it to past landings, past participation. That would be the cap I think that Dave Borden is talking about; and I think that's important.

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CHAIRMAN MCKIERNAN: Rob, I think Jim was making an argument about a state-waters participant seeking sort of a treatment by its state officials. Are we talking about boats being able to possess claws in the EEZ?

MR. O'REILLY: I was talking about landing of claws and specifically as a bycatch from the lobster fishery landing in Virginia where we could identify the individual right now. We could identify who that was and I'm sure Maryland could do the same and New Jersey could do the same. I don't know about the other states.

MS. KERNS: Well, the board just approved a minimum size limit; so I'm just trying to determine if we would have some sort of equivalent measure to meet that. How would we know if we were meeting that minimum size limit in the claw fishery and would it apply here? Would you have a claw length that go along to match that 4.75 inches?

CHAIRMAN MCKIERNAN: Are you talking about a conservation equivalency for a part?

MS. KERNS: Well, we would need some sort of measure to prove that those claws were harvested from crabs that were at least 4.75 inches in carapace length.

CHAIRMAN MCKIERNAN: Yes; and this motion doesn't have that. Emerson wanted to comment.

MR. HASBROUCK: I had similar concerns where landing of parts could allow people to circumvent minimum size or even the possession of egg-bearing females just by breaking the claws off. I would also, with your permission, like to ask the maker of the motion why it is that these fishermen can't just bring in whole crabs and then let the wholesaler that they're selling them to break off the claws and put them into the marketplace as they would just the straight claws.

MR. LUISI: It is not that they can't do it. It has just been their practice for however many years they've been participating. Some of it goes to the perception that was mentioned in the issue earlier about a crab being landed whole is a hundred percent mortality. A crab where the claws are broken off and released back to the water; they see that some benefit back to the resource.

We're literally talking about the most minimal amount of effort you can place on a resource with just a couple of people fishing on it in deep water off of our tristate area. Can they land whole crabs; yes. If this board decides that the whole crab provision is ultimately where you'd like to go, I'm sure they can do it.

I think at that point I would work with my colleagues to begin the discussion on collecting information as to the comment or the question that I asked the Law Enforcement Committee earlier about coming up with some secondary measure. If minimum size and egg-bearing females, if that becomes an issue enough for this board, then we'll get there. It is just that is what I was asking as the maker of this motion. I don't know if John has anything to add.

MR. KELIHER: I thought the Law Enforcement Committee Report was pretty clear regarding the issues surrounding enforcement with landing claws; and that's the reason I support the original motion. I think the issue, though, here at hand as long as it can clear that we're capping these state fishermen to really this and to ensure that we don't have an explosion of growth in this area would be important. If we can get to that, I could potentially support it.

CHAIRMAN MCKIERNAN: I'm going to ask Peter or Allie to speak to this because we're talking about possession in the EEZ, in the federal zone of parts and rules being applied to fishermen from different states. You've got to weigh in on that.

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MS. MURPHY: Mr. Chairman, I agree with your previous statements that it would be difficult for us to have different regulations in different states and figuring out a way to implement that. I'll go back to our previous comment from our letter is that in general we don't support a parts' fishery until there is some survivability study done that can demonstrate that this isn't a bad thing.

MR. GILMORE: Just a question to Jersey, because Mike Luisi had characterized I think Virginia – each one of the three states – Delaware and Maryland had a couple of fishermen or whatever. Jersey just said that they had claw fishermen. Can you quantify actually how many fishermen are doing that or permits that you have?

MR. BAUM: I would say there are more that harvest whole crabs than just the claws; so at least one of them is harvesting claws right now. It could be up to three.

CHAIRMAN McKIERNAN: All right, we need to move on, but Rob O'Reilly raised his hand, so go ahead.

MR. O'REILLY: Mr. Chairman, I just wanted to follow up for Emerson's question. The information from the Virginia fishermen is volume and temperature; so lobster fishermen, the volume it would take to have the animals on board but also the temperature situation off Virginia compared to up the coast; and that's a consideration as well. Those are the two factors that he illustrated.

MR. GROUT: For clarity should we add to this that it would exclude Delaware, Maryland and Virginia for vessels that can document crab parts' landings prior to the control date, the same way that we applied that to the crab pot fishery? I mean it sounded like that's what Rob's intention was here; and I wanted to make sure that was the intention of the other three states that are potentially getting this exemption; that

it would be limited to just the people that can document crab parts' landings' history prior to the control date.

CHAIRMAN McKIERNAN: Again, I go back to Peter and Allie; is the National Marine Fisheries Service comfortable adopting complementary rules to this commission plan with states of origin – would those vessels with certain permits being exempted from the minimum size in this scenario?

MS. MURPHY: I think this would be difficult for us to do.

CHAIRMAN McKIERNAN: All right, let's call the question and get this over with. David, is it critical?

MR. SIMPSON: Well, just for clarification; I move to amend the motion to exclude New Jersey, Delaware, and Maryland from what? I mean, the discussion has been the claws, I think, but I'm just confused because we don't have a current motion, I don't think, to amend. If it could just clarify what you're being excluded from –

MR. LUISI: Yes; there was a motion to select Option 2, which was what I amended; so to select Option 2 which would require the whole crab to be landed; I'm suggesting that I amend this to exclude the four states from that provision with the assumption that it is crab claws that are being landed.

MR. ADLER: Mr. Chairman, if this motion fails – once again we go back to a toolbox – is it possible for those states to submit to this board conservation equivalency as they work out this crab/claw thing and submit it to us for possible approval; will that be possible for them?

CHAIRMAN McKIERNAN: Yes; I believe it will, Bill. Rob.

MR. O'REILLY: I'm not sure I like that route. I think what Doug was indicating and what I

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indicated earlier that I'd offer as an amendment to this that the exemption only apply to those individuals who had landed claws prior to the control date. I think that is necessary and would offer that as an amendment.

CHAIRMAN McKIERNAN: Is there a second? Doug seconded. Any discussion on that amendment? Rob.

MR. O'REILLY: I think we have the information and I think it is important to establish that and I think it is in keeping with the previous doubly or triply amended motion that we approved in terms of what we do as far as the fishery overall and as far as past participation.

MR. LUISI: Mr. Chairman, I was going to suggest that we can just add it to our amended motion as a friendly.

CHAIRMAN McKIERNAN: Mike, do you want to read the motion for the record?

MR. LUISI: Okay, move to amend to exclude individuals who can prove a history of claw landings before the control date in the states of New Jersey, Delaware, Maryland, and Virginia from Option 2 (only whole crabs may be retained and sold). Motion by Mr. Luisi; seconded by Mr. Clark.

MR. ABBOTT: Mr. Chairman, does the effect of this mean that they're not affected by minimum size and keeping egg-bearing females?

CHAIRMAN McKIERNAN: It certainly would make it difficult to enforce the minimum size with a claw allowance unless we come up with a conservation equivalency with a morphometric study that a claw of a certain size can be correlated with a crab of a certain carapace width. Dave.

MR. SIMPSON: I guess I'd say I'm sympathetic to the problem for a few fishermen, but the amendment to the amended motion makes it

even more difficult for me to support because this is a fishery that occurs in federal waters and so now it is not just what state are you landing in or do you intend to land it; but do you also have this special history so you'd even be treating fishermen from the same state. I think it is getting a little too refined for effective law enforcement.

CHAIRMAN McKIERNAN: All right, no more comments; why don't we vote on this motion to amend. One-minute caucus.

(Whereupon, a caucus was held.)

CHAIRMAN McKIERNAN: All right, all in favor of the motion; all opposed; abstentions; null votes. It passes six to five to one. All right, now on the main motion as amended; this is the new amended motion.

The motion is to adopt the following measure regarding landing of parts – Option 2: Only whole crabs may be retained and sold; and to exclude individuals who can prove a history of claw landings before the control date in the states of New Jersey, Delaware, Maryland, and Virginia from Option 2 (only whole crabs may be retained and sold). All in favor; opposed; abstentions; null votes. All right, it passed nine, two, one, zero. The next issue has to do with recreational harvest, recreational limits. Bill, do you have a motion?

MR. ADLER: Motion to adopt the following biological measures for recreational Jonah Crab harvest: For Issue 1, possession limits, Option 2, 50 whole crabs per person; for Issue 2, prohibition on retention of egg-bearing females, Option 2, no egg-bearing females may be retained.

CHAIRMAN McKIERNAN: Do we have a second for Bill's motion; Doug Grout. Any discussion on the motion? Roy.

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MR. ROY MILLER: Dan, for my own information can Bill tell me what a recreational fisherman fishes with for Jonah Crabs?

MR. ADLER: A long string; no, he could be catching them in traps. I don't know; I suppose he could dive down with a string and a hook.

CHAIRMAN McKIERNAN: I think scuba divers can take crabs at least in Massachusetts. Also recreational potters might retain some Jonah Crabs in their lobster traps; folks walking along the shoreline. Any other questions or comments? Let's take a vote. All in favor; opposed; abstentions; null. Unanimously. Okay, the next issue is monitoring programs. Bill, do you have a motion?

MR. ADLER: Okay, I make a motion to adopt 3.4.1, Monitoring Programs. For Fishery-Dependent Data Collections, adopt Option 3, coast-wide mandatory reporting and fishery-dependent sampling with Sub-Option 1, 100 percent mandatory dealer and 100 percent harvester reporting. However, states that currently require less than 100 percent of harvesters to report are required to maintain their current programs and extend them to Jonah Crab.

CHAIRMAN McKIERNAN: Do we have a second for Bill's motion. Pat Keliher seconds the motion. Any discussion? Doug Grout.

MR. GROUT: I was wondering if we might be able to say maintain at a minimum only because this sort of would prohibit – the way I would read it, states that don't have a hundred percent from ever increasing because it would say they must maintain their current programs.

CHAIRMAN McKIERNAN: Bill, would you accept that as a friendly amendment?

MR. GROUT: I basically want to give the states that don't have the current hundred percent, to have the opportunity to increase the percentage

if they find the resources to be able to do that in the future.

MR. ADLER: Yes; and what was the wording.

MR. GROUT: Maintain at a minimum.

MR. ADLER: Yes; that is what I thought; okay.

CHAIRMAN McKIERNAN: I will read the motion. Motion to adopt 3.4.1, Monitoring Programs. For Fishery-Dependent Data Collections, adopt Option 3, coast-wide mandatory reporting and fishery-dependent sampling with Sub-option 1, 100 percent mandatory dealer and 100 percent harvester reporting. However, states that currently require less than 100 percent of harvesters to report are required to maintain at a minimum their current programs and extend them to Jonah crab. Motion by Mr. Adler; seconded by Mr. Keliher. Rob O'Reilly.

MR. O'REILLY: At the end there, there is still dealer reporting. I wondered what the timeframe was. Is there any special time period involved with dealer reporting here or is that strictly up to the state?

CHAIRMAN McKIERNAN: I'm assuming it is up to the state because all the dealers are on land; so that would be up to the state. Is that an issue; does your state require a hundred percent dealer reporting?

MR. O'REILLY: A hundred percent harvester reporting monthly; so that's why I kind of wondered about the dealer part of it because we would be going to very limited but a dealer report now.

CHAIRMAN McKIERNAN: Just as a point of clarification; does Virginia require all dealers to report all transactions?

MR. O'REILLY: No, Virginia requires all harvesters to report all harvest; and the dealers have to hold all that information for a year.

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Some species, yes, there is mandatory dealer reporting, but not all species.

CHAIRMAN McKIERNAN: And would you be able to implement this in a certain amount of time?

MR. O'REILLY: Yes.

MS. MURPHY: Mr. Chairman, I was just wondering if Mr. Adler would accept a friendly amendment to change "states" in the second sentence that begins with "however" to "jurisdictions"?

CHAIRMAN McKIERNAN: Bill, Allie has requested that instead of the expression "states" to "jurisdictions to currently require", which would allow – the net effect of that would be to allow the National Marine Fisheries Service to not require mandatory reporting of the harvesters at this time.

MR. ADLER: I have no problem with it unless somebody can bring up some reason why that shouldn't be.

CHAIRMAN McKIERNAN: All right, so we accept that as another friendly amendment; change the word "states" to "jurisdictions". No other comments; would you like to vote on the motion? All in favor; opposed; abstentions, null votes. Unanimous. All right, the last issue is the de minimis criteria. Bill, would you have a motion on that?

MR. ADLER: Motion to adopt de minimis criteria: approve a modified Option 1 and Sub-Option 1A by establishing de minimis criteria allowing states to apply for de minimis status if that state lands less than 1 percent of the overall commercial landings only. Due to inadequate recreational catch data, no consideration shall be given to recreational landings for purposes of de minimis determination.

CHAIRMAN McKIERNAN: Is there a second to that motion? Dennis Abbott seconded the motion. Any discussion? Rob O'Reilly.

MR. O'REILLY: Mr. Chairman, I'm just wondering about the time element; so usually de minimis is reflective of the previous year or the average of the previous two years or some marker in the past.

CHAIRMAN McKIERNAN: Toni, can you weigh in on the issue of the de minimis criteria and the number of years that might be averaged for its determination in this motion.

MS. KERNS: It can be up to the board. In some species it is one year and other species we do an average of years. The FMP I believe had an option or range; is that correct, Megan?

MS. WARE: I believe in the FMP it says three-year coast-wide average.

MS. KERNS: Three-year coast-wide average and then within the range of that is one, two or three or the average.

CHAIRMAN McKIERNAN: Rob, does that help?

MR. O'REILLY: Yes, that's fine; thank you.

MR. SIMPSON: Just as always I'm never clear on what de minimis buys you. A state is de minimis; what don't they have to do, what do they have to do?

MS. WARE: De minimis status gets a state out of fishery-independent sampling; and with the last motion, Option 3 was chosen, a state would also not be required to do port and sea sampling.

MS. KERNS: Dan, is it the intention to stick with the language that was in the document, the three-year average, or did you want to do something less than that?

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CHAIRMAN McKIERNAN: I think the three-year average; yes. Let's vote on the motion. All in favor; opposed; abstentions; null votes. Abstention from NMFS. Motion carries by a vote of eleven to zero to one abstention. Bill Adler.

MR. ADLER: Mr. Chairman, is it appropriate to make a motion to accept the plan amendment as worded today?

MS. KERNS: If we could just get some implementation dates prior to approving the document; and when we approve the document, we actually want to make a recommendation that the full commission adopt the FMP since this is a brand new document. We'll look for some implementation timeframes. This is a new plan. There are some changes in here so we need to know what is realistic for states to put these measures in place for the timing.

CHAIRMAN McKIERNAN: Any comments on implementation dates from the board? I know you don't want it to be implemented immediately; so whatever time state directors need to buy time, let's think about that. Doug.

MR. GROUT: Well, I'll throw it out for discussion. I know other states have more constraints than I do on such measures; but I would say by January 1, 2016, as a proposal. Does that work for people or do you need more; and if you do, please come up with another date that would work for you folks. Another option could be if we're going to tie this to the lobster fishery is the beginning of the lobster fishing year, which is June 1, 2016.

MR. GILMORE: Since I promised to do an addendum in the next meeting and that would make this a little tight for January, I like June 1st better. I'm not a hundred percent sure what I have to do when I go back home; so I think a little bit longer timeframe might be appropriate.

MR. GIBSON: I agree with June 1, 2016, for the aforementioned reason.

CHAIRMAN McKIERNAN: There seems to be consensus. Do we need to put that in a motion? Toni says no. All right, a roll call on the entire plan as amended.

MR. ADLER: Mr. Chairman, could I just say everything else that is in this document, including the toolbox is in the document; am I understanding that? Okay, fine, so what do you need now, Mr. Chairman?

CHAIRMAN McKIERNAN: You make a motion, Bill.

MR. ADLER: Motion to recommend to the full commission to adopt the Jonah Crab Fishery Management Plan as modified today.

CHAIRMAN McKIERNAN: Is there a second; Emerson. Allie.

MS. MURPHY: I just have a quick question. I know back at the beginning of the permitting discussion we were talking about a potential addendum to round out allowing the crab-only harvesters in. I'm just wondering if states would want some additional time so that addendum could be fully developed and go out for public comment and all of this could come together at the same time.

CHAIRMAN McKIERNAN: Jim, would you care to comment on that?

MR. GILMORE: Well, if we were going to do the control date; are we going to do the implementation date of June 1st? I would think that if we did the addendum at the annual meeting, initiate it, would we be able to have it – it is just a definition of harvest and I guess for grandfather things with gear restrictions on harvester; Toni, do you have a suggestion on this because I'm –

MS. KERNS: I think it is up to the states on how you want to move forward. Do you want to go ahead and move forward with these at least

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simple measures that are here; and it would be beholden to those – you know, you can still hold it to those – the minimum size, et cetera, you can behold to those people harvesting those crab.

How you deal with the crab-only pot fishermen would take a little bit longer, yes, and it would not be a June 1st implementation date. It would probably be later down the line just because of typically how long it takes to get history, et cetera, approved through management. You could do this part first and then have a second implementation date for the other permit holders in terms of their ability to be in the fishery. Until then those individuals – it would be somewhat open access for all others in the crab-only pot fishery.

MR. STOCKWELL: Mr. Chairman, a process question for Bob and/or Toni. Given that this is primarily a federal fishery and the New England Council may well be taking an action in 2016; what would be the process for merging this into a joint plan, particularly if there is disparate measures?

EXECUTIVE DIRECTOR BEAL: Well, I think as the council moves forward with their plan, assuming they make that a priority for next year, we're going to have to work with them. Obviously, they'll be aware of what the interstate plan is. We're going to have work on process. There is no set sort of tracks to develop a joint plan; so it is going to take some time to figure how to do that.

I think the idea is that these provisions that this board is about to approve will be the interim measures for this fishery. If the New England Council does decide to do a plan, I imagine anyway that is a two-year process or so to develop the plan, final approval and approval by the National Marine Fisheries Service. I would look at these measures that were talked about today as the interim measures. As we get more science and the New England Council decides what to do, we're all going to have to work

together and figure out what the overall management plan looks like in the future.

MR. O'REILLY: Mr. Chairman, based on Toni's comments, I'm just a little concerned about extending the time too much. New York is not only in the same situation. It may be inland but I think Rhode Island and Virginia have a similar situation with past performance, past history of non-lobster pot fishermen landing Jonah Crabs. Perhaps by the annual meeting we could all have something that we bring forward in terms of similarities on the gear aspect, on the performance aspect according to landings and maybe take this up again then. I think waiting well beyond June might be a problem.

CHAIRMAN MCKIERNAN: Okay, we will on that in the interim, between now and the annual meeting. Let's take a final vote on this motion to approve the plan; recommend to the full commission to approve this plan. They say we need a roll call vote. Motion to recommend to the full commission to adopt the Jonah Crab Fishery Management Plan as modified today. Motion by Mr. Adler; second by Mr. Hasbrouck.

MS. WARE: Maine.

MAINE: Yes.

MS. WARE: New Hampshire.

NEW HAMPSHIRE: Yes.

MS. WARE: Massachusetts.

MASSACHUSETTS: Yes.

MS. WARE: Rhode Island.

RHODE ISLAND: Yes.

MS. WARE: Connecticut.

CONNECTICUT: Yes.

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MS. WARE: New York.

NEW YORK: Yes.

MS. WARE: New Jersey.

NEW JERSEY: Yes.

MS. WARE: Delaware.

DELAWARE: Yes.

MS. WARE: Maryland.

MARYLAND: Yes.

MS. WARE: Virginia.

VIRGINIA: Yes.

MS. WARE: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE: Yes.

MS. WARE: New England Fishery Management Council.

NEW ENGLAND FISHERY MANAGEMENT COUNCIL: Yes.

CHAIRMAN McKIERNAN: It passed unanimously; 12 to zero to zero to zero. Toni, it is late and we have some items left on the agenda. We have update on the recent federal action concerning the Omnibus Habitat Amendment. We have the Lobster Trap Transfer Database Update; and we have a discussion of the New England Fishery Observer Program. Toni.

NEW ENGLAND FISHERY OBSERVER PROGRAM

MS. KERNS: I would like to suggest that we remove the discussion of the New England Fishery Observer Program, because our main discussant had to leave to catch a flight; Bob Glenn. Secondly, we invited a representative from NOAA and the Northeast Fisheries Science Center to come to talk to us about these issues

and no one was able to come down to attend; so we wouldn't have anybody to answer those questions directly.

LOBSTER TRAP TRANSFER DATABASE UPDATE

CHAIRMAN McKIERNAN: Okay, leaves us with the Trap Tag Database as the last item.

MS. WARE: There is just a quick overview of the program. The main issue we're trying to solve here is that there is no central database to track changes in allocation. This is particularly important for dual permit holders as the allocation for traps have changed overtime according to the Southern New England Addendum VII put in.

The goals have been to track allocations of traps across jurisdictions and to create a collaboration with state agencies and federal agencies and also to help agencies make more informed decisions. The overall message is that the Trap Transfer Program is ready to go for transfers affecting the 2016 fishing season.

Some of the features of it are a bank statement where it shows you what you had, what changed and then what you're left with. You get a receipt after each transaction; and then there is a limited ability to undo transactions but only for those that do not affect any other transactions, and so isolated events.

This is still in Phase 1; so what this means is that they are confident it is going to work, but we're still going to take suggestions as it is implemented since we're sure that some fishermen or maybe agencies will have some comments on how it could be improved. As for the timeline, applications for the trap transfers are now coming in.

Between October and December NMFS and the states are going to finalize the transfers. Then May 1, 2016, the revised allocations will become effective. We have sent notification out to

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fishermen. NOAA sent a letter to federal permit holders.

We have asked states in Areas 2, 3 and the Outer Cape Cod to send letters to their permit holders. Then there is also a Federal Register Notice June 4, 2015. That is it and I'll take any questions if there are any.

MR. ADLER: Mr. Chairman, first of all, what were those dates again after the August thing? You had it up on the board. That is October to December and then May 1st it takes place; is that what you've got?

MS. WARE: That is what is on the screen, yes.

MR. ADLER: Okay, and the last question I had was unrelated, actually. Did you put off the observer program item to another time?

CHAIRMAN MCKIERNAN: We did because we lost Bob Glenn to an early flight.

MR. ADLER: So that's off the agenda?

CONSIDER TABLED MOTION FROM MAY, 2015

CHAIRMAN MCKIERNAN: For today. Toni wants us to take some action on the issue of the Omnibus Habitat Amendment.

MS. KERNS: Well, the board tabled the motion to this meeting so it does automatically come back to the table. The board would need to either dispense the motion or –

CHAIRMAN MCKIERNAN: Can we table it until the November meeting?

EXECUTIVE DIRECTOR BELL: Obviously, it is up to the board what they want to do; but one suggestion might be to table the motion until the board determines what the National Marine Fisheries Service is going to do with the recommendation from the New England Council. As a reminder, this is the motion that the commission was going to initiate an addendum

to implement a closure for mobile gear, I believe is the wording, in Closed Area II north of the 41/30 line from June 15th through the end of October.

This was sort of a placeholder as the New England Council worked through their Omnibus Amendment. They've completed that action and the recommendation to the National Marine Fisheries Service includes that closure that this addendum would contemplate. The assumption is everything moves forward from the council to the National Marine Fisheries Service and the National Marine Fisheries Service approves this closure; then that action that this addendum would consider has already been taken care of; so there is no need for the board to take action.

But if something happens and the National Marine Fisheries Service ultimately does not approve that time-area closure; then this board likely would want to take some action. We're not going to really have a signal what NOAA Fisheries is going to do probably until they have a proposed rule out. One option would be to table that motion until the proposed rule on the Omnibus Habitat Amendment is available.

MR. GROUT: Well, I assume since this is a table motion to this meeting; it is on the table now again; and I would like to make a motion to table this motion until a final decision by the National Marine Fisheries Service on this particular issue in the Habitat Amendment.

CHAIRMAN MCKIERNAN: Is there a second to his motion; Dave Simpson. Any discussion?

MR. NOWALSKY: Would we want to table it until the final rule or would we want to table it until the proposed rule is out, which would then give this board the ability to submit comment to the Service?

MR. GROUT: Well, I think the board could comment to the Service one way or the other. The reason I wanted to table it until the final rule

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is out is because a lot of times in a proposed rule they'll propose it because it is something that the council has proposed; but then they may disapprove a part of that particular measure. They can partially approve an amendment. We really won't know what the final decision is until the final rule. As I said, if they propose the rule that includes these provisions; then the commission and the board can clearly provide comment that we support this.

REPRESENTATIVE KUMIEGA: Point of order; a motion to table isn't debatable.

CHAIRMAN McKIERNAN: Okay, Bob, do you agree with that. Okay, then we will take a motion to table until the final decision on the New England Fishery Management Council Habitat Omnibus Amendment. Motion by Mr. Grout; second by Mr. Simpson.

MR. ADLER: Motion to table until a final – if the final decision is made; what can we do?

MR. GROUT: We need to rework this motion to what I said was a final decision is made by the National Marine Fisheries Service on the NEFMC Habitat Omnibus Amendment. Now, at that point we will know one way or the other whether

they either approve the provision or they didn't. At that point we could take up the discussion about whether we're going to have an addendum to address this.

MR. ADLER: We can still even though they – you know, the final rule is the final rule, it is over and you can't do anything about it, but this leaves open the possibility that we can do something?

MR. GROUT: Yes.

CHAIRMAN McKIERNAN: All right, if there aren't any more questions; let's vote on this motion. All in favor, hand up; opposed; abstentions; null votes. It passes eleven to zero to one to zero. I think, Toni, if we're going to postpone that other item, I think that concludes the business today. Motion to adjourn.

MR. ADLER: So move.

CHAIRMAN McKIERNAN: Motion accepted and seconded. Good night.

ADJOURNMENT

(Whereupon, the meeting was adjourned at 6:15 o'clock p.m., August 4, 2015.)

— — —



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

OCT - 5 - 2015

Mr. Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St, Suite A-N
Arlington, VA 22201

Dear Mr. Beal:

Thank you for sending the formal recommendation of the Atlantic States Marine Fisheries Commission that NOAA's National Marine Fisheries Service issue federal regulations for the Jonah crab fishery, consistent with the Commission's new Interstate Fishery Management Plan. We appreciate the work of your staff and the Commission's Lobster Board to develop and consider a wide range of alternatives before adopting final measures at the August meeting.

As I stated in my July 16, 2015, letter, we believe that many measures easily lend themselves to state implementation. These measures include: Reporting requirements; minimum size; prohibition on retaining egg-bearing females; crab parts retention; and incidental bycatch for non-trap gear. We are encouraged that these key aspects of the plan will be implemented and enforced by states as of June 1, 2016.

However, it does not appear that all aspects of the proposed plan will be ready for implementation by June 1, 2016. While the Board reached consensus on the need to develop a limited access Jonah crab program, they postponed to a future action development of qualification criteria for the program. We fully intend to work with the Lobster Board and/or the Plan Development Team on the development of robust and defensible qualification criteria and we hope the Board will begin developing these criteria by the Annual Meeting in November. Nevertheless, it seems unlikely that final recommended criteria would be ready before the Winter Meeting in February 2016. Until such criteria are developed, it would be premature to initiate federal rulemaking. Further, such a timetable would make it extraordinarily unlikely that complementary federal regulations could be complete by June 1, 2016, even though my staff are already working on analyses and frontloading the federal rulemaking process as much as possible. In the interim, the implementation of some state regulations next June will help ensure effective Jonah crab management.

Because the federal rulemaking process will be delayed while qualification criteria are developed, there may be a disconnect with state regulations for some period of time after June 1, 2016. It would seem contrary to the Board's intent if disconnected state and federal regulations prevented historical Jonah crab harvesters without a lobster license from landing their federal waters catch while the Board develops qualification criteria. Therefore, during this interim time period, it is our understanding that Jonah crab harvesters without a lobster permit would be able to land Jonah crabs caught in federal waters, irrespective of any state regulation tying crab




possession or landings to a lobster license. The Board may wish to clarify how this situation may function in its future discussions, now that we realize there may well be inconsistencies after June 1, 2016.

As you are aware, the New England Fishery Management Council representative to the Board raised concerns about the incidental bycatch limit for non-trap gear. My staff supported the inclusion of a trip limit as a precautionary measure to protect this species from increasing harvest. There was little discussion at the Board meeting or analysis in the plan about whether the 200 crab/day up to 500 crab/trip limit that was adopted by the Board is appropriate. My staff is evaluating non-trap catch data to determine if a different non-trap landing limit may be more appropriate based on historic landings. The Council is expected to re-evaluate Jonah crab as a potential development priority this fall. This information may also inform discussion at the September Council meeting. We will certainly inform you of our findings.

If you have any questions or would like to discuss these issues further, please contact Allison Murphy at (978) 281-9122 or allison.murphy@noaa.gov.

Sincerely,



John K. Bullard
Regional Administrator

foj

cc: Dan McKiernan, ASMFC Lobster Board Chair
Megan Ware, ASMFC Fishery Management Plan Coordinator
Terry Stockwell, NEFMC representative to the ASMFC Lobster Board

**2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN
FOR AMERICAN LOBSTER
(*Homarus americanus*)
2013 AND 2014 FISHING YEARS**



Prepared by the Plan Review Team

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**2015 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR AMERICAN
LOBSTER (*Homarus americanus*)
2013 AND 2014 FISHING YEARS**

1.0 Status of the Fishery Management Plan

Year of ASMFC Plan's Adoption:
Framework Adjustments:

Amendment 3 (1997)
Addendum I (1999)
Addendum II (2001)
Addendum III (2002)
Addendum IV (2003)
Addendum V (2004)
Addendum VI (2005)
Addendum VII (2005)
Addendum VIII (2006)
Addendum IX (2006)
Addendum X (2007)
Addendum XI (2007)
Addendum XII (2008)
Addendum XIII (2008)
Addendum XIV (2009)
Addendum XV (2009)
Addendum XVI (2010)
Addendum XVII (2012)
Addendum XVIII (2012)
Addendum XIX (2013)
Addendum XX (2013)
Addendum XXI (2013)
Addendum XXII (2013)
Addendum XXIII (2014)
Addendum XXIV (2015)

Management Unit:

Maine through North Carolina
Lobster is managed in seven different
Lobster Conservation Management Areas
(LCMA, see appendix A)

States with a Declared Interest:

Maine through Virginia
(Excluding Pennsylvania and DC)

Active Committees:

American Lobster Management Board,
Technical Committee, Lobster Conservation
Management Teams, Plan Development
Team, Plan Review Team, Advisory Panel

2.0 Status of the Fishery

2.1 Landings History

The lobster fishery has seen incredible expansion in effort and landings over the last 40 years. Between 1950 and 1975, landings were fairly stable around 30 million pounds; however, from 1976 – 2008 the average coastwide landings tripled, reaching 92 million pounds in 2006 (Table 1). Since 2008, total coastwide landings have further increased to just under 150 million pounds in 2012. Commercial landings in 2013 were 150 million pounds and slightly declined to 147.8 million pounds in 2014. Maine and Massachusetts accounted for 84% and 10% of catch, respectively. Landings were also reported (in descending order) by New Hampshire, Rhode Island, New Jersey, New York, Connecticut, Maryland, Delaware, and Virginia. The ex-vessel value for all lobster landings in 2013 was \$477 million. The ex-vessel value in 2014 was \$565 million.

Table 2 shows the break-down of commercial landings by Lobster Conservation Management Area (LCMA). Area 1 has the highest landings and accounts for 80% of total landings between 1981 and 2012. This is followed by LCMA 3 which accounts for 9% of total landings. Yearly trends in the Table show that while landings have generally increased in LCMA 1, they have decreased in LCMA's 4 and 6.

Lobster is also taken recreationally with pots, and in some states, by hand while SCUBA diving. While not all states collect recreational harvest data, Massachusetts reported a total recreational harvest of 221,529 lbs in 2013 and 206,975 lbs in 2014. This represents 1.5% of total Massachusetts's harvest. Similarly, Connecticut's recreational harvest ranged between 1-4% of the annual total from 2001-2011. In New Hampshire, recreational harvest in 2014 was 3,465 lbs and in New York it was 2,310 lbs.

Table 1. Landings (in pounds) of American Lobster by the states of Maine through Virginia (Sources NMFS, ME DMR, NY DMR). *C*= confidential data

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Total
1981	22,631,600	793,400	11,220,500	1,871,067	1,010,800	890,200	593,700	55,700	63,200	2,200	39,132,367
1982	22,730,100	807,400	13,150,900	2,254,930	1,094,100	1,121,600	846,300	90,700	64,800	4,700	42,165,530
1983	21,976,500	1,310,560	12,421,000	5,020,895	1,854,000	1,207,500	769,900	56,700	86,500	600	44,704,155
1984	19,545,600	1,570,724	14,701,800	5,064,760	2,011,600	1,308,100	927,700	103,800	98,900	17,400	45,350,384
1985	20,125,000	1,193,881	16,295,100	5,080,163	1,676,000	1,240,900	1,079,600	118,500	82,300	1,100	46,892,544
1986	19,704,400	941,100	15,057,600	5,513,831	1,656,100	1,407,100	1,123,000	109,000	57,700	1,000	45,570,831
1987	19,747,800	1,256,170	15,116,800	5,217,300	1,735,591	1,146,700	1,397,100	84,100	49,900	1,000	45,752,461
1988	21,738,800	1,118,900	15,866,312	4,758,990	2,053,800	1,779,890	1,557,300	66,200	23,000	300	48,963,492
1989	23,368,800	1,430,400	15,444,300	5,725,641	2,096,900	2,345,051	2,059,600	76,500	17,500		52,564,692
1990	28,068,238	1,658,200	17,054,434	7,258,175	2,645,800	3,431,111	2,198,867	68,300			62,383,125
1991	30,788,646	1,802,035	16,528,168	7,445,170	2,674,000	3,128,246	1,673,031	54,700			64,093,996
1992	26,830,448	1,529,292	15,823,077	6,763,085	2,439,600	2,651,067	1,213,255	21,000			57,270,824
1993	29,926,464	1,693,347	14,336,032	6,230,855	2,177,022	2,667,107	906,498	24,000			57,961,325
1994	38,948,867	1,650,751	16,094,226	6,474,399	2,212,000	3,954,634	581,396	8,400			69,924,673
1995	37,208,324	1,834,794	15,755,840	5,363,810	2,536,177	6,653,780	606,011	500	2,855		69,962,091
1996	36,083,443	1,632,829	15,323,277	5,579,874	2,888,683	9,408,519	640,198		28,726	1,252	71,586,801
1997	47,023,271	1,414,133	15,087,096	5,766,534	3,468,051	8,878,395	858,426	648	34,208	2,240	82,533,002
1998	47,036,836	1,194,653	13,277,409	5,618,440	3,715,310	7,896,803	721,811			1,306	79,462,568
1999	53,494,418	1,380,360	15,533,654	8,155,947	2,595,764	6,452,472	931,064			6,916	88,550,595
2000	57,215,406	1,709,746	15,802,888	6,907,504	1,393,565	2,883,468	891,183			311	86,804,071
2001	48,617,693	2,027,725	12,132,807	4,452,358	1,329,707	2,052,741	579,753			19	71,192,803
2002	63,625,745	391	12,853,380	3,835,050	1,067,121	1,440,483	264,425	551			83,087,146
2003	54,970,948		11,385,049	3,474,509	671,119	946,449	209,956	2,831	22,778		71,683,639
2004	71,574,344	2,097,396	11,295,474	3,064,412	646,994	996,109	370,112	15,172	14,931	13	90,074,957
2005	68,729,861	2,556,232	9,879,983	4,343,736	713,901	1,154,470	369,264	5,672	39,237	21,255	87,813,611
2006	72,662,294	2,666,344	10,966,322	3,749,432	792,894	1,242,601	470,877	3,315	26,349	28,160	92,608,588
2007	63,959,191	2,468,811	10,143,301	3,268,075	568,696	716,300	680,392	5,918	6,128	26,765	81,843,577
2008	69,863,132	2,567,031	10,597,614	3,528,445	426,292	712,075	632,545	4,884	32,429	17,701	88,382,148
2009	81,175,847	2,985,166	11,781,490	3,174,618	451,156	731,811	179,740	6,067	30,988	21,472	100,538,355
2010	95,506,383	3,658,894	12,768,448	3,258,221	432,491	813,513	641,556	4,574	30,005	16,345	117,130,430
2011	104,693,316	3,917,461	13,717,192	2,513,255	191,594	344,232	627,077	C	C	C	126,066,050
2012	125,759,424	4,236,740	14,917,238	2,932,388	236,846	275,220	919,260	C	C	C	149,336,623
2013	127,773,264	3,822,844	15,738,792	2,149,266	133,008	248,267	660,367	C	C	C	150,621,935
2014	124,440,799	4,939,310	15,060,352	2,387,321	141,988	216,630	526,367	C	C	C	147,805,965

Table 2. Estimated lobster landings (in pounds) by lobster conservation management area (LCMA)* (*Source, ASMFC Lobster Data Warehouse*). This table can only be update in years when stock assessment reports are being conducted.

Coastwide Estimated Lobster Landings (lbs) by Lobster Conservation Management Area (LCMA)*								
Year	LCMA 1	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6	LCMA OCC	Grand Total
1981	32,369,320	527,284	4,321,500	441,478	115,653	1,220,159	134,327	39,129,721
1982	32,123,750	1,656,479	4,961,680	622,674	99,093	1,359,058	163,105	40,985,839
1983	32,826,685	2,958,366	5,645,179	633,254	71,804	2,428,633	198,448	44,762,369
1984	29,862,411	2,978,985	6,409,741	795,180	135,652	2,704,070	208,832	43,094,871
1985	31,590,759	2,992,330	5,853,851	964,043	170,998	2,273,337	261,929	44,107,247
1986	30,080,507	3,081,903	5,829,275	1,084,282	125,969	2,362,128	298,747	42,862,811
1987	30,682,754	3,219,900	5,357,273	1,473,841	98,486	2,378,765	276,250	43,487,269
1988	32,362,492	3,259,336	5,132,943	1,666,439	85,142	3,195,208	295,985	45,997,545
1989	36,800,166	4,175,114	5,450,786	2,232,935	106,126	3,735,250	352,155	52,852,532
1990	41,720,481	4,374,062	8,783,629	2,431,198	237,410	4,250,654	581,447	62,378,881
1991	43,648,773	4,140,145	8,537,053	2,096,138	115,020	4,393,986	740,267	63,671,382
1992	39,055,380	3,795,367	7,124,248	1,448,866	77,854	4,362,551	738,026	56,602,292
1993	40,962,969	3,772,494	6,773,992	1,597,447	89,495	3,968,663	938,486	58,103,546
1994	51,597,880	5,602,507	5,684,252	554,367	26,013	5,738,398	848,181	70,051,598
1995	49,771,715	4,960,453	5,008,551	962,077	45,054	8,564,325	1,000,609	70,312,784
1996	47,992,628	4,880,328	4,896,782	978,376	52,758	11,705,439	852,532	71,358,843
1997	58,016,197	5,324,775	5,549,295	1,162,862	36,623	11,650,701	849,126	82,589,579
1998	56,187,841	5,273,463	5,043,939	1,534,067	41,963	10,575,143	797,019	79,453,435
1999	65,375,535	6,938,658	6,166,601	1,346,509	77,621	8,331,142	739,904	88,975,970
2000	69,265,611	5,651,160	5,436,618	1,123,486	53,364	3,802,880	765,801	86,098,920
2001	57,531,942	3,862,054	5,525,209	762,408	55,537	3,013,551	611,242	71,361,943
2002	73,607,600	3,445,004	5,483,983	442,425	14,838	2,230,869	786,137	86,010,856
2003	63,005,041	1,110,534	6,978,808	423,583	17,394	1,448,011	804,355	73,787,725
2004	80,448,651	1,184,942	6,722,671	480,203	93,270	1,534,130	993,689	91,457,556
2005	76,240,627	1,464,433	7,442,771	457,275	54,181	1,673,396	966,787	88,299,470
2006	80,846,400	1,853,505	7,588,539	516,130	59,928	1,840,308	1,048,051	93,752,862
2007	70,862,089	1,430,836	6,375,646	617,978	56,866	1,263,648	1,132,991	81,740,055
2008	78,914,865	1,168,921	6,124,979	440,108	322,916	920,951	1,127,422	89,020,163
2009	91,133,844	1,051,241	6,960,119	488,792	308,212	896,594	1,256,201	102,095,002
2010	106,458,701	1,022,528	7,955,472	522,037	184,409	966,505	1,209,482	118,319,134
2011	116,042,515	730,889	7,890,340	488,977	148,587	306,079	1,244,299	126,851,685
2012	138,762,843	627,051	8,111,396	782,684	154,455	286,215	1,223,279	149,947,922
Grand Total	1,886,148,973	98,515,048	201,127,121	31,572,119	3,332,690	115,380,746	23,445,109	2,359,521,806

*Landings data are not collected by LCMA in all states. To separate landings by LCMA NMFS statistical areas are placed into a single LCMA. For a complete description of how estimates are completed send a request to the PRT Chair, Megan Ware, at mware@asmfc.org.

2.2 Recent Management Actions

The 2009 assessment indicated the resource presented a mixed picture of stock abundance throughout its U.S. range, with low abundance and poor recruitment in Southern New England (SNE). In the spring of 2010, the American Lobster Technical Committee (TC) reviewed trends in abundance from 2008 and 2009 and considered a variety of biological and environmental factors that may be impacting Southern New England (SNE) lobster stocks. In May 2010, the TC submitted a report to the Board contending that it was their belief that the SNE stock was experiencing recruitment failure. Evidence suggested the reproductive potential and abundance of the SNE stock had continued to fall to lower levels than what was presented in the 2009

assessment. While larval production and settlement are inherently variable, sustained poor production can only lead to reduced recruitment and ultimately to reduced year class strength and lower future abundance levels. The TC contended that recruitment failure was caused by overwhelming environmental and biological changes coupled with continued fishing. At that time, the TC recommended a five year moratorium on harvest in the SNE stock area to provide the maximum likelihood of rebuilding the stock above the threshold and toward the target abundance in the foreseeable future.

Following the presentation of the TC report to the Board concerning recruitment failure and stock projections, the Board moved to have the findings reviewed by the Center for Independent Experts (CIE). The CIE reviewers concurred that environmental changes in concert with fishing mortality were the principal causes of the recent stock decline and lower recruitment levels. Although it is not possible to predict how recruitment may change in the near future it was noted that environmental conditions are unlikely to return to the previous favorable state observed in the early 1990's and that reducing exploitation is therefore necessary to prevent further avoidable erosion of the spawning stock. There was general agreement with the TC reports that a moratorium or severe reductions (~75%) in fishing mortality were needed immediately to maximize chances of rebuilding the stock.

To address the concerns of the declining resource, the Management Board approved Addendum XVII (2012) which reduced exploitation by 10% in the management areas within the SNE. The management areas initiated either mandatory v-notch programs or season closures or a combination of the two measures to meet the requirements of the Addendum. The Board also approved Addendum XVIII, which implemented a 50% trap reduction in LCMA 2 and a 25% trap reduction in LCMA 3 over the span of six years. The goal of this management action was to scale the SNE fishery to the size of the resource.

In 2013 the Board approved Addenda XIX – XXII. Addendum XIX implemented a conservation tax of 10% for any transfer or full business sale of LCMA 3 traps. In response to action taken by the New England Fishery Management Council (NEFMC), which allowed limited groundfish harvest in a previously closed area (Closed Area II), the American lobster offshore pot fleet developed an agreement with the groundfish sector to prevent gear conflicts and give equal access to the area by both fisheries. As a result, through Addendum XX, it is prohibitive to set or store lobster traps in Closed Area II from November 1 to June 15 annually.

As the second phase of management action to scale the SNE fishery to the size of the SNE resource, the Board approved Addendum XXI, which modified the previous trap transferability rules for LCMAs 2 and 3. Modifications to the single and aggregate ownership caps for LCMA 3 were approved under Addendum XXII.

In August 2014, the Board approved Addendum XXIII, which updated the habitat section of Amendment 3. The Board also reviewed findings that LCMA 4 was not achieving its 10% reduction in exploitation as required by Addendum XVII. In response, the Board changed the seasonal closure in LCMA 4 from February 1-March 31 to April 30-May 31.

In 2015, the Board aligned state and federal measures for trap transfer programs in LCMA's 2, 3,

and the Outer Cape Cod through Addendum XXIV. The Board also approved the 2015 Lobster Stock Assessment and Peer Review Report for management use and, in response to the poor condition of the SNE stock, agreed to convene a working group of Commissioners and Technical Committee members to identify objectives for the stock.

3.0 Status of Assessment Advice

The 2015 peer-reviewed stock assessment report indicated the American lobster resource presents a mixed picture, with record high stock abundance and recruitment throughout most of the Gulf of Maine (GOM) and Georges Bank (GBK) and record low abundance and recruitment in SNE.

The Assessment found that the GOM/GBK stock is not overfished and not experiencing overfishing. GOM and GBK were previously assessed as separate stock units; however, due to evidence of seasonal migrations by egg-bearing females between the two units, the areas were combined into one stock. While model results show a dramatic overall increase in stock abundance in the GOM/GBK, population indicators did show that young-of-year estimates are trending downward, indicating a potential decline in recruitment in the coming years.

Conversely, the Assessment found that the SNE stock is severely depleted with poor prospects of recovery, necessitating protection. Recruitment indices show that the stock is not rebuilding and is in recruitment failure. The inshore portion of the SNE stock is in particularly poor condition with surveys showing a contraction of the population. This is expected to impact the offshore portion of the stock since it is dependent on recruitment from the inshore population. Landings in the SNE are expected to decline since the extremely poor year classes which have settled since 2008 have yet to recruit to the fishery.

Both the Technical Committee and the Peer Review Panel highlighted the need for management action in SNE. Specifically, the Panel recommended close monitoring of the stock status along with implementing measures to protect the remaining lobster resource in order to promote stock rebuilding.

4.0. Status of Research and Monitoring

4.1 Research Needs

The following were identified as research needs following the 2015 Lobster Assessment.

1. ***Ventless Trap Survey***- Calibration work is needed to determine how catch in ventless trap surveys relates to catch in the bottom trawl surveys. It is likely that at low densities, when trawl survey indices have dropped to near zero, ventless trap surveys will still catch lobsters due to the attractive nature of the gear and the ability to fish the gear over all habitat types. Conversely, it is possible that trawl surveys may be able to detect very high levels of lobster abundance, if trap saturation limits the capacity of the ventless traps. Ventless traps may be limited in their ability to differentiate between moderately high and extremely high abundance, and calibration with bottom trawl surveys may help to clarify how catchability might change with changes in lobster density.
2. ***Maturation and Growth*** - Increases in water temperatures over the past several decades have likely resulted in changes to size at maturity and growth patterns. Maturity data currently used are more than 20 years old. Changes in size at maturity will subsequently affect growth, since

female molting frequency decreases after reaching sexual maturity. It is critical to collect updated information on maturity and growth in order to appropriately assign molt probabilities to lobsters.

3. **Stock Connectivity** - There is need for a comprehensive large scale tagging study to examine stock connectivity between the GOM and GBK. Historical tagging studies demonstrate movement from the inshore GOM to locations east of Cape Cod in the inshore portions of GBK, and from inshore areas east of Cape Cod to inshore GOM. What is lacking is a tagging study of lobsters in the fall/winter on GBK proper, prior to seasonal migrations which occur in the spring. This information would be extremely valuable to help complement other data used to justify the combination of the GOM and GBK stock and to confirm the connectivity of the GOM and GBK.
4. **Temperature** – Given the importance of temperature in the life history of lobster, techniques should be developed to incorporate environmental data into population modeling.
5. **Post-Larval Settlement** – There is a need to examine post-larval settlement dynamics in relation to the movement and re-distribution of spawning stock. Habitat suitability models for spawning stock and settling post-larvae should be developed.
6. **Natural Mortality** – Methods should be explored to determine age or length-varying natural mortality, as well as looking at more rigorous ways of determining time-varying natural mortality for lobster. These may be driven by climactic shifts and changing predator fields.
7. **Shell Disease** - With the high prevalence of shell disease in the SNE stock, particularly in ovigerous females, some exploration of the potential sub-lethal effects of disease should be examined. These effects could include negative impacts to larval quality, fecundity issues in females who need to re-direct physiological resources to dealing with the disease, and male sperm quality
8. **Mating** - In order to understand the potential the SNE stock has to rebuild, it is important to know whether current stock conditions have disrupted the mating system. Low population abundance may be causing a mate-finding Allee effect in SNE. Furthermore, due to the continuation of female-skewed sex ratios observed in the GBK stock, questions regarding the reproductive capacity of these large females should be considered.
9. **Fishery-Dependent Information** - Accurate and comparable landings are the principal data needed to assess the impact of fishing on lobster populations. The quality of landings data has not been consistent spatially or temporally. It is imperative that funding for critical monitoring programs continues, and increased monitoring efforts for offshore areas, particularly those from which a large portion of landings originate, are necessary. Furthermore, there are some indications that lobster harvest may be under-reported and this under-reporting may be significant during some periods in the time series examined for this assessment. It is recommended that future research examine this potential under-reporting, and this examination should include simulation testing of these potential periods of under-reporting

4.2 Monitoring

Addendum X requires that states conduct sufficient biological sampling to characterize the commercial catch. Specifically it requires that states weight sampling intensity by areas and season to match 3-year average of area's seasonal commercial catch. This volume of sampling well exceeds current state budgets for lobster biological sampling. Addendum X also requires states to conduct 100% mandatory dealer reporting and at least 10% reporting of active harvesters. Table 3 describes the level of reporting and sampling by the states.

Table 3. 2014 sampling requirements and state implementation.

State	100% Dealer reporting	10% Harvester Reporting	Sea Sampling	Port Sampling	Ventless Trap Survey	Settlement Survey	Trawl Survey
ME	✓	✓	✓		✓	✓	✓
NH	✓	✓ (100%)	✓	✓	✓	✓	✓ (ME)
MA	✓	✓ (100%)	✓		✓	✓	✓
RI	✓	✓ (100%)	✓	✓	✓	✓	✓
CT	✓	✓ (100%)	✓			✓	✓
NY	✓	✓ (100%)	✓(none conducted 2013-2014)	✓			✓ (CT)
NJ	✓	✓	✓				✓
DE	✓	✓		✓			✓ (no lobsters encountered)
MD	✓	✓	✓				✓ (no lobsters encountered)
VA	✓	✓					

Overviews of the states' port and sea sampling and surveys is as follows:

- Maine: Completed 152 sea sampling trips aboard 144 boats in 2014; suspended its port sampling program following the 2011 sampling year; spring trawl survey stretches from Portsmouth, NH to Lubec, ME and completed 114 tows.
- New Hampshire: Sampled 15,529 lobsters through sea sampling and 1,200 lobsters through port sampling.
- Massachusetts: Sampled a total of 87 trips in LCMA's 1, 2, and OCC through sea sampling; no port sampling conducted; spring and autumn bottom trawl surveys show GOM abundance indices have increased while SNE abundance remains low.
- Rhode Island: Conducted a total of 14 sea sampling trips with data collected on 8,166 lobsters; conducted 3 port samples; for 2013 and 2014, conducted 87 seasonal survey tows.
- Connecticut: 7 sea-sampling trips were conducted during 2014; no port sampling completed; 2014 spring abundance index from trawl survey similar to 2012 but lower than 2009-2011 indices; 2014 fall index ranked lowest in time series.
- New York: Staff unable to arrange any sea sampling trips during 2013 and 2014 and have found it difficult to obtain cooperators; 16 port sampling trips were conducted in 2014.
- New Jersey: Conducted 13 sea sampling trips in 2014 Ocean Trawl survey shows a decrease in the number of lobsters in 2013 and 2014.
- Delaware: Sampled the commercial harvest of 1 trip in 2014; no lobsters taken in the 2014 Delaware Bay trawl surveys.
- Maryland: Conducted sea sampling for the first time in 2014 with a total of 476 lobsters examined; no lobsters taken in Coastal Bay survey.
- Virginia: No port or sea sampling conducted.

4.2.1 Young of the Year Settlement

Several states conduct young-of-year (YOY) surveys to detect trends in abundance of newly-settled and juvenile lobster populations. These surveys attempt to provide an accurate picture of the spatial pattern of lobster settlement. States hope to track juvenile populations and generate predictive models of future landings.

Maine: In 2000, settlement surveys were expanded to cover all seven of Maine's lobster management zones (LMZ) in order to create a statewide index of settlement to further this goal. While the 2013 settlement survey showed a third year of decline in all zones, 2014 showed an increase in numbers (Figure 1). When considering the 15 year average, all zones were at or below the 15 year average.

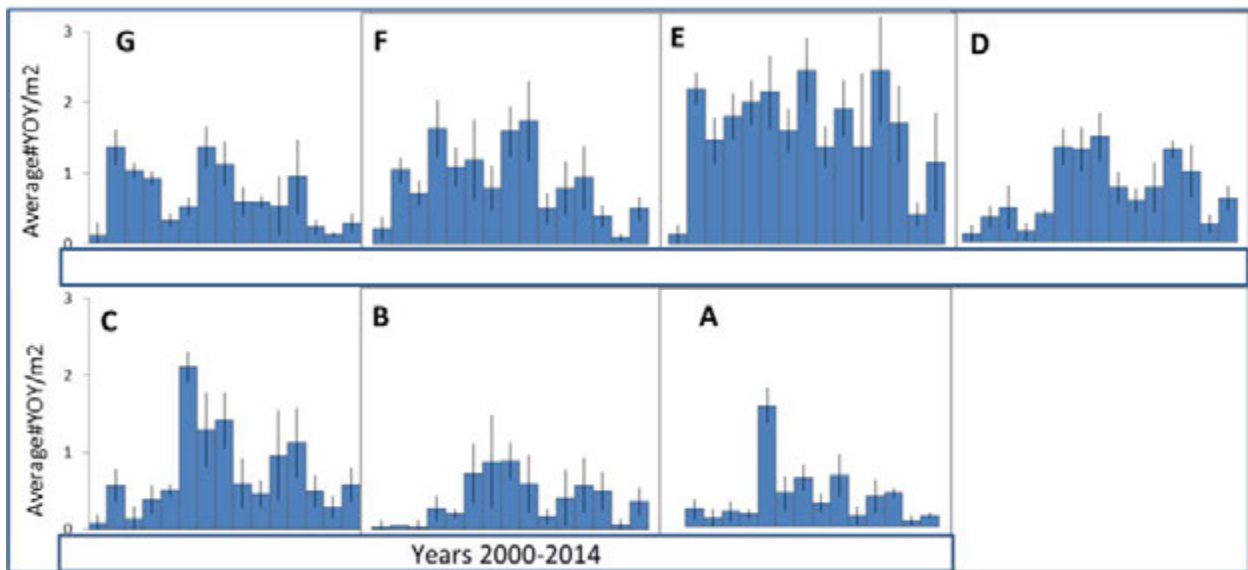


Figure 1. Lobster settlement in Maine's seven lobster management zones from 2000-2014. Zones run from east (Zone A) to west (Zone G).

New Hampshire: New Hampshire Fish and Game (NHF&G) conducted a portion of the coastwide American Lobster Settlement Index (ALSI). In 2014, a total of 17 juvenile lobsters were sampled from three sites, 1 was YOY, 1 was one year old (Y+), and 15 were older juveniles.

Figure 2 depicts the CPUE of YOY, Y+, YOY/Y+ and "all lobsters" for all NH sites combined, from 2008 through 2014. For each of these three data sets, CPUE in 2011 was the highest on record. All four indices show a general upward trend from the survey's inception to 2011, with strong declines in 2012 which continued through 2014. The indices for YOY, Y+ and YOY/Y+ were all at a time series low in 2014.

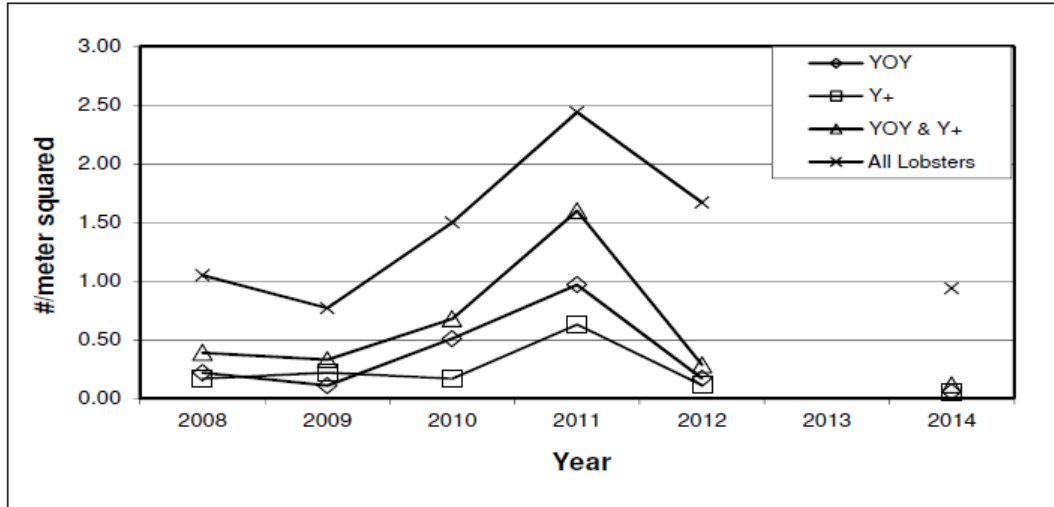


Figure 2. Catch per unit effort (#/meter²) of both YOY and one year old (Y+) lobsters captured during the American Lobster Settlement Index in New Hampshire state waters from 2008 through 2014. No samples were collected in 2013.

Massachusetts: Annual sampling for early benthic phase/juvenile (EBP) lobsters was conducted using SCUBA and airlift suction sampling equipment from August to September in 2014. Density indices of newly settled post-larval lobsters were calculated (20-year time series) and coastal habitat important to the settlement of these juveniles continues to be defined. Sampling was completed at 21 sites spanning 7 regions in Massachusetts coastal waters (6 Buzzards Bay sites, 2 Vineyard Sound sites, 3 Cape Cod Bay sites, 2 South Shore sites, 3 Boston Harbor sites, 3 Salem Sound sites, and 2 Cape Ann sites). Data for all sites were used to generate annual density estimates of EBP lobster and other decapod crustaceans. Densities of YOY lobsters from 1995 to 2014 are presented in Figure 3. Cape Ann, Salem Sound, Boston, South Shore, and Cape Cod Bay are all within LCMA 1, while Buzzards Bay and Vineyard Sound are within LCMA 2.

In 2014 densities of YOY lobsters in LCMA 1 were below time series mean values in the three regions with long time series (Salem Sound, Boston Harbor, and Cape Cod Bay). The 2014 YOY lobster density in Buzzards Bay was 0.04, slightly below the time series mean for that region.

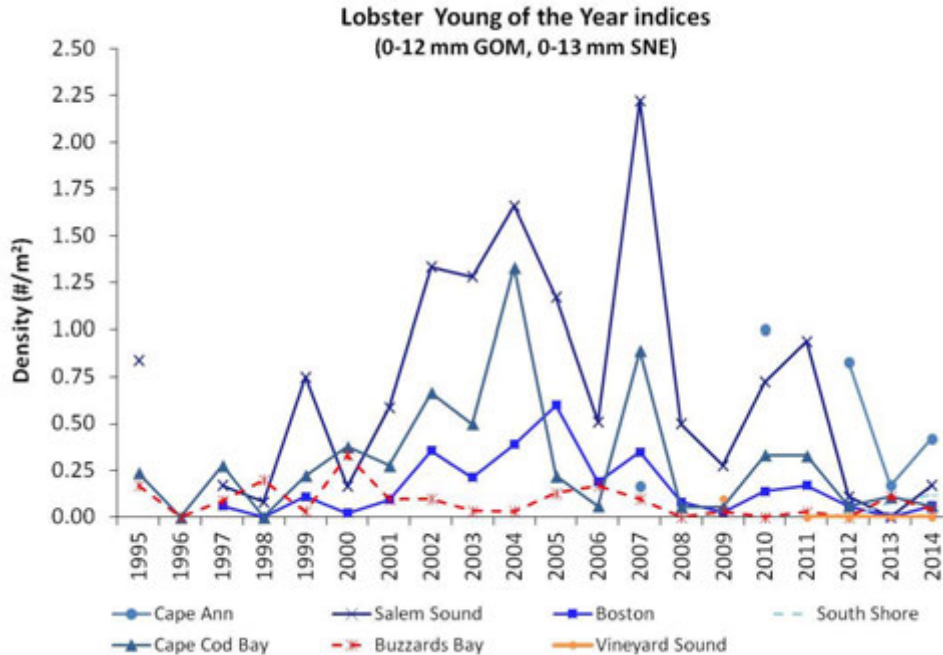


Figure 3. YOY lobster density in seven Massachusetts regions; *LCMA 1* – Cape Ann, Salem Sound, Boston, South Shore, Cape Cod Bay, *LCMA 2* - Buzzards Bay, Vineyard Sound.

Rhode Island: For 2013-2014, the YOY Settlement Survey (Suction Sampling) was conducted at a total of six fixed stations with twelve randomly selected 0.5-meter quadrats sampled at each survey station, for a total of 72 samples each year. The survey stations are located outside of Narragansett Bay along the southern Rhode Island coast, from Sachuest Point (east) to Point Judith (west). The 2013 and 2014 YOY Settlement Survey index were both 0.22 YOY lobster/m² (Figure 4).

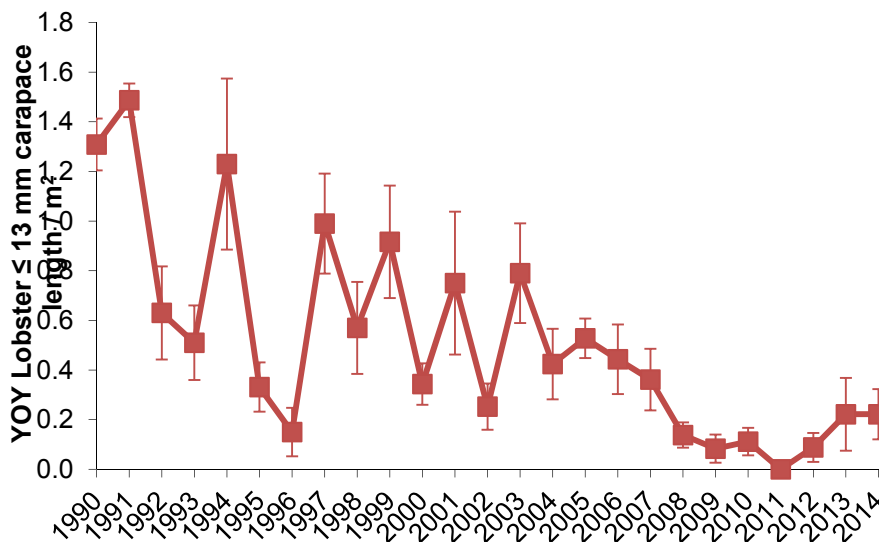


Figure 4: RI YOY settlement index (+/- SE) for 1990-2014.

Connecticut: The CT DEEP Larval Lobster Survey in western Long Island Sound (WLIS) was discontinued in 2013. Alternative monitoring data are available for the eastern Sound (ELIS) from the Millstone Power Station entrainment estimates of all stages of lobster larvae. Abundance indices in both programs are delta mean density of larvae per 1000 cubic meters of water. Both programs show a decline in abundance following the 1999 die-off (correlation between programs: $R=0.35$, $p=0.066$). (Figure 5)

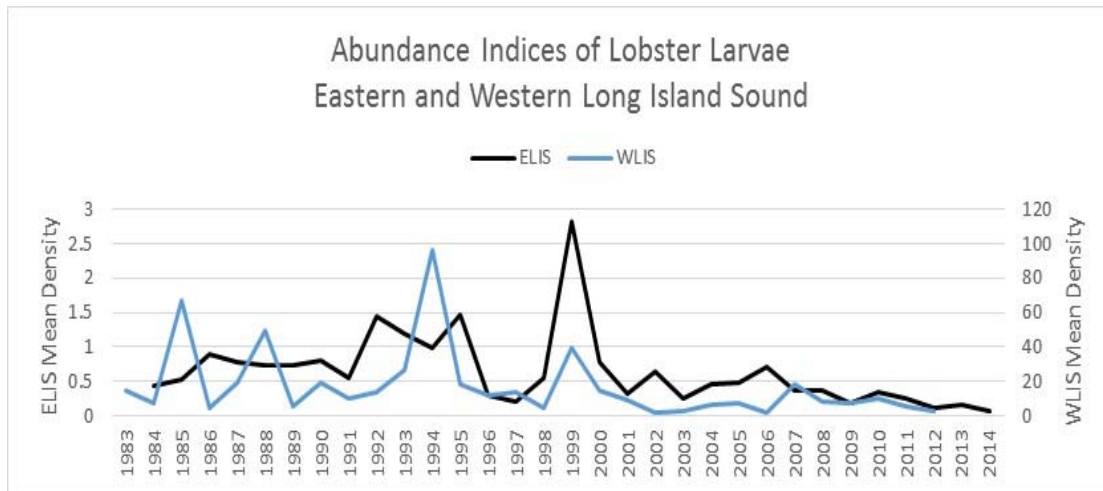


Figure 5: Larvae Abundances in Long Island Sound, 1983-2014.

4.2.2. Ventless Trap Survey

To address a need for a reliable index of lobster recruitment, a cooperative random stratified ventless trap survey was designed to generate accurate estimates of the spatial distribution of lobster length frequency and relative abundance while attempting to limit the biases identified in conventional fishery dependent surveys. In the past, fishery-dependent trap sampling data have not been included in generating relative abundance indices for the American lobster due to associated bias with the data collection method. In order to collect unbiased data, a fishery-independent survey (wherein scientists and contracted fishermen cooperatively collect the data) provides greater control over the sampling design and data quality and quantity necessary to maintain a stratified sampling approach.

A random-stratified sampling design was applied to nearshore statistical areas from Maine to New York. The survey was a cooperative effort between state fisheries agencies and commercial lobstermen, who were contracted to fish at pre-determined sampling locations along the New England coast from Maine to New York. Each statistical area was assigned three depth strata (1-20 m, 21-40 m and 41-60 m).

Maine: 2014 marked the ninth year of the ventless trap survey. The stratified mean was calculated for each area using depth and statistical area. The survey catches 90% sublegal lobsters. Traps were set during the months of June, July and August. 2014 catch rates have decreased from the 2012 peak in statistical area 513. In 512, the catch rates stayed about the same while 511 has experience a slight decrease from the 2013 peak. (Figure 6)

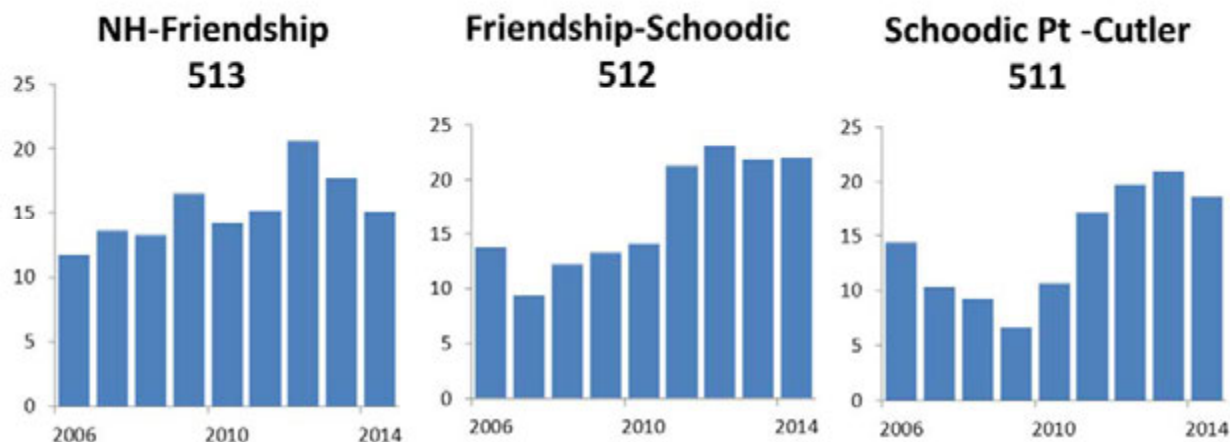


Figure 6. Maine’s stratified ventless trap catch rates by Statistical Area for 2006-2014 (all sizes).

New Hampshire: Since 2009, NHF&G has been conducting the coastwide Random Stratified Ventless Trap Survey in state waters (statistical area 513). New Hampshire follows the standardized coastwide procedures for this survey. A total of three sites were surveyed twice a month from June through September in 2014. Catch per unit effort (stratified mean catch per trap haul) from 2009 through 2014 is presented in Table 4. The relative abundance indices associated with this survey shows a general upward trend from 2009 through 2012, followed by decreasing catch rates in 2013 and 2014.

Table 4. Stratified mean catch/trap haul, for all lobsters captured during the coastwide Random Stratified Ventless Trap Survey in New Hampshire state waters from 2009-2014.

Year	Stratified mean catch per trap
2009	6.9
2010	9.2
2011	13.9
2012	13.8
2013	10.5
2014	6.5

Massachusetts: The coast-wide ventless trap survey was initiated in 2006 and expanded in 2007. Each station was sampled with a six pot trawl in which vented and ventless lobster traps were alternated (3 of each per trawl). The survey took place from June through September in statistical areas 514 and 538, and stations were sampled twice monthly. Starting in 2011, the Southern New England portion of the survey was expanded into Federal waters of Area 538, and into the northernmost section of Area 537. The survey was not conducted in 2013 due to a lack of funding. However, MADMF has been able to secure long-term funding for the survey using lobster license revenues, and the survey took place in 2014 and will continue in the future.

Relative abundance of sublegal (< 83 mm CL) and legal-sized (≥ 83 mm CL) lobsters for Area 514 (part of LMA 1) is shown in Figure 7 as the stratified mean CPUE. The average catch of

sublegal lobsters is much higher than the catch of legal-sized lobsters, and has shown an increasing trend since 2007, particularly since 2010. However, the mean CPUE in 2014 was much lower than previous years, but slightly higher than the time series average of 4.13. It remains to be seen if this was an outlier or is indicative of declines from a peak in abundance. The catch of legal-sized lobsters in 2014 was similar to previous years and near the time series average of 0.51. Legal-sized lobsters comprised about 10% of the catch over the survey's time series, and most (86%) of the lobsters caught were > 60 mm CL (including legal-sized lobsters).

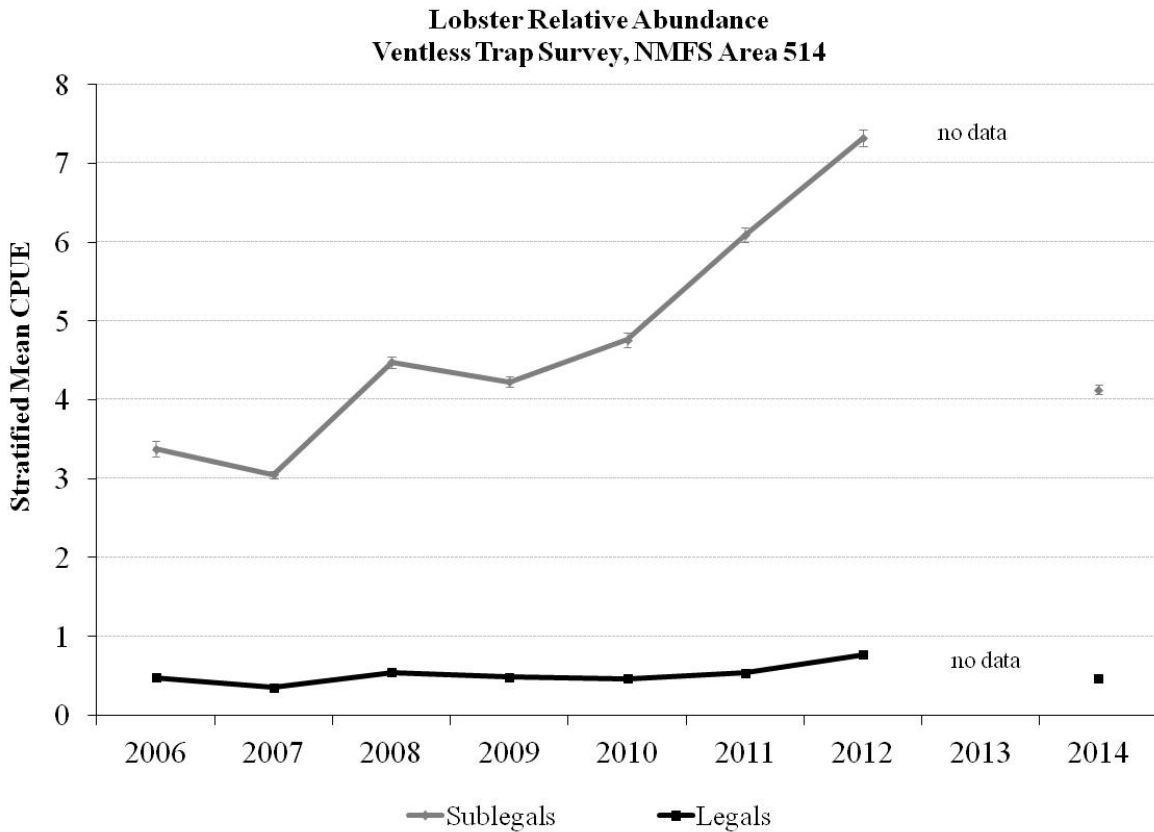


Figure 7. Stratified mean catch per trap haul (\pm S.E.) of sublegal (< 83 mm, light colored line) and legal (\geq 83 mm, dark line) lobsters in Area 514 in Massachusetts.

Figure 8 shows the time series of relative abundance for sublegal (<86 mm CL) and legal-sized (\geq 86 mm CL) lobsters in Area 538 (part of CLMA 2) as the stratified mean CPUE. The average catch of sublegal lobsters is again higher than the catch of legal-sized lobsters, and has generally declined through 2010. After 2011, sublegal CPUE increased, although this is likely related to the expanded spatial extent of the survey area to include deeper waters outside Buzzards Bay, where thermal conditions are more tolerable. The legal-size CPUE has also slightly increased since 2010, but has remained below 0.5 throughout the time series, with the lowest value observed in 2008 (0.11). Legal-sized lobsters comprised about 13% of the catch over the survey's time series, and most (88%) of the lobsters caught were above 60 mm CL (including legal-sized lobsters).

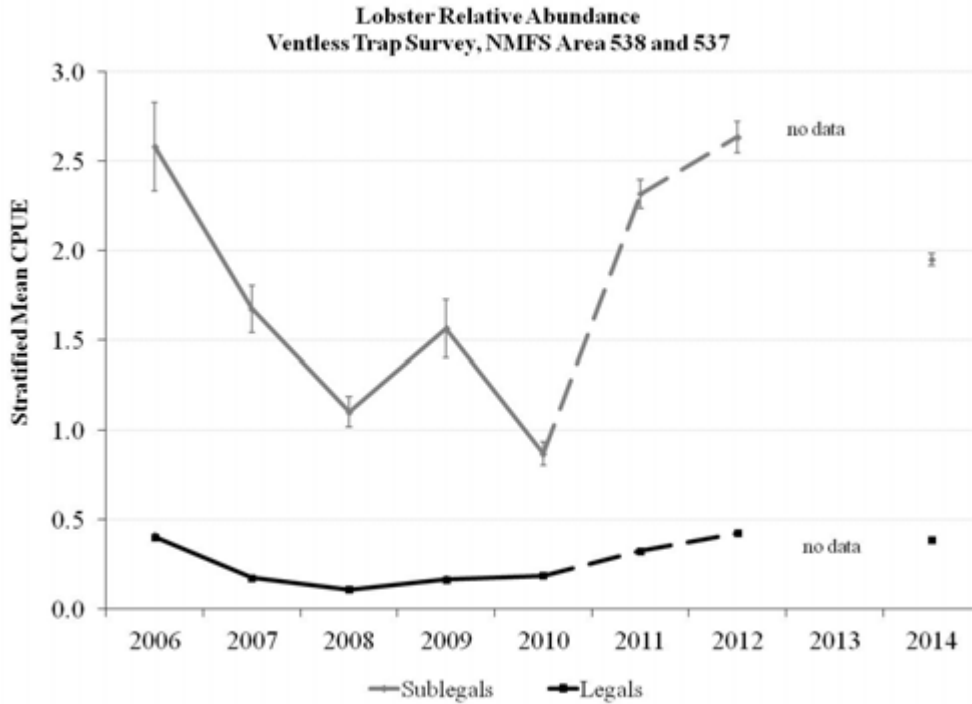


Figure 8. Stratified mean catch per trap haul (\pm S.E.) of sublegal (< 86 mm, light colored line) and legal (\geq 86 mm, dark line) lobsters in LCMA 538 in Massachusetts. Dashed lines represent the time period when the survey was expanded.

Rhode Island: For 2013 and 2014, the Ventless Trap Survey was conducted during the months of June-August and completed a total of 18 survey sampling trips each year and sampled a total of 4,042 lobsters from 1669 trap-hauls. All sampling was conducted in LCMA 2, NMFS Statistical Area 539. (Figure 9)

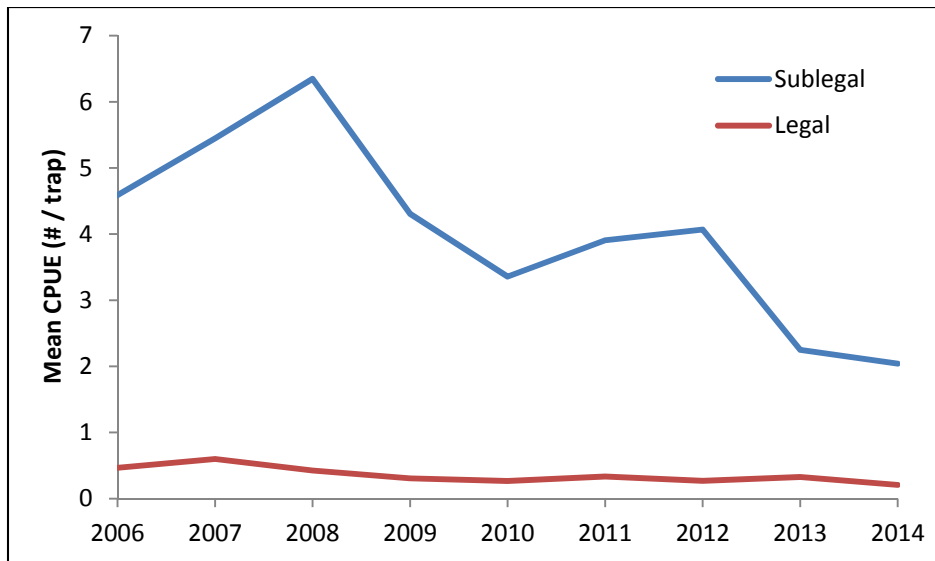


Figure 9. Stratified mean catch (#) per trap-haul (\pm SE) for sublegal (\leq 85mm CL) and legal-sized (\geq 86mm CL) lobsters in Rhode Island's VTS.

Regional Trends

Overall, the YOY indices show a declining trend. In the GOM/GBK, Maine and Massachusetts' LCMA 1 indices show an up-tick in 2014, while the New Hampshire's YOY indices are the lowest in the time series. In the SNE stock, both the Massachusetts and Connecticut surveys trend downward through 2014 while there is pronounced increase in the Rhode Island YOY indices in 2013 and 2014. The GOM/GBK YOY indices are not consistently higher than those in SNE.

Data from the ventless trap surveys shows that CPUE peaked around 2012 in the GOM/GBK, followed by declines in 2013 and 2014. Contrastingly, data from the SNE ventless trap surveys shows a decline in 2008 followed by an increase in 2012. In 2014, both the Massachusetts' ventless trap survey for NOAA statistical areas 538 and 537 and the Rhode Island ventless trap survey show a marked decline. Comparing the two biological stocks, CPUE is generally higher in GOM/GBK than in SNE.

5.0 Status of Management Measures and Issues

Amendment 3 established management measures that require coastwide and area specific measures applicable to commercial fishing. The coastwide requirements are summarized in Table 5.

Table 5. 2015 coastwide requirements and prohibited actions

- | |
|--|
| <ul style="list-style-type: none">▪ Prohibition on possession of berried or scrubbed lobsters▪ Prohibition on possession of lobster meats, detached tails, claws, or other parts of lobsters by fishermen▪ Prohibition on spearing lobsters▪ Prohibition on possession of v-notched female lobsters▪ Requirement for biodegradable "ghost" panel for traps▪ Minimum gauge size of 3-1/4"▪ Limits on landings by fishermen using gear or methods other than traps to 100 lobsters per day or 500 lobsters per trip for trips 5 days or longer▪ Requirements for permits and licensing▪ All lobster traps must contain at least one escape vent with a minimum size of 1-15/16" by 5-3/4"▪ Maximum trap size of 22,950 cubic inches in all areas except area 3, where traps may not exceed a volume of 30,100 cubic inches. |
|--|

Amendment 3 to the Interstate Fishery Management Plan for American Lobster (December 1997)

American lobster is managed under Amendment 3 to the Interstate FMP for American Lobster. Amendment 3 establishes seven lobster management areas. These areas include the: Inshore Gulf of Maine (Area 1), Inshore Southern New England (Area 2), Offshore Waters (Area 3), Inshore Northern Mid-Atlantic (Area 4), Inshore Southern Mid-Atlantic (Area 5), New York and Connecticut State Waters (Area 6), and Outer Cape Cod. Lobster Conservation Management Teams (LCMTs), composed of industry representatives, were formed for each management area. The LCMTs are charged with advising the Lobster Board and recommending changes to the management plan within their areas.

Amendment 3 also provides the flexibility to respond to current conditions of the resource and fishery by making changes to the management program through addenda. The commercial fishery is primarily controlled through minimum/maximum size limits, trap limits, and v-notching of egg-bearing females.

Addendum I (August 1999)

Establishes trap limits in the seven lobster conservation management areas (LMCAs).

Addendum II (February 2001)

Establishes regulations for increasing egg production through a variety of LCMT proposed management measures including, but not limited to, increased minimum gauge sizes in Areas 2, 3, 4, 5, and the Outer Cape.

Addendum III (February 2002)

Revises management measures for all seven LCMAs in order to meet the revised egg-rebuilding schedule.

Technical Addendum 1 (August 2002)

Eradicates the vessel upgrade provision for Area 5.

Addendum IV (January 2004)

Changes vent size requirements; applies the most restrictive rule on an area trap cap basis without regard to the individual's allocation; establishes Area 3 sliding scale trap reduction plan and transferable trap program to increase active trap reductions by 10%; and establishes an effort control program and gauge increases for Area 2; and a desire to change the interpretation of the most restrictive rule.

Addendum V (March 2004)

Amends Addendum IV transferability program for LCMA 3. It establishes a trap cap of 2200 with a conservation tax of 50% when the purchaser owns 1800 to 2200 traps and 10% for all others.

Addendum VI (February 2005)

Replaces two effort control measures for Area 2 – permits an eligibility period.

Addendum VII (November 2005)

Revises Area 2 effort control plan to include capping traps fished at recent levels and maintaining 3 3/8" minimum size limit.

Addendum VIII (May 2006)

Establishes new biological reference points to determine the stock status of the American lobster resource (fishing mortality and abundance targets and thresholds for the three stock assessment areas) and enhances data collection requirements.

Addendum IX (October 2006)

Establishes a 10% conservation tax under the Area 2 trap transfer program.

Addendum X (February 2007)

Establishes a coastwide reporting and data collection program that includes dealer and harvester reporting, at-sea sampling, port sampling, and fishery-independent data collection replacing the requirements in Addendum VIII.

Addendum XI (May 2007)

Establishes measures to rebuild SNE stock, including a 15-year rebuilding timeline (ending in 2022) with a provision to end overfishing immediately. The Addendum also establishes measures to discourage delayed implementation of required management measures.

Amendment 4

In 2000, the Lobster Board considered and failed to approve Amendment 4 to the FMP. The Amendment proposed allowing conservation equivalency be applied to two provision of Amendment 3- limits on non-trap gear and a prohibition on the possession of v-notched lobsters. The v-notch proposal, in particular, arose out of an effort to resolve ongoing litigation brought by fishermen challenging the validity of the Commission's fishery management plan.

Addendum XII (February 2009)

This addendum addresses issues that arise when fishing privileges are transferred, either when whole businesses are transferred, when dual state/federal permits are split, or when individual trap allocations are transferred as part of a trap transferability program. In order to ensure that the various LCMA-specific effort control plans remain cohesive and viable this addendum does three things. First, it clarifies certain foundational principles present in the Commission's overall history-based trap allocation effort control plan. Second, it redefines the most restrictive rule. Third, it establishes management measures to ensure that history-based trap allocation effort control plans in the various LCMAs are implemented without undermining resource conservation efforts of neighboring jurisdictions or LCMAs.

Addendum XIII (May 2008)

Solidifies the transfer program for OCC and stops the current trap reductions.

Addendum XIV (May 2009)

This addendum alters 2 aspects of the LCMA 3 trap transfer program. It lowers the maximum trap cap to 2000 for an individual that transfers traps. It changes the conservation tax on full business sales to 10% and for partial trap transfers to 20%.

Addendum XV (November 2009)

This addendum establishes a limited entry program and criteria for Federal waters of LCMA 1.

Addendum XVI: Reference Points (May 2010)

This addendum establishes new biological reference points to determine the stock status of the American lobster resource (fishing mortality and abundance targets and thresholds for the three stock assessment areas). The addendum also modifies the procedures for adopting reference points to allow the Board to take action on advice follow a peer reviewed assessment.

Addendum XVII (February 2012)

This addendum establishes a 10% reduction in exploitation for LCMA within Southern New England (2, 3, 4, 5, and 6). Regulations are LCMA specific but include v notch programs, closed seasons, and size limit changes. While approved, the addendum is not final until the inclusion of LCMA 6 plan.

Addendum XVIII (August 2012)

This addendum reduced traps allocated by 50% for LCMA 2 and 25% for LCMA 3.

Addendum XIX (February 2013)

This addendum modifies the conservation tax for LCMA 3 to a single transfer tax of 10% for full or partial business sales.

Addendum XX (May 2013)

This addendum prohibits lobstermen from setting or storing lobster traps in Closed Area II from November 1 to June 15 annually. Any gear set in this area during this time will be considered derelict gear. This addendum represents an agreement between the lobster industry and the groundfish sector.

Addendum XXI (August 2013)

This addendum addresses changes in the transferability program for Areas 2 and 3. Specific measures include the transfer of multi-LCMA trap allocations and trap caps.

Addendum XXII (November 2013)

This addendum implements Single Ownership and Aggregate Ownership caps in LCMA 3. Specifically, it allows LCMA 3 permit holders to purchase lobster traps above the cap of 2000 traps; however, these traps cannot be fished until approved by the permit holder's regulating agency or once trap reductions commence. The Aggregate Ownership Cap limits LCMA fishermen or companies from owning more traps than five times the Single Ownership Cap.

Addendum XXIII (August 2014)

This addendum updates Amendment 3's habitat section to include information on the habitat requirements and tolerances of American lobster by life stage.

Addendum XXIV (May 2015)

This addendum aligns state and federal measure for trap transfer in LCMA's 2, 3, and the Outer Cape Cod regarding the conservation tax when whole businesses are transferred, trap transfer increments, and restrictions on trap transfers among dual permit holders.

Table 6. 2012 LCMA specific management measures

Mgmt Measure	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	OCC
Min Gauge Size	3 1/4"	3 3/8"	3 17/32"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
Vent Rect.	1 ¹⁵ / ₁₆ x 5 ³ / ₄ "	2 x 5 ³ / ₄ "	2 1/16 x 5 ³ / ₄ "	2 x 5 ³ / ₄ "	2 x 5 ³ / ₄ "	2 x 5 ³ / ₄ "	2 x 5 ³ / ₄ "
Vent Cir.	2 7/16"	2 5/8"	2 11/16"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
V-notch requirement	Mandatory for all eggers	Mandatory for all legal size eggers	Mandatory for all eggers above 42°30'	Mandatory for all eggers	Mandatory for all eggers	None	None
V-Notch Definition ¹ (possession)	Zero Tolerance	1/8" with or w/out setal hairs ¹	1/8" with or w/out setal hairs ¹	1/8" with or w/out setal hairs ¹	1/8" with or w/out setal hairs ¹	1/8" with or w/out setal hairs ¹	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs ¹
Max. Gauge (male & female)	5"	5 1/4"	6 3/4"	5 1/4"	5 1/4"	5 1/4"	State Waters none Federal Waters 6 3/4"
Season Closure				April 30- May 31 ² ----- Federal: Feb 1-Mar 31	February 1- March 31 ³	Sept 8- Nov 28 ⁴	Feb 1-April 30

¹ A v-notched lobster is defined as any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8", with or without setal hairs. It also means any female which is mutilated in a manner that could hide, obscure, or obliterate such a mark.

² Pots must be removed from the water by April 30 and un-baited lobster traps may be set one week prior to the season reopening.

³ During the February 1 – March 31 closure, trap fishermen will have a two week period to remove lobster traps from the water and may set lobster traps one week prior to the end of the closed season.

⁴ Two week gear removal and a 2 week grace period for gear removal at beginning of closure. No lobster traps may be baited more than 1 week prior to season reopening.

6.0 Current State-by-State Implementation per Compliance Requirements

All states are currently in compliance with all required measures under Amendment 3 and Addendum I-XXIV.

7.0 De Minimis Requests.

The states of Virginia, Maryland, and Delaware have requested *de minimis* status. According to Addendum I, states may qualify for *de minimis* status if their commercial landings in the two most recent years for which data are available do not exceed an average of 40,000 pounds. Virginia and Delaware meet the *de minimis* requirement. The current two year average of lobster harvest for Maryland exceeds the *de minimis* threshold. Therefore, Maryland does not qualify for *de minimis*.

8.0 Regulatory Changes in 2015

Maine: Planned regulatory changes for 2015 include:

- The removal of the requirement that a trap tag be attached to the trap only by the means for which the tag was designed. Without that specification, fishermen will be able to securely attach the tag by other means (for example, hog rings) which would enable them to change gear over and reuse tags already in their possession.
- Modification of the lobster trawl limit in Hancock County, in order to facilitate changes to minimum trawl lengths required by NOAA Fisheries vertical line regulations effective June 2015.
- Adding the island of Frenchboro to the state's island limited entry program, allowing up to 14 commercial island resident lobster licenses be issued annually.
- Adoption of the federal vertical line regulations for consistency and compliance with the Atlantic Large Whale Take Reduction Plan Final Rule. This includes: a minimum number of lobster traps per trawl based on the different lobster zones and distance from shore to reduce the number of buoy lines in the water column; additional gear marking; a new 6-mile line, and island buffers.

In 2015, the 1st session of the 127th Maine Legislature considered laws making the following changes to Marine Resources statutes pertaining to lobster:

- An increase in the trap limit for the Swans Island Lobster Conservation Area from 550 to 600.
- A change in the penalty for scrubbing egged lobsters from a one year license suspension to permanent revocation of the license.

New Hampshire: Planned change to Fis. 602.09.

- These changes require anyone fishing pots/traps to haul their gear at least once every thirty days. Additionally, there are changes in Fis 602.09 that require person fishing pots/traps to permanently mark vertical lines at least three times (top, middle, bottom) with the color red.

Massachusetts:

- In 2015, MADMF promulgated a February 1 – April 30 MA Seasonal Trap/Pot Gear Haul-Out Period (Seasonal Closure), effective in areas of Massachusetts Bay, Cape Cod Bay and throughout the entire OCC LMA to complement federal rules adopted pursuant to the

ALWTRP. In making this rule change, MADMF also adjusted the timing of the OCC LMA haul-out period. The OCC LMA haul-out period, which previously occurred from January 15 – March 15, now occurs from February 1 – April 30, so that it corresponds with the Seasonal Closure. This extended the OCC LMA haul-out period by one-month, while moving the start date 15-days later.

- For 2016, MADMF intends to enact trap allocation reductions for Lobster Management Area 2 to conform to the Interstate Fishery Management Plan, adjust trap transfer rules to better accommodate permit and trap transfers occurring as a result of these pending trap reductions and to establish state regulations that complement aspects of the Atlantic Large Whale Take Reduction Plan relative to gear marking and configuration.

Rhode Island:

- Adopted 4/6/2015; 15.13.2
Regarding removal of the escape vent placement requirement. This regulatory change is intended to allow for more flexibility between lobster and crab fisheries. The minimum escape vent size did not change.
- Adopted 6/22/2015; 8.1.4(A)
Commercial landings possession limit of lobsters taken by gillnet or otter trawl will be limited to not more than maximum of one hundred (100) lobsters per day (based on a 24-hour period), or up to a maximum of five hundred (500) lobsters per trip for trips of five (5) days or longer. This regulatory change clarifies wording that allowed a bycatch of lobsters from traps other than lobster traps.
- Adopted 7/12/2015
This regulatory change is to repeal the current regulation “Part XV - Lobsters, Other Crustaceans, and Horseshoe Crabs” to be replaced with a new regulation in order to effectuate a re-organization of the structure of the regulation to improve its readability; and to remove unnecessary duplicative, administrative, and/or non-regulatory statutory language. There are no regulatory changes created by this action.

New York

- Due to the fact that the Addendum XVII management measures adopted for LMA 4 did not meet the required ten percent reduction, New York adopted rules which revised the closed season dates for LMA 4. The revised dates are April 30 through May 31. The rule was adopted through Emergency Regulations on 1/30/2015 and final adoption was 5/6/2015.

9.0 Recommendations and Issues

The following are issues the Plan Review Team would like to raise to the Board as well as general recommendations:

1. The PRT recommends that the Board approve the *de minimis* requests of DE and VA.
2. The PRT encourages the full implementation of data collection programs specified in the lobster Plan. Addendum X (2007) requires “100% mandatory dealer reporting and at least 10% of active harvesters reporting (with the expectation of 100% of license holders reporting in time)”. Currently, not all states require 100% harvester reporting and the PRT recommends state regulations are changed to meet this expectation. Furthermore, the PRT

recommends 100% VTR reporting from federal lobster fishermen in order to fill gaps in current harvester data.

3. The PRT recommends that research is conducted to investigate stock connectivity between inshore and offshore areas, especially in SNE. Specific concerns include larval transport in SNE between state and federal waters and the effectiveness of inshore surveys to document low population levels.
4. There are significant inconsistencies in the OCC regulations (ie: v-notch and maximum gauge size) between state and federal waters. The PRT recommends that these discrepancies are addressed by the Board. Additionally, the PRT recommends that inconsistent regulations between the GOM and GBK be addressed now that the areas are a single stock.
5. The PRT recommends that areas which rely on trap limits as the primary form of conservation prioritize marine patrol enforcement, particularly as trap reductions take place. The PRT also suggests that states submit data on law enforcement activity as part of the annual plan review.
6. The PRT suggests that the costs of complying with mandated FMP requirements be estimated for the purpose of determining the relationship between the value of the lobster fishery in a particular state and the cost of mandated FMP requirements.



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

October 9, 2015

To: American Lobster Management Board
From: Tina Berger, Director of Communications
RE: Advisory Panel Nomination

Please find attached a nomination to the American Lobster Advisory Panel – Grant Moore, a commercial offshore trap fisherman from Massachusetts. He replaces Bro Cote on the panel. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or tberger@asmfc.org.

Enc.

cc: Megan Ware

M15-83

American Lobster Advisory Panel

Bolded names await Board review and approval

October 9, 2015

Maine (4)

Jon Carter (comm/pot)

333 Main Street

Bar Harbor, ME 04609

Phone: (207)288-4528

Appt. Confirmed: 5/30/96

Appt. Reconfirmed 7/26/00

Appt. Reconfirmed 1/2/06

Appt Reconfirmed 5/10

Confirmed Interest: 9/4/15 but cannot make meeting in October

Robert Baines (comm/pot)

Waterman's Beach Road

South Thomaston, ME 04858

Phone: (207)596-0177

Appt. Confirmed: 5/30/96

Appt. Reconfirmed 7/26/00

Appt. Reconfirmed 1/2/06

Appt Reconfirmed 5/10

Confirmed Interest: 8/28/15

David Cousens (comm/pot)

Waterman's Beach Road

South Thomaston, ME 04858

Phone: (207)594-7518

Email: LPC6850@aol.com

Appt. Confirmed 8/28/03

Appt. Confirmed 8/07

Vacancy (comm/pot)

New Hampshire (2)

Robert Nudd (comm/inshore pot)

531 Exeter Road

P.O. Box 219

Hampton, NH 03842

Phone (eve): (603)926-7573

Appt. Confirmed: 10/30/95

Appt. Reconfirmed 9/15/99

Appt. Reconfirmed 1/2/06

Appt Reconfirmed 5/10

Confirmed Interest: 8/31/15

James A. Willwerth (comm./trap)

10 Mill

Hampton Falls, NH 03844

Phone (day): (603) 765-5008

Phone (eve): (603) 926-3139

JAW080257@comcast.net

Appt Confirmed 10/22/12

Confirmed Interest but is fully committed: 9/3/15

Massachusetts (4)

Angelo Correnti (rec/diver)

156 Spring Street

Medford, MA 02155

Phone: (617)391-1034

Appt. Confirmed: 5/30/96

Appt. Reconfirmed 9/15/00

Appt. Reconfirmed 1/2/06

Appt Reconfirmed 5/10

Appt. Reconfirmed 9/15

Arthur Sawyer Jr. (comm pots)

368 Concord Street

Gloucester, MA 01930

Phone: (978)281-4736

FAX: (978)281-4736

Email: sooky55@aol.com

Appt. Confirmed: 1/29/01

Appt. Reconfirmed 1/2/06

Appt Reconfirmed 5/10

Appt. Reconfirmed 9/15

John Carver

PO Box 36

Green Harbor, MA 02041

Phone (day): (781)500-9763

Phone (eve): (781)837-7523

FAX: (781)837-1707

Email: KAZDVM@aol.com

Appt. Confirmed: 5/9/05

Appt Reconfirmed 5/10

Appt. Reconfirmed 9/15

Grant Moore (comm/offshore pot)

4 Gooseberry Farms Lane

Westport, MA 02790

Phone (day): 508.971.2190

American Lobster Advisory Panel

Bolded names await Board review and approval

October 9, 2015

Phone (eve): 508.636.6248
FAX: 508.636.5789
Email: grantmoore55@gmail.com

Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/31/15

Rhode Island (2)

David Spencer (comm/offshore pot)
20 Friendship Street
Jamestown, RI 02835
Phone: (401)423-2120
Appt. Confirmed: 10/30/95
Appt. Reconfirmed 9/15/99
Appt. Reconfirmed 2/7/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/27/15

James Fox (comm/pot)
160 Highland Drive
Kings Park, NY 11754
Phone: (631)361-7995
Email: jcfox@erols.com
Appt. Confirmed: 10/16/01
Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10
No response to inquiry on remaining on panel

Lanny Dellinger (comm./pot)
160 Snuffmill Road
Saunderstown, RI 02874
Phone (day): (401)932-5826
Phone (eve): (401)294-7352
Email: lad0626@aol.com
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10
Confirmed Interest: 8/27/15

New Jersey (2)

Jack Fullmer (rec)
443 Chesterfield-Arneytown Road
Allentown, NJ 08501
Phone: (609) 298 - 3182
Appt Confirmed 2/21/06
Appt Reconfirmed 5/17/10
Confirmed Interest: 8/28/15

Connecticut (2)

John Whittaker (comm./pot)
37 Spring Street
Noank, CT 06340
Phone (day): (860)287-4384
Phone (eve): (860)536-7668
FAX: (860)536-7668
Email: whittboat@copmcast.net
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10
Confirmed Interest: 9/3/15

Vacancy (comm.)

Vacancy (comm pot)

New York (2)

George Doll (comm/inshore pot)
70 Seaview Avenue
Northport, New York 11768
Phone: (631)261-1407
FAX: (631)261-1407
Appt. Confirmed: 11/29/00



ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.

Form submitted by: Daniel J. McKiernan State: MA (your name)

Name of Nominee: Grant Moore

Address: 4 Gooseberry Farms Lane

City, State, Zip: Westport, MA 02790

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 508-971-2190

Phone (evening): 508-636-6248

FAX: 508-636-5789

Email: grantmoore55@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

- 1. American Lobster
2.
3.
4.

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

yes no [checked]

3. Is the nominee a member of any fishermen's organizations or clubs?

yes [checked] no

If "yes," please list them below by name.

Atlantic Offshore Lobstermen's Association

Mass Lobstermen's Association

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Lobster

CRAB

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Lobster

Swordfish

Scallop

Tuna

Cod, Haddock, Cusk, Hake

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 40 years

2. Is the nominee employed only in commercial fishing? yes no

3. What is the predominant gear type used by the nominee? TRAPS

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? offshore

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years

2. Is the nominee employed only in the charter/headboat industry? yes _____ no _____

If "no," please list other type(s) of business(es) and/occupation(s): _____

3. How many years has the nominee lived in the home port community? _____ years

If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? _____ years
2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no _____

If "yes," please explain.

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____ years
2. Is the nominee employed only in the business of seafood processing/dealing?
yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

3. How many years has the nominee lived in the home port community? _____ years
If less than five years, please indicate the nominee's previous home port community.

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years
2. Is the nominee employed in the fishing business or the field of fisheries management?
yes _____ no _____
If "no," please list other type(s) of business(es) and/or occupation(s):

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

I feel that I can bring experience to the AP when dealing with the offshore lobster fishing

Nominee Signature: J. Grant Moore

Date: 9/15/15

Name: GRANT Moore
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

Daniel McKeenan for David Peirce
State Director State Legislator

Governor's Appointee

Atlantic States Marine Fisheries Commission

Atlantic Herring Section

*November 2, 2015
10:45 a.m. – 12:15 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*T. Stockwell*) 10:45 a.m.
2. Board Consent 10:45 a.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 10:50 a.m.
4. 2016-2018 Atlantic Herring Fishery Specifications **Final Action** 11:00 a.m.
 - Review New England Fishery Management Council Specifications (*A. Harp*)
 - Set Seasonal Splitting of Sub-ACL for Areas 1A, 1B, and 2, Quota Rollover and Sub-ACL Trigger
5. Consider Draft Amendment 3 for Public Comment **Action** 11:35 a.m.
 - Review Revised Spawning Area and Empty Fish Hold Provision Options (*A. Harp*)
6. Other Business/Adjourn 12:15 p.m.

The meeting will be held at the World Golf Village Renaissance, 500 South Legacy Trail, St. Augustine, FL

MEETING OVERVIEW

Atlantic Herring Section Meeting
November 2, 2015
10:45 a.m. – 12:15 p.m.
St. Augustine, Florida

Chair: Terry Stockwell (ME) <i>Assumed Chairmanship 10/13</i>	Technical Committee Chair: Renee Zobel	Law Enforcement Committee Michael Eastman
Vice Chair: Ritchie White (NH)	Advisory Panel Chair: Jeff Kaelin	Previous Section Meeting: August 4, 2015
Voting Members: ME, NH, MA, RI, CT, NY, NJ (7 votes)		

2. Section Consent

- Approval of Agenda
- Approval of Proceedings from August 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Section Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Section Chair may allow limited opportunity for comment. The Section Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Set 2016-2018 Atlantic Herring Fishery Specifications (11:00 – 11:35 a.m.)
Background <ul style="list-style-type: none">• Set the specifications in 1A for the 2016-2018 fishery (NEFMC Motions and Selected Alternatives/Options in Briefing Materials)
Presentation <ul style="list-style-type: none">• Review New England Fishery Management Council Specifications by A. Harp
Board Actions for Consideration at this Meeting <ul style="list-style-type: none">• Set Seasonal Splitting of Sub-ACL for Areas 1A, 1B, and 2, Quota Rollover and Sub-ACL Trigger

**5. Consider Draft Amendment 3 for Public Comment
(11:35 – 12:15 p.m.)**

Background

- The Section approved Draft Amendment 3 for public comment at the May 2015 meeting but then withdrew the document from public comment in June when Section members expressed concern about the highly technical nature of the proposed measures and the potential impacts of these measures to the fishing industry.
- In August 2015, the Section tasked the PDT with revising the options based on the primary goal of protecting spawning fish in the areas they spawn.
- The PDT created new and revised options in the Spawning Efficacy section and the Empty Fish Hold Provision section. **(Public Comment in Briefing Materials; Draft Amendment 3 Options in Supplemental Materials)**

Presentation

- Revised Spawning Area and Empty Fish Hold Provision Options by A. Harp

Board Actions for Consideration at this Meeting

- Consider approval of Draft Amendment 3 options for public comment

6. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ATLANTIC HERRING SECTION**

**The Westin Alexandria
Alexandria, Virginia
August 4, 2015**

**These minutes are draft and subject to approval by the Atlantic Herring Section
The Section will review the minutes during its next meeting**

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INDEX OF MOTIONS

- 1. Move that the PDT develop options to protect spawning fish by prohibiting landing of Atlantic herring caught within the specific spawning areas defined as eastern Maine and western Maine/MA/NH.**
Motion made by Dr. Pierce and seconded by Mr. Grout. Motion carries (7 in favor) on page 10
- 2. Move to include in Draft Amendment 3 the timing options regarding spawning stage, defaults, and end of spawning closure. These issues are described in memo to the Board dated July 22, 2015.**
Motion made by Dr. Pierce and seconded by Rep. Kumiega. Motion carries on page 14.

Draft Proceedings of the Atlantic Herring Section Meeting August 2015

ATTENDANCE

Section Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	Dave Simpson, CT (AA)
Steve Train, ME (GA)	Dr. Lance Stewart, CT (GA)
Rep. Walter Kumiega, ME (LA)	Rep. Craig Miner, CT (LA)
Doug Grout, NH (AA)	Katherine Heinlein, NY, proxy for Sen. Boyle (LA)
G. Ritchie White, NH (GA)	Emerson Hasbrouck, NY (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Jim Gilmore, NY (AA)
Jocelyn Cary, MA, proxy for Rep. S. Peake, MA (LA)	Adam Nowalsky, NJ, proxy for Asm. Sgt. R. Andrzejczak (LA)
David Pierce, MA (AA)	Tom Baum, NJ, proxy for D. Chanda (AA)
Bill Adler, MA (GA)	Tom Fote, NJ (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	
David Borden, RI (GA)	
Mark Gibson, RI, proxy for R. Ballou (AA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Jeff Kaelin, Advisory Panel Chair	Michael Eastman, Law Enforcement Representative
Renee Zobel, Technical Committee Chair	

Staff

Robert Beal	Jeff Kipp
Toni Kerns	Melissa Yuen

Guests

Raymond Kane, CHOIR

The Atlantic Herring Section of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 4, 2015, and was called to order at 10:25 o'clock a.m. by Chairman Terry Stockwell.

CALL TO ORDER

CHAIRMAN TERRY STOCKWELL: Good morning, everyone. We're going to convene the Atlantic Herring Section. I want to begin the meeting by welcoming Ashton Harp to the commission and the section. I'll call the meeting to order.

APPROVAL OF THE AGENDA

CHAIRMAN TERRY STOCKWELL: The first order of business is approval of the agenda. Are there any issues or edits to the agenda?

APPROVAL OF THE PROCEEDINGS

CHAIRMAN TERRY STOCKWELL: Seeing none; we will approve the proceedings from May of 2015. Are there any edits or changes to the minutes? Seeing none; are there any comments from the public on items that are not on the agenda? Seeing none; we're going to move right ahead into our major agenda item to develop further guidance for the PDT on Draft Amendment 3. I want to thank Renee and the technical committee for putting together a PowerPoint presentation for us and turn it over to Renee.

REVIEW OF DRAFT AMENDMENT 3

MS. RENEE ZOBEL: As we were looking through the information from the meeting

this winter and other information, it seemed like there is a little bit of confusion over what was presented. We wanted to kind of give a little bit of an overview, and then we're looking for some clarification as well. We thought at first it would be a little bit informative to over where we've been for spawning closure history since the original FMP in 1993.

With the number of the items that have been in discussion as we've been developing this amendment, we took a look at the closures, the tolerances, the default dates. Basically the takeaway is that a lot has change over time with these spawning closures. In the original FMP we had four areas; we had a 25 percent tolerance; various default dates. We then went to a full 13-week closure for all areas, which ended up with a local depletion problem and we had to import fish from Canada as a result.

Then following that, we went to three areas because our default dates for Central Maine and Western Maine were the same and they were closing at the same time. A decision was made at that time to combine those areas. In Amendment 2 we did away with the tolerance and went to zero tolerance. Going back through those management actions that appeared to be primarily from a law enforcement perspective; that was something that came out of the Law Enforcement Committee, as well as the goal to prevent spawning fish from hitting the dock.

We've have had a sampled-based closure history since 2000 where we've taken 50-fish samples. Now we take a hundred fish samples and we have to have fewer than seven days that exceed the GSI values for the different size classes to trigger those closures. This is all just an overview, so don't get hung up too much on the details here.

Over time it appears that the goals and objectives of spawning closures have changed somewhat. In the original FMP the goal was to provide adequate protection for spawning herring and prevent damage to herring egg beds. In Addendum I, where they did away with some of the tolerance, it was specific measures which are designed to reduce the exploitation and destruction of herring spawning aggregations while providing a limited opportunity to harvest herring during that time of the year.

That in particular was in response to a very long closure for all of the areas and the problem harvesting in the area at the time. Then in Amendment 2 we go back and again specify that we're looking for adequate protection for spawning herring in prevent damage to herring egg beds. As the technical committee looking at these, basically our question is what are the goals and objectives of the spawning closures?

Previously all of the management measures that I've stated so far were all based on expert opinion, literature and public input. As the technical committee we were tasked to look at spawning closure efficacy; and we did it from over ten years of data that we now have available to us. The question is – and it could be other goals as well – are the goals to prevent spawning fish from being taken, the goal to prevent fishing operations that will disrupt spawning activity or is it some combination of the two or something that hasn't been presented in any management actions thus far?

Having those goals and objectives clarified would help us as the technical committee know how to advise from a technical perspective these different management actions that we're looking at. Just some things about those, in Amendment 2 there are considerations where it was preventing

spawning fish from being taken. There are concerns about the tolerance provision via public comment and law enforcement.

The public comment, some of which were quite strong, was that there shouldn't be catch of spawning herring. The 2,000 pound bycatch allowance was established at that time. Likewise, to prevent fishing operations that will disrupt spawning activity; there is a bit of anecdotal evidence that suggests fishing in an area where there is spawning behavior and the herring are not necessarily being caught had some disruption to the biological processes of the fish.

Our first closure parameters were established in the early 1990's. They were based, like I said, primarily on expert opinion, literature and public comment. They had very little basis on data. We reviewed the data as tasked, looked at the efficacies of the spawning closure and were able to look over ten years' worth of GSI sampling data by the states of Maine and Massachusetts to examine the effectiveness of the current closures and recommend, where appropriate, options based on the data.

There are over 8,000 samples that were taken during that timeframe for us to be able to inform the methodology, which Micah has presented prior to me during an overview about our forecasting methodology. Just a quick review – I know this was a very technical moment in the last meeting so I'm going to review it on a very surface basis more conceptually.

Micah went into a lot of detail about this, some of which is probably a little bit confusing just due to the technical nature of the work. The technical committee took a look at the data and found that there was a wonderful relationship between the linear

relationship with the GSIs and the length of fish over time as the maturity went on throughout the course of the season.

What this does is through samples, due to this linear relationship, it allows us to forecast the date at which those fish will reach spawning potential. When they're fully mature, having those samples and being able to track them over time can give us a really great indication of when spawning is going to happen, which is essentially what is up there now.

This just goes into different years and projected spawning dates for the area. As you can see, there is a lot of variability between each year, which is another huge advantage of going with the methodology like this. We've seen that there is a significant amount of inter-annual variability; so spawning could happen very early one year and very late the next year. There could be a big difference year to year in those timings.

You see the numbers up there. There are GSI thresholds that Micah presented that basically come down to risk tolerance. Looking at the different numbers, the fish were all standardized to length of 30. Why that happened is because the larger the fish is the earlier it spawns; so we wanted to be as precautionary as possible.

In order to do this type of forecasting, all the fish are standardized to the same length. In this case you can come up to different GSI values that will correspond to the percent of mature fish spawning. The closer that you get to that hundred percent, the more risky it is. The lower you get, the more pre-spawning fish you're going to be protecting in the process, too, so that comes back to your management goals.

Micah had laid out a few different options; one that would trigger at 70 percent of

mature fish spawning; one that would trigger at 80 percent; and one that would trigger at 90 percent. Using those different triggers results in different potential dates for defaults. Looking at all those data, we took the median values of the forecast based on each year's worth of data.

The lower that GSI – so, for example, the 70 percent of mature fish that is in red on the bottom; and you can see that the lower the number, so that corresponded to a GSI of 23, the earlier the closure would be because you're encompassing more pre-spawning fish. So that makes sense, earlier closure more pre-spawning fish.

As you're getting closer to the spawning event, those are going to get later; so you see the 90 percent value would be a median of October 17th would be the start of a default closure. This is for Western Maine and Massachusetts/New Hampshire. This is not for Eastern Maine. The length of the closure – as Micah said, we took a look at the literature, and the biology in our area seems to indicate that our fish are spawning for approximately 40 days.

Worldwide that is actually a very low number, but the data seems correct. For our area that 40 is about correct. Through all of these things there is a number of different topics where the technical committee is providing recommendations. Now, these can all be treated separately. I know this document is being developed; so other options are going to be included in the document; but please remember that each of these can be treated separately.

It can create a range of different options overall. Just because you choose to go with a forecasted process, it doesn't mean you have to choose to go with a specific default date or a specific length of spawning closure. The process, as I described before,

is a GSI-based forecasting process. We looked at many years of data. I'll go into some benefits of this process.

We believe that this is the most effective way to make sure that we are encompassing the spawning events that happen; and we recommend these are the proposed forecasting protocol that was presented by Micah for spawning closures.

Where you want to draw that line, whether it is on a lower risk side of things so on a lower number GSI trigger or a higher risk side of things, a higher GSI trigger later in the year, a spawning closure that would be a little bit later is completely up to the section. We have no recommendation there. It completely depends on risk tolerance and management goals.

As far as area, we've also been tasked in the past to take a look at area. We took a look at the data for the different areas, in particular Western Maine and Massachusetts and New Hampshire, and found there is no significant difference in the timing of spawning. We do recommend combining those spawning closure areas as a result.

One point of confusion here is that often people are seeing different size fish in the terminal ends of those two different areas, which can lead to a lot of confusion and make this a little bit confusing that people would be seeing fish of a certain size spawning in one area and fish of a different size in another area; but as far as the data are concerned there is no significant difference in those areas.

Eastern Maine; there is minimal literature and very minimal data. It is very challenging to get data there; so the technical committee recommends a status quo on area and default start date for a spawning closure. For Western Maine and Massachusetts/New Hampshire, the

methodology that the technical committee has developed and is proposing should actually negate almost the reliance on default dates, especially from lack of samples.

There should be plenty of sampling particularly if those areas are combined. That will increase the availability for sampling. This methodology forecasts different dates based on each year's data; so real-time data of what is happening that year and not reliance on a default to encompass all that variability.

The technical committee recommends the median values based on the section's choice of GSI risk tolerance; so those are those triggers I was talking about, whether it be at 70 percent, 80 percent or 90 percent. The length of closure, as I went over, the literature and sampling supports a 40-day closure; so the technical committee does recommend a six-week closure based on the biology of the fish and the literature.

Potential benefits from this new forecasting methodology and some of the other options; sampling, right now in order to close for spawning, there have to be two samples within seven days of each other. The forecasting method does away with that. There has to be sampling, but the sampling leads up throughout the course of the season to the spawning closure.

There is no requirement for two samples in very close proximity, which has been a big problem for a lot of the spawning closures in the past and has led to heavy reliance on a default date. Because use of a transparent closure method, it is the same method for that entire area. It allows for advanced public notice.

One of the beauties of the forecast thing is that you can choose a date ahead of time and

that can be the date where you announce. As you get closer to the spawning closure, as we're tracking the GSI over time, you're able to predict that date at which spawning will happen; so you have flexibility in determining how far ahead of that you want to be able to put in your rules of whatever it is that needs to happen in order to close.

You could, seven days ahead, say, okay, in seven days we're going to close this based on our forecasting. It creates a really nice avenue for advanced public notice. Like I said before, it is less reliance on the default dates. There is a bit of variability between each of the years; and this allows for it to be accounted for within season.

Each year's data are taken into consideration and each year may be very different; so it is a more real-time perspective. Like I just said, accounting for documented inter-annual variability; so the changes in those spawning events year to year, it may be very early one year and it may be very late another year. That's all taken into account in this new methodology.

These are some other things that came up over review of the prior management actions. Public comment suggested spawning closures should be based on real-time data. Fishermen specifically noted spawning closures occurred too early in some instances and were therefore not as effective. Those were from the public comments in some of the previous management actions.

Something to keep in mind as you're discussing this is that forecasted spawning closures may be earlier than our current defaults. They may also be later. They're specifically based on the biology of those fish, what those fish are doing in any given year; so that is not going to be as firm as it is right now where typically we close on a

default date and the closure happens for approximately the same period of time, at the same time every year.

The spawning closure is going to move around under our forecasted method. That has potential implications for gear conflicts or a potential perceived or unperceived gear-specific access to various spawning areas. That is all I have. If anyone has any questions, I would be happy to take them.

CHAIRMAN STOCKWELL: Thank you, Renee, for repackaging Micah's presentation and for incorporating much of the comments that I made in the white paper that is all part of the briefing documents. Just to refresh everyone's memory, we did have a conference call on June 15th where we withdrew the draft amendment from public consideration.

I committed to providing a white paper which laid out the concerns that I had at the time; and here we are today. Before we go into providing further guidance to the PDT; are there any questions to Renee on her presentation? Doug.

MR. DOUGLAS E. GROUT: Renee, you present a very good report here and it does make things much clearer for me. There was one aspect of it that I wasn't quite clear on is sort of the connection or lack of a connection between increase or decrease in the board's risk tolerance here and there not being any change in the length of time of a spawning closure.

Maybe I'm not understanding this; that if we're looking at something that is more risk averse, we're starting a closure at a lower GSI level; but wouldn't that indicate that if we were encompass a full four weeks, aren't you sort of – if you're starting the closure earlier because you are at a lower GSI level, wouldn't it suggest that you might have a

longer closure as opposed to a more risky higher GSI, which you'd probably have the spawning completed after four weeks?

MS. ZOBEL: That is something I took a look at, too, because that was language coming from the original technical committee paper in Micah's presentation; but I looked at it in a very similar way. You're losing risk on one end and gaining a little bit of risk on the other. So if we're saying, yes, there is a 40-day closure; if you want to get as close to when 100 percent of those fish are spawning, then that puts you at more risk of – under the lower number you have more pre-spawning fish that will be protected. Under the higher numbers, you're getting at that spawning event.

Certainly, yes, you lose protection on one end. For the other, if we're saying there is a 40-day spawning event, hypothetically getting as close as possible to that spawning event, it is just whether there is a risk of spawning fish at the dock at that point is the question. You may see spawning fish at the dock at that point, but you're going to close it as close as possible as the primary spawning of that group through 40 days. I guess it is almost a cost benefit one way or the other. That's a great clarification; thank you.

DR. DAVID PIERCE: Renee, you've given us, I think, five or so recommendations from the technical committee. What I'm trying to do is determine if the first recommendation from the technical committee encompasses all the rest. This is why I asked for clarification. You said the technical committee is recommending that we approve/adopt their proposed forecasting protocol for spawning closures. Here is where I got a little bit lost because then you went into some more detail and some more recommendations; so I lost track of what

exactly is the protocol. Could you describe that again?

MS. ZOBEL: The protocol for the forecasted spawning closure will be based on sampling. The GSI samples and the fish are basically standardized up to a 30-centimeter fish because we know biologically that the larger the fish the earlier they spawn. We're being conservative on that size. We're just getting it all standardized to that value. Then the GSI; you can track the GSI over time and develop a linear pattern and sets itself up beautifully in that linear manner so that you are then able to project out to the date when those fish will be at spawning. Does that make more sense? Okay.

MR. JEFF KAELIN: Renee, I'm trying to understand the justification for the expansion of the closures from four to six weeks. I went back and looked at Micah's comments in the May meeting and the statement was that we don't have GSI samples to tell us the duration of spawning and that the literature indicates that it could be up to 40 days.

My question is, is part of that time the protection of the egg beds when the eggs are on the bottom before they're released into the water column? That's my question because to date the egg beds have never been protected. That has never been a consideration in these closures. In fact if you were going to prevent damage to egg beds, you probably would eliminate bottom fishing and not herring fishing. My question is, is the justification for the PDT's recommendation to go from four to six weeks in part to protect herring egg beds?

MS. ZOBEL: It is not; and it looks like that was the confusing part of the last presentation as well. Micah used literature – and our literature starts for spawning events

there is mention of eggs a number of times. Basically they're looking at the length of eggs being dropped. It has nothing to do with protection of egg beds. It strictly has to do with length of spawning events.

MR. KAELIN: When you were talking the tolerance and the justification for losing the tolerance back about 15 years ago, whenever it was, I thought that you said something about there was some concern about localized depletion and that the industry had to import fish or something like that; what was that comment about?

MS. ZOBEL: In Amendment 1, which was in 1999, there was a 13-week closure. All areas were closed for 13 weeks and the quota was not caught and fish had to be taken in from Canada. That's what I was referring to there. It didn't have anything to do with the tolerance. It was just the closure.

MR. KAELIN: It was the duration of the closure; okay, thank you.

MR. G. RITCHIE WHITE: To follow up on Jeff's idea he brought up; if we did want to protect the beds after spawning occurred, that would require more than a six-week closure, then?

MS. ZOBEL: We strictly looked at the length of the spawning event. We did not look at protection of eggs.

CHAIRMAN STOCKWELL: Are there any further questions for Renee? Seeing none; given Renee's presentation and the white paper that I generated, Section Members, what guidance to the PDT might you have to further develop the amendment, including the goals and whether or not the range of alternatives is broad enough. What are folks' thoughts? David.

DR. PIERCE: If you'd provide a bit more explanation or assistance, Mr. Chairman, I'm referencing now the memo that you sent to us dated July 22nd with discussion points for this meeting. At the back of that memo there is an outline providing a great deal of information. My question to you is, is this what you or is this what the staff has provided as a laundry list or a template of options that potentially we could adopt? I think you should put it in a proper context.

CHAIRMAN STOCKWELL: This is strictly my laundry list that I put together with the help of Matt Cieri to stimulate my thought process and hopefully all of yours to determine whether or not this amendment should move forward first; and second whether or not there should be any further development of it. David.

DR. PIERCE: Well, if our intent today is to review what has been given to us from the technical committee as recommendations for us change the way we do business regarding how we protect the spawning fish, then I guess you're looking for a series of motions that would respond to the technical committee recommendations? If you are, I can make some and see how they work out.

CHAIRMAN STOCKWELL: I think foremost we need to wrestle with the question that has been posed specific to the eastern area and the recommendation from the technical committee to maintain status quo on the area and the default start date and the fact that the memo states that last year we closed the eastern area when there is no spawning fish being landed. Is it the section's intent to be protecting spawning fish or is it the section's intent to be protecting areas where fish might spawn? I think that is, in talking with Renee and the technical committee members, the guidance that they need to fine tune the development of this amendment. David.

DR. PIERCE: Well, that is the first motion that we should consider and that is that – well, I'll make a motion that for the Eastern Maine Area we adopt the technical committee's recommendation for status quo and the default start date.

CHAIRMAN STOCKWELL: Well, we're not making final decisions, David. This is just to go in the public – this will be repackaged to go out for public comment. Toni, is going to provide some more counsel.

MS. TONI KERNS: Just as a reminder to the section; at the last meeting in May the section had approved a document to go out for public comment that included a series of options that looked at spawning protections combining some of the areas. Those spawning protections also had default closure dates that changed from the status quo to be for four weeks that extended out to six weeks.

A couple weeks after the section meeting in May, the board got together via conference call and voted to pull that document from public hearing because it didn't meet the goals and objectives as set by the section. I think what the PDT needs direction from the section is what are those goals and objectives that the document did not meet.

That's what Terry is asking here; do we want to protect spawning fish or protect pre-spawning fish? If we walk through I think Terry's memo, maybe we can get at some of that direction so that PDT can go back and bring forward a document at the annual meeting for you to consider for public comment. If that is the direction that the section is going, the section can also say you don't want to move forward with Draft Amendment 3 at all anymore and the

document will be off the table and we'll move on with section business.

CHAIRMAN STOCKWELL: David, I think if your intent is to make a motion; it would be probably clearer for the section and the PDT if your motion was specific to the goal – is it the goal to protect spawning fish by prohibiting landings or is to prevent fishing operations that might disrupt spawning activities; two very different things.

DR. PIERCE: Yes, I'll withdraw the motion I made, first of all, and there was no seconder so it is not a motion. Okay, if I'm hesitating it is because I have few documents in front of me; and, frankly, I'm working primarily off of your discussion points. It is kind of hard to walk through this.

Could you point us to that which you've just stated, the two options regarding what the objectives might be? The PowerPoint was given and it had it, and it was very useful. We don't have that presentation or a document that would reflect that.

CHAIRMAN STOCKWELL: We're going to put that back up on the board, David. For those who have the July 22nd memorandum, it is at the bottom of the first page under the bold of questions concerning the draft amendment.

DR. PIERCE: In that case I would make a motion that the goal is to protect spawning fish by prohibiting landing of all Atlantic herring.

CHAIRMAN STOCKWELL: Prohibiting all Atlantic herring within the specific spawning area?

DR. PIERCE: Yes, within the specific spawning areas. In other words, I'm not making a motion that would have us set as a

goal preventing fishing operations that might disrupt spawning activities in a large geographic area. That is too all-encompassing. It is not about disrupting spawning activities. It is about catching spawning fish, which has always been our concern over all these years; are they spawning or are they not? I'm going with the first option in the list of two, which is to protect the spawning fish by prohibiting their landing in the defined spawning areas.

CHAIRMAN STOCKWELL: David, while is still a working motion, Toni has just recommended that you move that the PDT develop options that will protect spawning fish; is that correct, Toni?

MS. KERNS: Yes.

DR. PIERCE: I'm receptive to any improvement that would make the plan development team's work easier; so certainly I would accept that.

CHAIRMAN STOCKWELL: David, to the motion on the board; is that good with you?

DR. PIERCE: Let's modify that; "within the specific spawning areas defined as Eastern Maine and Western Maine/Massachusetts/New Hampshire. Otherwise, it suggests we're going to be looking at specific spawning beds and we're not in the position to do that.

CHAIRMAN STOCKWELL: Is there a second?

MR. GROUT: I'll second it and also offer a friendly perfection to it of herring caught within the specific spawning areas – excuse me, where did the landings go – okay.

CHAIRMAN STOCKWELL: So you want inserted between "herring caught" –

MR. GROUT: Well, originally I was talking about reflecting what we have right now is develop options to protect spawning fish by prohibiting landing of Atlantic herring caught within the specific spawning areas defined.

CHAIRMAN STOCKWELL: Are you friendly with that, David?

DR. PIERCE: Yes, I am; and there is a mistake in the motion on the board. It should be Western Maine at the third line from the bottom.

CHAIRMAN STOCKWELL: Okay, the motion was seconded by Doug Grout. Discussion on the motion. Steve.

MR. STEPHEN R. TRAIN: Mr. Chair, I don't want to overthink this; and I know it is developing options; but when prohibit fishing from a spawning area, should we have dates on that or more specific? We've got a lot of spawning areas identified. Are they going to be closed, period?

CHAIRMAN STOCKWELL: My sense, Steve, is one step at a time. We've got the three existing spawning areas, and this motion would respond to the question that Renee highlighted in the technical committee document and the one identified in the white paper. Is there further discussion on the motion on the board? Toni has got a question before we vote.

MS. KERNS: Just for clarification for the PDT; the document before had talked about combining some of the areas or leaving them status quo. Do we still want to have those options or is it just specifically what you have outlined here and no more consideration of changing the areas?

DR. PIERCE: No more consideration of changing the areas. This is responsive to the

technical committee's recommendation that we should not treat Western Maine separate from New Hampshire and Maine; that all the data indicate it is the same for practical purposes. This is very specific and there is no other option for a different breakdown, geographic breakdown.

CHAIRMAN STOCKWELL: This just specifies the goal is to protect spawning fish within the areas identified by the technical committee. Is there further discussion? Move that the PDT develop options to protect spawning fish by prohibiting landing of Atlantic herring caught within the specific spawning areas defined as Eastern Maine and Western Maine/Massachusetts/New Hampshire. Motion made by Dr. Pierce and seconded by Mr. Grout.

Those who support the motion on the board, please indicate so; is there any opposition; are there any nulls or abstentions? The motion carries seven, zero, zero, zero. Okay, further guidance for the PDT. Mark.

MR. MARK GIBSON: Are you past the GSI spawning protection matter?

CHAIRMAN STOCKWELL: No; have at it.

MR. GIBSON: Okay, there are other elements of the action; namely, the empty hold provision. Since the council action, which I gather has been submitted for consideration to the agency, there have been some issues and concerns come up in Rhode Island about impacts of the empty hold provision on herring operations that have no intention or ability to discard herring at sea; mainly freezer trawlers that may have processed and frozen packaged material product left on board or smaller vessels that have no capability, have no fish pump on board and couldn't pump anything off if they wanted to but may choose for business

reasons to leave some fish on board, top it off.

It is a matter of trailer trucks. You don't want to hire a half truck; you hire whole trucks; and how your fish match up with that matters. Is it your understanding do we need to offer any guidance on that or can that come out in the public hearing process? What is your suggestion on that?

CHAIRMAN STOCKWELL: My suggestion would be that those are the types of comments that would be applicable during the public comment period and that the section can work them after the public comments and come out with accommodations for the wet-pack boats as well as the sea-freeze boats.

Before we go on to something else, are there other options that section members would like to see developed further in the document? I'm specifically referring to if you look at the memo that was generated; should the PDT develop a fast-track closure mechanism for either of the areas as we move ahead with the consideration of a combined Massachusetts/New Hampshire area? Is six weeks the right number; should we do four weeks; different alternatives to take out for public comment or is the section satisfied with the range of alternatives that the PDT has compiled to date? David.

DR. PIERCE: Mr. Chairman, I can't recall all of the alternatives that the plan development team has put together to date. I apologize; I thought we were going to be focusing primarily on the technical committee recommendations as to how to improve the process for protecting the spawning fish, again as a component or an element of the amendment.

Again, I'm looking to you for further guidance as to how we should proceed.

Certainly, we need to address the technical committee's recommendation regarding Eastern Maine, status quo, the default start dates. We have to address, I assume, the proposal for the forecasting protocol for the spawning closures; the GSI that we're going to pick, is it going to be 25 percent or 30 percent or 20 percent? Is it going to be the 30-centimeter fish; 80 percent fish spawning as opposed to 75 percent, as opposed to 90 percent? Again, I'm looking to you for guidance as to how we're going to deal with those issues in the context of what is on the agenda.

CHAIRMAN STOCKWELL: All right, let me try to tease a motion out of you. The section has just approved a motion that the goal is to protect spawning fish. We have the Eastern Gulf of Maine; and there are samples coming in with no spawning fish in; so we have a default date that is in place that has not been met.

Should spawning fish come be landed; should we consider a fast-track mechanism to close an area if it is currently open and spawning fish are encountered on the dockside monitoring program? One the issues that the section has discovered over the last couple of years and has gone back and forth between Doug and myself is the lack – at least from my perspective, a lack of a definitive definition upon whether or not the area closes if there is no spawning fish or does it stay open? Last year the area was closed with no spawning fish coming in; so it is something that I hope this section can wrap their head around. Steve.

MR. TRAIN: The last motion, if we could get it back up, I thought was that broad enough that it would allow the PDT to develop alternatives whether they were fast-tracked or not. Did I misunderstand that? It seems pretty broad in what they can do to protect spawning fish.

MS. KERNS: Renee presented levels of risk that the section could consider; and for the length of the closure, we depend on the level risk that you're willing to look at. Do we want to look at all ranges of risk? Before we just had a six-week option and a four-week option; so do we want to increase that range of the options? I think Renee presented a couple of questions out there that would be helpful to get a little guidance so that we don't have to keep going back and forth between the PDT and section on developing the document.

REPRESENTATIVE WALTER A. KUMIEGA III: It seems to me that the least risky option would be a six-week closure with the lower GSI number and the most risky would be a four-week closure with a higher GSI number. If we put those two options in and then we can consider anything in between, that gives us probably a good range.

I would also like to see – I mean, where you've talked about the default dates; is there enough data to make the default dates either make more sense or just make them later in the year so that there is more likely to be spawning going on? It seems like the way the default date is in Eastern Maine and the data that was up there; the default is well before the spawning usually takes place. I don't know how to put that into a motion or if you needed it in a motion.

CHAIRMAN STOCKWELL: As Renee laid out in her presentation, the data in Eastern Maine is extremely limited. I guess my question to you, Renee, is referencing back to Steve's comment; do you feel the previous motion gives you and the PDT and Ashton enough leeway to develop alternatives that would include the concept of a fast-track closure or do you need specific guidance?

MS. ZOBEL: I think that is broad enough to develop that in the document.

MR. ERIC REID: We're talking about protecting spawning fish. We're talking about default dates that go into effect but don't really do anything is what you're indicating for Eastern Maine. Now we're talking about a fast-track to close an area should there be evidence of spawning. This in its nature said, okay, we're going spawning fish.

However, does it also guarantee access to any of those areas should spawning fish not be present – how does that work, which is what I think you're trying to get at? If there is no spawning fish in Eastern Maine or Western Massachusetts or anywhere; is that going to guarantee access in the fishery to those areas?

CHAIRMAN STOCKWELL: Well, at present the technical committee and the PDT are proposing two different alternatives. One is to treat the Eastern Gulf of Maine separately and combine the two western areas into one area that would be – should this amendment move forward would be closed by projections rather than by the current cutting that we do in between the three states right now. I mean there is an opportunity to provide guidance for any range of alternatives within reason that they can actually analyze. If you've got a proposal, please put it out. Doug.

MR. GROUT: Mr. Chairman, as I understand it, the way the document is written right now, we have a proposal to go with the new projection method in the Western Gulf of Maine/Massachusetts/New Hampshire spawning area closures. Clearly, within that range there might be a range of alternative risk policies in there.

Right now we have a recommendation from the technical committee that there be a 40-day closure or six-week closure. I think that is what is currently in the document, which leaves the Eastern Maine at status quo, which we already have a process defined in Addendum V on Page 10 that talks about getting at least two samples of a hundred fish of either females greater than 28 centimeters that have reached a mean GSI of 20 percent or female herring greater than 23 centimeters and less than 28 that have a GSI of 15 percent.

Then it goes on to say if sufficient sample information is not available for a reliable estimating of the GSI in either of the size categories, the restrictions will go into effect automatically on the default date, which in Eastern Maine is August 15th. Sufficient sample information shall mean at least two samples of a hundred fish or more in either length categories taken from commercial catches during a period not to exceed seven days apart.

I think it is pretty clear what would trigger both a non-default date closure and then what would trigger the default closure. Now, the point here is right now that's the status quo. That's what used to apply to all regions, but we're proposing potentially changing that for the other two regions. I guess it is up to the board. I'm comfortable with the way this is written right now. I think it is very clear what has to happen. If there is desire on the part of the section to have an option that would change that, I think we'd need a motion to include that as an option.

CHAIRMAN STOCKWELL: The gray area to me, though, is we've gone back and forth the last couple years, is with the samples coming out of there – I mean what I'm hearing from you is that interpretation of our existing regulations that as long as the

samples are indicating there is no spawning occurring; that the area does not have to be closed. That's not crystal clear to myself or the state of Maine.

MR. GROUT: Does the state of Maine have a proposal for a clarification of this; wording that would change this as a clarification, as a proposed option for this addendum?

CHAIRMAN STOCKWELL: Well, it was just made clear by Dr. Pierce in this motion that you seconded that the goal is protect spawning fish. I think I'm pretty close to turning the Chair to somebody else; but before I do that, I'm going to go to Dr. Pierce.

DR. PIERCE: Terry, I want to get back to the memo that you provided us the ideas and kind of a summary of where we are right now relative to a lot of options pertaining to areas and timing and a few other things. I don't want that to be missed because you did work into that memo technical committee recommendations that should be included – I suspect should be included in the list options we bring out to a public hearing on this amendment.

With that said, what I would like to do is make a motion; and the motion would be – because you teased me, and I think I have been teased the right way here because what you've got here makes sense. I would move that we adopt the timing options regarding spawning stage, defaults, and end of spawning closure. These issues are described at the bottom of Page 3 and the top of Page 4 in your memo to us.

I won't get into all the details; they're all described. I just recommend the section reference those areas. It pertains to the GSI options of 20 to 30. It pertains to the degree of precaution, which is a GSI of 23, 25 or 28 relative to how many fish are spawning; 70

percent, 80 percent and 90 percent. It pertains to the defaults meaning status quo or the point that you've raised earlier about the fast-track closure mechanism.

It incorporates the reference to the median date recommendation that was offered up by the technical committee. It also gets to the end of the spawning closure issues, which are status quo; the recommendation of six weeks and then another option of four weeks; no provision to re-close. I think it covers all the bases and incorporates in a very important way the technical committee's recommendation. I'll read the motion again on the screen: Move to adopt the timing options regarding spawning stage, defaults, and end of spawning closure. Okay, these issues are described in the memo to the board. That's the motion.

CHAIRMAN STOCKWELL: Sufficiently teased; thank you, David. I do have one recommendation, though, is that rather than adopt it should be to include in the document.

DR. PIERCE: I'm sorry, I couldn't hear.

CHAIRMAN STOCKWELL: You should move to include in the document these options so they can go out for public comment.

DR. PIERCE: Yes; that's a better way to phrase it.

CHAIRMAN STOCKWELL: Seconded by Walter. Is there discussion from the section? Eric.

MR. REID: So does this mean that closures will be done by one or the other of a spawning stage or default or is it designed to use one of those two mechanisms in an effort to ensure access to fish that are not spawning?

CHAIRMAN STOCKWELL: This is a range of alternatives.

MR. REID: Okay, so it would be a range of alternatives. One would be to eliminate default dates and the other one would be to use a spawning stage as a mechanism for closures?

CHAIRMAN STOCKWELL: It is a suite of alternatives to go out to the public to comment on.

REPRESENTATIVE KUMIEGA: To Dr. Pierce would it be considered a friendly perfection to also include a fast-closure process?

CHAIRMAN STOCKWELL: That's in there. You can refer to Page 3 of my memo and it is included in Issue F. Is there further discussion of the motion on the board? I'll read it: Move to include in Draft Amendment 3 the timing options regarding spawning stage, defaults, and end of spawning closure. These issues are described in memo to the Board dated July 22, 2015. The motion was made by Dr. Pierce and seconded by Representative Kumiega. You have a question, Doug?

MR. GROUT: Could you refer to Page 3 again and where it references the fast-track, quote-unquote, spawning? Is it under Issue 2?

CHAIRMAN STOCKWELL: Issue 3, timing, Section F, Number 4.

MR. GROUT: But there isn't a specific definition of what fast-track would involve. That is something that is going to come up from the PDT. Do they need guidance on what that means?

MS. ZOBEL: I think guidance would be helpful on specifically what you would like to see as far as fast-track is concerned.

CHAIRMAN STOCKWELL: Do you have a recommendation, Doug?

MR. GROUT: It may be a different recommendation than I think what you had intended. Based on our conversations, I'm comfortable with the seven days. I think that is a fast process to be able to particularly get information out to the industry in preparation for this, especially if it is in an area that may or may not be under the projection method. Clearly, the projection method gives the industry sufficient time; but a closure immediately, particularly if it might apply to the area that my state is involved, may be problematic. I know we could shorten it up a little bit.

CHAIRMAN STOCKWELL: So are folks comfortable with up to seven days? I'm seeing no opposition. Are you okay, Doug? Okay, is there any further discussion of the motion on the board? Seeing none; those that support it please indicate so; those who don't; those who are abstaining or nulling. Okay, the motion carries seven to zero. Is there further guidance to the PDT or, Renee, do you seek further guidance from the section for the work that you need to do between now and our fall meeting?

MS. ZOBEL: I think your memo plus the motions have laid out guidance as far as document development between now and then.

DR. PIERCE: I didn't hear what Renee said regarding – I guess I need to find out if we've covered the base that we've already highlighted and then Renee highlighted about the technical committee proposed forecasting protocol for the spawning closures that is using the 30-centimeters

fish? Is that in the mix already or does that have to be considered as a separate action?

MS. ZOBEL: That was within the options that were presented earlier; and I believe that's already within the options that will be presented in the document.

DR. PIERCE: Okay, good, I just wanted to make sure because that's an important thing. It is included; good.

CHAIRMAN STOCKWELL: Yes; my sense is that it is embodied in the current document. Bill.

MR. WILLIAM A. ADLER: In other words, the issue of spawning as adjusted today will be put into the document. The other two issues in the amendment will go to public hearing as are in the document now. There is still the three and basically what we've been doing here is fixing number one; is that correct?

CHAIRMAN STOCKWELL: That is correct. Jeff.

MR. KAELIN: So the PDT or the technical committee is going to go back and revise the document and then it will come back in Florida in November and then there would be an opportunity for the AP to check in after that document is finalized and during the public hearing process. That is my question in terms of timing; but I have two issues I want to raise that have been raised with me by many people over the last few weeks that I want to mention before we end here today. Thanks.

MS. KERNS: The AP will be involved as we develop the options; so we'll have either a conference call or an in-person meeting depending on what we make work between now and the annual meeting; and then we'll also have an AP meeting while the

document is out for public comment. We will strive to have that meeting after the public hearings have occurred so that you can least have a notion of what happened in those meeting to the best we can with scheduling.

MR. KAELIN: That sounds good; but there are two reoccurring issues that I'm hearing from folks. In fact, I'm getting text today. The first is on the biological issues. There doesn't seem to be any relationship to the biomass strength and this potential extension of spawning closures for another two weeks. I think even with the operational assessment and the adjustment to eliminate the retrospective in the model run, the biomass is still over 200 percent of the target.

The second issue is that there is no quantitative analysis of impact by fleet or gear to a two-week extension of the spawning closures in the area. Those are the two things that people keep coming to me with; and I wanted to mention them today with the section here in case the technical committee could address one or both of those outstanding issues. Thank you.

DR. PIERCE: To the first issue that Jeff raised; that is a very important issue. We have some new information regarding stock status. I think we've all heard it already. It caught me by surprise. I didn't think the resource was as robust or as large as it is assessed to be now. Great information, very positive information.

The resource itself is in excellent shape according to the most recent assessment. People may challenge that, but it is what we have. That information certainly will be incorporated into the amendment; and I suspect it is going to have an influence on section members and certainly those at the public hearing regarding whether or not we need to have the longer spawner period or

shorter spawning period.

It would seem that if the resource was in poorer shape that a larger period would be favorable. Since the resource is in great shape, I suppose there will be a lot of debate and arguments that we don't need the longer period. I'm glad that Jeff raised it. It needs to be incorporated into the document. It will help the public understand where we are, help the public address the issue and then later on how we finally decide what to do.

MR. EMERSON C. HASBROUCK, JR.: Mr. Chairman, relative to that discussion, in terms of not only helping the public understand, I'm having a little trouble understanding here. If the goal is to protect spawning fish and yet the spawning stock biomass – and what I've just heard is that 200 percent of the target – all right, whether we remove a fish a day before it spawns or a week before it spawns or six months before it spawns, it has still been removed from the spawning stock biomass and that fish isn't going to spawn.

I'm not sure what these closures are doing; and maybe I'm a little late to the ballgame here. I know that I am because this plan has been in effect for a long time; but how are we protecting spawning fish with a closure? Aren't we just allowing those fish to spawn unmolested?

MS. ZOBEL: That's exactly what we're asking for clarification on; what the management goal was.

CHAIRMAN STOCKWELL: Before we move on to Toni's report, is there any further discussion? The only further input I have is a request that some economic analysis be incorporated so that as we move forward with taking to the public a document that proposes a six-week closure during prime lobster fishing season; that the

public has an ability to fairly comment. Okay, Toni.

UPDATE ON NEFMC ACTIVITIES

MS. KERNS: I'm going to go through this rather quickly so that we can get our lunch and then get started with the Lobster Board. The Herring Committee from the New England Fishery Management Council met at the end of July to make recommendations that are to go through in order to make recommendations to the full council for their upcoming meeting on herring specifications. For the majority of the specifications, they went ahead and recommended status quo for the uncertainty or for the uncertainty buffer for the ACLs, the management areas sub-ACLs as well as the fixed-gear set-asides and the research set-aside.

The one thing that they did that was somewhat different from last year is how they looked at the gear and area catch caps for river herring and shad. They are making a recommendation to the full council that we use a seven-year weighted average mean; so from 2008 to 2014 – and this is an unscaled average – to specify the river herring and shad catch caps for the 2016 to 2018 fishing years.

In terms of how we utilize this information to go through this process; typically the commission will set the specifications for the upcoming fishing year at our annual meeting, and this will be after the Herring Committee has made its recommendations to the full council and the full council then votes to make those recommendations to NOAA Fisheries.

We try to make those recommendations based on what the full council does. Are there any other clarifying points that members of the New England Council want to make since I wasn't at that meeting that

you wanted to point out?

MR. GROUT: Mostly some clarifications that the actual ACLs aren't exactly the same. It is the sub-ACLs because the ABC was reduced by a slight amount – I think about 3,000 metric tons; and so the sub-ACLs are actually lower. What it was is the percentage allocation to each sub-ACL is the same. We made a recommendation there would be no change on that.

There is one thing on the management uncertainty buffer that we also forward as a recommendation is that there is a provision to allow a thousand metric tons of the 6,200 metric ton management uncertainty buffer to be returned to the 1A fishery after October 1 if the New Brunswick Weir Catch is less than 4,000 metric tons as of October 1st.

The reason we did that is our management uncertainty; we considered three areas of management uncertainty, but the main one which we drew from was we don't know what the New Brunswick Weir Catch is going to be; and we have no control over that. We stuck with the same management uncertain buffer that we used in the last specifications; but added in this provision that if they've used less than 4,000 metric tons, just a small portion, a thousand metric tons would be returned to our allocation.

CHAIRMAN STOCKWELL: Questions for Doug or Toni? Seeing none; is there any further business to come before the Herring Section? Doug.

MR. GROUT: Is it the intent that we will undertake an addendum beginning at our next board meeting to update these specifications for plan, too, or should we initiate that today?

MS. KERNS: Doug, would we need the addendum because of the changes in the

provision to allow the thousand metric tons rolled over; is that what you're getting at? We can do the numbers' specifications by section action; but I'd have to look into whether or not we would need an addendum for the rolling over portion for the weir fishery.

MR. GROUT: Yes; maybe what we need to do is have you – let's look into that and see whether we need to do it by addendum but prepared to take some kind of action at the fall meeting.

MS. KERNS: We can definitely do that and we will be prepared to present the full recommendations from the council at their upcoming fall meeting.

CHAIRMAN STOCKWELL: Everyone comfortable with that game plan? Seeing so; this meeting is adjourned.

(Whereupon, the meeting was adjourned at 11:45 o'clock a.m., August 4, 2015.)

NEW ENGLAND FISHERY MANAGEMENT COUNCIL
Radisson Hotel, Plymouth, MA
September 29-October 1, 2015
DRAFT MOTIONS AND SELECTED ALTERNATIVES/OPTIONS

Tuesday, September 29, 2015

ELECTION OF COUNCIL OFFICERS

Chairman:

Mr. Terry Stockwell

Vice chairman:

Dr. John Quinn

Executive Committee members:

Mr. Douglas Grout

Dr. Michael Sissenwine

Mr. Peter Kendall

HERRING COMMITTEE REPORT

1. Mr. Grout moved on behalf the Herring committee:
that the Council selects Alternative 3 as the Preferred Alternative for the 2016-2018 specifications, including all items as displayed in Table 6, p. 14, of the Draft 2016-2018 Atlantic herring specifications document; adopting the New Brunswick weir payback option that would consider landings through October 1 and maintain the current seasonal splits for Areas 1a and 1b.

The motion *carried* on a show of hands (15/0/0/1) with 1 recusal.

Recusal Statement: *Ms. Tooley* - I will be recusing myself because I am employed by a company that harvests greater than 10% of the landings in this fishery.

Alternative 3 (Preferred Alternative) – SELECTED ALTERNATIVE

Alternative 3 was developed by the Herring Committee at its July 22, 2015 meeting and represents the **Preferred Alternative** for the 2016-2018 Atlantic herring fishery specifications at this time. Alternative 3 would specify Atlantic herring ABC at the level recommended by the SSC (111,000 mt) and would maintain the 2013-2015 specification of management uncertainty for 2016-2018. Under Alternative 3, the management uncertainty buffer would be specified at 6,200 mt to account for catch in the NB weir fishery (average catch 2009-2011). This alternative would maintain a status quo approach to all other Atlantic herring fishery specifications for 2016-2018, including set-asides and the seasonal (monthly) distribution of sub-ACLs. The Council is also considering an option that would allow for 1,000 mt of Atlantic herring to be returned to the Area 1A fishery from the management uncertainty buffer if certain conditions are met (see below). The specifications that would be implemented under Alternative 3 are listed in **Error! Not a valid bookmark self-reference.**

Table 1 Alternative 3 (*Preferred Alternative*) for 2016-2018 Atlantic Herring Specifications

Specifications	Alternative 3 <i>Preferred Alternative</i>
OFL	2016 – 138,000 2017 – 117,000 2018 – 111,000
ABC	111,000
Management Uncertainty	6,200 (Value in 2015)
ACL/OY	104,800 ¹
DAH	104,800
DAP	100,800
USAP	0
BT	4,000
Area 1A Sub-ACL (28.9%)	30,300
Area 1B Sub-ACL (4.3%)	4,500
Area 2 Sub-ACL (27.8%)	29,100
Area 3 Sub-ACL (39%)	40,900
RSA	3%
FGSA	295

2. Mr. Grout moved on behalf of Herring committee:
that the Council adopt River herring/Shad Alternative 3, Option 2 (weighted mean) for the preferred Alternative for the 2016-2018 River herring/Shad catch caps.
- 2a. Dr. Pierce moved to substitute and Dr. McKenzie seconded:
that the Council adopt Alternative 1 (No Action).

The motion to substitute *failed* on a show of hands (6/9/0/1) with 1 recusal.

Recusal Statement: *Ms. Tooley* - I will be recusing myself because I am employed by a company that harvests greater than 10% of the landings in this fishery.

Main motion:

That the Council adopt River herring/Shad Alternative 3, Option 2 (weighted mean) for the preferred Alternative for the 2016-2018 River herring/Shad catch caps.

- 2b. Dr. Sissenwine moved to substitute and Mr. John Bullard seconded:
to adopt Alternative 2, Option 2 (weighted mean) as the Preferred Alternative.
- 2c. Mr. Grout moved to amend and Mr. Gibson seconded:
to adopt Alternative 2, Option 2 (weighted mean) as the Preferred Alternative and to change the small mesh SNE/MA catch cap to 88.9.

The motion to substitute *carried* on a show of hands (10/5/0/1) with 1 recusal.

The motion to substitute as amended *failed* on a show of hands (5/10/0/1) with 1 recusal.

Recusal Statement: *Ms. Tooley* - I will be recusing myself because I am employed by a company that harvests greater than 10% of the landings in this fishery.

Main motion:

That the Council adopt River herring/Shad Alternative 3, Option 2 (weighted mean) for the preferred Alternative for the 2016-2018 River herring/Shad catch caps.

- 2d. Mr. Mark Alexander moved to amend and Dr. McKenzie seconded:
that the Council adopt River herring/Shad Alternative 3, Option 2 (weighted mean) for the preferred Alternative for the 2016-2018 River herring/Shad catch caps for the GOM. Cape Cod and SNE/MA catch caps will remain at the “no action” levels.

The motion to amend *failed* (5/8/2/1) with 1 recusal.

Recusal Statement: *Ms. Tooley* - I will be recusing myself because I am employed by a company that harvests greater than 10% of the landings in this fishery.

Main motion:

That the Council adopt River herring/Shad Alternative 3, Option 2 (weighted mean) for the preferred Alternative for the 2016-2018 River herring/Shad catch caps.

The motion *carried* on a show of hands (9/5/1/1) with 1 recusal.

Recusal Statement: *Ms. Tooley* - I will be recusing myself because I am employed by a company that harvests greater than 10% of the landings in this fishery.

RH/S Alternative 3 (*Preferred*): Revised Data with Seven-Year Time Series (Weighted Mean) – SELECTED ALTERNATIVE AND OPTION

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT's revised/updated data (see Section **Error! Reference source not found.** and Appendix I). This alternative would incorporate RH/S catch estimates from the most recent two years, extending the time series to seven years, with options to select either the median or weighted mean values as the 2016-2018 RH/S catch caps (**Error! Reference source not found.**). The RH/S catch caps under this alternative would continue to apply to midwater trawl vessels in the Gulf of Maine and Cape Cod Catch Cap Areas, and to both midwater trawl and small mesh bottom trawl vessels in the southern New England/Mid-Atlantic Catch Cap Area (see RH/S Catch Cap Areas shaded on **Error! Reference source not found.**, p. **Error! Bookmark not defined.**) on all trips landing more than 6,600 pounds of Atlantic herring. No RH/S catch cap would be adopted for the GB Catch Cap Area. Alternative 3 (using Option 2, the weighted mean) represents the *Preferred Alternative* for specifying 2016-2018 RH/S catch caps at this time.

Option 2: Weighted Mean. Option 2 would base the 2016-2018 RH/S catch caps on the weighted mean values of the 2008-2014 revised RH/S catch estimates. The weighted mean represents the arithmetic average of the total RH/S catch per year (by area and gear type for each of the seven years in the time series), weighted by the number of sampled trips in that stratum (see Appendix I for more information). This option represents the *Preferred Alternative* for specifying the 2016-2018 RH/S catch caps.

3. Dr. Pierce moved and Mr. Terry Alexander seconded:
that because River herring/Shad bycatch in the sea herring fishery is monitored by NOAA fisheries solely from observer data, the Council requests NMFS include state port-side monitoring of River herring/Shad catch to determine that catch relative to the bycatch caps.
- 3a. Ms. Tooley moved to postpone and Mr. Terry Alexander seconded: to postpone until the December Council meeting.

The motion to postpone *carried* on a show of hand (14/2/0).

DRAFT

Atlantic Herring Fishery Specifications

**for the 2016-2018 Fishing Years
(January 1, 2016 – December 31, 2018)**



**Prepared by the
New England Fishery Management Council**

in consultation with
Atlantic States Marine Fisheries Commission
National Marine Fisheries Service
Mid-Atlantic Fishery Management Council

Date: September 29 – October 1 NEFMC Meeting

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EXECUTIVE SUMMARY

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LIST OF ACRONYMS

ABC	Acceptable Biological Catch
ABC CR	ABC Control Rule
ACL	Annual Catch Limit
AM	Accountability Measure
ASMFC	Atlantic States Marine Fisheries Commission or Commission
B	Biomass
BT	Border Transfer
CAA	Catch at Age
CC	Cape Cod
CZMA	Coastal Zone Management Act
DAH	Domestic Annual Harvest
DAP	Domestic Annual Processing
DMF	Division of Marine Fisheries
DMR	Department of Marine Resources
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
E.O.	Executive Order
ESA	Endangered Species Act
F	Fishing Mortality Rate
FEIS	Final Environmental Impact Statement
FGSA	Fixed Gear Set-Aside
FMP	Fishery Management Plan
FW	Framework
FY	Fishing Year
GB	Georges Bank
GMRI	Gulf of Maine Research Institute
GOM	Gulf of Maine
IFM	Industry-Funded Monitoring
IVR	Interactive Voice Response
IWP	Internal Waters Processing
JVP	Joint Venture Processing
M	Natural Mortality Rate
MA DMF	Massachusetts Division of Marine Fisheries

MAFMC	Mid-Atlantic Fishery Management Council
ME DMR	Maine Department of Marine Resources
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistical Survey
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
mt	Metric Tons
NB	New Brunswick
NEFMC	New England Fishery Management Council
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NSGs	National Standard Guidelines
OFL	Overfishing Limit
OY	Optimum Yield
PDT	Plan Development Team
PS/FG	Purse Seine/Fixed Gear
RFA	Regulatory Flexibility Act
RFFA	Reasonably Foreseeable Future Action
RH/S	River Herring/Shad
RIR	Regulatory Impact Review
RSA	Research Set-Aside
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
SFA	Sustainable Fisheries Act
SNE/MA	Southern New England/Mid-Atlantic
TC	Technical Committee
TRAC	Transboundary Resource Assessment Committee
TRT	Take Reduction Team
USAP	U.S. At-Sea Processing
VMS	Vessel Monitoring System
VTR	Vessel Trip Report

1.0 INTRODUCTION

This document contains the New England Fishery Management Council's recommendations for the Atlantic herring fishery specifications for the 2016-2018 fishing years, consistent with the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Atlantic Herring Fishery Management Plan (FMP), initially approved by the National Marine Fisheries Service (NMFS) on October 27, 1999. This document also contains information and supporting analyses required under other applicable law, including the National Environmental Policy Act (NEPA) and Regulatory Flexibility Act (RFA).

The Atlantic herring fishery specifications are annual amounts specified for the 2016-2018 fishing years (January – December), including:

- Overfishing Limit (OFL);
- Acceptable Biological Catch (ABC);
- Stockwide Atlantic Herring Annual Catch Limit (ACL) = U.S. Optimum Yield (OY);
- Domestic Annual Harvest (DAH);
- Domestic Annual Processing (DAP);
- U.S. At-Sea Processing (USAP);
- Border Transfer (BT, U.S.-caught herring transferred to Canadian vessels for export);
- Management Area sub-ACLs;
- Research Set-Asides (RSA);
- Fixed Gear Set-Aside (FGSA);
- Seasonal (Monthly) Sub-ACL Divisions; and

In addition, annual gear-specific and area-specific catch caps for river herring and shad (RH/S) are specified for trips landing more than 6,600 pounds of Atlantic herring (3 mt) during the 2016-2018 fishing years, consistent with Framework Adjustment 3 to the Atlantic Herring FMP.

The 2016-2018 Atlantic herring fishery specifications are developed by the Council based on the best available scientific information. The 2015 Atlantic herring operational stock assessment and the recommendations of the Council's Scientific and Statistical Committee (SSC) form the basis of the OFL and ABC specifications for 2016-2018.

1.1 BACKGROUND

The Atlantic herring (*Clupea harengus*) fishery specifications are annual amounts recommended by the New England Fishery Management Council every three years through a process established in the Atlantic Herring FMP (and modified in Amendments 1 and 4). In recognition of the spatial structure of the Atlantic herring stock complex (multiple stock components that separate to spawn and mix during other times of the year), the total annual catch limit for Atlantic herring (stockwide ACL/OY) is divided and assigned as sub-ACLs to four management areas (see Figure 1 on p. 3). Management Area 1 represents the Gulf of Maine (GOM), which is divided into an inshore (Area 1A) and offshore section (Area 1B). Area 2 is located in the coastal waters between MA and NC (southern New England/Mid-Atlantic), and Area 3 represents the offshore Georges Bank (GB) area. The Council utilizes the best available information to consider the proportion of each spawning component of the Atlantic herring stock complex in each area/season and distribute the sub-ACLs such that the risk of overfishing an individual spawning component is minimized to the extent practicable.

Amendment 1 to the Herring FMP (2006) established a process that allows the Council to set multi-year (up to three fishing years) specifications. In Amendment 4, the Council updated the Atlantic herring specifications process to ensure consistency with the newly-implemented provisions of the MSA and implemented provisions for annual catch limits (ACLs) and accountability measures (AMs) in the Atlantic herring fishery. The Council opted to retain the general provisions for establishing specifications for the Atlantic herring fishery but eliminated the need to annually specify Joint Venture Processing (JVP), Internal Waters Processing (IWP), Total Allowable Level of Foreign Fishing (TALFF), and a sub-ACL reserve. While TALFF will not have to be considered by the Council during the specifications process, countries interested in foreign fishing for herring may still request TALFF allocations from NMFS, and these requests will be addressed as they arise. Framework 2 paralleled the 2013-2015 Atlantic herring fishery specifications and authorized the Council to split Atlantic herring sub-ACLs seasonally (by month) during the specifications process. It also established a general policy for authorizing annual carryover of unutilized sub-ACL (up to 10%) under specific conditions.

Framework 3 to the Atlantic Herring FMP became effective in late 2014 and established provisions for gear-specific and/or area-specific RH/S catch caps, which apply to vessels participating in the directed Atlantic herring fishery. Framework 3 also specified RH/S catch caps for the 2014 and 2015 fishing years and included provisions to allow future RH/S catch caps to be specified through the Atlantic herring fishery specifications process. The RH/S catch cap areas established in Framework 3 are shown in Figure 1 (following page).

Table 1 and Table 2 summarize the current (2013-2015) Atlantic herring fishery specifications as well as the 2014/2015 RH/S catch caps that were implemented in Framework 3.

Figure 1 Atlantic Herring Management Areas (Lines) and RH/S Catch Cap Areas (Shaded)

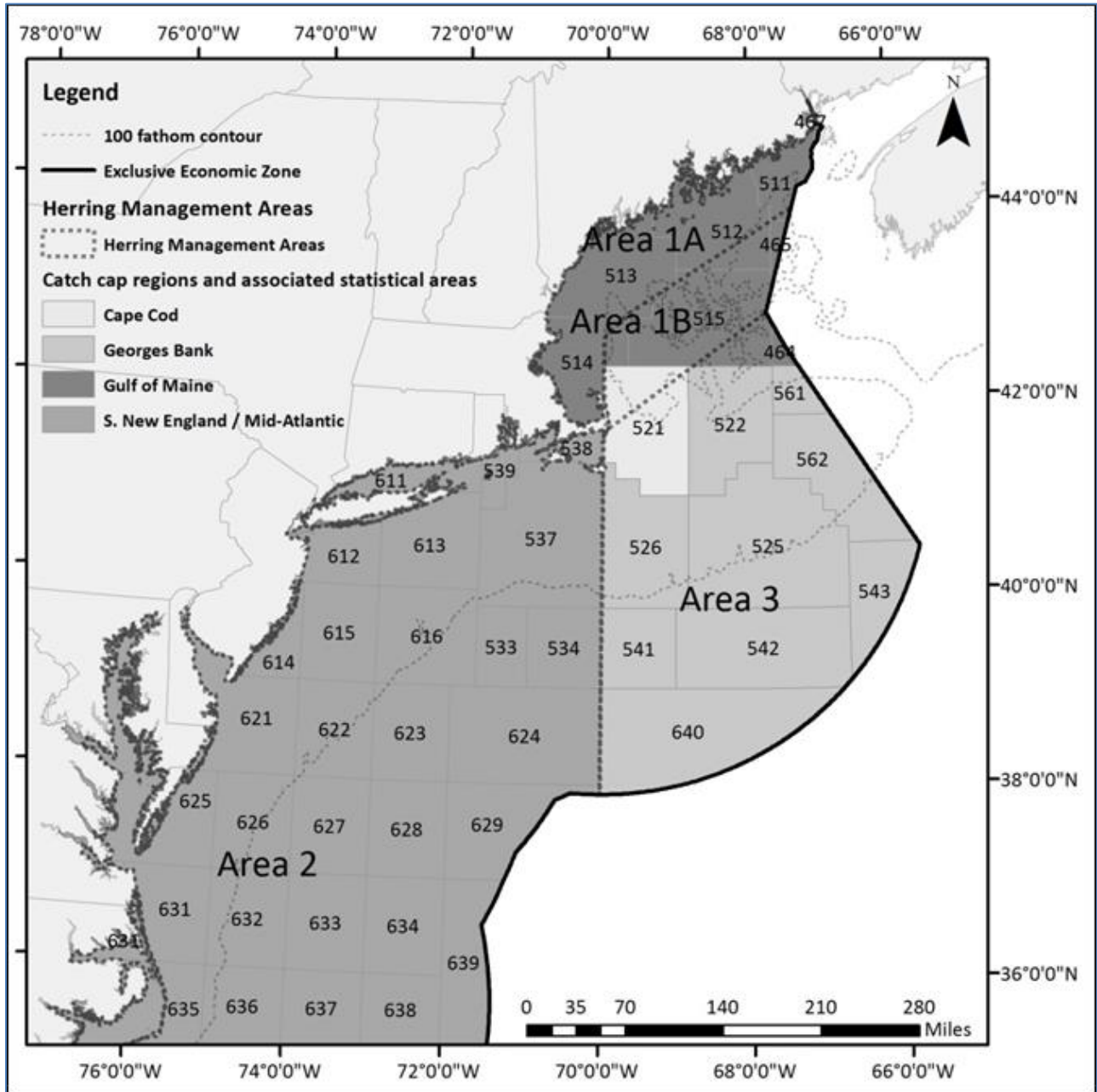


Table 1 Current (2013-2015) Atlantic Herring Specifications (Initial Allocations)

SPECIFICATION	2013-2015 INITIAL ALLOCATION (MT)
Overfishing Limit (OFL)	169,000 – 2013 136,000 – 2014 114,000 – 2015
Acceptable Biological Catch (ABC)	114,000
U.S. Optimum Yield (OY)/Annual Catch Limit (ACL)	107,800
Domestic Annual Harvesting (DAH)	107,800
Domestic Annual Processing (DAP)	103,800
U.S. At-Sea Processing (USAP)	N/A
Border Transfer (BT)	4,000
Sub-ACL Area 1A (28.9% of ACL)	31,200
Sub-ACL Area 1B (4.3% of ACL)	4,600
Sub-ACL Area 2 (27.8% of ACL)	30,000
Sub-ACL Area 3 (39% of ACL)	42,000
Research Set-Aside (RSA)	3% of each sub-ACL
Fixed Gear Set-Aside (1A)	295

Seasonal Sub-ACL Divisions for 2014 and 2015

- Area 1A: 0% January-May; 100% June-December
- Area 1B: 0% January-April; 100% May-December

Table 2 Current (2014-2015) RH/S Catch Caps

Area	2014-2015 RH/S Catch Cap (mt)
GOM	Midwater Trawl – 85.5
CC	Midwater Trawl – 13.3
SNE/MA	Midwater Trawl – 123.7 Bottom Trawl – 88.9
GB	0

**RH/S Catch Cap Areas shown in Figure 1 on p. 3.*

1.2 PURPOSE AND NEED

The purpose of this action is to specify the overfishing level (OFL) and allowable biological catch (ABC) for the Atlantic herring fishery, and to set specifications for the 2016-2018 fishing years consistent with the best available science and the requirements of the Atlantic Herring FMP, while providing additional flexibility and promoting the full utilization of optimum yield (OY). The requirement to set multi-year specifications is also needed to prevent overfishing and, pursuant to the requirements of the MSA, the specifications and RH/S catch caps are needed to ensure that the Atlantic herring management program addresses and minimizes bycatch to the extent practicable.

The 2016-2018 Atlantic herring fishery specifications are intended to meet the goal and several of the objectives of the Atlantic Herring FMP, as modified in Amendment 1:

Goal

- Manage the Atlantic herring fishery at long-term sustainable levels consistent with the National Standards of the Magnuson-Stevens Fishery Conservation and Management Act.

Objectives

- Harvest the Atlantic herring resource consistent with the definition of overfishing contained in the Herring FMP and prevent overfishing;
- Prevent the overfishing of discrete spawning components of Atlantic herring;
- Avoid patterns of fishing mortality by age which adversely affect the age structure of the stock;
- Provide for long-term, efficient, and full utilization of the optimum yield from the herring fishery while minimizing waste from discards in the fishery. Optimum yield is the amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, taking into account the protection of marine ecosystems, including maintenance of a biomass that supports the ocean ecosystem, predator

consumption of herring, and biologically sustainable human harvest. This includes recognition of the importance of Atlantic herring as one of many forage species of fish, marine mammals, and birds in the Northeast Region;

- Minimize, to the extent practicable, the race to fish for Atlantic herring in all management areas;
- Provide, to the extent practicable, controlled opportunities for fishermen and vessels in other mid-Atlantic and New England fisheries;
- Promote and support research, including cooperative research, to improve the collection of information in order to better understand herring population dynamics, biology and ecology, and to improve assessment procedures;
- Promote compatible US and Canadian management of the shared stocks of herring; and
- Continue to implement management measures in close coordination with other Federal and State FMPs and the ASMFC management plan for Atlantic herring, and promote real-time management of the fishery.

1.3 DEFINITIONS AND FORMULAS

The following definitions/formulas were adopted in the Atlantic Herring FMP (modified in Amendment 4) and are described below as they apply to the 2016-2018 Atlantic herring fishery specifications.

Overfishing Level (OFL). The catch that results from applying the maximum fishing mortality threshold to a current or projected estimate of stock size. When the stock is not overfished and overfishing is not occurring, this is usually F_{MSY} or its proxy.

$$OFL \geq ABC \geq ACL$$

The proposed Atlantic herring OFL specification for 2016-2018 is derived from short-term projections following the 2015 Atlantic herring update assessment and was recommended by the SSC at its May 20, 2015 meeting.

Acceptable Biological Catch (ABC) – The maximum catch that is recommended for harvest, consistent with meeting the biological objectives of the management plan. The MSA interpretation of ABC includes consideration of biological uncertainty (stock structure, stock mixing, other biological/ecological issues), and recommendations for ABC should come from the Council's SSC. ABC can equal but never exceed the OFL.

$$OFL - \text{Scientific Uncertainty} = ABC \text{ (Determined by SSC)}$$

The proposed Atlantic herring ABC specification for 2016-2018 is derived from short-term projections following the 2015 Atlantic herring update assessment and was recommended by the SSC at its May 20, 2015 meeting.

ABC Control Rule (ABC CR). The specified approach to setting the ABC for a stock or stock complex as a function of scientific uncertainty in the estimate of OFL and any other scientific uncertainty. The ABC control rule will consider uncertainty in factors such as stock assessment issues, retrospective patterns, predator-prey issues, and projection results. The ABC control rule will be specified and may be modified based on guidance from the SSC during the specifications process. Modifications to the ABC control rule can be implemented through the specifications package or framework adjustments to the Herring FMP (in addition to future amendments), as appropriate.

The current ABC CR for Atlantic herring is described below. This ABC CR considered an interim control rule, i.e., a placeholder until the Council can develop a long-term control rule through a more comprehensive management action. The Council initiated Amendment 8 to the Atlantic Herring FMP in January 2015 to consider a range of alternatives to establish a long-term ABC CR for Atlantic herring, including alternatives that account for Atlantic herring's role in the ecosystem. For the 2016-2018 Atlantic herring fishery specifications, the Council, based on recommendations from its SSC (May 20, 2015), will continue to base the annual specification of ABC on the interim ABC CR. It is anticipated that Amendment 8 will be adopted prior to development of the next fishery specifications package (2019-2021).

Interim ABC Control Rule: Under the interim ABC CR, ABC will be specified for three years based on the annual catch that is projected to produce a probability of exceeding F_{MSY} in the third year that is less than or equal to 50%. For 2016-2018, this value is 110,000 mt (see Section 2.1.1 of this document, p. 11).

Annual Catch Limit (ACL) – A stockwide ACL will be established that accounts for both scientific uncertainty (through the specification of ABC) and management uncertainty (through the specification of the stockwide ACL and buffer between ABC and the ACL).

The ACL is the annual catch level specified such that the risk of exceeding the ABC is consistent with the management program. The ACL can be equal to but can never exceed the ABC. ACL should be set lower than the ABC as necessary due to uncertainty over the effectiveness of management measures. The stockwide Atlantic herring ACL equates to the U.S. optimum yield (OY) for the Atlantic herring fishery and serves as the level of catch that determines whether accountability measures (AMs) become effective.

$$\text{ABC} - \text{Management Uncertainty} = \text{Stockwide ACL} = \text{OY}$$

Sub-ACLs – Area-based sub-divisions of the stockwide/total Atlantic herring ACL, intended to minimize the risk of overfishing any stock sub-component. The Council has chosen to apply Accountability Measures (AMs) to the sub-ACLs (closure of the area at 92%), further reducing the risk of overfishing.

Accountability Measure(s) (AMs). Management measures established to ensure that (1) the ACL is not exceeded during the fishing year; and (2) any ACL overages, if they occur, are mitigated and corrected.

Domestic Annual Harvest (DAH). DAH is established based on the expected catch from U.S. fishing vessels during the upcoming fishing year(s). The Herring FMP, as modified in Amendment 4, specifies that OY is equal to DAH.

$$\text{OY} = \text{DAH}$$

The Herring FMP, as modified in Amendment 4, also specifies that domestic annual harvest (DAH) will be composed of domestic annual processing (DAP) and the amount of Atlantic herring that can be taken in U.S. waters and transferred to Canadian herring carriers for transshipment to Canada (BT).

$$\text{DAH} = \text{DAP} + \text{BT}$$

Domestic Annual Processing (DAP) – The amount of U.S. harvest that domestic processors will use, combined with the amount of the resource that will be sold as fresh fish (including bait). The Herring FMP specifies that DAP is a subset of DAH and is composed of estimates of production from U.S. shoreside and at-sea processors. The Herring FMP authorizes the allocation of a portion of DAP for at-sea processing by domestic processing vessels that exceed the current size limits (U.S. at-sea processing, USAP).

U.S. At-Sea Processing (USAP) – Domestic at-sea processing capacity by U.S. vessels that exceed current size limits (0 mt for 2013-2015 fishery specifications). When determining the USAP allocation, the Council should consider the availability of other processing capacity, development of the fishery, status of the resource, and opportunities for vessels to enter the herring fishery.

Border Transfer (BT) – The amount of herring that can be taken in U.S. waters and transferred to Canadian herring carriers for transshipment to Canada, (4,000 mt for 2013-2015 and previous specifications).

Research Set-Aside (RSA) – (RSAs) are allowed in any or all of the herring management areas with a sub-ACL of 0-3%.

Fixed Gear Set-Aside (FGSA) – This can be specified up to 500 mt in Area 1A and will be returned to the 1A sub-ACL if not utilized by November 1.

2.0 PROPOSED MANAGEMENT ACTION AND OTHER ALTERNATIVES CONSIDERED

This section describes the 2016-2018 Atlantic herring fishery specifications and RH/S catch caps proposed by the New England Fishery Management Council as well as other alternatives/options that the Council considered during the specifications process.

- The alternatives for the fishery specifications, including the Preferred Alternative, are described in Section 2.1 (p. 9).
- Information and rationale to support the Council's Preferred Alternative for the 2016-2018 Atlantic herring fishery specifications is provided in Section 2.2 (p. 15).
- The options for the 2016-2018 RH/S catch caps, including the Preferred Alternative, are described in Section 2.3 (p. 35).

The impacts of all alternatives/options considered by the Council on the affected biological, physical, and human environment are discussed in Section 4.0 of this document (p. 105).

2.1 ALTERNATIVES FOR 2016-2018 ATLANTIC HERRING FISHERY SPECIFICATIONS

The development of the 2016-2018 Atlantic herring fishery specifications package was a multi-step decision-making process that involved the Council, the Scientific and Statistical Committee (SSC), and the Herring Plan Development Team (PDT), with input from the Herring Committee and Herring Advisory Panel (AP). The alternatives under consideration by the Council for the 2016-2018 specifications are described individually in the following subsections and are summarized in Table 3 below. These alternatives are based on the SSC's recommendations for OFL and ABC (see discussion in following subsection).

Table 3 Alternatives Under Consideration for 2016-2018 Atlantic Herring Fishery Specifications

Specifications	No Action Alternative (2015 Specifications)	Alternative 2	Alternative 3 <i>Preferred Alternative</i>
OFL	114,000	2016 – 138,000 2017 – 117,000 2018 – 111,000	2016 – 138,000 2017 – 117,000 2018 – 111,000
ABC	114,000	111,000	111,000
Management Uncertainty	6,200 (3 year avg. 2009-2011)	3,000 (3 year avg. 2012-2014)	6,200 (Value in 2015)
ACL/OY	107,800	108,000	104,800 ¹
DAH	107,800	108,000	104,800
DAP	103,800	104,000	100,800
USAP	0	0	0
BT	4,000	4,000	4,000
1A Sub-ACL	31,200	31,212	30,300
1B Sub-ACL	4,600	4,644	4,500
2 Sub-ACL	30,000	30,024	29,100
3 Sub-ACL	42,000	42,120	40,900
RSA	3%	3%	3%
FGSA	295	295	295

¹ *Option for Alternative 3* – If, by considering landings through **October 1 or October 15 (TBD)**, NMFS determines that less than 4,000 mt has been caught in the NB weir fishery, NMFS will allocate an additional 1,000 mt to the Area 1A sub-ACL to be made available to the directed herring fishery as soon as possible, through the remainder of the fishing year (until the AM is triggered).

**The Preferred Alternative is shaded in grey.*

2.1.1 Background – OFL and ABC Specifications for 2016-2018

Following the Atlantic herring operational (update) assessment meeting (April 2015), the SSC met on May 20, 2015 to review the operational assessment results and develop recommendations for the Atlantic herring overfishing limit (OFL) and acceptable biological catch (ABC) specifications for the 2016-2018 fishing years. The SSC reviewed a number of projections and possible approaches for specifying ABC (control rules) and recommended that the Council specify ABC for the 2016-2018 fishing years based on the interim ABC control rule for Atlantic herring (adopted in the 2013-2015 fishery specifications). The interim ABC control rule utilizes a constant catch approach, with the annual ABC set such that the probability of overfishing does not exceed 50% in any of those years (but may reach 50% in the third year). This approach produces an ABC specification of 111,000 mt for 2016, 2017 and 2018, and associated OFLs of 138,000 mt in 2016, 117,000 mt in 2017, and 111,000 mt in 2018. The SSC provided the following rationale for this recommendation:

- Key attributes of the stock and assessment (SSB, recruitment, F, survey indices, etc.) have not changed significantly since the benchmark assessment, on which the current control rule was based. However, survey indices suggest that the 2011 year class is the second largest in time series and will contribute significantly to the total population abundance and biomass in 2016-2018.
- The most significant change since the benchmark stock assessment (SAW 54, 2012) is that the retrospective pattern has become worse in the operational assessment. The assessment implemented a Mohn's rho correction to SSB in an attempt to account for the retrospective pattern, but there is no guarantee that the retrospective pattern will persist in sign and magnitude.
- Although the probability of overfishing may reach 50% in the third year, the probability of the stock becoming overfished is close to 0% in all years (see OFL/ABC projections in Section 4.1.1.2, p 113).
- The realized catch in the Atlantic herring fishery is generally well below the ABC, which reduces the expected risk of overfishing.
- In the assessment model, the current ratio of catch to estimated consumption is 1:4, which means that fishing is likely not the largest driver of stock abundance at present, however this does not negate the need to manage the fishing removals on this stock.
- A constant catch strategy is the preferred approach of the Council and the industry.

The considerations above led the SSC to conclude that ABC should remain relatively constant for 2016-2018, or perhaps be reduced modestly. The recommended ABC of 111,000 mt, compared with status quo estimate of 114,000 mt, achieves that outcome. Additionally, the SSC noted that the current high herring biomass, bolstered by two very large year classes, likely meets ecosystem goals by default and not design, as ecosystem goals are not identified or captured in the current ABC control rule.

2.1.2 Alternative 1 (No Action Alternative)

Alternative 1 represents the no action alternative. This alternative would maintain the 2015 Atlantic herring fishery specifications for the 2016-2018 fishing years. The specifications that would be implemented under the no action alternative are listed in Table 4. Under the no action alternative, specification of Atlantic herring ABC would remain at 114,000 mt, which is above the SSC recommendation for 2016-2018 (111,000 mt). Specification of the management uncertainty buffer would be based on the most recent three-year average catch in the New Brunswick weir fishery (2009-2011, based on 2013-2015 Atlantic herring fishery specifications).

Table 4 Alternative 1 (No Action) for 2016-2018 Atlantic Herring Specifications

Specifications	No Action Alternative 2015 Specifications (metric tons)
OFL	114,000
ABC	114,000
Management Uncertainty	6,200 (3 year average 2009-2011)
ACL/OY	107,800
DAH	107,800
DAP	103,800
USAP	0
BT	4,000
Area 1A Sub-ACL (28.9%)	31,200
Area 1B Sub-ACL (4.3%)	4,600
Area 2 Sub-ACL (27.8%)	30,000
Area 3 Sub-ACL (39%)	42,000
RSA	3%
FGSA	295

Alternative 1 Seasonal (Monthly) Sub-ACL Divisions (2016-2018)

- Area 1A: 0% January-May; 100% June-December;
- Area 1B: 0% January-April; 100% May-December.

2.1.3 Alternative 2 (Non-Preferred)

Alternative 2 would specify Atlantic herring ABC at the level recommended by the SSC (111,000 mt), and would maintain a status quo approach to specifying the management uncertainty buffer for 2016-2018, using the most recent three-year average catch in the NB weir fishery. In this case, the average from 2012-2014 was 3,000 mt. This alternative would also maintain a status quo approach to all other Atlantic herring fishery specifications, including set-asides and the seasonal (monthly) distribution of sub-ACLs. The specifications that would be implemented under Alternative 2 are listed in Table 5.

Table 5 Alternative 2 (Non-Preferred) for 2016-2018 Atlantic Herring Specifications

Specifications	Alternative 2 (metric tons)
OFL	2016 – 138,000 2017 – 117,000 2018 – 111,000
ABC	111,000
Management Uncertainty	3,000 (3 year average 2012-2014)
ACL/OY	108,000
DAH	108,000
DAP	104,000
USAP	0
BT	4,000
Area 1A Sub-ACL (28.9%)	31,212
Area 1B Sub-ACL (4.3%)	4,644
Area 2 Sub-ACL (27.8%)	30,024
Area 3 Sub-ACL (39%)	42,120
RSA	3%
FGSA	295

Alternative 2 Seasonal (Monthly) Sub-ACL Divisions (2016-2018)

- Area 1A: 0% January-May; 100% June-December;
- Area 1B: 0% January-April; 100% May-December.

2.1.4 Alternative 3 (*Preferred Alternative*)

Alternative 3 was developed by the Herring Committee at its July 22, 2015 meeting and represents the *Preferred Alternative* for the 2016-2018 Atlantic herring fishery specifications at this time. Alternative 3 would specify Atlantic herring ABC at the level recommended by the SSC (111,000 mt) and would maintain the 2013-2015 specification of management uncertainty for 2016-2018. Under Alternative 3, the management uncertainty buffer would be specified at 6,200 mt to account for catch in the NB weir fishery (average catch 2009-2011). This alternative would maintain a status quo approach to all other Atlantic herring fishery specifications for 2016-2018, including set-asides and the seasonal (monthly) distribution of sub-ACLs. The Council is also considering an option that would allow for 1,000 mt of Atlantic herring to be returned to the Area 1A fishery from the management uncertainty buffer if certain conditions are met (see below). The specifications that would be implemented under Alternative 3 are listed in Table 6.

Table 6 Alternative 3 (*Preferred Alternative*) for 2016-2018 Atlantic Herring Specifications

Specifications	Alternative 3 <i>Preferred Alternative</i>
OFL	2016 – 138,000 2017 – 117,000 2018 – 111,000
ABC	111,000
Management Uncertainty	6,200 (Value in 2015)
ACL/OY	104,800 ¹
DAH	104,800
DAP	100,800
USAP	0
BT	4,000
Area 1A Sub-ACL (28.9%)	30,300
Area 1B Sub-ACL (4.3%)	4,500
Area 2 Sub-ACL (27.8%)	29,100
Area 3 Sub-ACL (39%)	40,900
RSA	3%
FGSA	295

¹*Option* – If, by considering landings through **October 1 or October 15 (TBD)**, NMFS determines that less than 4,000 mt has been caught in the NB weir fishery, NMFS will allocate an additional 1,000 mt to the Area 1A sub-ACL to be made available to the directed herring fishery as soon as possible, through the remainder of the fishing year (until the AM is triggered). If this occurs, the stockwide ACL would increase to **105,800 mt** under this alternative.

Alternative 3 Seasonal (Monthly) Sub-ACL Divisions (2016-2018)

- Area 1A: 0% January-May; 100% June-December;
- Area 1B: 0% January-April; 100% May-December.

2.2 SUPPORTING INFORMATION AND RATIONALE FOR PROPOSED 2016-2018 ATLANTIC HERRING SPECIFICATIONS

This section provides updated information and rationale to support the Council's *Preferred Alternative* for the 2016-2018 Atlantic herring fishery specifications. Because the specification of ABC for the 2016-2018 fishing years (recommended by the SSC, see Section 2.1.1) only differs from the 2013-2015 ABC specification by 3,000 mt (2.6%), and because available stock/fishery information does not indicate a need to consider major changes to the distribution of allowable catch or other specifications, the alternatives that the Council considered maintain the status quo for many of the specifications; they differ primarily through the specification of the management uncertainty buffer and the stockwide Atlantic herring ACL.

2.2.1 Specification of Management Uncertainty and Stockwide Atlantic Herring ACL/OY

The difference between the Atlantic herring ABC and the stockwide ACL equates to what the Council specifies as management uncertainty. The management uncertainty specification further ensures that Atlantic herring catch will not exceed the ABC in a given year by buffering against uncertainty related to the management system. The deduction for management uncertainty occurs based on the SSC's recommendation for ABC (111,000 mt) to derive a stockwide ACL, which represents the U.S. Atlantic herring OY for 2016-2018.

During the specifications process, the Council considered a range of deductions of management uncertainty based on three possible factors:

1. Canadian Catch of Atlantic Herring (New Brunswick (NB) Weir Fishery);
2. Uncertainty Around Estimates of State Waters Atlantic Herring Catch; and
3. Uncertainty Around Estimates of Atlantic Herring Discards.

2.2.1.1 Canadian Catch of Atlantic Herring (New Brunswick Weir Fishery)

Catch of the Atlantic herring stock complex in Canadian waters consists primarily of fish caught in the New Brunswick (NB) weir fishery. During the benchmark stock assessment for Atlantic herring (2012), the SARC 54 Panel noted that the contribution of the Atlantic herring stock on the Scotian Shelf region is unknown. It is generally assumed that juvenile fish (age 1 and 2) caught in the NB weir fishery are from the inshore (GOM) component of the Atlantic herring stock complex, while adult fish (age 3+) caught in the NB weir fishery are from the SW Nova Scotia stock complex (4WX).

Table 7 provides the time series of Atlantic herring catch that was used in the 2015 Atlantic herring operational (update) assessment, including catch from the NB weir fishery through the 2014 fishing year. The column labeled “NB Weir (Incl. Shutoff)” is used to represent catch from the NB weir fishery. For the most part, however, shutoffs are not located in the same area as weirs, and herring catch from shutoffs are thought to be from the 4WX stock component (not the inshore GOM Atlantic herring stock component). NB weir fishery catch is not tracked in-season against the U.S. Atlantic herring ACL. Rather, the annual expected catch in the NB weir fishery is estimated and then subtracted from the ABC, as an element of the management uncertainty buffer, to calculate the stockwide Atlantic herring ACL, which represents OY for the U.S. fishery.

Table 8 shows the number of active weirs and the average catch per weir reported for the NB weir fishery from 1978-2014. The NB weir catch estimates provided in Table 8 only include weir catch and not catch from the shutoff fishery. Catch from shutoffs generally represent a small component of the total NB weir fishery catch.

Table 7 Total Atlantic Herring Catch (mt), 1970 – 2014

Year	Mobile	US Fixed	NB Weir (Incl. Shutoff)
1970	302,107	4,316	15,070
1971	327,980	5,712	12,136
1972	225,726	22,800	31,893
1973	247,025	7,475	19,053
1974	203,462	7,040	19,020
1975	190,689	11,954	30,816
1976	79,732	35,606	29,207
1977	56,665	26,947	19,973
1978	52,423	20,309	38,842
1979	33,756	47,292	37,828
1980	57,120	42,325	13,526
1981	26,883	58,739	19,080
1982	29,334	15,113	25,963
1983	29,369	3,861	11,383
1984	46,189	471	8,698
1985	27,316	6,036	27,864
1986	38,100	2,120	27,885
1987	47,971	1,986	27,320
1988	51,019	2,598	33,421
1989	54,082	1,761	44,112
1990	54,737	670	38,778
1991	78,032	2,133	24,574
1992	88,910	3,839	31,968
1993	74,593	2,288	31,572
1994	63,161	539	22,242
1995	106,179	6	18,248
1996	116,788	631	15,913
1997	123,824	275	20,551
1998	103,734	4,889	20,092
1999	110,200	654	18,644
2000	109,087	54	16,830
2001	120,548	27	20,210
2002	93,176	46	11,874
2003	102,320	152	9,008
2004	94,628	96	20,685
2005	93,670	68	13,055
2006	102,994	1,007	12,863
2007	81,116	403	30,944
2008	84,650	31	6,448
2009	103,458	98	4,031
2010	67,191	1,263	10,958
2011	82,022	421	3,711
2012	87,164	9	504
2013	95,182	9	6,431
2014	92,651	518	2,149

Source: NEFSC Assessment Update Report (2015).

Table 8 Number of Active Weirs and Catch per Weir in the NB Weir Fishery, 1978-2014

Year	NB Weir Catch (mt)	No. Active Weirs	Catch Per Weir (mt)
1978	33,570	208	162
1979	32,477	210	155
1980	11,100	120	92
1981	15,575	147	102
1982	22,183	159	140
1983	10,594	143	88
1984	8,374	116	72
1985	26,724	156	171
1986	27,515	105	262
1987	26,622	123	216
1988	32,554	191	200
1989	43,475	171	255
1990	38,224	154	258
1991	23,713	143	166
1992	31,899	151	212
1993	31,431	145	216
1994	20,622	129	160
1995	18,198	106	172
1996	15,781	101	156
1997	20,416	102	200
1998	19,113	108	181
1999	18,234	100	191
2000	16,472	77	213
2001	20,064	101	199
2002	11,807	83	142
2003	9,003	78	115
2004	20,620	84	245
2005	12,639	76	166
2006	11,641	89	131
2007	30,145	97	311
2008	6,041	76	79
2009	3,603	38	95
2010	10,671	77	139
2011	2,643	37	71
2012	494	4	124
2013	5,902	49	120
2014	1,571	26	60
Long-Term Average	18,962 mt	110 weirs	163 mt
3-Year Average	2,656 mt	26	101 mt
5-Year Average	4,256 mt	39	103 mt
10-Year Average	8,535 mt	57	130 mt

Source: DFO.

Table 9 lists herring landings by month for weirs located in New Brunswick from 1978 to 2008. Landings from the NB weir fishery have always been somewhat variable; however, the fishery occurs primarily during the late summer and fall months (June-October). The NB weir fishery is dependent on many factors including weather, fish migration patterns, and environmental conditions. Over the time series shown in Table 9, catch from the NB weir fishery occurring after October (November/December) averaged less than 4% of the total catch reported for the year from the fishery.

Table 9 Monthly Weir Landings (mt) for Weirs Located in New Brunswick, 1978 to 2008

PROVINCE	YEAR	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Total
N.B.	1978	3				512	802	5,499	10,275	10,877	4,972	528	132	33,599
	1979	535	96			25	1,120	7,321	9,846	4,939	5,985	2,638	74	32,579
	1980					36	119	1,755	5,572	2,352	1,016	216		11,066
	1981					70	199	4,431	3,911	2,044	2,435	1,686	192	14,968
	1982		17			132	30	2,871	7,311	7,681	3,204	849	87	22,181
	1983					65	29	299	2,474	5,382	3,945	375		12,568
	1984					6	3	230	2,344	2,581	3,045	145		8,353
	1985					22	89	4,217	8,450	6,910	4,814	2,078	138	26,718
	1986	43				17		2,480	10,114	5,997	6,233	2,564	67	27,516
	1987	39	21	6	12	10	168	2,575	10,893	6,711	5,362	703	122	26,621
	1988		12	1	90	657	287	5,993	11,975	8,375	8,457	2,343	43	38,235
	1989		24		95	37	385	8,315	15,093	10,156	7,258	2,158		43,520
	1990					93	20	4,915	14,664	12,207	7,741	168		39,808
	1991					57	180	4,649	10,319	6,392	2,028	93		23,717
	1992				15	50	774	5,477	10,989	9,597	4,395	684		31,981
	1993					14	168	5,561	14,085	8,614	2,406	470	10	31,328
	1994				18		55	4,529	10,592	3,805	1,589	30		20,618
	1995					15	244	4,517	8,590	3,956	896	10		18,228
	1996					19	676	4,819	7,767	1,917	518	65		15,781
	1997				8	153	1,017	6,506	7,396	5,316				20,396
1998					560	713	3,832	8,295	5,604	525			19,529	
1999					690	805	5,155	9,895	2,469	48			19,063	
2000					10	7	2,105	7,533	4,940	1,713	69		16,376	
2001					35	478	3,931	8,627	5,514	1,479			20,064	
2002					84	20	1,099	6,446	2,878	1,260	20		11,807	
2003					257	250	1,423	3,554	3,166	344	10		9,003	
2004					21	336	2,694	8,354	8,298	913	3		20,620	
2005						213	802	7,145	3,729	740	11		12,639	
2006					8	43	1,112	3,731	3,832	2,328	125	462	11,641	
2007	182		20	30	84	633	3,241	11,363	7,637	6,567	314	73	30,145	
2008						81	1,502	2,479	1,507	389	49	32	6,041	
NB Average Catch (t)		160	34	9	38	134	331	3,673	8,390	5,657	3,087	682	119	21,829

For the 2016-2018 Atlantic herring fishery specifications, the Council considered possible deductions from the ABC to account for management uncertainty based on updated (most recent) 3-year, 5-year, and 10-year average catch totals from the NB weir fishery (see Table 10 on following page). This is consistent with the range of deductions that the Council considered during the 2013-2015 fishery specifications process.

The Council recommends that the 2013-2015 management uncertainty deduction of 6,200 mt be maintained for 2016-2018 to account for the potential catch of Atlantic herring in the Canadian (NB) weir fishery. This management uncertainty deduction is greater than the most recent three-year and five-year average catch in the NB weir fishery and would provide a more conservative buffer than utilizing the same approach that was utilized for the 2013-2015 fishery specifications to specify management uncertainty (most recent three-year average NB weir catch). Moreover, the management uncertainty buffer is based on average catch from the NB weir *and* shutoff fishery (catch reported in Table 7 versus Table 8). For the most part, shutoffs are not located in the same area as weirs, and landings from shutoffs are thought to be from the 4WX stock component, not the Atlantic herring stock component. This provides additional buffer against removals of the U.S. Atlantic herring stock component that may occur in the NB weir fishery over the next three years.

Table 10 Possible Deductions for Management Uncertainty (NB Weir Fishery) in 2016-2018 Atlantic Herring Specifications

Option	Management Uncertainty Deduction (mt, rounded)	Stockwide Atlantic Herring ACL/OY (ABC = 111,000 mt)
2013-2015 Specifications	6,200	104,800
3-year average NB weir catch (2012-2014)	3,000	108,000
5-year average NB weir catch (2010-2014)	4,800	106,200
10-year average NB weir catch (2005-2014)	9,100	101,900

The Council's recommendation for 2016-2018 is shaded in grey.

The Council's recommendation of 6,200 mt is based on recent performance in the NB weir fishery, including the total annual catch and the average number of active weirs. This recommendation is more conservative than the five-year average NB weir catch, including catch from shutoffs (4WX stock). There does not appear to be a need to buffer against the 10-year average NB weir catch for the next three years. Information provided by the industry in Canada suggests that the 2015 NB weir fishery catch has been very low, totaling no more 150 tons so far this season. (*The DFO Herring Fishery Report as of August 27, 2015 reports that a total of 60 mt has been caught in the NB weir fishery during the 2015 calendar year.*). Canadian industry speculation is that NB weir catch is not likely to exceed 2,000 mt in 2015. At this time, effort in the fishery appears to be at than 25 weirs. Many fishermen who were participating in the historical NB weir fishery have shifted to other fisheries and are reluctant to re-invest in the weir fishery. While the reasons for reduced NB weir catch are not entirely clear, the industry speculates that this is due more to environmental conditions, as Canadian seiners have reported seeing fish in offshore areas (Connors Bros., personal communication with Council staff).

Finalize rationale after September 2015 Council meeting

2.2.1.2 Atlantic Herring Catch in State Waters

The vast majority of the Atlantic herring resource is harvested in Federal waters. Catch by Federal permit holders that occurs in State waters is reported and counted against the sub-ACLs. Catch by state-only permit holders is monitored by the ASMFC and is not large enough to substantially affect management of the Federal fishery and the ability to remain under the sub-ACLs. Total Atlantic herring catch by vessels fishing in state waters was about 41,000 pounds in 2015.

The non-federally permitted commercial landings of Atlantic herring are by fishermen Maine, primarily using fixed gear and a small number of seines. Table 11 provides updated catch estimates from the fixed gear fishery through 2013. The Council specifies a set-aside for West of Cutler fixed gear fishermen (FGSA), currently 295 mt. The un-used portion of the FGSA is returned to the Area 1A fishery after November 1. The ASMFC’s requirement that fixed gear fishermen must report through IVR (and therefore have catch counted against the sub-ACL) has reduced any management uncertainty associated with State waters landings to an insignificant amount.

Table 11 Atlantic Herring Landings from Fixed Gear Fishery Before and After November 1 Rollover Date

Year	Sub-ACL Closure Date	Area 1A Sub-ACL (mt)	Cumulative Catch (mt) by Dec 31	Fixed Gear Landings (mt)	
				Jan-Oct	Nov-Dec
2004	11/19/2004	60,000	60,071	49	0
2005	12/2/2005	60,000	61,570	53	0
2006	10/21/2006	50,000	59,980	528	0
2007	10/25/2007	50,000	49,992	392	0
2008	11/14/2008	43,650	42,257	24	0
2009	11/26/2009	43,650	44,088	81	0
2010	11/17/2010	26,546	27,741	823	0
2011	10/27/2011	29,251	29,359	23	0
2012	11/5/2012	27,668	25,057	0	0
2013	10/15/2013	29,775	29,820	C	C
2014	10/26/2014	33,031	33,428	C	C

Source: ASMFC.

Note: “C” denotes that the value cannot be reported due to confidentiality.

2.2.1.3 Atlantic Herring Discards

The 2012 benchmark assessment for Atlantic herring (SAW 54) incorporated Atlantic herring discards from the VTR data provided to them by NMFS. Discard estimates have only been available since 1996 and are generally less than 1% of the landings and do not represent a significant source of mortality. However, this is not considered problematic to the Atlantic herring stock assessment according to SAW 54 (June 2012).

Atlantic herring discards are estimated by NMFS using vessel and observer data and are counted against the management area sub-ACLs. To date, uncertainty related to estimating Atlantic herring discards has not been a significant source of management uncertainty. There does not appear to be a need to change this conclusion when considering management uncertainty for the 2016-2018 Atlantic herring fishery specifications. This is because increased sampling has improved bycatch accounting and reduced uncertainty associated with estimating Atlantic herring discards in recent years. In 2010, the Northeast Fisheries Observer Program (NEFOP) revised the training curriculum for observers deployed on herring vessels to focus on effectively sampling in high-volume fisheries. NEFOP also developed a discard log to collect detailed information on discards in the herring fishery, such as why catch was discarded, the estimated amount of discarded catch, and the estimated composition of discarded catch. Moreover, management measures implemented through Amendment 5 and other future actions will continue to improve catch monitoring and the accuracy of herring discard estimates in future years.

Table 12 provides Atlantic herring discard estimates for 2010-2013 based on three sources of data: VMS, VTR, and observer data expansion. VMS discards were summed together by year using the GARFO Atlantic herring VMS catch report database. The VTR discards were summed together by year using the GARFO VTR databases. Lastly, the observer extrapolated data were acquired from the 2010-2013 year-end summary reports. Catch reporting through VMS was not required until 2011, so no discard estimates from VMS catch reports can be generated for 2010. With the exception of 2013, Atlantic herring discard reports from NMFS and VTRs are generally similar; discard estimates extrapolated from observer data tend to be more variable and have decreased in more recent years. Overall, regardless of data source, Atlantic herring discards represent a very small fraction of total catch. Total Atlantic herring catch in 2013 was 95,764 mt, so discards represented 0.01%--0.2% of the total 2013 Atlantic herring catch. Given recent actions to enhance catch monitoring and reporting, there is no indication that uncertainty regarding Atlantic herring discard estimation is expected to increase during the upcoming fishery specifications cycle (2016-2018).

Table 12 Atlantic Herring Discards (mt) by Reporting Method, 2010-2013

Year	VMS*	VTR**	Observer – Fleet Expansion***
2010	N/A	263	137
2011	179	179	210
2012	144	154	87
2013	113	169	18

Source: VMS, VTR databases and herring year end reports as of 8/28/2015.

*GARFO herring VMS catch report table *fso_admin.vms_herring_catch_report_stg*.

**GARFO VTR databases under the NOAA schema.

***Year-End discard calculation using observer data extrapolated out to the herring fleet.

Framework 4 Management Measures to Address Net Slippage

Consideration of recent management actions adopted by the Council to further address net slippage and a review of 2014 observer data regarding *catch that is not brought on board* support the Council’s rationale for the proposed 2016-2018 management uncertainty specification. Framework 4 to the Atlantic Herring FMP was finalized by the Council in 2014, and publication of the Final Rule is pending. In Framework 4, the Council proposed additional management measures to address net slippage on limited access herring vessels carrying an observer on board. If the measures to address net slippage in Framework 4 are approved/implemented by NMFS, the following rules would apply to limited access Atlantic herring vessels:

- Observed slippage events (*catch not brought on board*) due to *safety, mechanical failure, or spiny dogfish* would be considered “allowable” slippage events and would be subject to existing requirements for a Released Catch Affidavit as well as a 15-nm move along rule.
- Observed slippage events (*catch not brought on board* for reasons other than safety, mechanical failure, and spiny dogfish) would be considered “non-allowable” slippage events and would be subject to existing requirements for a Released Catch Affidavit as well as trip termination.
- Operational discards reported by observers would *not* be prohibited outside the groundfish closed areas; although operational discards represent catch that is not brought on board, they would *not* be treated like slippage events.
- Catch reported by observers as “*not brought on board due to gear damage*” would be considered the same as “*not brought on board due to mechanical failure*” for the purposes of complying with and enforcing the regulations to address net slippage. In other words, when catch is released due to gear damage, vessels would be subject to current requirements for a Released Catch Affidavit as well as the 15-mile move along requirement.
- Fish that are documented by observers to fall out of gear (and therefore are not brought on board the vessel) would *not* be treated like slippage events (no additional consequences).

The Northeast Fisheries Observer Program (NEFOP) implemented a discard log in 2010 to obtain more detailed information regarding catch that may not be brought on board in high-volume fisheries. The discard log is being completed for every haul, and it includes fields to provide information on what kind of discard event may have occurred, whether or not the observer could see the contents of the codend when pumping stopped, why catch may have been discarded, information about the composition of discarded catch, and any challenges the observer may have experienced when observing the haul. Observers are also documenting released catch (including operational discards and slippage events) with photographs whenever possible, and bringing in samples of fish from every trip to confirm species identification. Operational discards have been confirmed by observers to be relatively small amounts of fish that may remain in the net following a successful haul/pump; these fish are usually caught in the net and/or cannot be pumped on board. Information collected by observers about operational discards has improved, and hauls with operational discards are considered to be “observed” hauls; the operational discards are estimated by the observers. Observers document operational discards as *Herring NK* if they are able to see the fish that are not pumped and confirm that the discards are all herring-bodied fish. Otherwise, the discards are documented as *Fish NK*.

When reviewing the data on the following pages, it is important to understand that an observed “event” is not synonymous with a “haul,” as multiple events may occur within a single haul. For example, a haul may have three different reasons for not bringing catch onboard the vessel: a species fell from the net into the water as the net is being reeled in; clearing a blockage during pumping caused additional fish to be released; and after pumping was completed, a small amount of fish remained in the net (operational discards).

Table 13 and Table 14 summarize data from any observed purse seine trips on which catch was documented as “not brought on board” during 2014. This table supplements the observer data for catch not brought on board/slippage from 2010-2013 that was recently provided in Framework 4 to the Atlantic Herring FMP. Information about observer coverage on purse seine vessels during 2014 is provided in Section 3.2.2 of this document (p. 47). Overall, 13 slippage events and 29 operational discard events were observed on 26 purse seine trips during 2014. None of these slippage events were cited due to safety, mechanical failure, or spiny dogfish. Slippage was observed on purse seine vessels in 2014 due primarily to vessel capacity filled and not enough fish to pump; if the Framework 4 measures to address slippage are implemented (Final Rule pending), these events would require trip termination. Five events were observed where fish were released on the purse seine vessel due to gear damage, which are not considered slippage events. Release from gear damage represented the largest component of catch that was documented as not brought on board observer purse seine trips during 2014.

**Table 13 Summary of NEFOP Observer Data for Catch Not Brought on Board, 2014
Observed Purse Seine Trips**

HERRING MANAGEMENT AREA	NOT BROUGHT ONBOARD VESSEL		
	SLIPPAGE EVENTS		NON-SLIPPAGE EVENTS
			Other
AREA 1A and AREA 2 Due to confidentiality constraints, Areas 1A and 2 are combined	13		36 29: operational discards 5: Not brought onboard, gear damage prevented capture 2: Not brought onboard, fell out/off of gear
TOTAL TRIPS	TOTAL OBSERVED KEPT ATL. HERRING (lbs)	TOTAL OBSERVED SLIPPED CATCH (lbs)	TOTAL OBSERVED NON- SLIPPED CATCH (lbs)
26	3,915,757	116,850	262,203
TOTAL TRIPS	TOTAL (all areas)	TOTAL (all areas)	TOTAL (all areas)
26	3,915,757 lbs	116,850 lbs	262,203 lbs
Total slippage (or total non- slippage)/Total kept	N/A	2.98%	6.70%

TOTAL SLIPPED CATCH (ALL AREAS)	116,850 lbs
% DOGFISH	0%
% SAFETY	0%
% MECHANICAL FAILURE	0%

Note: slippage was not due to safety, dogfish, or mechanical failure.

**Table 14 Disposition Code Reported for Catch Not Brought on Board Purse Seine Vessels
on Observed Trips in 2014**

Fish Disposition Code	Hail Weight
040 (not brought onboard, operational discards, non-slippage)	1,188 lbs
041 (not brought onboard, reason not specified, slippage)	10,000 lbs
042 (not brought onboard, gear damage prevented capture, non-slippage)	260,000 lbs
043 (Not brought onboard, fell out/off of gear, non-slippage)	1,015 lbs
044 (not brought onboard, no market value, slippage)	65 lbs
048 (not brought onboard, vessel capacity filled, slippage)	92,000 lbs
049 (not brought onboard, not enough fish to pump, slippage)	14,850 lbs

Table 15 and Table 16 summarize data from any observed midwater trawl trips (single and paired) on which catch was documented as “not brought on board” across all management areas in 2014. This table supplements the observer data for catch not brought on board/slippage from 2010-2013 that was recently provided in Framework 4 to the Atlantic Herring FMP. Information about observer coverage on midwater trawl vessels during 2014 is provided in Section 3.2.2 of this document (p. 47).

Overall, 41 slippage events and 123 operational discard events were observed on 125 midwater trawl (single and paired) trips during the 2014 fishing year. 32 of the observed slippage events occurred in Area 3 (Georges Bank). Slippage represented just under 1% of the total observed midwater trawl catch, and catch not brought on board for other reasons represented 0.05% of the total observed catch on midwater trawl vessels during 2014. Observed slippage events were not reported due to spiny dogfish. There were three observed slippage events associated with mechanical failure and one observed slippage event associated with safety. Slippage was observed on midwater trawl vessels in 2014 due primarily to vessel capacity filled, not enough fish to pump, and no market value; if the Framework 4 measures to address slippage are implemented (Final Rule pending), these events would require trip termination.

**Table 15 Summary of NEFOP Observer Data for Catch Not Brought on Board, 2014
Observed Midwater Trawl Trips (Single and Paired) in All Areas**

HERRING MANAGEMENT AREA	NOT BROUGHT ONBOARD VESSEL		
	SLIPPAGE EVENTS		NON-SLIPPAGE EVENTS
			Other
AREA 1A and AREA 1B are combined due to confidentiality	6		25 23: Operational Discards 1: Not brought onboard, fell out/off of gear 1: Not brought onboard, gear damage prevented capture
TOTAL TRIPS	TOTAL OBSERVED KEPT ATL. HERRING (lbs)	TOTAL OBSERVED SLIPPED CATCH (lbs)	TOTAL OBSERVED NON-SLIPPED CATCH (lbs)
28	11,887,010	70,250	12,499
AREA 2	3		3 3: Operational Discards
TOTAL TRIPS	TOTAL OBSERVED KEPT ATL. HERRING (lbs)	TOTAL OBSERVED SLIPPED CATCH (lbs)	TOTAL OBSERVED NON-SLIPPED CATCH (lbs)
8	2,034,817	61,000	120
AREA 3	32		102 97: Operational discards 4: Not brought onboard, fell out/off of gear 1: Not brought onboard, gear damage prevented capture
TOTAL TRIPS	TOTAL OBSERVED KEPT ATL. HERRING (lbs)	TOTAL OBSERVED SLIPPED CATCH (lbs)	TOTAL OBSERVED NON-SLIPPED CATCH (lbs)
89	33,198,161	310,118	11,067
TOTAL TRIPS	TOTAL (all areas)	TOTAL (all areas)	TOTAL (all areas)
125	47,119,988 lbs	441,368 lbs	23,686 lbs
Total slippage (or total non-slippage)/Total kept	N/A	0.94%	0.05%

TOTAL SLIPPED CATCH (ALL AREAS)	441,368 lbs
% DOGFISH	0%
% SAFETY	2.27%
% MECHANICAL FAILURE	2.04%

Note: Observed slippage was not due to dogfish. There were 3 observed slippage events associated with mechanical failure and one observed slippage event associated with safety.

Table 16 Disposition Code Reported for Catch Not Brought on Board Midwater Trawl Vessels on Observed Trips in 2014

AREA 1A and 1B	
Fish disposition	Hailweight
040 (not brought onboard, operational discards, non-slippage)	489 lbs
042 (not brought onboard, gear damage prevented capture, non-slippage)	12,000 lbs
043 (not brought onboard, fell out/off of gear, non-slippage)	10 lbs
048 (not brought onboard, vessel capacity filled, slippage)	65,000 lbs
049 (not brought onboard, not enough fish to pump, slippage)	5,000 lbs
071 (not brought onboard, clogged other, slippage)	250 lbs
AREA 2	
Fish disposition	Hailweight
040 (not brought onboard, operational discards, non-slippage)	120 lbs
041 (not brought onboard, reason not specified, slippage)	50,000 lbs
046 (not brought onboard, mechanical failure, slippage)	5,000 lbs
048 (not brought onboard, vessel capacity filled, slippage)	6,000 lbs
AREA 3	
Fish disposition	Hailweight
040 (not brought onboard, operational discards, non-slippage)	3,537 lbs
041 (not brought onboard, reason not specified, slippage)	20,818 lbs
042 (not brought onboard, gear damage prevented capture, non-slippage)	5,000 lbs
043 (not brought onboard, fell out/off of gear, non-slippage)	2,530 lbs
044 (not brought onboard, no market value, slippage)	111,350 lbs
045 (not brought onboard, safety reason, slippage)	10,000 lbs
046 (not brought onboard, mechanical failure, slippage)	4,000 lbs
048 (not brought onboard, vessel capacity filled, slippage)	100,000 lbs
049 (not brought onboard, not enough fish to pump, slippage)	43,000 lbs
071 (not brought onboard, clogged other, slippage)	20,950 lbs

2.2.2 Specification of DAH, DAP, BT, and USAP

The Atlantic Herring FMP specifies that domestic annual harvest (DAH) will be set less than or equal to OY and will be composed of domestic annual processing (DAP) and the amount of Atlantic herring that can be taken in U.S. waters and transferred to Canadian herring carriers for transshipment to Canada (BT). Domestic annual harvest (DAH) is established based on the expected catch from U.S. fishing vessels during the upcoming fishing year and equals OY for the U.S. fishery.

$$\text{Stockwide ACL} = \text{OY} = \text{DAH}$$

The Herring FMP, as modified in Amendment 4, also specifies that domestic annual harvest (DAH) will be composed of domestic annual processing (DAP) and the amount of Atlantic herring that can be taken in U.S. waters and transferred to Canadian herring carriers for transshipment to Canada (BT).

$$\text{DAH} = \text{DAP} + \text{BT}$$

DAH Specification

When specifying DAH for the Atlantic herring fishery, important considerations relate to the actual and potential capacity of the U.S. harvesting fleet. Recent fishery performance (landings) is also an important factor in this fishery. The Herring FMP became effective during the 2001 fishing year, and since 2001, total landings in the U.S. fishery have decreased. Table 42 on p. 90 of this document summarizes total Atlantic herring catch as a percentage of the total available catch in each year from 2003-2014. Atlantic herring catch has been somewhat consistent over the time period (and in previous years), averaging about 91,925 mt from 2003-2014, with the highest catch of the time series observed in 2009 (103,943 mt) and lowest in 2010 (72,852 mt). However, the quota allocated to the fishery (stockwide ACL/OY) has decreased 50% over the twelve-year period. Consequently, and without increasing fishing effort, the Atlantic herring fishery has become more fully utilized in recent years, and the fishery utilized 100% of the total Atlantic herring ACL for the first time in 2012. The 2013-2015 Atlantic herring fishery specifications increased the stockwide Atlantic herring ACL by more than 15,000 mt from the 2010-2012 specifications; an additional 5,000 mt was caught under the higher quota in 2013 and 2014, and overall, the fishery utilized about 90% of the stockwide Atlantic herring ACL.

In prior years when considering the DAH specification, the Council has evaluated the harvesting capacity of the directed Atlantic herring fleet and determined that the herring fleet is capable of fully utilizing the available yield from the fishery. Therefore, the **DAH specification for the 2016-2018 fishing years is proposed to be equal to the stockwide Atlantic herring ACL**, i.e., the U.S. OY specified by the Council for each of the 2016-2018 fishing years.

Domestic Annual Processing (DAP) is defined in the Herring FMP as the amount of U.S. harvest that domestic processors will use, combined with the amount of the resource that will be sold as fresh fish (including bait). DAP was set equal DAH minus 4,000 mt for BT during the 2013-2015 fishing years and in prior specifications.

DAP Specification

Processing, with respect to the Atlantic herring fishery, is defined in the regulations as *the preparation of Atlantic herring to render it suitable for human consumption, bait, commercial uses, industrial uses, or long-term storage, including but not limited to cooking, canning, roe extraction, smoking, salting, drying, freezing, or rendering into meat or oil*. The definition of processing does not include trucking and/or transporting fish.

While it is difficult to predict whether or not the U.S. processing sector will utilize all of the available DAP in 2016-2018, it is certainly possible given the capacity of the domestic processing sector. Therefore, the **DAP specification for the 2016-2018 fishing years is proposed to be equal to the DAH specification minus the BT specification.**

BT Specification

The Border Transfer specification represents U.S.-caught herring transshipped to Canada via Canadian carrier vessels and used for human consumption. This specification is not a set-aside; rather, it represents a maximum amount of Atlantic herring caught from Area 1A that can be transshipped to Canadian vessels for human consumption. NMFS GARFO tracks BT utilization through a separate dealer code. Specification of BT has remained at 4,000 mt since the implementation of the Atlantic Herring FMP, and there was no change for the 2013-2015 fishing years. There does not appear to be a need to change this specification for 2016-2018. Therefore, the **BT specification is proposed to remain 4,000 mt for the 2016-2018 fishing years.**

Table 17 indicates a decrease in BT from 1994-2014, with 2011 utilizing 946 mt (24% of 4,000 border transfer mt). **UPDATE**

Table 17 Utilization of Border Transfer (mt)

YEAR	MT Utilized in BT
1994	2,456
1995	2,117
1996	3,690
1997	1,280
1998	1,093
1999	839
2000	1,546
2001	445
2002	688
2003	1,311
2004	184
2005	169
2006	653
2007	53
2008	0
2009	0
2010	0
2011	946
2012	Update
2013	Update
2014	Update

Source: NMFS.

USAP Specification

The Atlantic Herring FMP states that “part of DAP may be allocated for at-sea processing by domestic vessels that exceed the vessel size limits (see Section 3.6.6 of the Herring FMP). This allocation will be called the ‘U.S. at-sea processing’ (USAP) allocation. The term ‘at-sea processing’ refers to processing activities that occur in the Exclusive Economic Zone outside State waters. When determining this specification, the Council will consider the availability of other processing capacity, development of the fishery, status of the resource, and opportunities for vessels to enter the herring fishery.” The USAP specification serves as a cap for USAP activities and is not a specific allocation to this processing sector.

During the 2007-2009 fishing years, the Council maintained a USAP specification of 20,000 mt (Areas 2/3 only) based on information received about a new at-sea processing vessel that intended to utilize a substantial amount of the USAP specification. At that time, landings from Areas 2 and 3 – where USAP is authorized – were considerably lower than allocated sub-ACLs for each of the past several years. Moreover, the specification of 20,000 mt for USAP did not restrict either the operation or the expansion of the shoreside processing facilities during the 2007-2009 fishing years. However, this operation never materialized, and none of the USAP

specification was used during the 2007-2009 fishing years. Consequently, the Council set USAP at zero for the 2010-2012 fishing years and the 2013-2015 fishing years. The Council has not received any information that would suggest changing this specification for the 2016-2018 fishing years. Therefore, **the specification of USAP for the 2016-2018 fishing years is proposed to remain at 0 mt.**

2.2.3 Specification of Management Area Sub-ACLs for 2016-2018

Because the Atlantic herring ABC specification recommended by the SSC for 2016-2018 (111,000 mt) is not substantially different than the 2013-2015 ABC specification (114,000 mt), the Council, based on a recommendation from the Herring Committee, has determined that there is no need to consider modifying the distribution of the total ACL among the Atlantic herring management areas for 2016-2018. Additionally, information from the Atlantic herring operational assessment report (April 2015) does not suggest that there is a biological need to consider modifying the distribution of the stockwide ACL. To this end, a “status quo” approach for 2016-2018 Atlantic herring sub-ACLs is recommended by the Council (see Table 18 below), based on an ABC specification of 111,000 mt. The status quo approach applies the same (2013-2015) proportional distribution of the stockwide Atlantic herring ACL among the management areas. This approach is applied to determine the sub-ACLs under both Alternative 2 (status quo, Section 0) and Alternative 3 (*Preferred Alternative*, Section 2.1.4). The Council has also determined that there is no need to consider changing the seasonal (monthly) divisions of the Area 1A and Area 1B sub-ACLs; these sub-ACL seasons are therefore carried over to Alternatives 2 and 3.

Table 18 Status Quo Approach for 2016-2018 Atlantic Herring Sub-ACLs

	2013-2015	2016-2018
OFL (mt)	169,000/136,000/114,000	138,000/117,000/111,000
ABC (mt)	114,000	111,000*
ACL (mt)	107,800	TBD
Sub-ACL Area 1A	31,200 (28.9%)	TBD (28.9%)
Sub-ACL Area 1B	4,600 (4.3%)	TBD (4.3%)
Sub-ACL Area 2	30,000 (27.8%)	TBD (27.8%)
Sub-ACL Area 3	42,000 (39%)	TBD (39%)
RSA	3%	TBD
FGSA	295 mt	TBD

*Based on SSC recommendation of 111,000 mt for ABC.

Proposed Seasonal (Monthly) Sub-ACL Divisions (2016-2018)

- Area 1A: 0% January-May; 100% June-December;
- Area 1B: 0% January-April; 100% May-December

According to the catch information presented in Table 41 (see p. 89), it is anticipated that there will be a deduction from the 2016 sub-ACLs for Area 1A and Area 1B to account for overages that occurred in these areas during the 2014 fishing year. There should also be a carryover of some portion (up to 10%) of the unused 2014 sub-ACL from Areas 2 and 3 to the 2016 sub-ACLs for these areas (but the stockwide Atlantic herring ACL will not increase, consistent with Framework 2 to the Atlantic Herring FMP).

2.2.4 Specification of Research Set-Asides (RSAs)

The RSA process is a competitive grants process administered by the Northeast Fisheries Science Center. Proposals are requested for research, and incoming proposals are reviewed and ranked by a technical body. With competitive grants awarded through this process, different entities will apply. For catch monitoring, it is important to ensure that only qualified entities apply, and it would be difficult to ensure a consistent monitoring program with multiple entities potentially competing for the available funds in any given year. The 2013-2015 Atlantic herring fishery specifications deducted a 3% RSA from the ACL for all management areas and identified river herring bycatch avoidance and portside sampling as top priorities for cooperative research to be funded by herring RSA in 2014 and 2015.

For the 2016-2018 Atlantic herring fishery specifications, the Council is proposing to maintain the specification of 3% RSA from each management area for the 2016-2018 fishing years.

Top Priorities for Cooperative Research 2016-2018

In January 2015, the Council recommended the following four research priorities under any RSAs that may be allocated in the 2016-2018 Atlantic herring fishery specifications (without ranking, i.e., equally-important):

1. Portside Sampling
2. River Herring Bycatch Avoidance
3. Electronic Monitoring
4. Research to Support/Enhance the Atlantic Herring Stock Assessment

In addition, the Council unanimously passed a motion to request input from the NEFSC regarding the fourth cooperative research priority. The NEFSC identified four research projects that would support or enhance the Atlantic herring assessment, while at the same time being appropriate for Atlantic herring RSA. These topics include: stock structure/spatial management; availability and detectability; fishery acoustic indices; and volume-to-weight conversion. The NEFSC provided some additional information to the Council regarding the applicability of these research topics to the Atlantic herring RSA program.

2.2.5 Specification of Fixed Gear Set-Aside (FGSA)

Amendment 1 to the Atlantic Herring FMP allows the Council to set-aside up to 500 metric tons of Atlantic herring until November 1 for fixed gear fishermen fishing West of Cutler. The ASMFC's Amendment 2 to the Interstate FMP requires fishermen East of Cutler to report catch weekly through the federal IVR system. ME DMR requires the ME state commercial fixed gear fishermen to be compliant with the federal IVR weekly reporting requirements and regulations as well as reporting monthly to ME DMR. The FGSA was set to 295 mt for the 2013-2015 specifications in Area 1A.

Table 11 (p. 21) provides Atlantic herring catch estimates from the fixed gear fishery through 2013. According to Table 11, none of the FGSA has been utilized since 2012 and it has all been returned to the Area 1A fishery after November 1. At its July 22, 2015 meeting, the Herring Committee recommended that the Council maintain the specification of 296 mt for the FGSA for the 2016-2018 fishing years.

2.3 ALTERNATIVES FOR 2016-2018 RIVER HERRING/SHAD (RH/S) CATCH CAPS

The alternatives under consideration for specifying the 2016-2018 RH/S catch caps, as well as information/rationale to support the *Preferred Alternative*, are provided in the following subsections. Appendix I includes the Herring PDT's analysis, *Development of Options for River Herring and Shad Catch Caps in the Atlantic Herring Fishery, 2016-2018*, and can be referenced for more detailed information.

2.3.1 RH/S Alternative 1: No Action (Framework 3 Catch Caps)

RH/S Alternative 1 represents the no action alternative. This alternative would maintain the 2014/2015 RH/S catch caps implemented in Framework 3 for the 2016-2018 fishing years. Under this alternative, the 2016-2018 RH/S catch caps would be based on the median value of estimated RH/S catch from 2008-2012 from Fw 3 (Table 19). The RH/S catch caps under this alternative would continue to apply to midwater trawl vessels in the Gulf of Maine and Cape Cod Catch Cap Areas, and to both midwater trawl and small mesh bottom trawl vessels in the southern New England/Mid-Atlantic Catch Cap Area (see RH/S Catch Cap Areas shaded on Figure 1, p. 3) on all trips landing more than 6,600 pounds of Atlantic herring. No RH/S catch cap would be adopted for the GB Catch Cap Area.

Table 19 RH/S Alternative 1 (No Action)

RH/S Catch Cap Area	2016-2018 RH/S Catch Cap (mt)
GOM	Midwater Trawl – 85.5
CC	Midwater Trawl – 13.3
SNE/MA	Midwater Trawl – 123.7 Bottom Trawl – 88.9
GB	0

2.3.2 RH/S Alternative 2 (Non-Preferred)

Under RH/S Alternative 2, the 2016-2018 RH/S catch caps would be based on the Herring PDT’s updates/revisions to the 2008-2012 RH/S catch estimates from Framework 3 (see Section 3.2.3.1 and Appendix I). The same five-year time series that was utilized in Fw 3 (2008-2012 with updated/revised data) would be utilized to determine the RH/S catch caps under this alternative, with options to select either the median or weighted mean from the time series (Table 20). The RH/S catch caps under this alternative would continue to apply to midwater trawl vessels in the Gulf of Maine and Cape Cod Catch Cap Areas, and to both midwater trawl and small mesh bottom trawl vessels in the southern New England/Mid-Atlantic Catch Cap Area (see RH/S Catch Cap Areas shaded on Figure 1, p. 3) on all trips landing more than 6,600 pounds of Atlantic herring. No RH/S catch cap would be adopted for the GB Catch Cap Area.

Option 1: Median. Option 1 would base the 2016-2018 RH/S catch caps on the median values of the 2008-2012 revised RH/S catch estimates.

Option 2: Weighted Mean. Option 2 would base the 2016-2018 RH/S catch caps on the weighted mean values of the 2008-2012 revised RH/S catch estimates. The weighted mean represents the arithmetic average of the total RH/S catch per year (by area and gear type for each of the five years in the time series), weighted by the number of sampled trips in that stratum (see Appendix I for more information).

Table 20 RH/S Alternative 2

RH/S Catch Cap Area	2016-2018 RH/S Catch Cap (mt) Option 1 (Median)	2016-2018 RH/S Catch Cap (mt) Option 2 (Weighted Mean)
GOM	Midwater Trawl – 98.1	Midwater Trawl – 98.3
CC	Midwater Trawl – 8.9	Midwater Trawl – 27.6
SNE/MA	Midwater Trawl – 83.9 Bottom Trawl – 19.6	Midwater Trawl – 115.4 Bottom Trawl – 28.2
GB	0	0

2.3.3 RH/S Alternative 3 (Preferred): Revised Data with Seven-Year Time Series (Weighted Mean)

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT’s revised/updated data (see Section 3.2.3.1 and Appendix I). This alternative would incorporate RH/S catch estimates from the most recent two years, extending the time series to seven years, with options to select either the median or weighted mean values as the 2016-2018 RH/S catch caps (Table 21). The RH/S catch caps under this alternative would continue to apply to midwater trawl vessels in the Gulf of Maine and Cape Cod Catch Cap Areas, and to both midwater trawl and small mesh bottom trawl vessels in the southern New England/Mid-Atlantic Catch Cap Area (see RH/S Catch Cap Areas shaded on Figure 1, p. 3) on all trips landing more than 6,600 pounds of Atlantic herring. No RH/S catch cap would be adopted for the GB Catch Cap Area. Alternative 3 (using Option 2, the weighted mean) represents the Preferred Alternative for specifying 2016-2018 RH/S catch caps at this time.

Option 1: Median. Option 1 would base the 2016-2018 RH/S catch caps on the median values of the 2008-2014 revised RH/S catch estimates.

Option 2: Weighted Mean. Option 2 would base the 2016-2018 RH/S catch caps on the weighted mean values of the 2008-2014 revised RH/S catch estimates. The weighted mean represents the arithmetic average of the total RH/S catch per year (by area and gear type for each of the seven years in the time series), weighted by the number of sampled trips in that stratum (see Appendix I for more information). This option represents the Preferred Alternative for specifying the 2016-2018 RH/S catch caps.

Table 21 RH/S Alternative 3 (Option 2 Preferred)

RH/S Catch Cap Area	2016-2018 RH/S Catch Cap (mt) Option 1 (Median)	2016-2018 RH/S Catch Cap (mt) Option 2 (Weighted Mean)
GOM	Midwater Trawl – 11.3	Midwater Trawl – 76.7
CC	Midwater Trawl – 29.5	Midwater Trawl – 32.4
SNE/MA	Midwater Trawl – 83.9 Bottom Trawl – 24.0	Midwater Trawl – 129.6 Bottom Trawl – 122.3
GB	0	0

Rationale for Preferred Alternative

TBD after September 2015 Council meeting

2.3.4 Summary of RH/S Catch Cap Alternatives Under Consideration

Table 22 below summarizes the alternatives under consideration for specifying the 2016-2018 RH/S catch caps for the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring). The *Preferred Alternatives* are shaded in grey.

Table 22 Alternatives/Options for Specifying 2016-2018 RH/S Catch Caps

RH/S Catch Cap Area	Alternative	Options			
		Bottom Trawl		Midwater Trawl	
		Median	Wgt Mean	Median	Wgt Mean
GOM	1 - Fw3 (08-12)			85.5	
	2 - Fw3 Revised (08-12)			98.1	98.3
	3 - Seven Years (08-14)			11.3	76.7
CC	1 - Fw3 (08-12)			13.3	
	2 - Fw3 Revised (08-12)			8.9	27.6
	3 - Seven Years (08-14)			29.5	32.4
SNE/MA	1 - Fw3 (08-12)	88.9		123.7	
	2 - Fw3 Revised (08-12)	19.6	28.2	83.9	115.4
	3 - Seven Years (08-14)	24.0	122.3	83.9	129.6

The Preferred Alternative is shaded in grey.

No RH/S catch caps are proposed for the Georges Bank Catch Cap Area for 2016-2018.

2.4 ALTERNATIVES CONSIDERED BUT REJECTED

TBD FOR FINAL DOCUMENT

3.0 AFFECTED ENVIRONMENT

The Affected Environment is described in this document based on valued ecosystem components (VECs). VECs represent the resources, areas, and human communities that may be affected by the management measures under consideration in this management action. VECs are the focus since they are the “place” where the impacts of management actions are exhibited. The VECs for consideration in the 2016-2018 Atlantic herring fishery specifications package include: **Atlantic Herring; Non-Target Species** (with particular focus on river herring/shad); **Physical Environment and Essential Fish Habitat (EFH)**; **Protected Resources**; and **Fishery-Related Businesses and Communities**.

The 2013-2015 Atlantic herring fishery specifications package (which also served as Framework 2), Framework 3 (RH/S catch caps), and Framework 4 to the Atlantic Herring FMP (measures to address slippage/dealer reporting) provide detailed information about the VECs addressed in this document. To the extent possible, information from these recent documents is not repeated in the following subsections but has been updated to support the Council’s decision-making regarding the 2016-2018 Atlantic herring fishery specifications.

3.1 ATLANTIC HERRING

The NEFMC manages the Atlantic herring fishery under the Atlantic Herring FMP. This document serves as a framework adjustment to the Herring FMP. A complete description of the Atlantic herring resource can be found in Section 7.1 of the FEIS for Amendment 1 to the Herring FMP. Updated information to supplement that presented in Amendment 1 can be found in the Amendment 5 EIS and Framework 2 to the Herring FMP (which includes the 2013-2015 Atlantic herring fishery specifications). The following subsections update information through 2013/2014 where possible and summarize the stock status and recent biological information for Atlantic herring. Based on the best available scientific information, the Atlantic herring resource is not overfished at this time and overfishing is not occurring (the stock is considered rebuilt).

The Atlantic herring (*Clupea harengus*), is widely distributed in continental shelf waters of the Northeast Atlantic, from Labrador to Cape Hatteras. Herring can be found in every major estuary from the northern Gulf of Maine to the Chesapeake Bay. They are most abundant north of Cape Cod and become increasingly scarce south of New Jersey (Kelly and Moring 1986) with the largest and oldest fish found in the southern most portion of the range (Munro 2002). Spawning occurs in the summer and fall, starting earlier along the eastern Maine coast and southwest Nova Scotia (August – September) than in the southwestern GOM (early to mid-October in the Jeffreys Ledge area) and GB (as late as November – December; Reid et al. 1999). In general, GOM herring migrate from summer feeding grounds along the Maine coast and on GB to SNE/MA areas during winter, with larger individuals tending to migrate farther distances. Presently, herring from the GOM (inshore) and GB (offshore) stock components are combined for assessment purposes into a single coastal stock complex.

3.1.1 Atlantic Herring Stock Status

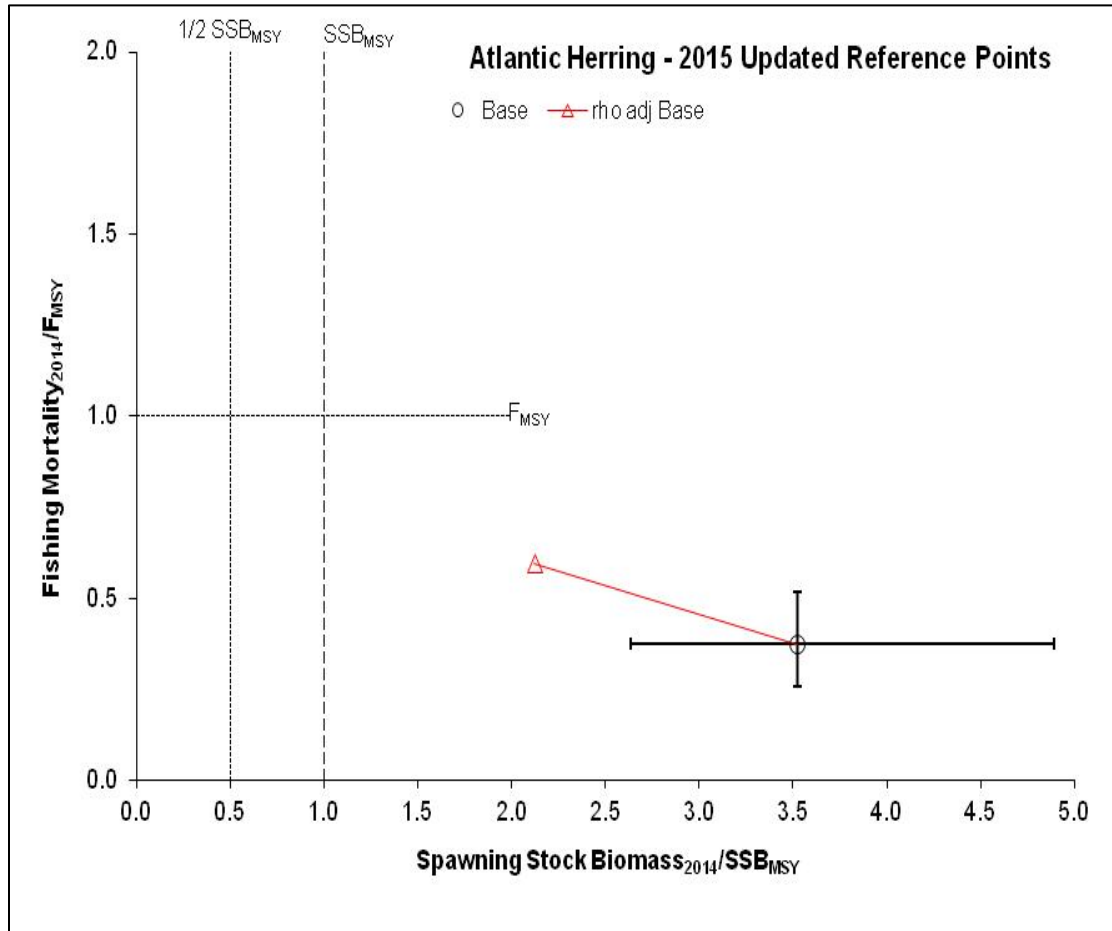
The Atlantic herring operational (update) assessment meeting was held in Woods Hole, MA on April 8-9, 2015. This assessment serves as an update to the SAW/SARC 54 benchmark assessment conducted in 2012.

Overall, the updated assessment indicates that the Atlantic herring resource continues to remain well above its biomass target (rebuilt), and fishing mortality remains well below the F_{MSY} threshold (not overfishing). A retrospective pattern re-emerged when updating the assessment model, which suggests that Atlantic herring spawning stock biomass (SSB) is likely to be overestimated and fishing mortality (F) is likely to be underestimated in the terminal year of the assessment. Resolution of a technical error in the contribution of recruitment to the objective function (i.e., negative log-likelihood) of the assessment model also affected the severity of the retrospective pattern. As a result, the assessment review panel applied a retrospective adjustment to the SSB and F values for the terminal year (2014) using Mohn's Rho. The retrospective adjustments resulted in approximately a 40% decrease in the terminal year (2014) SSB estimate and a 60% increase in the 2014 F estimate. Even with the retrospective adjustments, the Atlantic herring stock complex remains above the biomass target and below the fishing mortality threshold (Table 23, Figure 2).

Table 23 Summary of Atlantic Herring Reference Points and Terminal Year SSB/F Estimates from Benchmark Assessment (2012) and Update Assessment (2015)

	2012 SAW 54 Benchmark	2015 Update (Non-Adjusted)	2015 Update (Retro-Adjusted)
Terminal Year SSB	518,000 mt (2011)	1,041,500 mt (2014)	622,991 mt (2014)
Terminal Year F	0.14 (2011)	0.10 (2014)	0.16 (2014)
SSB_{MSY}	157,000 mt	311,145 mt	
F_{MSY}	0.27	0.24	
MSY	53,000 mt	77,247 mt	

Figure 2 Atlantic Herring Operational Assessment: 2014 Fishing Mortality and SSB Relative to F_{MSY} and SSB_{MSY} Reference Points, Including Retrospective Adjustment (Red Line)



Note: Error bars represent 10th and 90th percentiles of 2014 F/SSB estimates.

The results of the 2015 operational assessment form the basis of the SSC’s and Council’s recommendations for the 2016-2018 specifications of OFL and ABC. The operational assessment report and the May 20, 2015 SSC Report should be referenced for more detailed information.

3.1.2 Considerations Related to Scientific Uncertainty

With respect to the 2015 Atlantic herring operational assessment, the re-emerging retrospective pattern, assumptions about natural mortality (M), and the mis-match between implied consumption and estimated consumption appear to be the primary sources of uncertainty (see discussion in following subsections).

The size/strength of the 2011 year class and other sources of uncertainty were also identified in the assessment report. However, signals related to the 2011 year class (possibly the second-largest on record) are similar to those for the 2008 year class that were noted in the 2012 Atlantic herring benchmark stock assessment. The update assessment indicates that the 2008 year class has persisted through the fishery as the strongest on record.

3.1.2.1 Retrospective Pattern

Since the benchmark assessment, an issue with the contribution of recruitment to the negative log likelihood in the assessment framework, ASAP, was discovered. This issue was resolved for the operational assessment. Differences in results and diagnostics between the benchmark and the update are partially attributable to the likelihood issue. Resolving the likelihood issue had the effect of changing the scale of estimates (e.g., increasing abundance estimates), particularly in recent years. Regardless of the likelihood issue, diagnostic problems (e.g., retrospective patterns) were present in the update assessment. Resolving the likelihood issue only amplified these diagnostic problems (e.g., worsening retrospective patterns). To account for retrospective bias, the assessment review panel made a retrospective adjustment to the terminal year (2014) estimates of SSB (40%) and F (60%). The retrospective-adjusted estimates of SSB, F, and numbers-at-age are utilized for the short-term (2016-2018) catch projections (see Section 4.1.1 of this document for catch projections). No retrospective adjustment was applied to the benchmark terminal year (2011) biomass and fishing mortality estimates that were utilized in the projections for the 2013-2015 Atlantic herring fishery specifications.

The re-emergence of the retrospective pattern suggests a fundamental diagnostic problem with the assessment model that remains a cause for concern. However, it appears that the stock would remain above the biomass target and below the fishing mortality thresholds even if the 80% confidence intervals (i.e., 90th and 10th percentiles) associated with the terminal year estimates of F and SSB (see Figure 2 on p. 41) are applied to the retrospective-adjusted estimates (i.e., stock status would not change, 2014 F would remain below the threshold, and 2014 SSB would remain above the target).

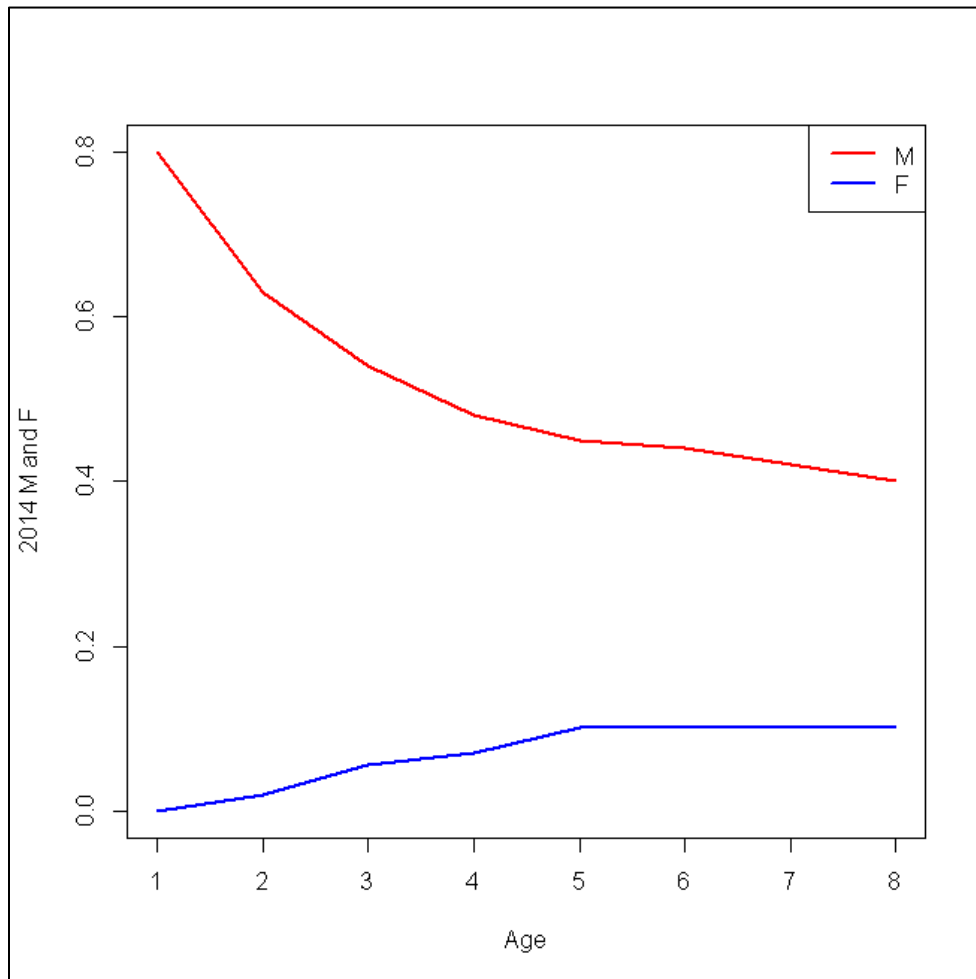
3.1.2.2 Natural Mortality (M) and Consumption

Additional uncertainty is associated with the treatment of natural mortality (M) in the assessment model and the divergence between NMFS' consumption estimates (based on stomach content data) and levels of consumption implied by the input M values in the assessment model. The mismatch between estimated and implied consumption became apparent when the assessment model was updated. This may not be of significant concern because of the possible inaccuracy of consumption estimates derived from the food habits data. These data can be extremely

sensitive to presence/absence of herring in just a few stomach samples. While food habits data are used to estimate consumption by teleost predators (fish), estimates of consumption by marine mammals, seabirds, and some larger predators (ex. tuna) are derived from prior research and assumed to be constant in recent years; these data may not be complete. Moreover, consumption of Atlantic herring and other species may change due to factors other than M (e.g., herring abundance, spatial overlap).

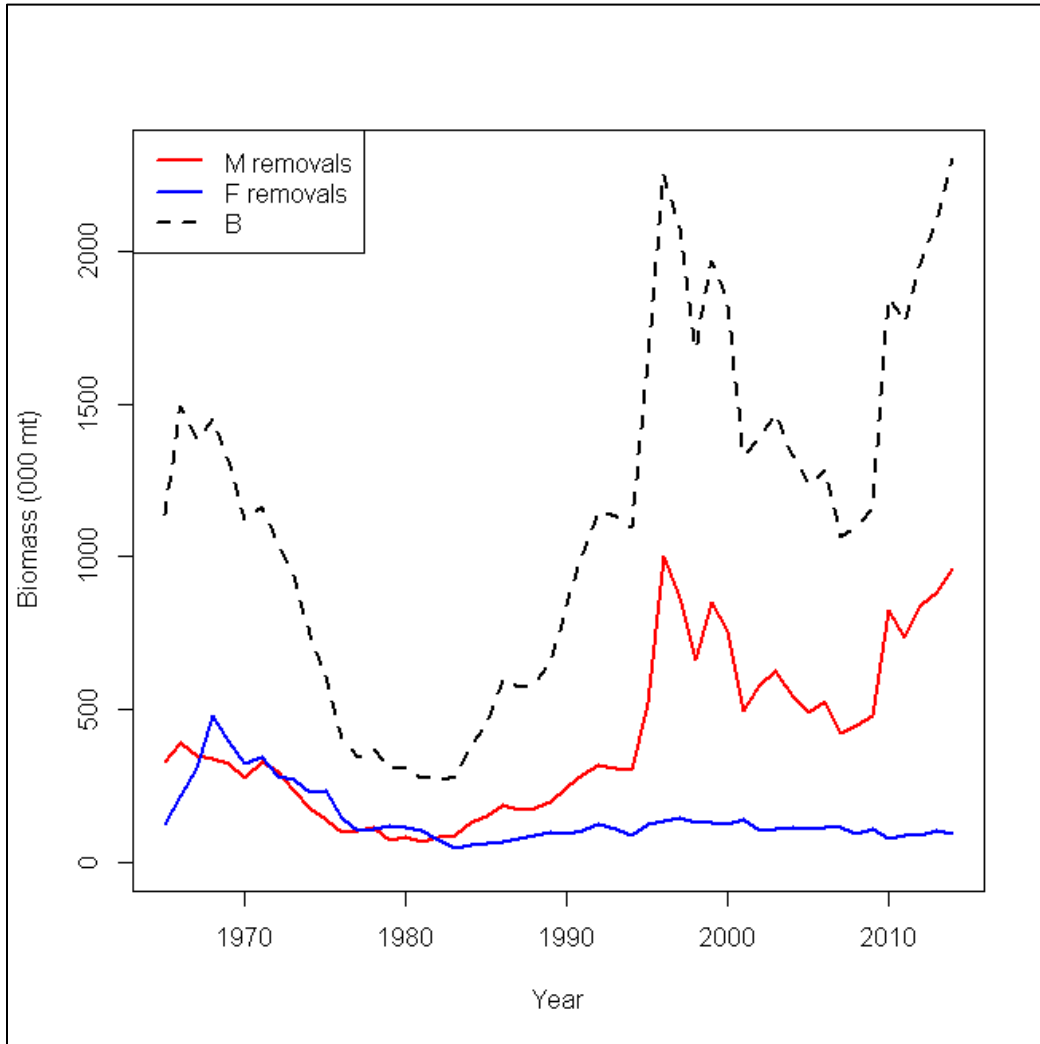
The assessment model assumes a significant amount of natural mortality on Atlantic herring, particularly at younger ages, before the fish experience mortality from the fishery. Figure 3 shows how the assessment model treats natural mortality (red line) and fishing mortality (blue line) by age class in 2014. Thus, the model assumes that M is a much higher fraction of total mortality than fishing mortality. Figure 4 illustrates removals from fishing mortality and natural mortality estimated from the assessment model relative to total biomass over the entire time series.

Figure 3 Atlantic Herring Operational Assessment: 2014 Estimated Natural Mortality (M) and Fishing Mortality (F) by Age



Source: Atlantic Herring Operational Assessment Meeting, April 8-9, 2015.

Figure 4 Atlantic Herring Operational Assessment: Estimated Removals from Natural Mortality (M) and Fishing Mortality (F) Relative to Total Estimated Biomass (B)



Source: Atlantic Herring Operational Assessment Meeting, April 8-9, 2015.

3.2 NON-TARGET SPECIES

3.2.1 Overview

Non-target species refers to species other than Atlantic herring which are caught/landed by federally permitted vessels while fishing for herring. The MSA defines *bycatch* as fish that are harvested in a fishery, but are not retained (sold, transferred, or kept for personal use), including economic discards and regulatory discards. 16 U.S.C. § 1802(2). The MSA mandates the reduction of *bycatch*, as defined, to the extent practicable. 16 U.S.C. § 1851(a)(9). Incidental catch, on the other hand, is typically considered to be non-targeted species that are harvested while fishing for a target species and is retained and/or sold. In contrast to bycatch, there is no statutory mandate to reduce incidental catch. When non-target species are encountered in the Atlantic herring fishery, they are either discarded (bycatch) or they are retained and sold as part of the catch (incidental catch). The majority of catch by herring vessels on directed trips is Atlantic herring, with extremely low percentages of bycatch (discards). Atlantic mackerel is targeted in combination with Atlantic herring during some times of the year in the southern New England and Mid-Atlantic area and is therefore not considered a non-target species.

Due to the high-volume nature of the Atlantic herring fishery, non-target species, including river herring (blueback herring and alewives), shad (hickory shad and American shad), and some groundfish species (particularly haddock), are often retained once the fish are brought on board (see Amendment 5 FEIS at 173). The catch of non-target species in the directed Atlantic herring fishery can be identified through sea sampling (observer) data collected by the Northeast Fisheries Observer Program (NEFOP). Portside sampling data collected by MA DMF and ME DMR can be utilized to estimate catch of any non-target species that are landed. Dealer and VTR data can be used to identify/cross-check incidental landings of some non-target species that may be separated from Atlantic herring.

The primary non-target species in the directed Atlantic herring fishery are **groundfish (particularly haddock)** and the **river herring/shad (RH/S) species**. Dogfish, squid, butterfish, Atlantic mackerel are also common non-target species in the directed Atlantic herring fishery (mackerel and some other non-target species catch is often landed and sold). Comprehensive information about the catch of these species in the Atlantic herring fishery can be found in Section 5.2 of the FEIS for Amendment 5 and Sections 3.2 (River Herring/Shad) and 3.3 (Other Non-Target Species) of Framework 3 to the Atlantic Herring FMP. Summary information is provided below and updated where possible. For this management action, particular focus is given to RH/S and the potential impacts of the proposed RH/S catch caps.

Haddock comprises the largest component of groundfish bycatch by midwater trawl vessels, and the catch of haddock by these vessels is managed by the Council through a catch cap (Framework 46 to the Multispecies FMP) and increased sampling/monitoring (Amendment 5 to the Atlantic Herring FMP). Vessels issued a Category A/B Atlantic herring permit and on a declared herring trip, regardless of gear or area fished, and or a vessel issued a Category C permit and/or an Category D permit (open access) that fishes with midwater trawl gear in Areas 1A, 1B, and 3 are prohibited from discarding haddock at-sea. These vessels are limited to possessing/landing up to 100 lb. of other NE multispecies. Atlantic herring processors and dealers are required to separate out, and retain such haddock for at least 12 hours for inspection by authorized NMFS officers. However, haddock or other NE multispecies separated from the herring catch may not be sold, purchased, received, traded, bartered, or transferred, or attempted to be sold, purchased, received, traded, bartered, or transferred for, or intended for, human consumption.

Table 24 summarizes haddock catch by the herring midwater trawl vessels from 2011-2014. Starting in 2011, data used to estimate/monitor the cap include observer data, vessel trip reports (VTR), and dealer reports. During the 2012 groundfish fishing year, the haddock catch cap was fully utilized in the GB area. The 2013 Georges Bank cap was slightly exceeded. As a result, the 2014 catch cap was adjusted downward from 179 mt to 162 mt to account for the overage. There remains very little catch of Gulf of Maine haddock by midwater trawl vessels in the Atlantic herring fishery.

Table 24 Haddock Catch by Midwater Trawl Vessels Subject to Haddock Catch Cap (2011-2014)

FY	2011		2012		2013		2014	
	GB	GOM	GB	GOM	GB	GOM	GB	GOM
Haddock Cap in Lbs.	701,063 (318 mt)	24,251 (11mt)	630,516 (286 mt)	19,841 (9 mt)	601,862 (273 mt)	6,613 (3 mt)	394,627 (162 mt)	6,613 (3 mt)
Haddock Catch in Lbs.	223,546 (101 mt)	5,544 (3 mt)	628,317 (285 mt)	0 (0 mt)	628,317 (285 mt)	220 (0.1 mt)	251,503 (114 mt)	0 (0 mt)
% of Cap	32%	23%	100%	0%	105%	2%	70%	0%

Catch Caps are based on groundfish fishing year (May 1 – April 30).

Source: NOAA/NMFS (http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm)

The haddock catch caps for FY2015 (May 1, 2015 – April 30, 2016) are 227 mt for the Georges Bank stock and 14 mt for the Gulf of Maine stock. Based on data reported through August 12, 2015, almost 8% of the GB catch cap and none of the GOM catch cap has been utilized by the midwater trawl fleet.

3.2.2 Observer Coverage in the Atlantic Herring Fishery

The catch of non-target species in the directed Atlantic herring fishery can be identified through sea sampling (observer) data collected by the Northeast Fisheries Observer Program (NEFOP). Table 25 summarizes NEFOP observer coverage rates by gear type and herring management area during the 2012 fishing year for trips taken by the primary gears involved in the Atlantic herring fishery. Coverage rates in this table are calculated based on NEFOP observed herring pounds caught/VTR-reported herring pounds landed.

Table 25 2012 NEFOP Coverage Rates by Gear Type and Herring Management Area (Pounds Observed/Pounds Landed)

Gear Type	Atlantic Herring Management Area			
	1A	1B	2	3
Midwater Trawl (Single)	6.4%	0%	2.6%	71.2%
Pair Trawl	17.6%	36.5%	23.8%	75%
Purse Seine	16.3%	N/A	N/A	0%
Small Mesh Bottom Trawl	4.9%	0%	24.30%	0%

Note: VTR data were preliminary when these estimates were generated.

Table 26 summarizes 2013 observer coverage rates on midwater trawl trips (single and paired) by month. As of November 2013, the Northeast Fisheries Observer Program (NEFOP) had achieved 526 midwater trawl sea days during the 2013 fishing year (360 sea days were tasked to this fishery for the entire 2013 year). By the end of the fishing year, NEFOP observers sampled a total of 127 midwater trawl trips (see Table 26). Observer coverage on midwater trawl vessels was relatively high during September and October 2013, but not as high as 2012. The average observer coverage rate for midwater trawl vessels (% of trips) in 2013 was **26%**.

The percent of midwater trawl trips observed in 2013 is lower than in 2012 primarily because there were significantly less pre-trip notifications for CAI, which requires 100% observer coverage. In 2012, there were 158 trips that notified for CAI and were covered, thereby increasing the overall coverage on midwater trawl vessels. In 2013, there were far fewer trip notifications to CAI, and the Area 3 (Georges Bank) herring fishery closed in October. NEFOP personnel noted that call-in compliance was 100% over the 2013 summer season.

Table 26 2013 NEFOP Observer Coverage on Midwater Trawl Trips

	# Declared Trips	# Observed Trips	% Trips Covered
January	78	9	12
February	59	7	12
March	40	13	33
April	16	2	13
May	19	11	58
June	34	16	47
July	44	6	14
August	47	9	19
September	41	23	56
October	33	19	58
November	5	2	40
December	75	10	13

Table 27 (following page) provides a preliminary summary of observer coverage in the Atlantic herring fishery by month for 2014 and 2015 YTD. The observed trips were identified based on VMS gear declaration, and declared gear type and target species for small mesh bottom trawl vessels. VMS gear declarations do not specify single midwater trawl versus pair trawl, so the numbers in Table 27 account for single and paired midwater trawl combined. The data are still considered preliminary and require further investigation to cross-check errors in VMS declarations (for example, 120% coverage on small mesh bottom trawl vessels during December 2014 is likely the result of an error with a gear declaration).

In 2014, NEFOP observers covered almost 41% of all declared midwater trawl trips (single and paired), 8.7% of all declared purse seine trips, and 26.2% of all declared small mesh bottom trawl trips targeting Atlantic herring. Observer coverage decreased dramatically during the first half of 2015, primarily due to budget restrictions and funding limitations imposed by the omnibus amendment to revise the Region’s standardized bycatch reporting methodology (SBRM). From January – June 2015, preliminary estimates indicate that observer coverage on declared midwater trawl trips was just under 6%, just under 7% on declared purse seine trips, and just over 31% on small mesh bottom trawl trips targeting Atlantic herring.

Table 27 NEFOP Observer Coverage on Trips in the Atlantic Herring Fishery, 2014 and 2015 YTD (Preliminary)

2014	Midwater Trawl			Purse Seine			Small Mesh Bottom Trawl		
	Observed Trips	VMS Declared Trips	% Coverage	Observed Trips	VMS Declared Trips	% Coverage	Observed Trips	VMS Declared Trips	% Coverage
Jan	15	68	22	1	0	0	13	40	33
Feb	22	62	35	0	0	0	4	27	15
March	11	30	37	0	0	0	2	10	20
April	2	2	100	0	0	0	0	2	0
May	13	26	50	0	0	0	0	0	0
June	18	38	47	7	34	21	0	1	0
July	5	34	15	6	66	9	2	26	8
August	11	44	25	5	97	5	3	36	8
Sept	29	34	85	6	85	7	8	13	62
Oct	35	36	97	3	40	8	0	3	0
Nov	5	11	45	0	0	0	0	0	0
Dec	5	35	14	0	0	0	12	10	120*
2015	Midwater Trawl			Purse Seine			Small Mesh Bottom Trawl		
	Observed Trips	VMS Declared Trips	% Coverage	Observed Trips	VMS Declared Trips	% Coverage	Observed Trips	VMS Declared Trips	% Coverage
Jan	10	83	12	0	0	0	12	34	35
Feb	0	28	0	0	0	0	2	9	22
March	2	58	3	0	0	0	0	2	0
April	1	27	4	0	2	0	0	0	0
May	1	32	3	0	0	0	0	0	0
June	2	44	5	3	42	7	0	0	0

**Note: Coverage levels over 100% are likely the result of an incorrect gear declaration; this will be corrected when the data are finalized.*

3.2.3 River Herring and Shad (RH/S)

River herring and shad are non-target species of particular concern, and catch of RH/S in the directed Atlantic herring fishery is managed through gear and area-specific catch caps, which are proposed to be specified for 2016-2018 in this management action. For the purposes of this document, the term “river herring” refers to the species of alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*), and the term “shad” refers to the species of American shad (*Alosa sapidissima*) and hickory shad (*Alosa mediocris*). Collectively, these four species are referred to throughout this document as “RH/S.” The following section provides some updated information about RH/S as non-target species in the Atlantic herring fishery; a comprehensive description of the RH/S resources can be found in Section 3.2 of Framework 3 to the Atlantic Herring FMP (NEFMC, 2014). RH/S catch by Atlantic herring vessels is summarized in Section 3.2.4.4 of the Framework 3 document and updated in Appendix I to this document.

River herring and shad are anadromous fish that spend the majority of their adult lives at sea, only returning to freshwater in the spring to spawn. Historically, RH/S spawned in virtually every river and tributary along the coast. The oceanic ranges of all four species extend beyond the northern and southern latitudinal range of the NEFSC spring and fall surveys, which occur from the Gulf of Maine to Cape Hatteras, NC (35° 30' to 44° 30' N). The geographic range of blueback herring in the northwest Atlantic extends from Cape Breton, Nova Scotia, to the St. Johns River in FL and the range of American shad extends from the Sand Hill River in Labrador to the St. John's River in FL (Page and Burr 1991). The geographic range of alewife extends from Red Bay, Labrador, to SC. Hickory shad have a narrower geographic range than these three species and is most abundant between Cape Cod, MA and the St. John's River in FL, but is also infrequently found in the Gulf of Maine (Munroe 2002).

Targeting RH/S occurs almost exclusively in State waters, and river herring and shad are managed under the Atlantic States Marine Fisheries Commission's (ASMFC) Shad and River Herring Fishery Management Plan (FMP), which was developed in 1985. A more detailed description of the ASMFC Interstate Management Program for RH/S can be found in Section 3.2.3 of the Framework Adjustment 3 document (NEFMC 2014).

RH/S Stock Status

A stock assessment for American shad was completed in 1997 and submitted for peer review in early 1998 based on new information and the Board recommended terms of reference. The 1998 assessment estimated fishing mortality rates for nine shad stocks and general trends in abundance for 13 shad stocks. A coastwide American shad stock assessment was completed and accepted in 2007 and found that American shad stocks are currently at all-time lows and do not appear to be recovering. Recent declines of American shad were reported for Maine, New Hampshire, Rhode Island, and Georgia stocks, and for the Hudson (NY), Susquehanna (PA), James (VA), and Edisto (SC) rivers. Low and stable stock abundance was indicated for Massachusetts, Connecticut, Delaware, the Chesapeake Bay, the Rappahannock River (VA), and some South Carolina and Florida stocks. Stocks in the Potomac and York Rivers (VA) have shown some signs of recovery in recent years. There are no coastwide reference points for American shad. There is currently no stock assessment available for hickory shad.

The 2007 assessment of American shad identified primary causes for stock decline as a combination of overfishing, pollution, and habitat loss due to dam construction. In recent years, coastwide harvests have been on the order of 500-900 mt, nearly two orders of magnitude lower than in the late 19th century. Given these findings, the peer review panel recommended that current restoration actions need to be reviewed and new ones need to be identified and applied. The peer review panel suggested considering multiple approaches including a reduction in fishing mortality, enhancement of dam passage, mitigation of dam-related fish mortality, stocking, and habitat restoration.

The ASMFC completed the river herring benchmark stock assessment and peer review in 2012, examining 52 stocks of alewife and blueback herring with available data in US waters. The stock assessment technical team examined indices from fishery-dependent (directed river herring landings and bycatch estimates in ocean fisheries) and fishery-independent (young-of-year indices, adult net and electrofishing indices, coastal waters trawl surveys, and run count indices) datasets. From this information, the status of 23 stocks was determined to be *depleted* relative to historic levels, and one stock was increasing. Statuses of the remaining 28 stocks could not be determined, citing times-series of available data being too short. “*Depleted*” was used, rather than “*overfished*” and “*overfishing*,” due to many factors (i.e., directed fishing, incidental fishing/bycatch, habitat loss, predation, and climate change) contributing to the decline of river herring populations. Furthermore, the stock assessment did not determine estimates of river herring abundance and fishing mortality due to lack of adequate data. For many of these reasons, the stock assessment team suggested reducing the full range of impacts on river herring populations.

NMFS River Herring ESA Determination

On August 12, 2013, NMFS published its determination in the *Federal Register* regarding the 2011 petition to list alewife and blueback herring as threatened or endangered throughout all or a significant portion of their range under the Endangered Species Act (ESA). Based on the best scientific and commercial information available, NMFS determined that listing alewife and blueback herring as threatened or endangered under the ESA is not warranted at this time.

While neither species of river herring is currently considered endangered or threatened, both species are at low abundance compared to historical levels, and NMFS indicated that monitoring both species is warranted. Given the uncertainties and data deficiencies for both species, NMFS committed to revisiting both species of river herring in 3 – 5 years. During this 3- to 5-year period, NMFS is coordinating with ASMFC, the MAFMC, and the NEFMC on a strategy to develop a long-term and dynamic conservation plan (e.g., priority activities and areas) for river herring considering the full range of both species and with the goal of addressing many of the high priority data gaps for river herring (see TEWG below).

River Herring Technical Expert Working Group (TEWG)

When NOAA Fisheries published the ESA listing decision for river herring in August 2013, NMFS indicated that it would partner with ASMFC to form a Technical Expert Working Group (TEWG). The TEWG is focused on developing a dynamic conservation plan to help restore river herring throughout their range from Canada to Florida, identifying and implementing important conservation efforts, and conducting research to fill in some of the critical data gaps for the river herring species, including the following:

- Identify threats to both species throughout their range
- Identify and create a priority list of conservation actions to address critical threats and associated costs
- Identify key data gaps
- Create a priority list of research projects and associated costs to fill existing data gaps
- Provide/compile information for NMFS/ASMFC to use in the development of a dynamic, long term conservation plan
- Track and monitor progress of conservation actions and research
- Revise actions as needed

The goal of the TEWG meetings was information gathering, whereby individual expert opinion on data, ideas, or recommendations will be sought from all participants. The meetings were not consensus-driven.

Because of its comprehensive scope and extensive membership, the TEWG includes subgroups (by topic) to focus discussions, as well as an overarching committee comprised of chairs/co-chairs from the subgroups. The TEWG held its first meeting in March 2014 to discuss river herring conservation planning and the structure and process for TEWG participation. Additional meetings were held in June, September, and December 2014, and subgroups are also meeting in between larger TEWG meetings. As this effort expands, NOAA Fisheries continues to coordinate with all of management partners including the Mid-Atlantic and the New England Councils to maximize resources and identify ways to complement ongoing efforts to promote river herring restoration. The TEWG's work products, including recommendations for a comprehensive restoration plan, were recently released (see <http://www.greateratlantic.fisheries.noaa.gov/protected/riverherring/conserv/index.html>). NMFS is scheduled to brief the Council regarding the conservation/restoration plan at an upcoming Council meeting.

As part of the effort for conservation planning, NMFS recently provided a grant to ASMFC (\$295K) to support research projects that seek to address data gaps identified through the TEWG process – (1) *Linking life stages: marine bycatch mortality, freshwater productivity, and spawning stock recruitment*; (2) *Determination of extant herring runs in the Barnegat Bay and Raritan River watersheds*. Continued leadership by ASMFC and NMFS is expected to stimulate additional research efforts. For example, *NMFS has provided funds to the NEFSC to develop habitat models to predict river herring (and shad) distribution in relation to Atlantic herring and Atlantic mackerel distribution. These environmentally-driven, predictive species distribution models would be used to try to forecast river herring and shad catch, and be iteratively improved through close cooperation with fishing industry partners* (GARFO, personal communication).

Continued RH/S Catch/Bycatch Minimization (NEFMC and MAFMC)

In Federal waters, the New England Council continues to manage and minimize RH/S interactions through the Atlantic Herring FMP and its associated amendments and framework adjustments. Most recently, Amendment 5 to the Herring FMP adopted a long-term monitoring/avoidance strategy to minimize RH/S catch and established the authority to develop catch caps for RH/S through a framework adjustment to the Atlantic Herring FMP (March 2014). Quickly following the completion of Amendment 5, the Council developed Framework 3 to the Atlantic Herring FMP, which established catch caps for RH/S and related provisions to manage and minimize interactions with these species in the directed Atlantic herring fishery. The RH/S catch caps and related provisions implemented through Framework 3 became effective in late 2014. 2015 is the first full fishing year in which the directed herring fishery will operate under RH/S catch caps.

The Mid-Atlantic Fishery Management Council (MAFMC) manages RH/S bycatch issues in the Atlantic mackerel fishery primarily through its Mackerel, Squid, and Butterfish (MSB) FMP. Recently, Amendment 14 to the Mackerel Squid Butterfish (MSB) FMP was developed in coordination with Amendment 5 to the Herring FMP and implemented a comprehensive catch monitoring system for the mackerel, squid, and butterfish (MSB) fishery. Many of the actions contained with both amendments were developed to compliment and/or replicate each other to avoid conflicting overlaps of restrictions on vessels that participate in both the herring and mackerel fisheries. Similarly, the Mid-Atlantic Council implemented a RH/S catch cap for the directed mackerel fishery through its specifications process. During the MSB specifications process (June 2015), the MAFMC voted to recommend a catch cap of 89 mt for the directed mackerel fishery for the 2016 fishing year. This represents a reduction from the 82 mt catch cap during 2015. The Mid-Atlantic Council's intent is to continue to provide a strong incentive for vessels participating in the Atlantic mackerel fishery to avoid RH/S in order to preserve their ability to harvest the mackerel quota.

The Mid-Atlantic Fishery Management Council also formed the RH/S Committee as part of a proactive coordinated effort to conserve RH/S stocks. Three members of the New England Fishery Management Council currently serve on the RH/S Committee. The RH/S Committee held its first meeting in April 2014. There will be opportunity for the two Councils to better align the catch caps in the overlapping southern New England/Mid-Atlantic area for the 2016 fishing year and beyond. This has been identified as an important objective by the MAFMC RH/S Committee. The New England Council built flexibility into the RH/S catch cap process in Framework 3 to allow development of a joint herring/mackerel fishery RH/S catch cap for the southern New England/Mid-Atlantic area with the MAFMC.

3.2.3.1 Updated RH/S Catch Data (Herring PDT)

To develop alternatives for the 2016-2018 RH/S catch caps, the Herring PDT updated RH/S catch data and estimates of RH/S catch by gear type and RH/S catch cap area for the 2013 and 2014 fishing years, providing a longer time series of data (2008-2014) than Framework 3 (2008-2012). As part of this process, the 2008-2012 RH/S catch cap data used in Fw 3 were also revised/updated by the Herring PDT to:

- (1) Incorporate some shad landings that were previously omitted;
- (2) Include trips from multiple catch cap areas that were previously omitted because sub-trips (catch from one cap area) did not meet the 6,600-pound Atlantic herring landings threshold;
and
- (3) Improve matching of trips sampled by multiple agencies (for removal of redundancies).

A complete discussion of the Herring PDT analysis and updated RH/S catch data can be found in Appendix I (*Development of Options for River Herring and Shad Catch Caps in the Atlantic Herring Fishery, 2016-2018*, Herring PDT). Summary information is provided below.

The tables/figures on the following pages provide updated RH/S catch estimates by gear/area/year and encompass all of the changes from the Framework 3 data/methods listed below (discussed in more detail in Appendix I):

- Includes shad landings that were previously omitted from RH/S catch estimates;
- Includes trips that were previously omitted because sub-trips did not meet 6,600 lbs Atlantic herring criteria;
- Improved matching of trips sampled by multiple agencies (for removal of redundancies);
- Use of *true ratio estimator*, expanded by KALL of all cap trips: $RHS_{tot} = KALL_{tot} * \frac{\sum RHS_{obs}}{\sum KALL_{obs}}$
- Use of DMIS KALL (total lbs of all species kept from NOAA-reconciled dealer/fishermen data) in all expansions (to the trip and to the fishery);
- $RHS_{obs} = RHS_{kept} + RHS_{discard}$; RHS_{kept} is based on a pooled at-sea and portside dataset, whereas $RHS_{discard}$ is based only on at-sea data.

Table 28 summarizes the total number of RH/S catch cap trips (trips landing more than 6,600 pounds of Atlantic herring) that occurred in each gear-area strata during each year from 2008-2012. The proportion of these trips that were sampled – either at-sea (observers) or portside (portside samplers) is represented by the shaded bars in Figure 5.

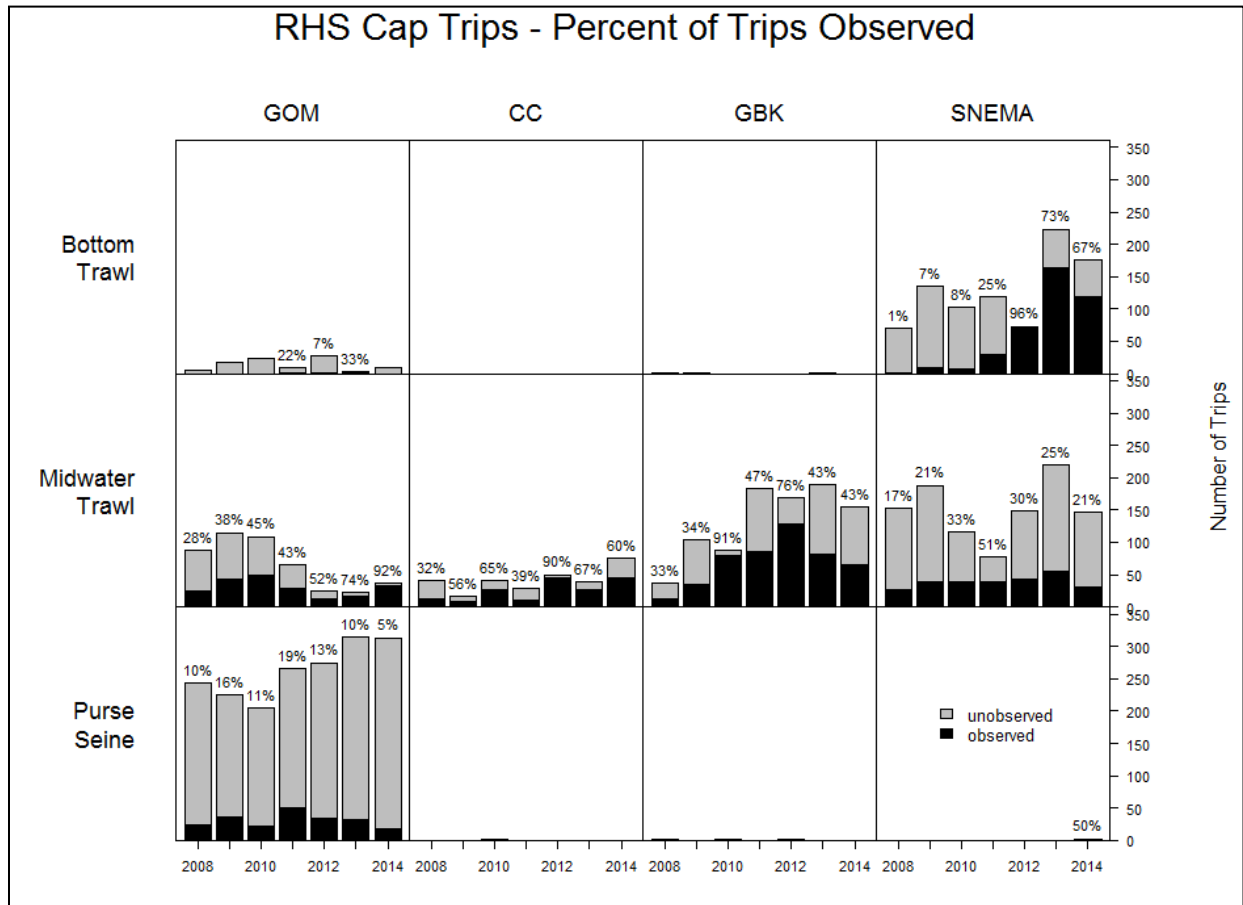
Additional discussion TBD – see Appendix I.

Table 28 Total Number of RH/S Catch Cap Trips and Landings by Strata, 2008-2014

Trips with Atlantic Herring Landings >6,600 lbs									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	GOM	5	18	24	9	27	3	9	95
	CC	0	0	0	0	0	0	0	0
	SNEMA	70	135	103	118	73	223	175	897
	GBK	36	103	87	183	169	189	154	921
Midwater Trawl	GOM	88	115	109	65	25	23	36	461
	CC	40	16	40	28	50	39	75	288
	SNEMA	152	188	116	77	148	219	146	1,046
	GBK	1	0	1	0	2	0	0	4
Purse Seine	GOM	243	225	205	265	275	314	313	1,840
	CC	0	0	1	0	0	0	0	1
	SNEMA	0	0	0	0	0	0	2	2
	GBK	0	0	0	0	0	0	0	0
	Total	635	800	686	745	769	1,010	910	5,555
Total Landings (MT) from Trips with Atlantic Herring Landings >6,600 lbs									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	GOM	32	100	109	40	121	10	39	451
	CC	0	0	0	0	0	0	0	0
	SNEMA	3,186	5,952	4,558	4,629	4,935	9,422	5,503	38,185
	GBK	7,564	26,669	14,237	32,172	30,355	35,795	27,052	173,844
Midwater Trawl	GOM	17,663	22,803	18,628	12,875	4,258	6,563	7,381	90,171
	CC	7,280	2,806	5,522	5,769	12,569	6,002	17,199	57,147
	SNEMA	26,460	36,070	22,158	9,799	18,207	16,788	14,230	143,712
	GBK	67	0	66	0	89	0	0	222
Purse Seine	GOM	25,200	21,694	8,272	17,001	19,295	22,981	27,247	141,690
	CC	0	0	9	0	0	0	0	9
	SNEMA	0	0	0	0	0	0	58	58
	GBK	0	0	0	0	0	0	0	0
	Total	87,452	116,094	73,559	82,285	89,829	97,561	98,709	645,489

**If a trip occurred in multiple areas, it was assigned to the area where the majority of catch occurred.*

Figure 5 Total Number of Trips that Caught >6,600 lbs of Atlantic Herring by Year, Gear, and RH/S Catch Cap Area, 2008-2014



The dark portion of each bar represents the proportion of total trips that was observed in that year, with the % observed shown above each bar.

Table 29 Annual Estimates of Total RHS Catch (landed + discarded) on Directed Atlantic Herring Trips, 2008-2014

Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Median	Weighted Mean
Bottom Trawl	GOM				0.6	0.1	0.0		0.1	0.3
	SNEMA	0.0	105.9	13.5	19.6	24.0	236.5	58.5	24.0	122.3
Midwater Trawl	GOM	157.2	98.1	146.8	5.9	1.9	11.3	6.7	11.3	76.7
	CC	39.8	0.0	0.7	8.9	49.6	29.5	45.3	29.5	32.4
	SNEMA	348.7	83.9	28.0	29.6	157.3	231.5	30.3	83.9	129.6
	GBK	0.0	0.2	1.6	0.9	0.5	1.3	0.4	0.5	0.8
Purse Seine	GOM	2.0	2.8	2.9	0.1	1.2	4.1	66.5	2.8	7.0
	Total	547.7	290.8	193.5	65.6	234.4	514.2	207.6		

3.2.3.2 RH/S Catch YTD Under 2015 Catch Caps

As previously noted, RH/S catch in the directed Atlantic herring fishery is managed through gear-specific and area-specific caps implemented through Framework 3 to the Atlantic Herring FMP (November 2014). The RH/S catch caps are monitored based on the Atlantic herring fishing year (January 1-December 31). Once a RH/S catch cap is harvested, a 2,000 pound Atlantic herring possession limit goes into effect for that Catch Cap AM Area and gear type for the remainder of the fishing year.

The method for estimating RH/S catch by Atlantic herring vessels is similar to the method for estimating RH/S catch in the Atlantic mackerel fishery. This method replaces estimated pounds with observed pounds where available. The cumulative method uses catch from the entire year to estimate a RH/S catch ratio for each RH/S catch cap area and gear type. The RH/S catch ratio is calculated for a catch cap area and gear type by dividing observed RH/S catch for the year by the observed kept all (total amount of all species) for the year. RH/S pounds per unobserved trip are then estimated by multiplying the catch ratio by the kept all from unobserved Atlantic herring vessels fishing in that RH/S catch cap area with that gear type.

Table 30 summarizes RH/S catch on midwater trawl and SNE/MA small mesh bottom trawl trips landing more than 6,600 pounds of Atlantic herring during the 2015 year through August 26, 2015. Thus far in 2015, just about 1/3 of the RH/S removals allowed under the 2015 RH/S catch caps has been taken on trips landing 6,600 pounds or more Atlantic herring. The vast majority (98%) of RH/S catch in the directed Atlantic herring fishery has occurred in the SNE/MA Area, which is where the Area 2 Atlantic herring fishery occurs (see Figure 1 on p. 3 of this document). Most of the RH/S catch occurred prior to April 1, consistent with the timing of the winter fishery for Atlantic herring (see Figure 7 and Figure 8). Small mesh bottom trawl vessels directing on Atlantic herring in Area 2 have caught 57% of the RH/S catch cap, and midwater trawl vessels

have caught almost 38% of the SNE/MA catch cap as of late August 2015; about 35% of the Atlantic herring Area 2 sub-ACL has been taken (see Section 3.5.1 for Atlantic herring catch information). It is not anticipated that effort in the directed Atlantic herring fishery in southern New England/Mid-Atlantic will increase significantly again until very late in the year (December).

Table 30 RH/S Catch on Trips Subject to RH/S Catch Cap (2015 YTD)

RH/S Catch Cap Area	Cumulative Catch (mt)	Catch Cap (mt)	Percent of Catch Cap
Gulf of Maine MWT	0.0	86	0.00%
Cape Cod MWT	1.8	13	14.05%
SNE/MA Bottom Trawl	50.8	89	57.13%
SNE/MA MWT	46.9	124	37.86%
Total	99.6	312	31.93%

Source: http://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/reports_frame.htm

Data reported through August 26, 2015.

Figure 6 2015 RH/S Catch YTD by Herring Midwater Trawl Vessels in the Cape Cod Catch Cap Area

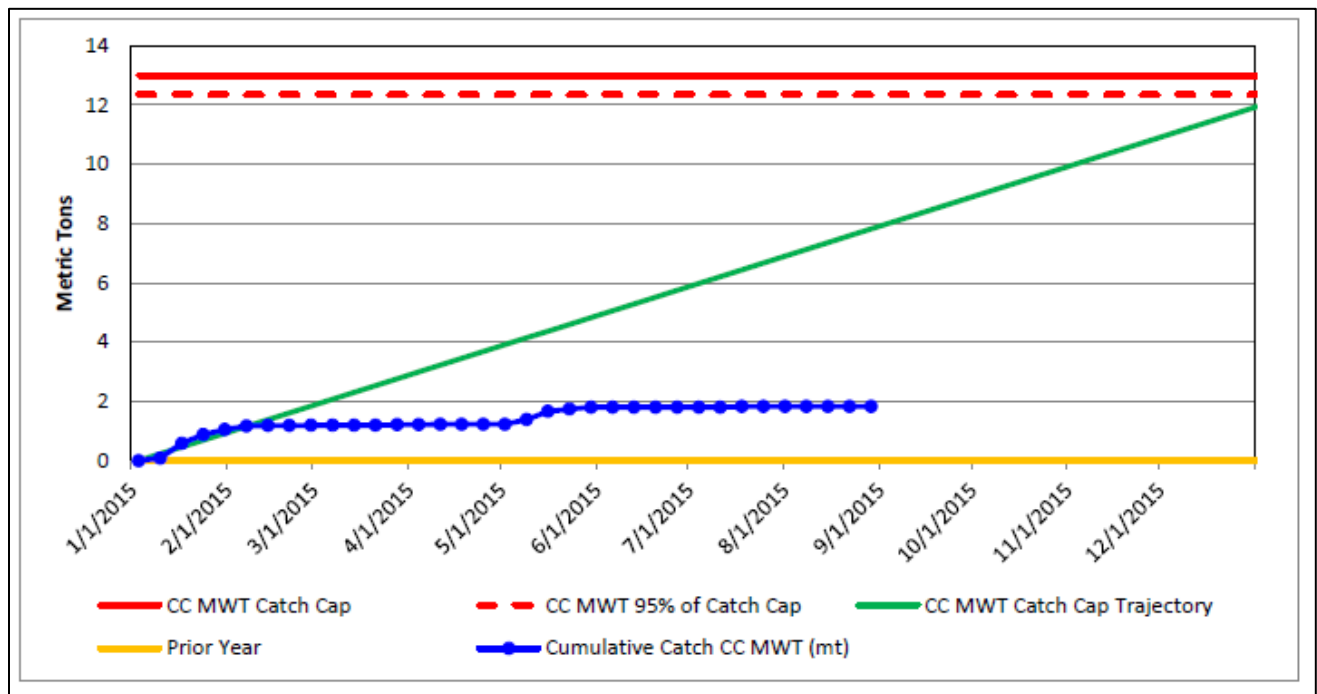


Figure 7 2015 RH/S Catch YTD by Herring Midwater Trawl Vessels in the SNE/MA Catch Cap Area

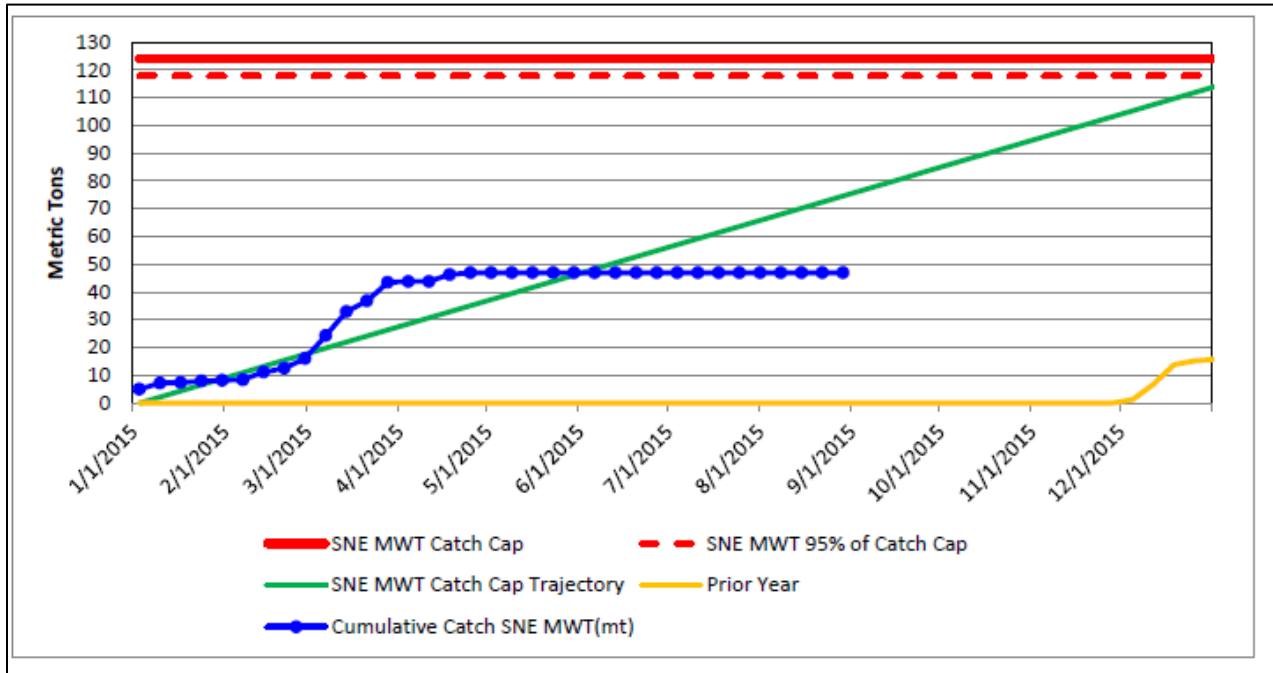
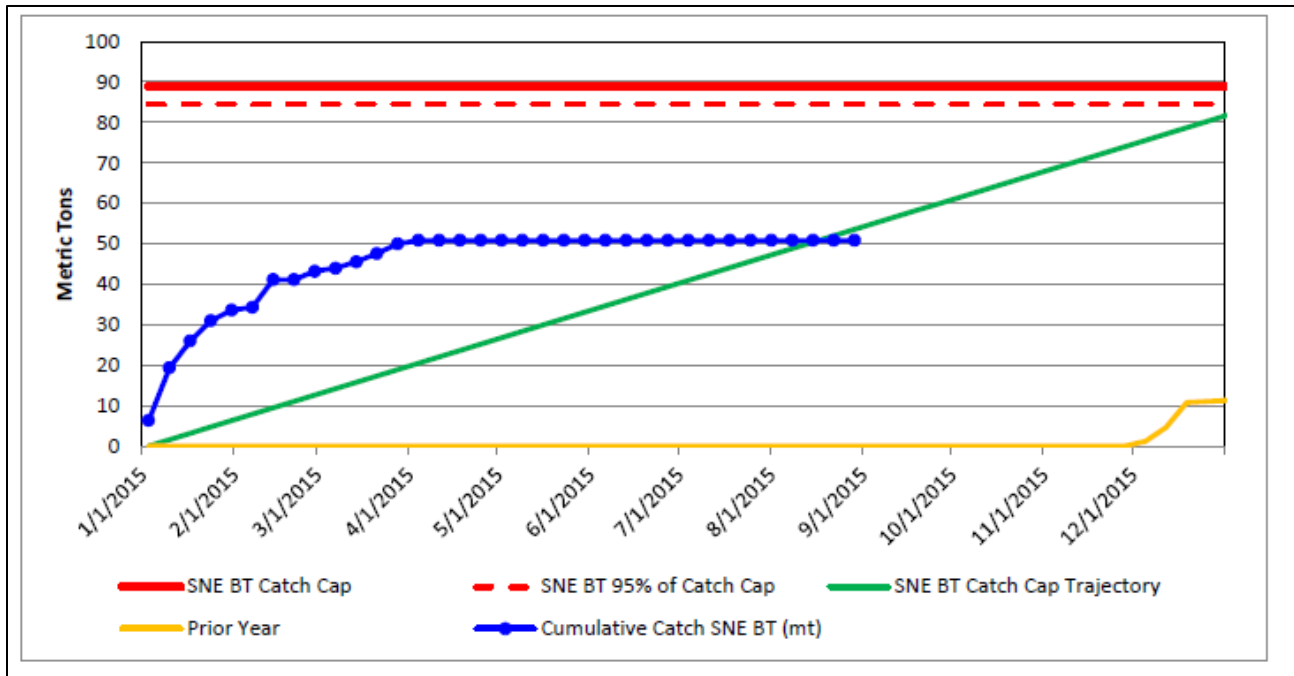


Figure 8 2015 RH/S Catch YTD by Herring Small Mesh Bottom Trawl Vessels in the SNE/MA Catch Cap Area



Source: http://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/reports_frame.htm

Data reported through August 26, 2015.

3.2.3.3 SMAST/MADMF/SFC River Herring Bycatch Avoidance Program

In January 2015, the New England Fishery Management Council received an overview/update of the river herring bycatch avoidance program coordinated by MADMF with UMASS Dartmouth School of Marine Science and Technology (SMAST) and the Sustainable Fisheries Coalition (SFC). Overall, the Council expressed continued support for the bycatch avoidance program as well as the portside sampling programs conducted by MADMF and ME DMR.

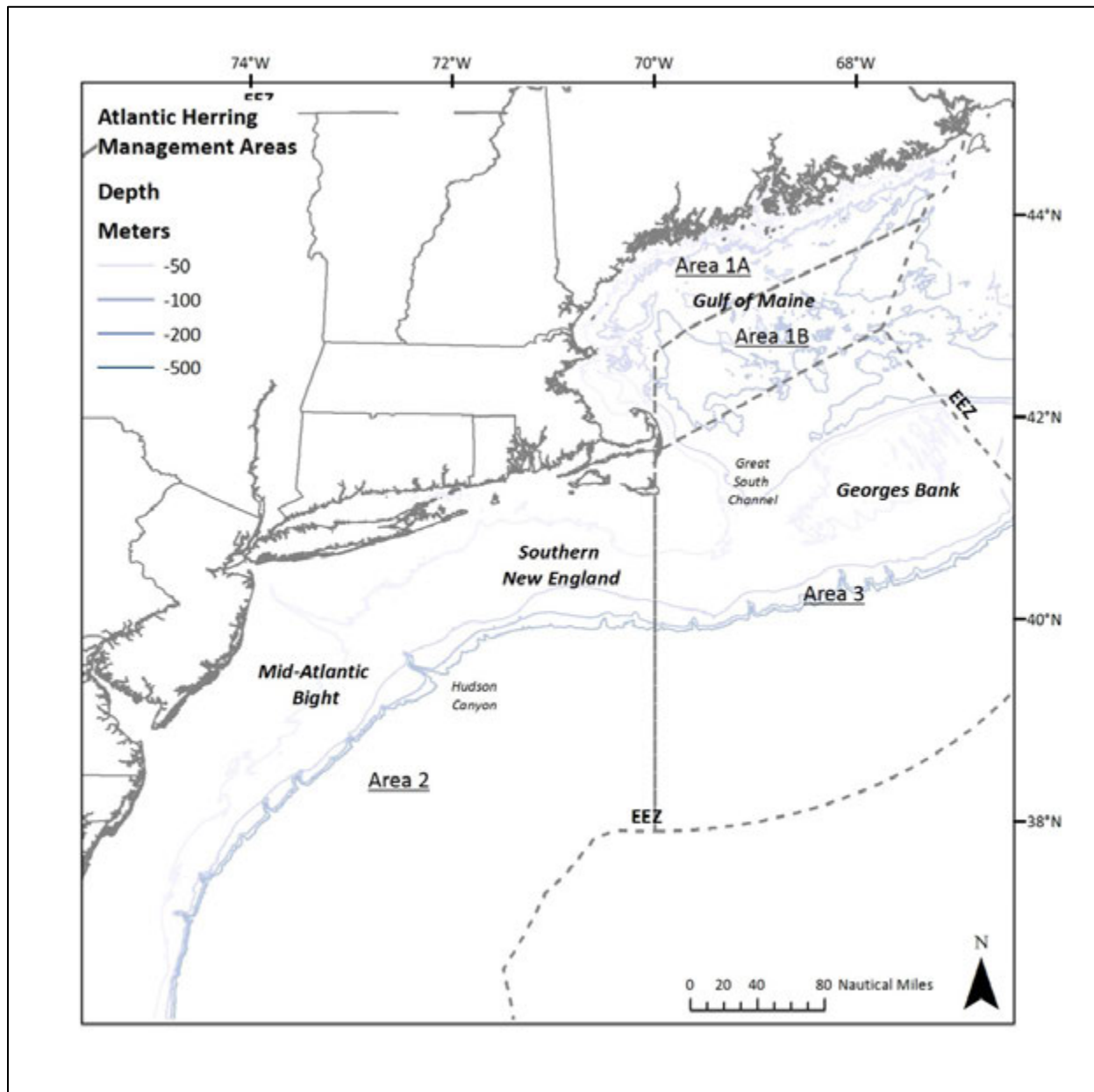
Add Summary Section

3.3 PHYSICAL ENVIRONMENT AND ESSENTIAL FISH HABITAT

3.3.1 Physical Environment

The Atlantic herring fishery is prosecuted in four areas defined as Areas 1A, 1B, 2, and 3 (Figure 9). These areas collectively cover the entire northeast U.S. shelf ecosystem, which has been defined as the Gulf of Maine south to Cape Hatteras, North Carolina, extending from the coast seaward to the edge of the continental shelf, including offshore to the Gulf Stream (Sherman et al. 1996). Three distinct sub-regions, the Gulf of Maine, Georges Bank, and the southern New England/Mid-Atlantic region, were described in the Affected Environment section of Amendment 5 to the Atlantic Herring FMP, based on a summary compiled for the gear effects technical memo authored by Stevenson et al. (2004). Roughly, Areas 1A and 1B cover the Gulf of Maine, Area 2 covers southern the New England/Mid-Atlantic region, and Area 3 covers Georges Bank.

Figure 9 Atlantic Herring Management Areas and the Northeast U.S. Shelf Ecosystem



3.3.2 Essential Fish Habitat (EFH)

Since 1996, the MSA has included a requirement to evaluate the potential adverse effects of the Atlantic herring fishery on Atlantic herring EFH and on the EFH of other species. The EFH final rule specifies that measures to minimize impacts should be enacted when adverse effects that are ‘more than minimal’ and ‘not temporary in nature’ are anticipated.

The magnitude of adverse effects resulting from a fishery's operations is generally related to (1) the location of fishing effort, because habitat vulnerability is spatially heterogeneous, and (2) the amount of fishing effort, specifically the amount of seabed area swept or bottom time. To the extent that adoption of a particular alternative would shift fishing to more vulnerable habitats, and/or increase seabed area swept, adoption would be expected to cause an increase in habitat impacts as compared to no action. If adoption of an alternative is expected to reduce seabed area swept or cause fishing effort to shift away from more vulnerable into less vulnerable habitats, a decrease in habitat impacts would be expected. The magnitude of an increase or decrease in adverse effects relates to the proportion of total fishing effort affected by a particular alternative.

Bearing in mind that both the direction and magnitude of changes are difficult to predict, because changes in fishing behavior in response to management actions can be difficult to predict, potential shifts in adverse effects are discussed for each of the alternatives proposed in this action. However, changes in the magnitude of fishing effort as a result of individual measures should be viewed in the context of the overall impacts that the herring fishery is estimated to have on seabed habitats. *Specifically, previous analyses have concluded that adverse effect to EFH that result from operation of the herring fishery do not exceed the more than minimal or more than temporary thresholds.*

An assessment of the potential effects of the directed Atlantic herring commercial fishery on EFH for Atlantic herring and other federally-managed species in the Northeast region of the U.S. was conducted as part of an EIS that evaluated impacts of the Atlantic herring fishery on EFH (NMFS 2005). This analysis was included in Appendix VI, Volume II of the FEIS for Amendment 1 to the Atlantic Herring FMP. It found that midwater trawls and purse seines do occasionally contact the seafloor and may adversely impact benthic habitats utilized by a number of federally-managed species, including EFH for Atlantic herring eggs. However, after reviewing all the available information, the conclusion was reached that if the quality of EFH is reduced as a result of this contact, the impacts are minimal and/or temporary and, pursuant to MSA, do not need to be minimized, i.e., that there was no need to take specific action at that time to minimize the adverse effects of the herring fishery on benthic EFH. This conclusion also applied to pelagic EFH for Atlantic herring larvae, juveniles, and adults, and to pelagic EFH for any other federally-managed species in the region.

EFH for Atlantic Herring

The EFH designation for Atlantic herring was developed as part of EFH Omnibus Amendment 1 in 1998. EFH Omnibus Amendment 2, which includes updates to the EFH designation for herring, as well as for other NEFMC-managed species, is currently in development. Based on the 1998 designation, which is currently in effect, EFH for Atlantic herring is described in as those areas of the coastal and offshore waters (out to the offshore U.S. boundary of the exclusive economic zone) that are designated in Figure 10 through Figure 13 and in Table 31 and meet the following conditions:

Eggs: Bottom habitats with a substrate of gravel, sand, cobble and shell fragments, but also on aquatic macrophytes, in the Gulf of Maine and Georges Bank as depicted in Figure 10. Eggs adhere to the bottom, forming extensive egg beds which may be many layers deep. Generally, the following conditions exist where Atlantic herring eggs are found: water temperatures below 15° C, depths from 20 - 80 meters, and a salinity range from 32 - 33‰. Herring eggs are most often found in areas of well-mixed water, with tidal currents between 1.5 and 3.0 knots. Atlantic herring eggs are most often observed during the months from July through November.

Larvae: Pelagic waters in the Gulf of Maine, Georges Bank, and southern New England that comprise 90% of the observed range of Atlantic herring larvae as depicted in Figure 11. Generally, the following conditions exist where Atlantic herring larvae are found: sea surface temperatures below 16° C, water depths from 50 – 90 meters, and salinities around 32‰. Atlantic herring larvae are observed between August and April, with peaks from September through November.

Juveniles: Pelagic waters and bottom habitats in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to Cape Hatteras as depicted in Figure 12. Generally, the following conditions exist where Atlantic herring juveniles are found: water temperatures below 10° C, water depths from 15 – 135 meters, and a salinity range from 26 – 32‰.

Adults: Pelagic waters and bottom habitats in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to Cape Hatteras as depicted in Figure 13. Generally, the following conditions exist where Atlantic herring adults are found: water temperatures below 10° C, water depths from 20 – 130 meters, and salinities above 28‰.

Spawning Adults: Bottom habitats with a substrate of gravel, sand, cobble and shell fragments, but also on aquatic macrophytes, in the Gulf of Maine, Georges Bank, southern New England and the middle Atlantic south to Delaware Bay as depicted in Figure 13. Generally, the following conditions exist where spawning Atlantic herring adults are found: water temperatures below 15° C, depths from 20 - 80 meters, and a salinity range from 32 - 33‰. Herring eggs are spawned in areas of well-mixed water, with tidal currents between 1.5 and 3.0 knots. Atlantic herring are most often observed spawning during the months from July through November.

All of the above EFH descriptions include those bays and estuaries listed in Table 31, according to life history stage. The Council acknowledges potential seasonal and spatial variability of the conditions generally associated with this species.

Table 31 EFH Designation of Estuaries and Embayments for Atlantic Herring

Estuaries and Embayments	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Passamaquoddy Bay		m,s	m,s	m,s	
Englishman/Machias Bay	s	m,s	m,s	m,s	s
Narraguagus Bay		m,s	m,s	m,s	
Blue Hill Bay		m,s	m,s	m,s	
Penobscot Bay		m,s	m,s	m,s	
Muscongus Bay		m,s	m,s	m,s	
Damariscotta River		m,s	m,s	m,s	
Sheepscot River		m,s	m,s	m,s	
Kennebec / Androscoggin Rivers		m,s	m,s	m,s	
Casco Bay	s	m,s	m,s	s	
Saco Bay		m,s	m,s	s	
Wells Harbor		m,s	m,s	s	
Great Bay		m,s	m,s	s	
Merrimack River		M	m		
Massachusetts Bay		s	s	s	
Boston Harbor		s	m,s	m,s	
Cape Cod Bay	s	s	m,s	m,s	
Waquoit Bay					
Buzzards Bay			m,s	m,s	
Narragansett Bay		s	m,s	m,s	
Long Island Sound			m,s	m,s	
Connecticut River					
Gardiners Bay			s	s	
Great South Bay			s	s	
Hudson River / Raritan Bay		m,s	m,s	m,s	
Barnegat Bay			m,s	m,s	
Delaware Bay			m,s	s	
Chincoteague Bay					
Chesapeake Bay				s	

S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).

M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).

F ≡ The EFH designation for this species includes the tidal freshwater salinity zone of this bay or estuary (0.0 < salinity < 0.5‰).

These EFH designations of estuaries and embayments are based on the NOAA Estuarine Living Marine Resources (ELMR) program (Jury et al. 1994; Stone et al. 1994).

Figure 10 EFH Designation for Atlantic Herring Eggs

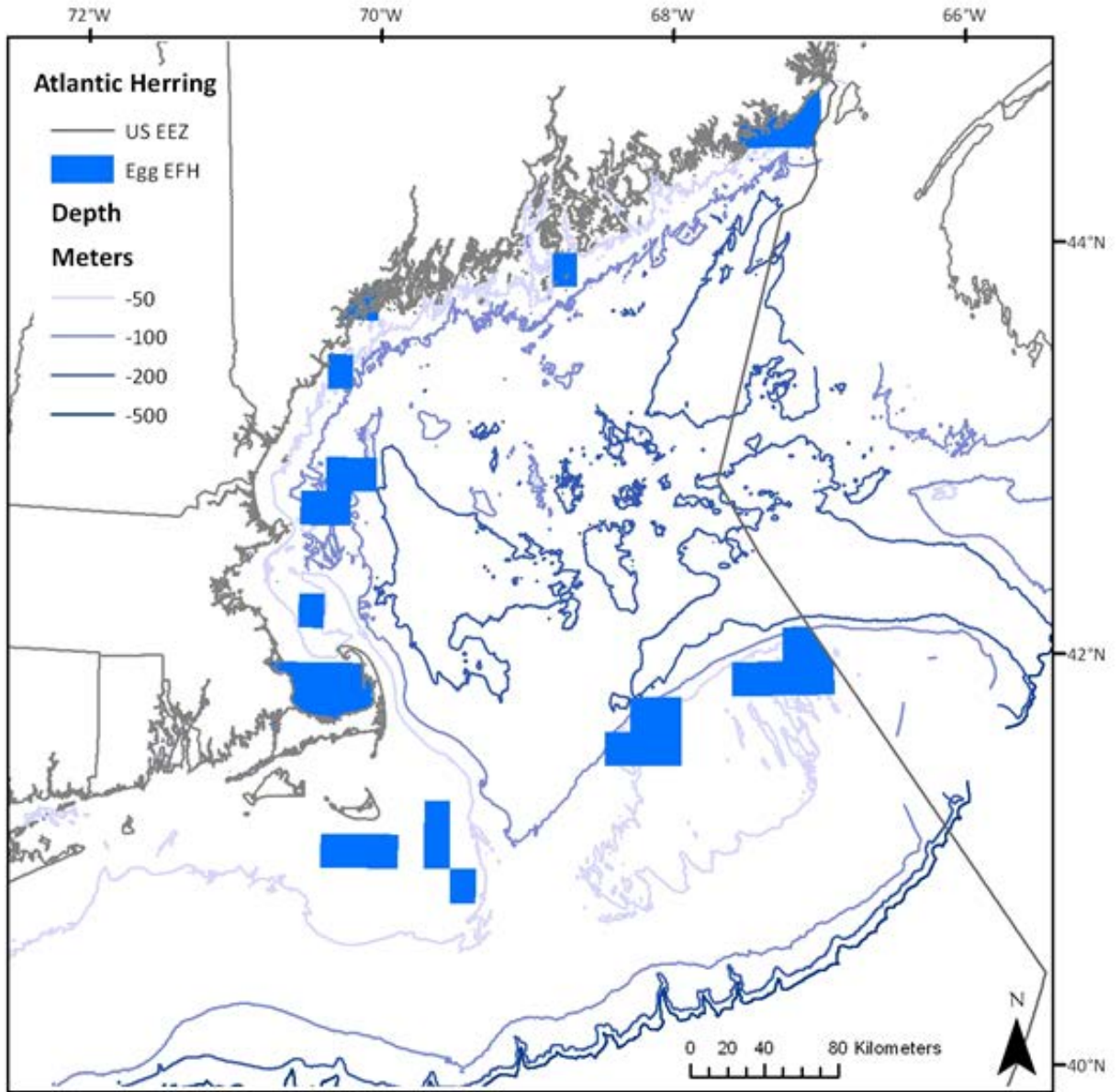


Figure 11 EFH Designation for Atlantic Herring Larvae

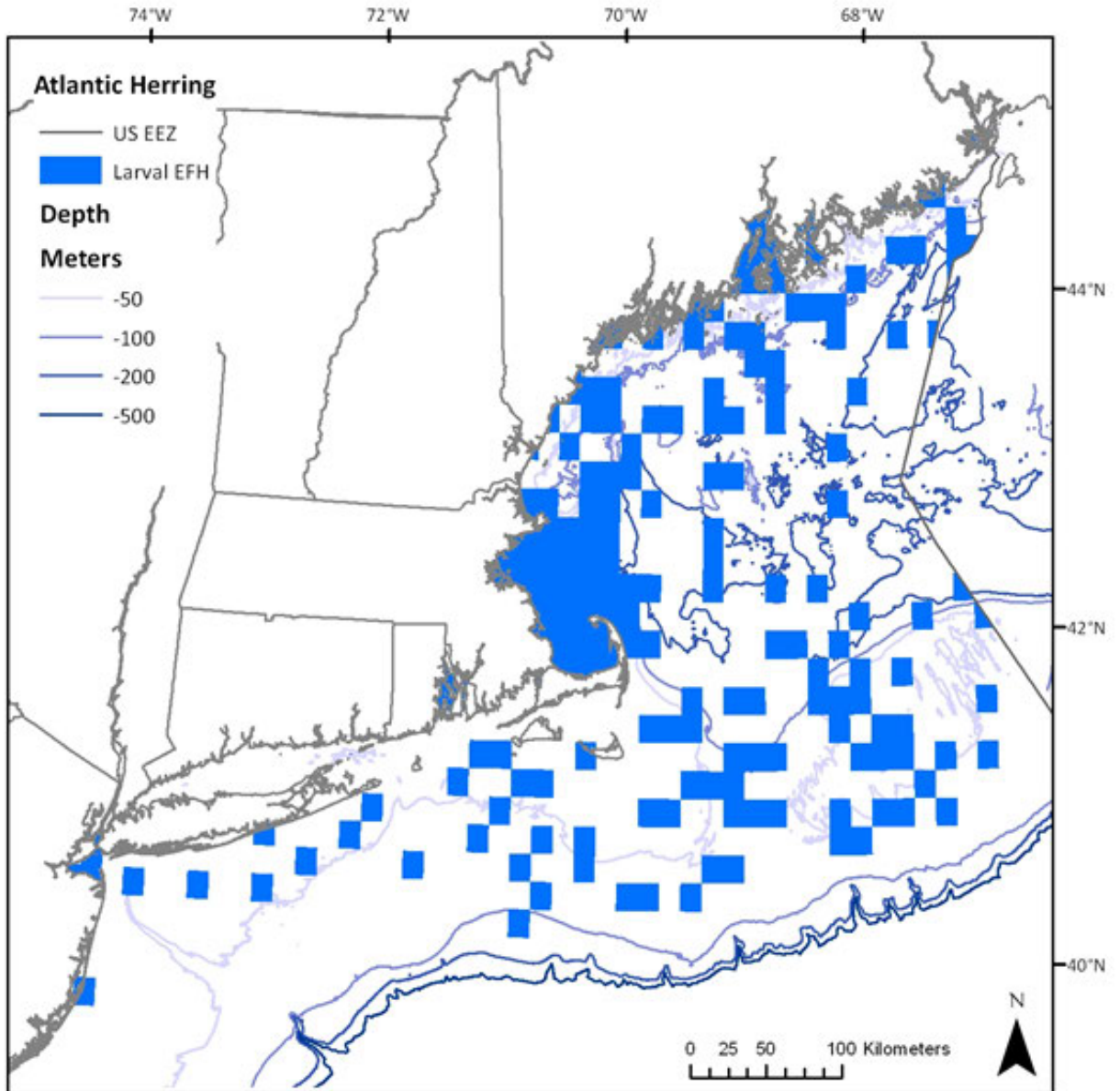


Figure 12 EFH Designation for Atlantic Herring Juveniles

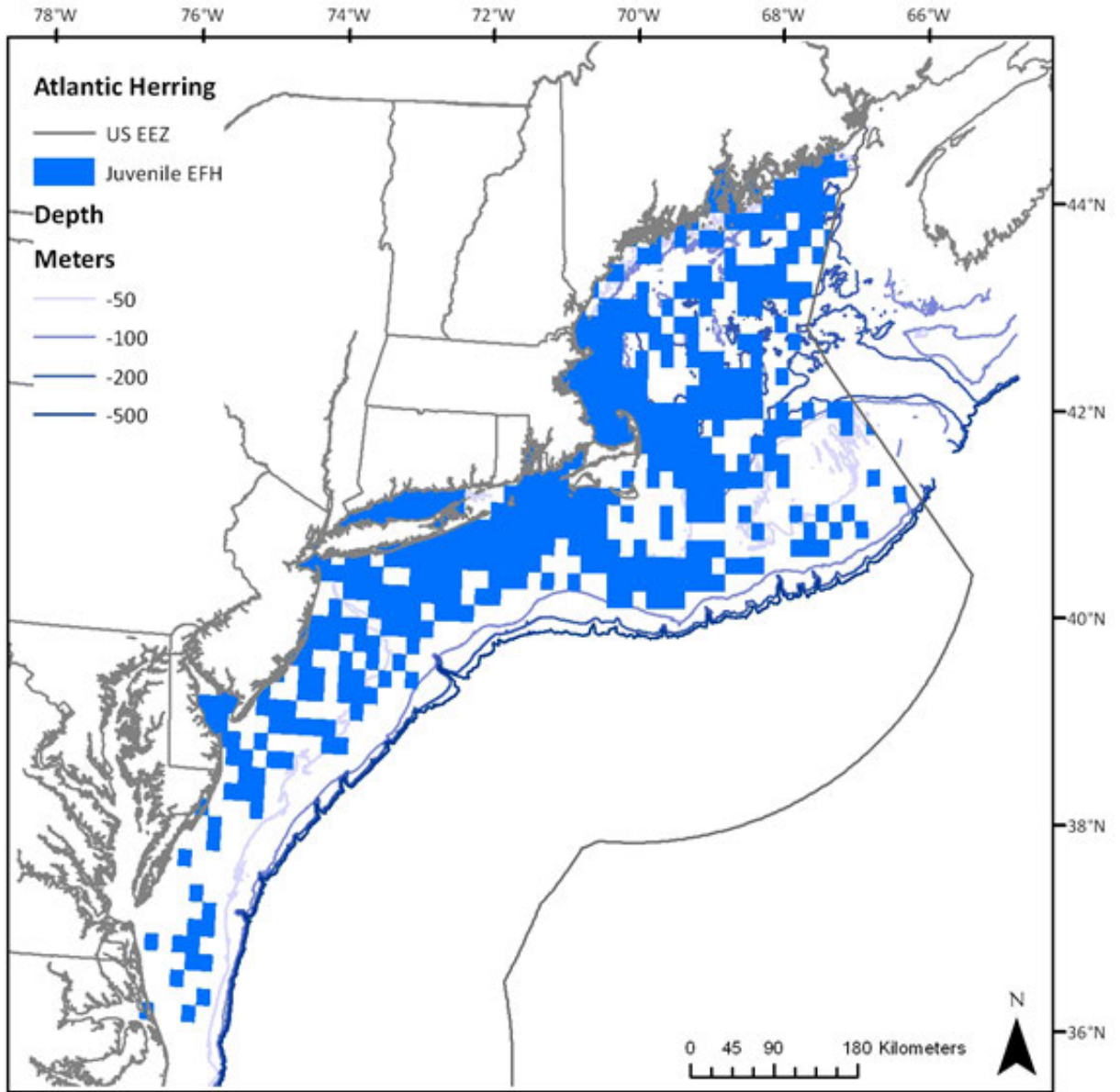
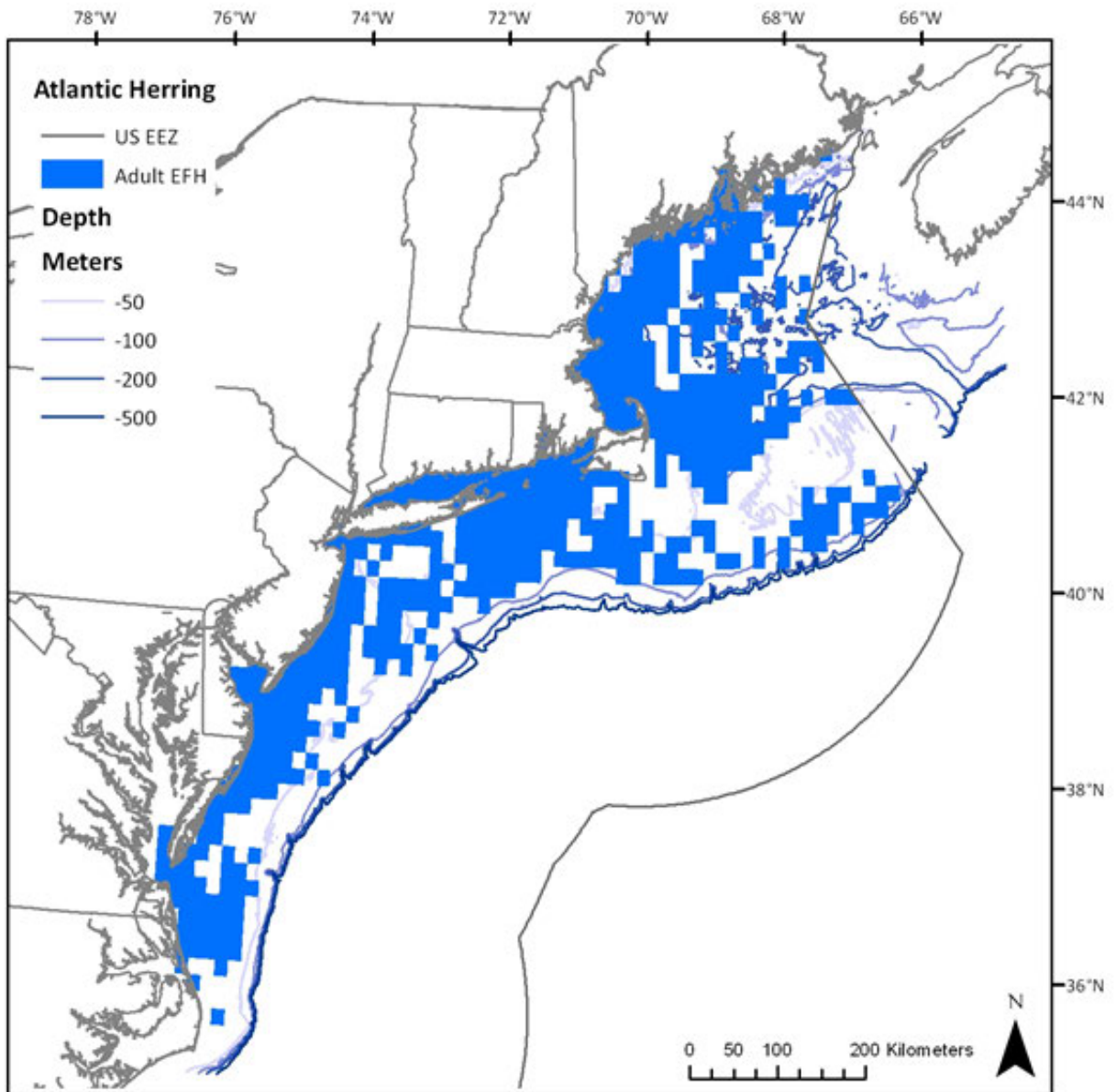


Figure 13 EFH Designation for Atlantic Herring Adults



EFH for Other Species

The environment that could potentially be affected by the Proposed Action has been identified as EFH for the benthic life stages of the species listed in Table 32. Additional information can be found in the FMP document that most recently updated each species' EFH designation (last column in Table 32). NOAA's EFH Mapper is also a good source of information and is a useful way to visualize the designations in a particular location:

<http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html>.

Table 32 Listing of Sources for Current EFH Designation Information

Species	Management Authority	Plan Managed Under	Action where EFH designation was last updated
Monkfish	NEFMC, MAFMC	Monkfish	Amendment 1
Atlantic herring	NEFMC	Atlantic Herring	Original FMP
Atlantic salmon	NEFMC	Atlantic salmon	Original FMP
Atlantic sea scallop	NEFMC	Atlantic Sea Scallop	Amendment 9
American plaice	NEFMC	NE Multispecies	Amendment 11
Atlantic cod	NEFMC	NE Multispecies	Amendment 11
Atlantic halibut	NEFMC	NE Multispecies	Amendment 11
Atlantic wolffish	NEFMC	NE Multispecies	Amendment 16
Haddock	NEFMC	NE Multispecies	Amendment 11
Ocean pout	NEFMC	NE Multispecies	Amendment 11
Offshore hake	NEFMC	NE Multispecies	Amendment 12
Pollock	NEFMC	NE Multispecies	Amendment 11
Red hake	NEFMC	NE Multispecies	Amendment 12
Redfish	NEFMC	NE Multispecies	Amendment 11
Silver hake	NEFMC	NE Multispecies	Amendment 12
White hake	NEFMC	NE Multispecies	Amendment 11
Windowpane flounder	NEFMC	NE Multispecies	Amendment 11
Winter flounder	NEFMC	NE Multispecies	Amendment 11
Witch flounder	NEFMC	NE Multispecies	Amendment 11
Yellowtail flounder	NEFMC	NE Multispecies	Amendment 11
Barndoor skate	NEFMC	NE Skate Complex	Original FMP
Clearnose skate	NEFMC	NE Skate Complex	Original FMP
Little skate	NEFMC	NE Skate Complex	Original FMP
Rosette skate	NEFMC	NE Skate Complex	Original FMP
Smooth skate	NEFMC	NE Skate Complex	Original FMP
Thorny skate	NEFMC	NE Skate Complex	Original FMP
Winter skate	NEFMC	NE Skate Complex	Original FMP
Red crab	NEFMC	Red Crab	Original FMP
Spiny dogfish	MAFMC/NEFMC	Spiny Dogfish	Original FMP
Atlantic surfclam	MAFMC	Atlantic Surfclam Ocean Quahog	Amendment 12
Ocean quahog	MAFMC	Atlantic Surfclam Ocean Quahog	Amendment 12
Bluefish	MAFMC	Bluefish FMP	Amendment 1
Atlantic mackerel	MAFMC	Squid, Mackerel, Butterfish	Amendment 11
Butterfish	MAFMC	Squid, Mackerel, Butterfish	Amendment 11
Longfin squid	MAFMC	Squid, Mackerel, Butterfish	Amendment 11
Shortfin squid	MAFMC	Squid, Mackerel, Butterfish	Amendment 11

Note: Longfin squid egg EFH designation was in Amendment 9 to the Squid, Mackerel, Butterfish FMP.

Table 32 continued.

Black sea bass	MAFMC	Summer Flounder, Scup, and Black Sea Bass	Amendment 12
Scup	MAFMC	Summer Flounder, Scup, and Black Sea Bass	Amendment 12
Summer flounder	MAFMC	Summer Flounder, Scup, and Black Sea Bass	Amendment 12
Tilefish	MAFMC	Tilefish	Amendment 1

Note: Longfin squid egg EFH designation was in Amendment 9 to the Squid, Mackerel, Butterfish FMP.

3.4 PROTECTED RESOURCES

There are numerous protected species that inhabit the affected environment of the Atlantic Herring FMP management unit (Table 33). These species are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act (MMPA) of 1972, and are under NMFS' jurisdiction. Table 33 also includes one candidate fish species (species being considered for listing as endangered or threatened), as identified under the ESA.

Table 33 Species and/or Critical Habitat Protected Under the ESA and/or MMPA that Occur in the Affected Environment of the Atlantic Herring Fishery

Species	Status	Potentially affected by this action? ¹
<u>Cetaceans</u>		
North Atlantic right whale (<i>Eubalaena glacialis</i>)	Endangered	No
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered	Yes
Fin whale (<i>Balaenoptera physalus</i>)	Endangered	Yes
Sei whale (<i>Balaenoptera borealis</i>)	Endangered	Yes
Blue whale (<i>Balaenoptera musculus</i>)	Endangered	No
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered	No
Minke whale (<i>Balaenoptera acutorostrata</i>)	Protected	Yes
Pilot whale (<i>Globicephala spp.</i>)²	Protected	Yes
Risso's dolphin (<i>Grampus griseus</i>)	Protected	Yes
Atlantic white-sided dolphin (<i>Lagenorhynchus acutus</i>)	Protected	Yes
Short Beaked Common dolphin (<i>Delphinus delphis</i>) ³	Protected	Yes
Bottlenose dolphin (<i>Tursiops truncatus</i>) ⁴	Protected	No
Harbor porpoise (<i>Phocoena phocoena</i>)	Protected	No
Pygmy sperm whale (<i>Kogia breviceps</i>)	Protected	No
Dwarf sperm whale (<i>Kogia sima</i>)	Protected	No

Species	Status	Potentially affected by this action? ¹
Striped dolphin (<i>Stenella coeruleoalba</i>)	Protected	No
Atlantic spotted dolphin (<i>Stenella frontalis</i>)	Protected	No
Beaked whales (<i>Ziphius and Mesoplodon spp</i>)⁵	Protected	No
<u>Sea Turtles</u>		
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered	Yes
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered	Yes
Green sea turtle (<i>Chelonia mydas</i>)	Endangered ⁶	Yes
Loggerhead sea turtle (<i>Caretta caretta</i>), Northwest Atlantic DPS	Threatened	Yes
Hawksbill sea turtle (<i>Eretmochelys imbricate</i>)	Endangered	No
<u>Fish</u>		
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)	Endangered	No
Atlantic salmon (<i>Salmo salar</i>)	Endangered	No
Atlantic sturgeon (<i>Acipenser oxyrinchus</i>)		
<i>Gulf of Maine DPS</i>	Threatened	Yes
<i>New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS</i>	Endangered	Yes
Cusk (<i>Brosme brosme</i>)	Candidate	No
<u>Pinnipeds</u>		
Harbor seal (<i>Phoca vitulina</i>)	Protected	Yes
Gray seal (<i>Halichoerus grypus</i>)	Protected	Yes
Harp seal (<i>Phoca groenlandicus</i>)	Protected	No
Hooded seal (<i>Cystophora cristata</i>)	Protected	No
<u>Critical Habitat</u>		
North Atlantic Right Whale Critical Habitat ⁷		No
Northwest Atlantic DPS of Loggerhead Sea Turtle Critical Habitat		No

Bolded/shaded species prefer continental shelf edge/slope waters (i.e., >200 meters), although incursions into continental shelf waters do occur seasonally or sporadically during periods of high prey abundance.

Additional Notes for Table 33:

¹ The determination for whether a species may be affected by the Atlantic herring fishery is based on whether there has been confirmed Atlantic herring fishery interaction with the species or confirmed interactions with gear types similar to those primarily used in the Atlantic herring fishery (see Waring *et al.* 2007, 2014, 2015; NMFS NEFSC FSB 2015; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html).

² There are 2 species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp.*

³ Prior to 2008, this species was called “common dolphin.”

⁴ This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.

⁵ There are multiple species of beaked whales in the Northwest Atlantic. They include the cuvier’s (*Ziphius cavirostris*), blainville’s (*Mesoplodon densirostris*), gervais’ (*Mesoplodon europaeus*), sowerbys’ (*Mesoplodon bidens*), and trues’ (*Mesoplodon mirus*) beaked whales. Species of *Mesoplodon*; however, are difficult to identify at sea, and therefore, much of the available characterization for beaked whales is to the genus level only.

⁶ Green turtles in U.S. waters are listed as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green turtles are considered endangered wherever they occur in U.S. waters. On March 23, 2015, a proposed rule was issued to remove the current range-wide listing and, in its place, list eight DPSs as threatened and three as endangered (80 FR 15272).

⁷ Originally designated June 3, 1994 (59 FR 28805); Newly proposed February 20, 2015 (80 FR 9314).

In Table 33, please note that cusk, a NMFS "species of concern," as well as a "candidate species" under the ESA, occurs in the affected environment of the Atlantic herring fishery. Candidate species are those petitioned species that NMFS is actively considering for listing as endangered or threatened under the ESA and also include those species for which NMFS has initiated an ESA status review through an announcement in the Federal Register. Once a species is proposed for listing the conference provisions of the ESA apply (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, this species will not be discussed further in this section. However, for additional information on cusk and proactive conservation efforts being initiated for the species, please visit http://www.nero.noaa.gov/prot_res/CandidateSpeciesProgram/CuskSOC.html.

3.4.1 Species and Critical Habitat Not Likely to be Affected by the Proposed Action

Based on available information, it has been determined that this action is not likely to affect Atlantic right whales, blue whales, sperm whales, pygmy sperm whales, dwarf sperm whales, striped dolphins, Atlantic spotted dolphins, bottlenose dolphins, harbor porpoise, beaked whales, Atlantic salmon, shortnose sturgeon, hooded seals, harp seals, or hawksbill sea turtles. Further, this action is not likely to adversely affect the Northwest Atlantic DPS of loggerhead or North Atlantic right whale critical habitats. This determination has been made because either the occurrence of the species is not known to overlap with the Atlantic herring fishery and/or there have never been documented interactions between the species and the Atlantic herring fishery (Waring *et al.* 2014, 2015; NMFS NEFSC FSB 2015; See: http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). In the case of critical habitat, this determination has been made because the Atlantic herring fishery will not affect the primary constituent elements of the critical habitat, and therefore, will not result in the destruction or

adverse modification of critical habitat (See: <http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm>).

3.4.2 Species Potentially Affected by the Proposed Action

3.4.2.1 Sea Turtles

There are four species of sea turtles that occur in the affected environment of the Atlantic herring fishery. Three of the four species are considered hard-shelled turtles (i.e., green, loggerhead, and Kemp's ridley). A general overview of sea turtle occurrence and distribution in waters of the Northwest Atlantic Ocean is provided below to assist in understanding how the Atlantic herring fishery overlaps in time and space with the occurrence of sea turtles. Additional background information on the range-wide status of the four sea turtle species, as well as a description and life history of the species, can be found in a number of published documents, including sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; Turtle Expert Working Group [TEWG] 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b; Conant et al. 2009; NMFS and USFWS 2013), and recovery plans for the loggerhead sea turtle (Northwest Atlantic DPS; NMFS and USFWS 2008), leatherback sea turtle (NMFS and USFWS 1992, 1998a), Kemp's ridley sea turtle (NMFS et al. 2011), and green sea turtle (NMFS and USFWS 1991, 1998b).

Hard-shelled sea turtles

Distribution

In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida (FL) to Cape Cod, Massachusetts (MA), although their presence varies with the seasons due to changes in water temperature (Shoop and Kenney 1992; Epperly et al. 1995a, 1995b; Braun and Epperly 1996; Mitchell et al. 2003; Braun-McNeill et al. 2008; TEWG 2009). While hard-shelled turtles are most common south of Cape Cod, MA, loggerhead sea turtles are known to occur in the Gulf of Maine (GOM), feeding as far north as southern Canada. Loggerheads have been observed in waters with surface temperatures of 7°C to 30°C, but water temperatures ~~1992; Epperly et al.~~ favorable (Shoop and Kenney 1992; Epperly et al. 1995b). Sea turtle presence in U.S. Atlantic waters is also influenced by water depth. While hard-shelled turtles occur in waters from the beach to beyond the continental shelf, they are most commonly found in neritic waters of the inner continental shelf (Mitchell et al. 2003; Braun-McNeill and Epperly 2004; Morreale and Standora 2005; Blumenthal et al. 2006; Hawkes et al. 2006; McClellan and Read 2007; Mansfield et al. 2009; Hawkes et al. 2011; Griffin et al. 2013).

Seasonality

Hard-shelled sea turtles occur year-round in waters south of Cape Hatteras, North Carolina (NC). As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Epperly et al. 1995a, 1995b, 1995c; Braun-McNeill and Epperly 2004; Morreale and Standora 2005; Griffin et al. 2013), occurring in Virginia (VA) foraging areas as early as late April and on the most northern foraging grounds in the GOM in June (Shoop and Kenney 1992). The trend is reversed in the fall

as water temperatures cool. The large majority leave the GOM by September, but some remain in Mid-Atlantic and Northeast areas until late fall. By December, sea turtles have migrated south to waters offshore of NC, particularly south of Cape Hatteras, and further south (Shoop and Kenney 1992; Epperly et al. 1995b; Hawkes et al. 2011; Griffin et al. 2013).

Leatherback sea turtles.

Leatherback sea turtles also engage in routine migrations between northern temperate and tropical waters (NMFS and USFWS 1992; James et al. 2005; James et al. 2006; Dodge et al. 2014). Leatherbacks, a pelagic species, are also known to use coastal waters of the U.S. continental shelf (James et al. 2005; Eckert et al. 2006; Murphy et al. 2006; Dodge et al. 2014). Leatherbacks have a greater tolerance for colder water in comparison to hard-shelled sea turtles. They are also found in more northern waters later in the year, with most leaving the Northwest Atlantic shelves by mid-November (James et al. 2005; James et al. 2006; Dodge et al. 2014).

3.4.2.2 Large Cetaceans

Table 34 provides the species of large whales that occur in the affected environment of the Atlantic herring fishery. For additional information on the biology, status, and range wide distribution of each whale species please refer to: Waring et al. 2015; NMFS 1991, 2010b, 2011.

Table 34 Large Whale Species Present in the Affected Environment of the Atlantic Herring Fishery

Species	Listed Under the ESA	Protected Under the MMPA	MMPA Strategic Stock ¹
Humpback Whale	Yes-Endangered	Yes	Yes
Fin Whale	Yes-Endangered	Yes	Yes
Sei Whale	Yes-Endangered	Yes	Yes
Minke Whale	No	Yes	No

Notes:

¹A strategic stock is defined under the MMPA as a marine mammal stock: for which the level of direct human-caused mortality exceeds the potential biological removal level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.

Source: Waring *et al.* 2015

Humpback, fin, sei, and minke whales are found throughout the waters of the Northwest Atlantic Ocean. In general, these species follow an annual pattern of migration between low latitude (south of 35°N) wintering/calving grounds and high latitude spring/summer foraging grounds (primarily north of 41°N; Waring et al. 2015; NMFS 1991, 2010b, 2011). This, however, is a simplification of whale movements, particularly as it relates to winter movements. It remains unknown if all individuals of a population migrate to low latitudes in the winter, although, increasing evidence suggests that for some species (e.g., humpback whales), some portion of the population remains in higher latitudes throughout the winter (Waring et al. 2015; Clapham et al. 1993; Swingle et al. 1993; Vu et al. 2012). Although further research is needed to provide a clearer understanding of large whale movements and distribution in the winter, the distribution and movements of large whales to foraging grounds in the spring/summer is well understood. Movements of whales into higher latitudes coincide with peak productivity in these waters. As a result, the distribution of large whales in higher latitudes is strongly governed by prey availability and distribution, with large numbers of whales coinciding with dense patches of preferred forage (Payne et al. 1986, 1990; Schilling et al. 1992). It is important to note, these foraging areas are consistently returned annually, and therefore, can be considered important, high use areas for whales. For additional information on the biology, status, and range wide distribution of each whale species please refer to: Waring et al. 2014, 2015; NMFS 1991, 2010b, 2011.

To further assist in understanding how the Atlantic herring fishery may overlap in time and space with the occurrence of large whales, a general overview on species occurrence and distribution in the affected environment of the Atlantic herring fishery is provided in the following table (Table 35).

Table 35 Large Cetacean Occurrence in the Affected Environment of the Atlantic Herring Fishery

Species	Prevalence and Approximate Months of Occurrence
Humpback	<ul style="list-style-type: none"> • Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year. • New England waters (GOM and GB regions): Foraging Grounds (approximately March-November). • Mid-Atlantic waters: Migratory pathway to/from northern (high latitude) foraging and southern (West Indies) calving grounds. • Increasing evidence of wintering areas (for juveniles) in Mid-Atlantic (e.g., waters in the vicinity of Chesapeake and Delaware Bays; peak presence approximately January through March).
Fin	<ul style="list-style-type: none"> • Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year. • Mid-Atlantic waters: <ul style="list-style-type: none"> > Migratory pathway to/from northern (high latitude) foraging and southern (low latitude) calving grounds. > Possible offshore calving area (October-January) • New England/SNE waters (GOM, GB, and SNE regions): Foraging Grounds (greatest densities March-August; lower densities September-November). Important foraging grounds include: <ul style="list-style-type: none"> > Massachusetts Bay (esp. Stellwagen Bank) > Great South Channel > Waters off Cape Cod (~40-50 meter contour) > western GOM (esp. Jeffrey's Ledge) > Eastern perimeter of GB > Mid-shelf area off the east end of Long Island. • Evidence of wintering areas in mid-shelf areas east of New Jersey, Stellwagen Bank; and eastern perimeter of GB.
Sei	<ul style="list-style-type: none"> • Uncommon in shallow, inshore waters of the Mid-Atlantic (SNE included), GB, and GOM; however, occasional incursions during peak prey availability and abundance. • Primarily found in deep waters along the shelf edge, shelf break, and ocean basins between banks. • Spring through summer, found in greatest densities in offshore waters of the GOM and GB (eastern margin into the Northeast Channel area; along the southwestern edge in the area of Hydrographer Canyon).
Minke	<ul style="list-style-type: none"> • Widely distributed throughout continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB during the spring, summer and fall; however, spring through summer found in greatest densities in the GOM and GB.
<p>Sources: NMFS 1991, 2010b, 2011; Hain <i>et al.</i> 1992; Payne 1984; Payne <i>et al.</i> 1990; CETAP 1982; Clapham <i>et al.</i> 1993; Swingle <i>et al.</i> 1993; Vu <i>et al.</i> 2012; Baumgartner <i>et al.</i> 2011; Risch <i>et al.</i> 2013; Waring <i>et al.</i> 2014; Waring <i>et al.</i> 2015.</p>	

3.4.2.3 Small Cetaceans

The following MMPA protected small cetaceans may occur in the affected environment of the Atlantic herring fishery: Atlantic white sided dolphins, short and long finned pilot whales, rissos dolphins, and short beaked common dolphins. These species can be found throughout the year in waters of the Northwest Atlantic Ocean (Waring et al. 2014, 2015). Within this range; however, there are seasonal shifts in species distribution and abundance. To further assist in understanding how the Atlantic herring fishery may overlap in time and space with the occurrence of small cetaceans, a general overview of species occurrence and distribution in the affected environment of the Atlantic herring fishery is provided in the following table (Table 36). For additional information on the biology, status, and range wide distribution of each species please refer to Waring et al. 2014, 2015.

Table 36 Small Cetacean Occurrence in the Affected Environment of the Atlantic Herring Fishery

Species	Prevalence and Approximate Months of Occurrence
Atlantic White Sided Dolphin	<ul style="list-style-type: none"> • Distributed throughout the continental shelf waters (primarily to 100 meter isobath) of the Mid-Atlantic (north of 35°N), Southern New England, GB, and GOM ; however, most common in continental shelf waters from Hudson Canyon (~ 39°N) onto GB, and into the GOM. • January-May: low densities found from GB to Jeffreys Ledge. • June-September: Large densities found from GB, through the GOM. • October-December: intermediate densities found from southern GB to southern GOM. • South of GB (SNE and Mid-Atlantic), low densities found year round, with waters off VA and NC representing southern extent of species range during winter months.
Short Beaked Common Dolphin	<ul style="list-style-type: none"> • Regularly found throughout the continental shelf-edge-slope waters (primarily between the 100-2,000 meter isobaths) of the Mid-Atlantic, SNE, and GB (esp. in Oceanographer, Hydrographer, Block, and Hudson Canyons). • Less common south of Cape Hatteras, NC, although schools have been reported as far south as the Georgia (GA)/South Carolina (SC) border. • January-May: occur from waters off Cape Hatteras, NC, to GB (35° to 42°N). • Mid-summer-autumn: Occur primarily on GB with small numbers present in the GOM; <i>Peak abundance</i> found on GB in the autumn.
Risso's Dolphin	<ul style="list-style-type: none"> • Common in the continental shelf edge waters from FL to eastern Newfoundland; low numbers found in the GOM. • March-November: distributed along continental shelf edge from Cape Hatteras, NC, to GB. • December-February: primarily distributed in continental shelf edge of the Mid-Atlantic (including SNE), although species can be found in the Mid-Atlantic year round.
Pilot Whales: <i>Short- and Long-Finned</i>	<p><u>Short- Finned Pilot Whales</u></p> <ul style="list-style-type: none"> • Primarily occur south of 40°N (Mid-Atl and SNE waters); although low numbers have been found along the southern flank of GB, but no further than 41°N. • May through December (approximately): distributed primarily near the continental shelf break of the Mid-Atlantic and SNE; individuals begin shifting to southern waters (i.e., 35°N and south) beginning in the fall. <p><u>Long-Finned Pilot Whales</u></p>

Species	Prevalence and Approximate Months of Occurrence
	<ul style="list-style-type: none"> • Range from 35°N to 44°N • Winter to early spring (November through April): primarily distributed along the continental shelf edge-slope of the Mid-Atlantic, SNE, and GB. • Late spring through fall (May through October): movements and distribution shift onto/within GB, the Great South Channel, and the GOM. <p><u>Area of Species Overlap:</u> between 38°N and 41°N</p>
<p>Notes : ¹ Information presented in table is representative of small cetacean occurrence in the Northwest Atlantic continental shelf waters out to the 2,000 meter isobath. Sources: Waring <i>et al.</i> 1992, 2007, 2014, 2015; Payne and Heinemann 1993; Payne 1984; Jefferson <i>et al.</i> 2009.</p>	

3.4.2.4 Pinnipeds

The following MMPA protected species of pinnipeds occur in the affected environment of the Atlantic herring fishery: Harbor, and grey, harp seals. Pinnipeds are found in the nearshore, coastal waters of the Northwest Atlantic Ocean. They are primarily found throughout the year or seasonally from New Jersey to Maine; however, increasing evidence indicates that some species (e.g., harbor seals) may be extending their range seasonally into waters as far south as Cape Hatteras, North Carolina (35oN) (Waring et al. 2014, 2015). To further assist in understanding how the Atlantic herring fishery may overlap in time and space with the occurrence of pinnipeds, a general overview of species occurrence and distribution in the affected environment of the Atlantic herring fishery is provided in the following table (Table 37). For additional information on the biology, status, and range wide distribution of each species of pinniped please refer to Waring et al. (2014, 2015).

Table 37 Pinniped Occurrence in the Affected Environment of the Atlantic Herring Fishery

Species	Prevalence
Harbor Seal	<ul style="list-style-type: none"> • Primarily distributed in waters from NJ to ME; however, increasing evidence indicates that their range is extending into waters as far south as Cape Hatteras, NC (35°N). • Year Round: Waters of Maine • September-May: Waters from New England to NJ; potential for some animals to extend range into waters as far south as Cape Hatteras, NC.
Gray Seal	<ul style="list-style-type: none"> • Distributed in waters from NJ to ME. • Year Round: Waters from ME to MA. • September-May: Waters from Rhode Island to NJ.
<p>Sources: Waring <i>et al.</i> 2014, 2015.</p>	

3.4.2.5 Atlantic Sturgeon DPSs

The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon have the potential to be located anywhere in this marine range (ASSRT 2007; Dovel and Berggren 1983; Dadswell et al. 1984; Kynard et al. 2000; Stein et al. 2004a; Dadswell 2006; Laney et al. 2007; Dunton et al. 2010; Erickson et al. 2011; Wirgin et al. 2012; Waldman et al. 2013; O’Leary et al. 2014; Wirgin et al. 2015). In fact, several genetic studies, have been conducted to address DPS distribution and composition in marine waters (Wirgin et al. 2012; Damon-Randall et al. 2013; Waldman et al. 2013; O’Leary et al. 2014; Wirgin et al. 2015). Using samples from Atlantic sturgeon captured from various marine aggregation sites along the Northeast coast, results from these studies showed that these aggregations, regardless of location, were comprised of all 5 DPSs of Atlantic sturgeon; however, each DPS comprised various percentages of the aggregation depending on the area along the coast the aggregation was found and sampled (Wirgin et al. 2012; Damon-Randall et al. 2013; Waldman et al. 2013; O’Leary et al. 2014).

Based on fishery- independent and dependent data, as well as data collected from tracking and tagging studies, in the marine environment, Atlantic sturgeon appear to primarily occur inshore of the 50 meter depth contour (Stein et al. 2004 a,b; Erickson et al. 2011; Dunton et al. 2010); however, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Timoshkin 1968; Collins and Smith 1997; Stein et al. 2004a,b; Dunton et al. 2010; Erickson et al. 2011)). Data from fishery-independent surveys and tagging and tracking studies also indicate that Atlantic sturgeon undertake seasonal movements along the coast (Dunton et al. 2010; Erickson et al. 2011). In general, analysis of fishery-independent survey data indicates a coastwide distribution of Atlantic sturgeon from the spring through the fall, with Atlantic sturgeon being more centrally located (e.g., Long Island to Delaware) during the summer months; and a more southerly (e.g., North Carolina, Virginia) distribution during the winter (Dunton et al. 2010; Erickson et al. 2011). Although studies such as Erickson et al. (2011) and Dunton et al. (2010) provide some indication that Atlantic sturgeon are undertaking seasonal movements horizontally and vertically along the U.S. eastern coastline, there is no evidence to date that all Atlantic sturgeon make these seasonal movements and therefore, may be present throughout the marine environment throughout the year.

3.4.3 Interactions Between Gear and Protected Resources

The Atlantic herring fishery is prosecuted primarily with midwater trawls, and purse seines. Please note, the Atlantic herring fishery only uses purse seines in the GOM. As a result, the following discussion on purse seines and interaction risks to protected species are only in reference to Atlantic herring purse seine fishery prosecuted in the GOM.

A subset of protected species of fish, marine mammals, and sea turtles (see Table 33) are known to be vulnerable to interactions with midwater and/or purse seines. In the following sections, available information on protected species interactions with these gear types will be provided. Please note, these sections are not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on those gear types primarily used to prosecute the Atlantic herring fishery.

3.4.3.1 Marine Mammals

Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery.¹ The categorization in the LOF determines whether participants in that fishery are subject to certain provisions of the MMPA such as registration, observer coverage, and take reduction plan requirements. Individuals fishing in Category I or II fisheries must comply with requirements of any applicable take reduction plan.

Categorization of fisheries is based on the following two-tiered, stock-specific approach:

- **Tier 1-** considers the cumulative fishery mortality and serious injury for a particular stock. If the total annual mortality and serious injury rates within a stock resulting from all fisheries are less than or equal to ten percent of the stock's potential biological removal rate (PBR), all fisheries associated with this stock fall into Category III.² -If mortality and serious injury rates are greater than ten percent of PBR, the following Tier 2, analysis occurs.
- **Tier 2** -considers fishery-specific mortality and serious injury for a particular stock. Specifically, this analysis compares fishery-specific annual mortality and serious injury rates to a stock's PBR to designate the fishery as a Category I, II, or III fishery (see Table 38).

Table 38 Descriptions of the Tier 2 Fishery Classification Categories (50 CFR 229.2)

Category	Level of incidental mortality or serious injury of marine mammals	Annual mortality and serious injury of a stock in a given fishery is...
Category I	frequent	≥50% of the PBR level
Category II	occasional	between 1% and 50% of the PBR level
Category III	remote likelihood, or no known	≤1% of the PBR level

¹ The most recent LOF was issued August 25, 2014; 79 FR 50589.

² PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

3.4.3.1.1 Large Cetaceans

Midwater Trawl Gear

Based on information provided by Waring et al. (2014), Waring et al. (2015), and NMFS NEFSC FSB (2014), aside from minke whales, there has been no confirmed serious injury or mortality or documented interactions, in general, with large whales and midwater trawls. Minke whales are the only species of large whales that have been observed seriously injured and killed in midwater trawl gear, although these instances are rare. Since 2009, there has also been only two observed minke whale incidentally taken in midwater trawl gear; this incidence was observed in 2009 and 2013 (Waring et al. 2014, 2015; http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). Based on this information, midwater trawl gear is not expected to pose a significant serious injury or mortality risk to any large whale species.

Purse Seine (GOM Atlantic herring fishery)

Since 2008, three (3) humpback whales and one (1) fin/sei whale have been documented as interacting with purse seines, specifically those operating in the GOM targeting Atlantic herring (see: http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html). All interactions; however, resulted in the animals being released from the nets unharmed (http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; Waring et al. 2015). Based on this information, although interactions are possible with large whales, we do not expect purse seines to pose a serious injury or mortality risk to these species. This conclusion is further supported by the fact that the LOF has identified the Gulf of Maine Atlantic herring purse seine fishery as a Category III fishery, that is, a fishery that causes a remote to no likelihood of causing serious injury or mortality to marine mammals (see Table 38).

3.4.3.1.2 Small Cetaceans and Pinnipeds

Midwater Trawl Gear

Midwater trawl fisheries (Northeast or Mid-Atlantic) are considered Category II fisheries under the LOF. Small cetacean and pinniped species are known to be seriously injured or killed by this gear type, and in fact, based on observer data, bycatch of small cetaceans and pinnipeds have been attributed to the Atlantic herring fishery (see: http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; Waring et al. 2014, 2015). Table 39 provides a list of small cetacean and pinniped species observed seriously injured and/or killed by midwater trawl Category II fisheries from 2007-2012 (see Waring et al. 2014, 2015).

Table 39 Cetacean and Pinniped Species Observed Seriously Injured and/or Killed by Category II Midwater Fisheries in the Affected Environment of the Atlantic Herring Fishery from 2007-2012

Category II	
Fishery/Gear Type	Species Observed Injured/Killed
Mid-Atlantic Midwater Trawl (Including Pair Trawl)	Risso's dolphin
	White-sided dolphin (*)
	Short-beaked common dolphin
	Long and short-finned pilot whales
	Gray seal
	Harbor seal
Northeast Midwater Trawl (Including Pair Trawl)	White-sided dolphin
	Short-beaked common dolphin
	Long and short-finned pilot whales (*)
	Gray seal
	Harbor seal
<i>Sources: Waring et al. 2014, 2015; August 25, 2014, List of Fisheries (79 FR 50589).</i>	

A (*) indicates those species driving the fisheries classification.

In 2006, based on observed midwater trawl interactions with long-finned pilot whales, short-finned pilot whales, common dolphins, and white sided dolphins, the Atlantic Trawl Gear Take Reduction Team (ATGTRT) was convened to address the incidental mortality and serious injury of these species incidental to bottom and midwater trawl fisheries operating in both the Northeast and Mid-Atlantic regions. Because none of the marine mammal stocks of concern to the ATGTRT are classified as a “strategic stock,” nor do they currently interact with a Category I fishery, it was determined at the time that development of a take reduction plan was not necessary.

In lieu of a take reduction plan, the ATGTRT agreed to develop an Atlantic Trawl Gear Take Reduction Strategy (ATGTRS). The ATGTRS identifies informational and research tasks, as well as education and outreach needs the ATGTRT believes are necessary, to provide the basis for decreasing mortalities and serious injuries of marine mammals to insignificant levels approaching zero mortality and serious injury rates. The ATGTRS also identifies several potential voluntary measures that can be adopted by certain trawl fishing sectors to potentially reduce the incidental capture of marine mammals (e.g., reducing the numbers of turns made by the fishing vessel and tow times while fishing at night; increasing radio communications between vessels about the presence and/or incidental capture of a marine mammal). For additional details on the ATGTRS, please visit:

<http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/>

Purse Seine (GOM Atlantic Herring Fishery)

There have been no observed small cetacean interactions with purse seines operating in the GOM. As a result, this gear type is not expected to pose an interaction risk with small cetacean species. However, purse seines, specifically those operating in the GOM targeting Atlantic herring, are known to interact with pinniped species (i.e., gray and harbor seals; see http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; Waring et al. 2014, 2015). However, most observed interactions to date have resulted in the release of the animals unharmed (Table 40); only two unknown seal species have been observed serious injured and killed in the GOM Atlantic herring purse seine fishery (see http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; Waring et al. 2014, 2015). As a result, although interactions are possible with seals, we do not expect purse seines to pose a significant serious injury or mortality risk to these species. This conclusion is further supported by the fact that the LOF has identified the Gulf of Maine Atlantic herring purse seine fishery as a Category III fishery, that is, a fishery that causes a remote to no likelihood of causing serious injury or mortality to marine mammals (see Table 38).

Table 40 2005-2014 Observed Gray and Harbor Seal Interactions with the GOM Atlantic Herring Purse Seine Fishery

Seal Species	Number of Observed Interactions	Released Alive
Unknown	13	11-Yes/ 2-No
Harbor Seal	10	Yes
Gray Seal	101	Yes

3.4.3.2 Sea Turtles

Midwater Trawl

NEFOP and ASM observer data from 1989-2014 have recorded five (5) leatherback sea turtle interactions with midwater trawl gear; the primary species landed during these interactions was tuna (see http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; NMFS NEFSC FSB 2015). Based on the best available information, although interactions with this gear type are possible, the risk of a sea turtle interacting with midwater trawl gear targeting Atlantic herring is expected to be low. Further, with no observed sea turtle interactions attributed to the Atlantic herring midwater trawl fishery since 1989, we do not expect midwater trawls targeting Atlantic herring to pose a significant serious injury or mortality risk to any sea turtle species.

Purse Seine (GOM Atlantic Herring Fishery)

NEFOP and ASM observer data from 1989-2014 have recorded no sea turtle interactions with purse seine gear where the primary species landed during these interactions was Atlantic herring (see http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html; NMFS NEFSC FSB 2015). However, purse seine interactions with sea turtles have been observed in other fisheries targeting other fish species in the Mid-Atlantic. Based on the best available information, although interactions with this gear type are possible, the risk of a sea turtle interacting with purse seine gear targeting Atlantic herring in the GOM is expected to be low. Further, with no observed sea turtle interactions attributed to the Atlantic herring GOM purse seine fishery since 1989, we do not expect purse seines targeting Atlantic herring to pose a significant serious injury or mortality risk to these sea turtle species.

3.4.3.3 Atlantic Sturgeon

Midwater Trawl

To date, there have been no observed/documented interactions with Atlantic sturgeon and midwater trawl gear (NMFS NEFSC FSB 2015). As a result, this gear type is not expected to pose an interaction risk to the species.

Purse Seine (GOM Atlantic herring fishery)

NEFOP and ASM observer data from 1989-2014 have recorded two (2) Atlantic sturgeon interactions with purse seine gear targeting Atlantic herring in the GOM (NEFSC FSB 2015). These interactions were recorded in 2004 and 2005, prior to the listing of Atlantic sturgeon under the ESA. While capture of sturgeon in this gear type is possible, interactions have been extremely rare (only two observed over the last 25 years) and therefore, the risk of an interaction is likely low.

3.5 FISHERY-RELATED BUSINESSES AND COMMUNITIES

The U.S. Atlantic herring fishery occurs over the Mid-Atlantic shelf region from Cape Hatteras to Maine, including an active fishery in the inshore Gulf of Maine and seasonally on Georges Bank. The Atlantic herring resource is managed as one stock complex, but this stock is thought to be comprised of inshore and offshore components that segregate during spawning. In recognition of the spatial structure of the herring resource, the Atlantic herring annual catch limit (ACL) is divided into sub-ACLs and assigned to four herring management areas. Area 1 is the Gulf of Maine (GOM) divided into an inshore (Area 1A) and offshore section (Area 1B); Area 2 is located in the coastal waters between MA and NC (generally referred to as southern New England/Mid-Atlantic), and Area 3 is on Georges Bank (GB) (see Figure 1 on p. 3 of this document).

The Atlantic herring fishery is generally prosecuted south of New England in Area 2 during the winter (January-April), and oftentimes as part of the directed mackerel fishery. There is overlap between the herring and mackerel fisheries in Area 2 and in Area 3 during the winter months, although catches in Area 3 tend to be relatively low. The herring summer fishery (May-August) is generally prosecuted throughout the GOM in Areas 1A, 1B and in Area 3 (GB) as fish are available. Restrictions in Area 1A have pushed the fishery in the inshore GOM to later months (late summer). The midwater trawl (single and paired) fleet is restricted from fishing in Area 1A in the months of January through September because of the Area 1A sub-ACL split (0% January-May) and the purse seine-fixed gear only area (all of Area 1A) that is effective June-September. A sub-ACL split for Area 1B (0% January – April, 100% May – December) is effective for all vessels during the 2014 and 2015 fishing years.

Fall and winter fishing (September-December) tends to be more variable and dependent on fish availability; the Area 1A sub-ACL is always fully utilized, and the inshore Gulf of Maine fishery usually closes sometime around November. As the 1A and 1B quotas are taken, larger vessels become increasingly dependent on offshore fishing opportunities (Georges Bank, Area 3) when fish may be available.

Atlantic herring is also caught in state waters and in the New Brunswick weir fishery. Section 2.2.1 contains more information about those fisheries.

3.5.1 Atlantic Herring Catch

The Atlantic herring stockwide ACL and management area sub-ACLs are tracked/ monitored based on the *total catch – landings and discards*, which is provided and required by herring permitted vessels through the vessel monitoring system (VMS) catch reports and vessel trip reports (VTRs) as well as through Federal/state dealer data. Atlantic herring harvesters are required to report discards in addition to landed catch through these independent reporting methods.

NMFS' catch estimation methods for the Atlantic herring fishery are described in detail in both Framework Adjustment 2 and Framework Adjustment 3 to the Atlantic Herring FMP (see Section 3.6.1 of Framework 3, NEFMC 2014).

Table 41 summarizes recent Atlantic herring catch estimates by year and management area from 2004-2014. The following bullets describe how these estimates were derived:

- 2004-2006 Atlantic herring catch estimates are provided from quota management implemented by NMFS through the Atlantic Herring FMP and are based on interactive voice reporting (IVR) data from the call-in system used to monitor TACs. Reported herring discards are included in the totals.
- 2007-2009 Atlantic herring catch estimates are based on IVR data supplemented with dealer data. Reported herring discards are included in the totals.
- 2010-2014 Atlantic herring catch estimates are based on a comprehensive methodology developed by NMFS in response to Amendment 4 provisions and the need to better monitor sub-ACLs. Catch estimates are based on landings data obtained from dealer reports (Federal and State), supplemented with VTRs (Federal and State of Maine) with the addition of discard data from extrapolated observer data.

**Catch of Atlantic herring by State-only permitted vessels (fishing in State waters) is tracked by the States and ASMFC; recent information regarding state waters Atlantic herring catch is summarized in Section 2.2.1 of this document (p. 15).*

Table 41 Atlantic Herring Catch by Year and Management Area, 2004-2014

YEAR	AREA	SUB-ACL (MT)	CATCH (MT)	% UTILIZED
2004	1A	60,000	60,095	100%
2004	1B	10,000	9,044	90%
2004	2	50,000	12,992	26%
2004	3	60,000	11,074	18%
2005	1A	60,000	61,102	102%
2005	1B	10,000	7,873	79%
2005	2	30,000	14,203	47%
2005	3	50,000	12,938	26%
2006	1A	60,000	59,989	100%
2006	1B	10,000	13,010	130%
2006	2	30,000	21,270	71%
2006	3	50,000	4,445	9%
2007	1A	50,000	49,992	100%
2007	1B	10,000	7,323	73%
2007	2	30,000	17,268	58%
2007	3	55,000	11,236	20%
2008	1A	43,650	42,257	97%
2008	1B	9,700	8,671	89%
2008	2	30,000	20,881	70%
2008	3	60,000	11,431	19%
2009	1A	43,650	44,088	101%
2009	1B	9,700	1,799	19%
2009	2	30,000	28,032	93%
2009	3	60,000	30,024	50%
2010	1A	26,546	28,424	107%
2010	1B	4,362	6,001	138%
2010	2	22,146	20,831	94%
2010	3	38,146	17,596	46%
2011	1A	29,251	30,676	105%
2011	1B	4,362	3,530	81%
2011	2	22,146	15,001	68%
2011	3	38,146	37,038	97%
2012	1A	27,668	24,302	88%
2012	1B	2,723	4,307	158%
2012	2	22,146	22,482	102%
2012	3	38,146	39,471	103%
2013	1A	29,775	29,820	100%
2013	1B	4,600	2,458	53%
2013	2	30,000	27,569	92%
2013	3	42,000	37,833	90%
2014*	1A	33,031	33,428	101%
2014*	1B	2,878	4,733	164%
2014*	2	28,764	19,624	68%
2014*	3	39,415	37,252	95%

Source: NMFS. *2014 totals are preliminary.

Note: shaded rows indicate overages.

Table 42 summarizes total Atlantic herring catch as a percentage of the total available catch in each year from 2003-2014 based on NMFS catch estimation methods. Atlantic herring catch has been somewhat consistent over the time period (and in previous years), averaging about 91,925 mt from 2003-2014, with the highest catch of the time series observed in 2009 (103,943 mt) and lowest in 2010 (72,852 mt). However, the quota allocated to the fishery (stockwide ACL/OY) has decreased 50% over the twelve-year period. Consequently, and without increasing fishing effort, the Atlantic herring fishery has become more fully utilized in recent years, and the fishery utilized 100% of the total Atlantic herring ACL for the first time in 2012. The 2013-2015 Atlantic herring fishery specifications increased the stockwide Atlantic herring ACL by more than 15,000 mt from the 2010-2012 specifications; an additional 5,000 mt was caught under the higher quota in 2013 and 2014, and overall, the fishery utilized about 90% of the stockwide Atlantic herring ACL.

Table 42 Total Annual Atlantic Herring Catch 2003-2014

YEAR	TOTAL HERRING CATCH (MT)	TOTAL QUOTA ALLOCATED (MT)	PERCENT OF QUOTA UTILIZED
2003	101,607	180,000	57%
2004	93,205	180,000	52%
2005	96,116	150,000	64%
2006	98,714	150,000	66%
2007	85,819	145,000	59%
2008	83,240	143,350	58%
2009	103,943	143,350	73%
2010	72,852	91,200	80%
2011	86,245	93,905	92%
2012	90,561	90,683	100%
2013	95,764	106,375	90%
2014*	95,037	104,088	91%

*Source: NMFS. *2014 totals are preliminary.*

Table 43 provides updated/adjusted Atlantic herring sub-ACLs and the total ACL for the 2015 fishing year relative to 2015 Atlantic herring catch year to date (YTD). Thus far, 55.2% of the total ACL has been caught, and the Area 1A sub-ACL has had the highest utilization rate, 68.7%.

Table 43 2015 Atlantic Herring Sub-ACLs (Adjusted) and Catch YTD (mt)

AREA	2015 CATCH (MT)	2015 SUB-ACL* (MT)	% SUB-ACL CAUGHT
1A	20,799	30,290	68.7%
1B	2,883	4,922	58.6%
2	11,346	32,100	35.4%
3	22,711	44,910	50.6%
TOTAL	57,738	104,566	55.2%

Source: NMFS Quota Monitoring Report through September 2, 2015.

**Adjustments to initial allocations include overage deductions/carryovers from 2013 and deductions for the 2015 research set-asides.*

3.5.2 Monthly Atlantic Herring Quota Utilization

The temporal and spatial variability of the Atlantic herring fishery may be understood by examining the quota utilization in each management area on a monthly basis over the course of the fishing year. In general, the fishery concentrates in Area 2 during the first few months of the year, then effort shifts towards Area 1A through the summer and fall, as well as into Area 3 during the fall and early winter. Area 1B is used throughout the year as fish and markets are available. A more detailed description is provided in the 2013-2015 Atlantic herring fishery specifications (Section 3.5.1.2.3).

3.5.3 Atlantic Herring Permit Categories

Limited-access Atlantic herring vessel permit categories include:

Category A – limited access in all management areas;

Category B – limited access in Areas 2 and 3 only;

Category C – limited access in all management areas, with a 25 mt (55,000 lb) Atlantic herring catch limit per trip and one landing per calendar day.

Open-access Atlantic herring vessel permit categories include:

Category D – open access in all management areas, with a 3 mt (6,600 lb) Atlantic herring catch limit per trip and one landing per calendar day;

Category E – open access in Areas 2 and 3 only, with a 9 mt (20,000 lb) Atlantic herring catch limit per trip and landing per calendar day.

The Category E Atlantic herring permit was established through Amendment 5 and implemented in March 2014. Vessels that have not been issued a limited access herring permit, but that have been issued a limited access mackerel permit, are eligible for this permit.

[Add Atlantic Herring Landings by Permit Category]

3.5.4 Atlantic Herring Vessels

This section provides information regarding the vessels participating in the Atlantic herring fishery from 2008-present. Nominal revenues for “herring trips” are presented. Here, a herring trip is defined liberally as any trip in which at least one pound of Atlantic herring is retained.

Active Vessels in the Atlantic Herring Fishery

Since 2008, the number of vessels with either a limited access or an open access Atlantic herring permit has decreased annually (Table 44 and Table 45). This includes a decrease in the limited access directed fishery vessels (Categories A and B), which comprise the majority of the herring fishery, with 43 permitted in 2014. In 2014, 44% of the limited access vessels were active (defined broadly as landing at least one pound of Atlantic herring during the fishing year). Many of the Category A, B, and C vessels are also active in the Atlantic mackerel fishery (managed by the MAFMC). Although there have been far fewer active limited access versus open access vessels, the limited access vessels account for about 97% of annual Atlantic herring landings and revenues.

For the open access vessels, just 3-5% of the Category D permits have been active since 2009 (Table 44 and Table 45). The Category E permit was implemented during permit year 2013 (May-April). In 2014, there were just over 50 E permits issued, mostly to vessels with a D permit as well. About 11% of the E permits were active that year.

Table 44 Fishing Vessels with Federal Atlantic Herring Permits, 2008-2011

Permit Category	2008	2009	2010	2011
A	44 (64%)	44 (66%)	43 (63%)	42 (64%)
B, C	5 (40%)	4 (75%)	4 (75%)	4 (50%)
C	53 (13%)	51 (25%)	51 (33%)	45 (20%)
Total Limited Access	102 (34%)	99 (45%)	98 (48%)	91 (52%)
D	2,390 (3%)	2,373 (3%)	2,231 (5%)	2,038 (4%)

Source: NMFS Permit database (<http://www.nero.noaa.gov/permits/permit.html>) and VTR database.

Note: In parentheses are the percent active vessels, defined as having landed at least one pound of Atlantic herring. This includes all pair trawl vessels, whose partner vessel landed the catch. Data as of August 2015.

Table 45 Fishing Vessels with Federal Atlantic Herring Permits, 2012-2014

Permit Category		2012	2013	2014
Limited Access	A	38 (61%)	40 (63%)	39 (67%)
	B, C	4 (50%)	4 (75%)	4 (50%)
	C	46 (24%)	44 (34%)	42 (21%)
	Total	88 (41%)	88 (42%)	85 (44%)
Open Access	D	2,026 (4%)	1,909 (4%)	1,788 (3%)
	D,E	n/a	n/a	53 (11%)
	E	n/a	n/a	1*
	Total	2,026 (4%)	1,909 (4%)	1,842 (3%)

Source: NMFS Permit database (<http://www.nero.noaa.gov/permits/permit.html>) and VTR database.

Note: In parentheses are the percent active vessels, defined as having landed at least one pound of Atlantic herring. This includes all pair trawl vessels, whose partner vessel landed the catch. Permit and landings data are as of August 2015 and do not include 2015 landings.

n/a = The Category E permits could first be issued at the end of 2013, but could not become active until 2014.

*Data confidentiality restrictions preclude reporting the percent active.

Fishing Gear

Atlantic herring vessels primarily use purse seines, single midwater trawls or midwater pair trawls for fishing gear, with the midwater pair trawl fleet harvesting the majority of landings since 2008 (Table 46 and Table 47). Some herring vessels use multiple gear types during the fishing year. Single and pair trawl vessels generally fish in all areas (October-December in Area 1A), though Areas 1A and 1B account for less of their overall landings in recent years. The purse seine fleet fishes primarily in Area 1A and to a lesser extent, Areas 1B and Area 2, though in recent years, purse seines have not been active in Area 2. The single midwater trawl has been most active in Area 3. Small mesh bottom trawl vessels represented 5% of herring landings since 2008; other gear types (e.g., pots, traps, shrimp trawls, hand lines) comprise less than 0.5% of the fishery.

Table 46 Atlantic Herring Landings by Fishing Gear Type and Area, 2008-2011

Gear Type	Area 1A (mt)	Area 1B (mt)	Area 2 (mt)	Area 3 (mt)	Total
Bottom Otter Trawl	463 (0.3%)	1 (0%)	14,288 (16%)	117 (0.1%)	14,869 (4%)
Single Midwater Trawl	6,340 (5%)	3,246 (17%)	4,886 (5%)	12,830 (14%)	27,302 (8%)
Midwater Pair Trawl	56,769 (43%)	12,612 (64%)	68,336 (76%)	78,518 (86%)	216,235 (65%)
Purse Seine	69,074 (52%)	3,696 (19%)	2,221 (2%)	0 (0%)	74,991 (22%)
Other	817 (0.6%)	0 (0%)	17 (0%)	1 (0%)	834 (0.2%)
Total	133,463 (100%)	19,555 (100%)	89,748 (100%)	91,466 (100%)	334,231 (100%)

Source: VTR database. September 2012.

Note: Data include all vessels that landed one pound or more of Atlantic herring.

Table 47 Atlantic Herring Landings by Fishing Gear Type and Area, 2012-2014

Gear Type	Area 1A (mt)	Area 1B (mt)	Area 2 (mt)	Area 3 (mt)	Total
Bottom Otter Trawl	534 (1%)	16,967 (64%)	0 (0%)	267 (0%)	17,768 (7%)
Single and Pair Midwater Trawl	14,677 (18%)	9,068 (34%)	44,746 (100%)	110,227 (100%)	178,718 (67%)
Purse Seine	68,409 (82%)	310 (1%)	0 (0%)	0 (0%)	68,719 (26%)
Other	3 (0%)	0 (0%)	3 (0%)	0 (0%)	6 (0%)
Total	83,623 (100%)	26,345 (100%)	44,749 (100%)	110,494 (100%)	265,211 (100%)

Source: VTR database. August 2015.

Note: Data include all vessels that landed one pound or more of Atlantic herring. Single and pair midwater trawl data are combined due to data confidentiality restrictions.

Revenue

Table 48 provides percentage revenues from Atlantic herring by permit category from 2008-2011 for trips landing Atlantic herring, showing the contribution of Atlantic herring revenues to those trips. Category A vessels catching Atlantic herring in Areas 1A, 1B, and 3 are catching herring almost exclusively. However, when these vessels catch herring in Area 2, a substantial portion of revenues (nearly 40%) are attributable to other species. Category C and D vessels have derived relatively small amounts of revenue from herring trips. The remainder of the revenue for these vessels is derived from other species (e.g., whiting).

Table 48 Percentage of Revenue from Atlantic Herring by Permit Category and Management Area for Trips Landing Atlantic Herring, 2008-2011

	Category A	Category B/C	Category C	Category D
Area 1A	99.9%		55.1%	32.8%
Area 1B	99.7%			
Area 2	61.6%	94.8%	6.7%	2.5%
Area 3	96.8%			1.2%
Total	86.4%	94.8%	30.3%	11.2%

Table 49 provides percentage revenues from Atlantic herring in each management area from each permit category, 2012-2014, showing the importance of each management area to vessels of the different permit categories. Category A vessels have been active in each management area in recent years, and at least 87% of the revenue from a given area as attributable to Category A vessels, 100% in the case of Area 3. Category B and C vessels have been active primarily in Area 2, secondarily in Area 1A. The open access permit vessels (Category D and E) have been active only in Areas 1A and B in recent years.

Table 49 Percentage of Revenue of Atlantic Herring by Permit Category and Management Area, 2012-2014

	Category A	Category B or C	Category D or E
Area 1A	98.0%	1.5%	0.5%
Area 1B	97.8%		2.2%
Area 2	87.0%	13.0%	
Area 3	100.0%		

3.5.5 Atlantic Herring Dealers

The number of Atlantic herring dealers has remained fairly constant since 2012 at just over 280. Table 50 summarizes all issued Atlantic herring permits by state and permit type for the past few years. Dealer permits can be issued and cancelled throughout the year, so at any given time, the number of active dealer permits could fluctuate from the totals reported. Most of the Atlantic herring dealers are based in Maine, Rhode Island, New York, and New Jersey.

Table 50 Issued Atlantic Herring Dealer Permits, 2012-2015

	2012	2013	2014	2015
United States				
ME	76	83	84	85
NH	8	7	7	8
MA	57	61	60	62
RI	35	32	27	26
CT	2	2	3	3
VT	1	1	1	1
NY	52	50	50	48
NJ	26	26	26	28 (1)*
PA	2	2	2	2
DE	1		1	1
MD	3	3	3	2
VA	7	7	8	8
NC	9	8	8	8
GA	1	1		
Canada				
NB	1	1	1	1
NS	1	3	3	3
Total				
	282	287	284	286(1)

Source: GARFO permit database as of 7/31/2015.

Notes: 2015 permit counts are preliminary due to ongoing issuance. Individual entities may possess more than one permit type, i.e. total permits issued not equal to total number of dealers.

* One at-sea dealer permit has been issued in 2015.

3.5.6 Atlantic Herring Prices, Use as Bait, and Substitute Goods

Between 2008-2014, Atlantic herring catch ranged from 72,852-103,943 mt (with discards representing a very small fraction, see Table 42 as well as Table 12 on p. 23) while nominal prices generally ranged from about \$160-350 per mt (Figure 14 and Figure 15). Overall, Atlantic herring prices have been increasing over time with a peak in 2013. Atlantic herring caught in the Northeast U.S. is eaten by consumers worldwide and used as lobster bait. There are likely to be good substitutes for both uses; therefore, prices are likely insensitive to quantity changes.

In general, prices will decrease when quantity supplied increases, and prices will increase when quantity supplied decreases. The extent to which prices are responsive to changes in quantities supplied (and therefore by changes in ACLs and sub-ACLs) depends on the availability of good substitutes. If good substitutes are available, then prices will not be sensitive to changes in quantity supplied. However, if good substitutes are not available, then prices will be quite sensitive to changes in quantity supplied.

Limited amounts of Atlantic herring are consumed as food domestically. In the world market, there is likely one substitute: European herring. U.S. production of Atlantic herring is quite small relative to the worldwide production. Since total U.S. landings of Atlantic herring have been near 100,000 mt annually, while total worldwide landings of Atlantic herring are near 2,000,000 mt. Therefore, U.S. producers of herring as human food are likely to be price takers on the world market. This means that moderate changes in the quantity of herring produced for food are unlikely to have an effect on price of herring.

Figure 14 Average Nominal Price per Metric Ton of Atlantic Herring, 2008-2012

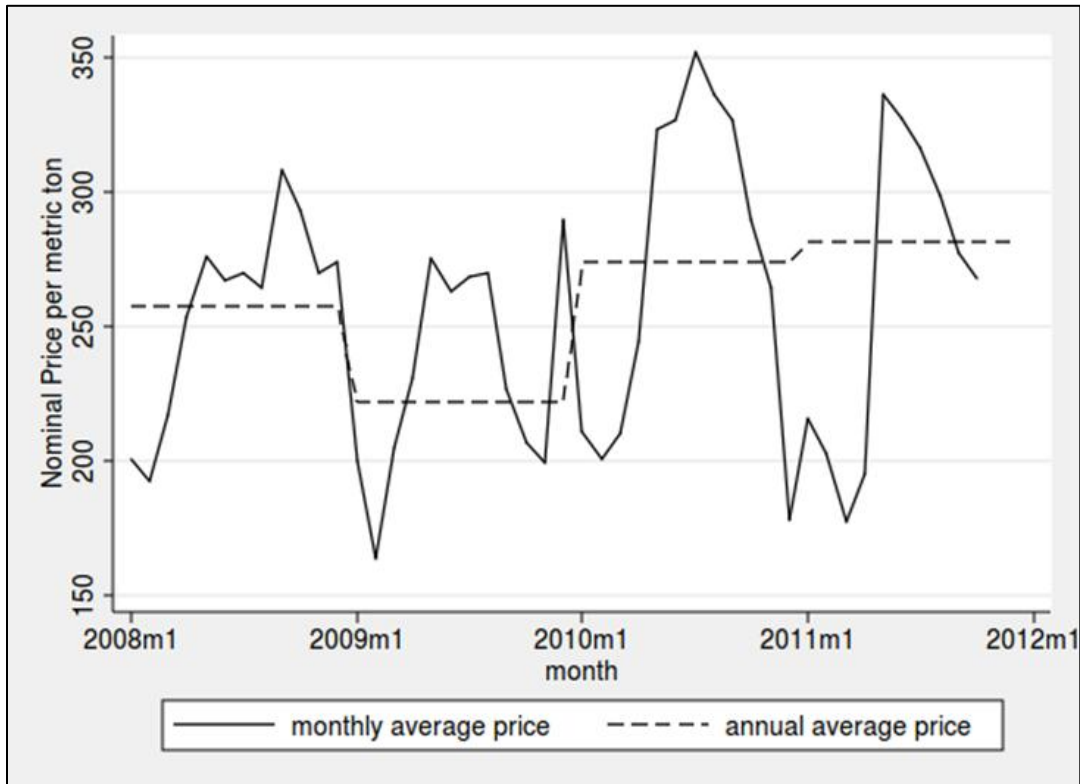
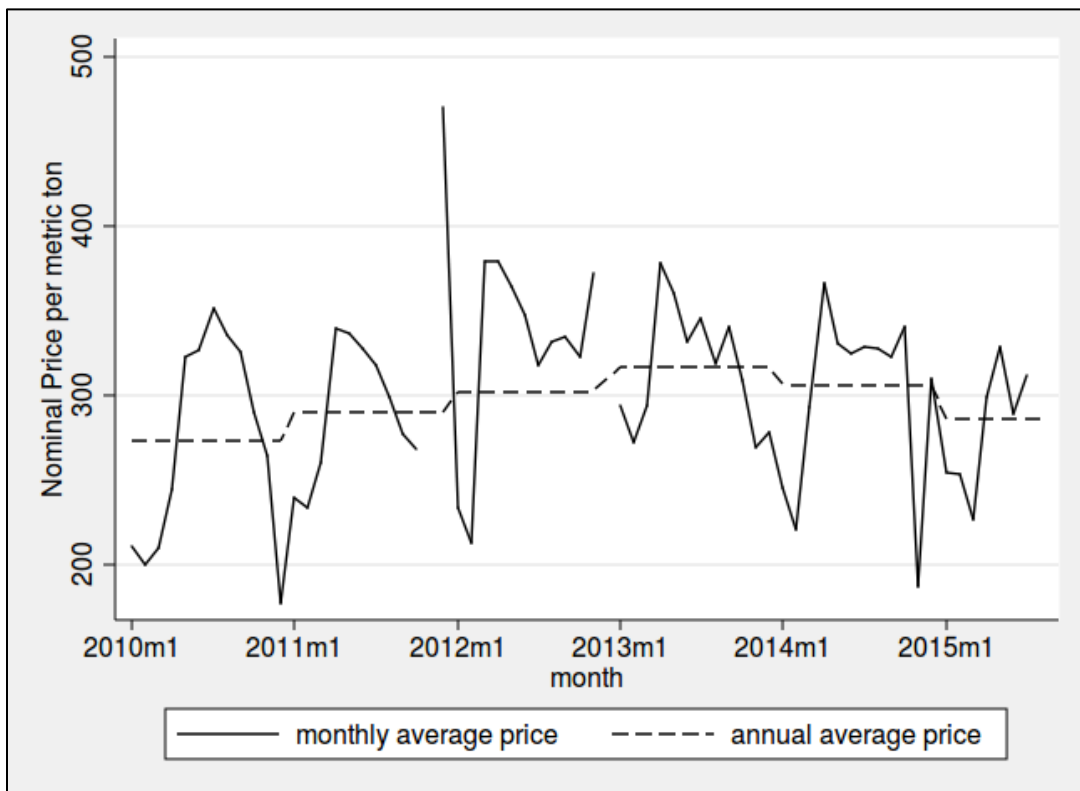


Figure 15 Average Nominal Price per Metric Ton of Atlantic Herring, 2010-2015



In the bait market, Atlantic menhaden, managed by the Atlantic States Marine Fisheries Commission, is one substitute for Atlantic herring. Use of menhaden for bait has increased in importance relative to fish meal and oil. Between 2001 and 2012, the percent of total menhaden landings that were used for bait rose from 13% to a high of 28% in 2012 (63,540 mt). In 2013, bait harvest composed approximately 22% of the total menhaden harvest. Menhaden landings for bait have recently dipped due to reductions in allowable catch; landings in 2013 were 35,043 mt, 34% below the average landings during 2010-2012 (52,900 mt) (ASMFC 2015). During 2008-2011, *ex-vessel* menhaden prices ranged from \$139-\$169 per mt. This is about 33-50% lower than *ex-vessel* herring prices. If the quantity of Atlantic herring supplied into the bait market declines dramatically, more menhaden may be used as bait, moderating the increases in herring prices.

Menhaden is primarily used to produce fish meal and oil. However, the Atlantic Herring FMP prohibits use of herring for fish meal, so herring is not a substitute in the production of those goods.

Atlantic herring is used as bait for many fisheries, such as lobster, tuna, and various recreational fisheries. A more detailed description of the bait sector of the industry is provided in Amendments 1 and 5 to the Herring FMP. According to NMFS dealer data, 77% of the Atlantic herring landed from 2012-2014 was sold as bait; most of the rest was used for human consumption. Ports in Maine (61%) and Massachusetts (36%) landed 97% of all herring used for bait.

The lobster industry, particularly in Maine, is dependent on herring as a bait source, though it depends on price and availability. A 2008 survey of 6,832 lobster license holders in Maine revealed that 58% of respondents answered “very much” to the question “Could the supply or price of herring for bait impact your decisions on how to fish?” (MEDMR, 2008). For lobstermen surveyed from Maine, New Hampshire and Massachusetts who harvest in Lobster Conservation Management Area A (inshore Gulf of Maine), herring is the predominant bait source (Table 51).

Table 51 Bait Usage in the Inshore Gulf of Maine Lobster Fishery

	ME Zone A	ME Zone B	ME Zone C	ME Zone D	ME Zone E	ME Zone F	ME Zone G	NH	MA
Herring	90%	86%	73%	73%	84%	37%	75%	60%	76%
Pogies	3%	2%	0%	15%	14%	39%	11%	4%	13%
Redfish	1%	8%	12%	4%	1%	19%	8%	0%	0%
Racks	1%	2%	1%	2%	0%	1%	1%	26%	6%
Alewives	1%	1%	0%	1%	0%	0%	0%	0%	0%
Other	4%	2%	13%	5%	0%	4%	4%	9%	4%

Source: Dayton et al. (2014)

Data from New Hampshire port sampling reveals that New Hampshire vessels may be less dependent on herring as a bait source than the aforementioned survey indicates. Table 52 presents the use of herring as bait in NH from 2005 to 2011 (due to funding shortages, these data are no longer collected). Atlantic herring is a small percentage of the bait used by these vessels, ranging between 1.8% in 2010 and 4.6% in 2005. In terms of herring per trap just in Lobster Management Area (LMA) 1, the most used was in 2005 and the least in 2010. This correlates with overall high and low points in the percent of herring bait used. Historically, Atlantic herring is used for bait by smaller inshore vessels more than larger offshore vessels, because it is typically less expensive; in addition, alternative bait options like skates tend to be preferred for longer soaks in offshore waters.

Note that the offshore LMA Area 3 vessels are not included in the herring per trap calculation because, at present, there is only one vessel in this category, which tends to utilize redfish and skates as primary bait sources. This is because redfish and skates do not degrade as rapidly as herring in deeper colder water. Furthermore, the LMA 3 vessel is not included to avoid skewing the data, however marginally, due to the diversity in bait types and the sheer volume of bait that is utilized throughout a fishing trip.

Table 52 Atlantic Herring Use as for Lobster Bait in New Hampshire

Year	Herring Bait (lbs)	Other Bait (lbs)	Total Bait (lbs)	% Herring of all Bait	# Types of Bait	Herring Per Trap LMA 1* (lbs)
2005	8,200	169,725	177,925	4.6%	11	0.33
2006	9,700	293,125	302,825	3.2%	13	0.20
2007	8,300	226,350	234,650	3.5%	10	0.18
2008	7,658	247,000	254,658	3.0%	12	0.16
2009	8,825	189,690	198,515	4.4%	11	0.25
2010	3,350	181,728	185,078	1.8%	11	0.14
2011	6,100	249,900	256,000	2.4%	9	0.21

Source: NH Fish & Game Department

3.5.7 Atlantic Herring Fishing Communities

In the 1996 amendments to the Magnuson Stevens Act, Congress added National Standards directly related to social and economic factors for consideration by Councils and NMFS. National Standard 8 (NS8) states that:

Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

NS 8 requires the consideration of impacts on fishing communities. Section 316 of MSA defines a fishing community as:

“A community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.”

To gain a better perspective on the nature of the Atlantic herring fishery and the character of the affected human environment, a broader interpretation of fishing community has been applied to include almost all communities with a substantial involvement in or dependence on the Atlantic herring fishery. In terms of National Standard 8 (NS 8), some of the communities identified in this section may not fit the strict interpretation of the criteria for substantial dependence on fishing. The fishing communities that meet the legal definition (as promulgated through NS 8) are likely to be considered a subset of the broader group of communities of interest that are engaged in the herring fishery and identified in this document.

Because Atlantic herring is widely used as bait for the lobster fishery, especially in Maine, it is not practical to identify every community with substantial involvement in the lobster fishery (and consequently some level of dependence on the herring fishery) for assessment in this document. Instead, some of the communities of interest were selected, in part, because of their involvement in or dependence on the lobster fishery; assessment of the impacts of the Amendment 1 measures on these communities should provide enough context to understand the potential impacts on any community with substantial involvement in the lobster fishery. Parallels can be drawn between the communities that are identified in this section and other similar communities engaged in the lobster fishery.

NS 8 requires the Council to consider the importance of fishery resources to affected communities and provide those communities with continuing access to fishery resources, but it does not allow the Council to compromise the conservation objectives of the management measures. “Sustained participation” is interpreted as continued access to the fishery within the constraints of the condition of the resource.

Communities of Interest

The following five criteria were used in Amendments 1 and 5 to the Herring FMP to define *Communities of Interest* for the Atlantic herring fishery, which must meet at least one criterion:

1. Atlantic herring landings of at least 10M pounds (4,536 mt) per year from 1997-2008, or anticipated landings above this level based on interviews and documented fishery-related developments.
2. Infrastructure dependent in part or whole on Atlantic herring.
3. Dependence on herring as lobster and/or tuna bait.
4. Geographic isolation in combination with some level of dependence on the Atlantic herring fishery.
5. Utilization of Atlantic herring for value-added production.

Based on the above criteria, there are 11 *Communities of Interest* for the Atlantic herring fishery, identified below and further evaluated in Amendment 5 to the Atlantic Herring FMP (Section 4.5.3). Community profiles of each are available from the NEFSC Social Sciences Branch website (Clay et al. 2007). Since Amendment 1, this list has changed slightly with changes in harvesting and processing sectors.

1. Portland, Maine
2. Rockland, Maine
3. Stonington/Deer Isle, Maine
4. Vinalhaven, Maine
5. Lubec/Eastport, Maine
6. Sebasco Estates, Maine
7. NH Seacoast (Newington, Portsmouth, Hampton/Seabrook)
8. Gloucester, Massachusetts
9. New Bedford, Massachusetts
10. Southern Rhode Island (Point Judith, Newport, North Kingstown)
11. Cape May, New Jersey

Home Ports

Of the Atlantic herring *Communities of Interest*, Gloucester and New Bedford, Southern RI, and Cape May are homeports with largest concentrations of vessels that have Atlantic Herring limited access directed fishery permits, Categories A and B (Table 53). Mid-Coast ME, Portland and Seacoast NH also are home to a few of these permit holders. Beyond the communities of interest, a few Category A and B permit holders have homeports in Bath, Cundys Harbor, Hampden, and Matinicus ME; Boston and Woods Hole MA; and Wanchese NC. For the most part, these vessels use a community of interest as a landing port (NMFS 2012). The distribution of important homeports for Atlantic Herring vessels is largely unchanged between 2011 and 2015 (Table 53), particularly for the limited access vessels.

Table 53 Distribution of Herring Permit Holders in 2011 and 2015 which have an Atlantic Herring Community of Interest as a Homeport

Homeport		Atlantic Herring Permit Category					
		Limited Access (A, B, C)		Open Access (D, E)		Total	
		2011	2015	2011	2015	2011	2015
ME	Portland	3	3	129	30	132	33
	Rockland	1	1	2	2	3	3
	Stonington/Deer Isle	1	0	0	2	1	2
	Vinalhaven	0	0	2	2	2	2
	Lubec/Eastport	0	0	2	1	2	2
	Sebasco Estates	0	0	3	1	3	2
	Maine, other	11	7	196	146	207	153
NH	Seacoast	6	5	96	93	102	98
MA	Gloucester	7	8	174	120	181	128
	New Bedford	9	8	201	178	210	186
	Massachusetts, other	9	8	377	324	386	332
RI		15	14	117	104	132	128
NJ	Cape May	12	13	93	83	105	96
	New Jersey, other	0	0	200	177	200	177
Other		12	12	494	388	506	400

Source: NMFS permit database. (<http://www.nero.noaa.gov/permits/permit.html>). 2011 data accessed September 2012. 2015 data accessed July 2015.

Landing Ports

From 2008-2011, Atlantic herring harvested from Areas 1A and 1B are landed in fishing communities in Maine, New Hampshire, and Massachusetts, whereas herring from Areas 2 and 3 are landed in a wider range of ports (Table 54). Communities in Rhode Island and New Jersey fish in Area 2 for herring almost exclusively. Portland, Rockland, Gloucester, and New Bedford are ports with the most herring landings in recent years. Within New Jersey, Cape May is the most active landing port.

Table 54 Landing Port Distribution of Atlantic Herring Landings from Fishing Areas (2008-2011)

Landing Port		Area 1A (mt)	Area 1B (mt)	Area 2 (mt)	Area 3 (mt)
Maine	Portland	23%	22%	1%	23%
	Rockland	26%	15%	1%	10%
	Stonington/Deer Isle	8%	12%	0.5%	0%
	Vinalhaven	2%	5%	0%	2%
	Lubec/Eastport	0%	0%	0%	0%
	Sebasco Estates	0%	0%	0%	0%
	Maine, other	6%	0.3%	0.8%	4%
New Hampshire	Seacoast	3%	0.9%	0.4%	1%
Massachusetts	Gloucester	23%	42%	17%	45%
	New Bedford	8%	2%	45%	16%
	Massachusetts, other	1%	0.1%	4%	0%
Rhode Island	Southern	0%	0%	17%	0.1%
New Jersey	Cape May	0%	0%	13%	0%
	New Jersey, other	0%	0%	0%	0%
Other States		0%	0%	0.1%	0%
Total		133,463 (100%)	19,555 (100%)	89,748 (100%)	91,466 (100%)

Source: NMFS VTR database. September 2012.

4.0 IMPACTS OF PROPOSED MANAGEMENT ACTION AND OTHER ALTERNATIVES

In this section, the impacts of the proposed 2016-2018 Atlantic herring fishery specifications and RH/S catch caps are evaluated and discussed relative to each of the valued ecosystem components (VECs) described in the Affected Environment (Section 3.0 of this document, beginning on p. 39). The impacts of the no action alternative and non-preferred alternatives considered by the Council are also addressed in this section.

In general, the descriptive and analytic components of this document are constructed in a consistent manner. The Affected Environment for the 2016-2018 Atlantic herring fishery specifications updates the biological and management history related to each VEC since the implementation of Amendment 1 to the Atlantic Herring FMP (in 2006) through Amendment 5 (finalized by the Council in 2013). The Affected Environment section is designed to enhance the readers' understanding of the baseline conditions and recent trends in order to fully understand the anticipated environmental impacts of the management measures under consideration in this management action. The impacts of the proposed 2016-2018 fishery specifications and RH/S catch caps are assessed in the following sub-sections of this document using a similar structure to that found in the Affected Environment.

To enhance clarity and maintain consistency, the terms described in Table 55 are used to summarize the impacts of each alternative/option on the VECs in this document. In some instances (although less common), impacts on a VEC may be characterized as neutral, particularly if there may be both positive and negative impacts resulting from a management measure. If impacts are determined to be neutral, the reasons for making such a determination are provided in the discussion.

Table 55 Terms Used in Tables to Summarize Impacts of Proposed Action on VECs

Impact Definition			
VEC	Direction		
	Positive (+)	Negative (-)	Negligible
Atlantic Herring; Non-Target Species; Protected Resources	Actions that increase stock/population size	Actions that decrease stock/population size	Actions that have little or no positive or negative impacts to stocks/populations
Physical Environment/Habitat/EFH	Actions that improve the quality or reduce disturbance of habitat	Actions that degrade the quality or increase disturbance of habitat	Actions that have no positive or negative impact on habitat quality
Fishery-Related Businesses and Communities (Human Environment)	Actions that increase revenue and social well-being of fishermen and/or associated businesses	Actions that decrease revenue and social well-being of fishermen and/or associated businesses	Actions that have no positive or negative impact on revenue and social well-being of fishermen and/or associated businesses
Impact Qualifiers:			
Low (L, as in low positive or low negative)	To a lesser degree		
High (H; as in high positive or high negative)	To a substantial degree		
Likely	Some degree of uncertainty associated with the impact		

4.1 IMPACTS ON ATLANTIC HERRING

The Atlantic herring fishery is administered in accordance with the Atlantic Herring FMP, as modified by applicable amendments and framework adjustments. The Atlantic Herring FMP was developed by the Council and implemented by NMFS in 2000. The Atlantic herring fishery specification-setting process is the primary management tool used to manage the U.S. catch of Atlantic herring to ensure that overfishing does not occur. The specifications process was modified in Amendment 1 (from annual to every three years) and in Amendment 4 (for consistency with the ACL/AM provisions in the reauthorized MSA). Overall, fishing mortality on Atlantic herring is managed through the specification of the stockwide ACL (reduced from the overfishing limit and acceptable biological catch to address scientific uncertainty and management uncertainty) and sub-ACLs that are intended to minimize risk to individual stock components while maximizing opportunities for the fishery to achieve OY.

Updated information about the Atlantic herring resource is provided in Section 3.1 of this document (p. 39). Based on the best available scientific information (Atlantic herring operational assessment, April 2015), the Atlantic herring resource continues to remain well above its biomass target (**rebuilt**), and fishing mortality remains well below the F_{MSY} threshold (**not overfishing**). A retrospective pattern re-emerged when updating the stock assessment model from the 2012 benchmark assessment; the retrospective pattern suggests that Atlantic herring SSB is likely to be overestimated and F is likely to be underestimated in the terminal year of the assessment. The retrospective adjustments made by the assessment review panel resulted in approximately a 40% decrease in the terminal year (2014) SSB estimate and a 60% increase in the 2014 F estimate. Even with the retrospective adjustments, the Atlantic herring stock complex remains above the biomass target and below the fishing mortality threshold (see Table 23, Figure 2, p. 40 of this document for more information).

The Council's SSC reviewed the 2015 Atlantic herring operational assessment results and recommended the proposed 2016-2018 Atlantic herring OFL and ABC specifications, which form the basis of the action alternatives considered by the Council in this document (the 2015 Atlantic herring operational assessment report and the May 20, 2015 SSC Meeting Report should be referenced for more information). The impacts of the proposed 2016-2018 Atlantic herring fishery specifications and alternatives for 2016-2018 RH/S catch caps on the Atlantic herring resource are discussed in the following subsections.

4.1.1 Impacts of Alternatives for 2016-2018 Atlantic Herring Fishery Specifications on Atlantic Herring

Each of the alternatives considered by the Council for the 2016-2018 fishery specifications includes an annual specification for OFL, ABC, a stockwide Atlantic Herring ACL (OY), DAH, DAP, USAP, BT, management area sub-ACLs (and seasons), RSA, and FGSA for 2016-2018. The OFL represents the amount of annual Atlantic herring catch that would likely result in overfishing of the Atlantic herring resource; the ABC is the annual catch level recommended by the SSC to reduce the risk of overfishing while accounting for scientific uncertainty; the stockwide ACL/OY represents the maximum annual amount of Atlantic herring that the U.S. fishery can harvest, buffered for management uncertainty (in this case, Atlantic herring that may be caught in Canadian fisheries). AMs further ensure that the stockwide ACL is not exceeded in the U.S. fishery. Therefore, to evaluate the potential impacts of the 2016-2018 fishery specifications on the Atlantic herring resource, the maximum potential removals under the stockwide Atlantic herring ACL/OY specification can be compared to the OFL to compare the risk of overfishing under each alternative.

To facilitate the evaluation of the impacts of the alternatives on the Atlantic herring resource, Table 56 lists the potential annual removals of Atlantic herring that can be expected under each alternative, assuming that the stockwide Atlantic herring ACL is fully utilized. Table 56 also summarizes the accountability measures (AMs) that apply to the U.S. Atlantic herring fishery and provides some summary information about recent catch in the U.S. and Canadian fisheries that affect the Atlantic herring resource.

On average, total annual removals of Atlantic herring (from both the U.S. and NB weir fisheries) have been well below the maximum removals for the U.S. fishery (the stockwide ACL) that would be allowed under any of the alternatives under consideration for 2016-2018. Alternative 2 would allow for the highest annual removals of Atlantic herring from the U.S. fishery – 108,000 mt. According to Table 42 (see p. 90), annual U.S. Atlantic herring catch has been well below 108,000 mt for at least the last ten years, even during years when the total allowable catch was much higher (180,000 mt). Total Atlantic herring removals (U.S. and Canadian fishery combined) in 2014 were 90% of the 108,000 mt stockwide ACL proposed in Alternative 2, and the five-year average total herring removals are about 86% of the Alternative 2 stockwide ACL (Table 56). In other words, if Atlantic herring catch in the U.S. fishery during 2016-2018 is similar to 2014 catch (around 95,000 mt), there would be a considerable additional buffer to account for a significant increase in the NB weir catch before total removals would reach the overfishing limit. This should increase confidence that none of the alternatives under consideration are likely to result in catch levels above the stockwide Atlantic herring ACL. This also provides greater assurance that the risk of overfishing will continue to be minimized in the event that the NB weir fishery lands an unusually large amount of Atlantic herring in any of the next three years.

Table 56 Potential Removals of Atlantic Herring (mt) Under Alternatives for 2016-2018 Specifications

Specifications	No Action Alternative (2015 Specifications)	Alternative 2	Alternative 3 <i>Preferred Alternative</i>
OFL	2016 – 114,000 2017 – 114,000 2018 – 114,000	2016 – 138,000 2017 – 117,000 2018 – 111,000	2016 – 138,000 2017 – 117,000 2018 – 111,000
ABC	114,000	111,000	111,000
<i>Mgmt. Uncertainty</i>	6,200	3,000	6,200
Stockwide ACL/OY	107,800	108,000	104,800
Stockwide ACL with NB weir option	N/A 107,800	N/A 108,000	105,800
Accountability Measures	<ul style="list-style-type: none"> Directed fishery in management area closes when 92% of the sub-ACL is projected to be reached Directed fishery in all management areas close when 95% of the stockwide ACL is projected to be reached Overage paybacks for management area sub-ACLs and stockwide ACLs (one-year lag) Underage carryovers up to 10% for sub-ACLs (with one-year lag), cannot increase stockwide ACL 		
	U.S. Atl Herring Fishery	NB Weir Fishery (Canada)	Total Herring Removals
2014 Catch	95,037	2,149	97,186
Three-Year Avg.	93,787	3,028	96,815
Five-Year Avg.	88,092	4,751	92,843

Overall Biological Impacts

The biological impacts of the alternatives for the 2016-2018 Atlantic herring fishery specifications were assessed using three-year projections of SSB, fishing mortality, and probability of overfishing/overfished in each year. In the projections, fishing mortality is derived from the estimate of F_{MSY} in the Atlantic herring operational assessment, and the terminal year estimates of F and SSB from the operational assessment (2014, with the retrospective adjustment) are used. A simulation of 1,000 projections is then run to capture possible outcomes of SSB and F for 2016-2018. The results of the projections are provided in Table 57 (p. 113) and Table 58 (p. 114) and discussed below relative to each alternative under consideration for the 2016-2018 fishery specifications.

The SSC's recommendation for ABC for the 2016-2018 fishing years only differs from the 2013-2015 Atlantic herring ABC specification by 3,000 mt (2.6%). Because the ABC specifications are very similar, the three-year projections of Atlantic herring SSB and F provided in the following subsections demonstrate that there is no discernable difference between the impacts of Alternatives 1-3 on the Atlantic herring resource. The projections show that under each of the OFL/ABC specifications, Atlantic herring SSB and F resulting from fully utilizing ABC fall within the same range (based on the 80% confidence intervals). None of the alternatives are expected to change or jeopardize the biological status of the Atlantic herring resource (rebuilt, above SSB target). For these reasons, all three alternatives under consideration for the 2016-2018 fishery specifications are expected to have a *negligible impact* on the Atlantic herring resource.

The differential impacts between the alternatives relate to the size of the buffer between OFL/ABC and the specification of the stockwide Atlantic herring ACL/OY, i.e., the maximum amount of total annual removals from the U.S. fishery under each of the alternatives. Alternatives that allow for higher annual removals from the U.S. fishery are considered to be less precautionary with respect to the risk of overfishing (exceeding the OFL). However, as the preceding discussion indicates, the risk of exceeding the ABC and/or OFL is very low under all three alternatives. The differences between the alternatives are discussed more in the following sub-sections.

Because the Atlantic herring ABC specification proposed for 2016-2018 is only 2.6% lower than the 2013-2015 ABC specification, and because available biological/fishery information does not indicate a need to consider major changes to the distribution of allowable catch in the herring fishery or other specifications, the alternatives that the Council considered for 2016-2018 maintain the status quo for many specifications. The potential impacts on the Atlantic herring resource resulting from the status quo fishery specifications (common to all alternatives) are discussed generally below.

DAH, DAP, BT, USAP

Specifications of DAH, DAP, BT, and USAP are consistent with the formulas in the Atlantic Herring FMP and are proposed to remain unchanged for the 2016-2018 fishing years. These fishery specifications are administrative in nature and represent components of the stockwide Atlantic herring ACL/OY for 2016-2018. Impacts of these specifications on the Atlantic herring resource, therefore, are expected to be *negligible*.

RSA

For the 2016-2018 Atlantic herring fishery specifications, the Council is proposing to maintain the specification of 3% RSA from each management area for the 2016-2018 fishing years. Overall, this specification is administrative in nature and does not affect removals of Atlantic herring from the fishery. The impacts of the RSA specifications for 2016-2018 on the Atlantic herring resource are therefore expected to be *negligible*.

Of course, there are long-term benefits to the Atlantic herring resource from enhancing management through cooperative research. A 3% RSA for the 2016-2018 fishing year encourages the industry to continue to participate in the collection of scientific information and

conduct research to reduce interactions with non-target species affected by the Atlantic herring fishery. The Council has identified river herring bycatch avoidance, portside sampling, electronic monitoring, and research to enhance the Atlantic herring stock assessment as top priorities for cooperative research to be funded through any RSA program supported by the 2016-2018 specifications (see Section 2.2.4, p. 33). Long-term benefits to the Atlantic herring resource can be expected from cooperative research programs that address these priorities, particularly if research funded under the 2016-2018 RSA provides information to enhance the Atlantic herring stock assessment. Allocating RSA for 2016-2018 under these research priorities is consistent with the goals and objectives of the Atlantic herring management program.

FGSA

Specification of the FGSA is proposed to remain unchanged for the 2016-2018 fishing years. This specification is administrative in nature and represents a component of the Area 1A sub-ACL. Amendment 2 to the ASMFC Interstate Herring FMP requires fixed gear fishermen East of Cutler to report catch weekly through the federal IVR system. ME DMR requires the ME state commercial fixed gear fishermen to be compliant with the federal IVR weekly reporting requirements and regulations as well as reporting monthly to ME DMR. Any unused portion of the FGSA is returned to the Area 1A Atlantic herring fishery after November 1, and catch is tracked by NMFS against the Area 1A sub-ACL.

The FGSA specification does not affect total removals of Atlantic herring. Impacts on the Atlantic herring resource, therefore, are expected to be *negligible*.

Sub-ACLs and Seasonal Sub-ACL Divisions

Because the Atlantic herring ABC specification recommended by the SSC for 2016-2018 (111,000 mt) is only 2.6% less than the 2013-2015 ABC specification (114,000 mt), the Council, in consultation with the PDT, AP, and Herring Committee, determined that there is no need to consider modifying the distribution of the stockwide Atlantic herring ACL among the four management areas for 2016-2018. Moreover, information from the Atlantic herring operational assessment report (April 2015) does not indicate that there is a biological need to consider modifying the distribution of the stockwide Atlantic herring ACL at this time. All of the alternatives for the 2016-2018 Atlantic herring fishery specifications therefore maintain a status quo approach to distributing the stockwide Atlantic herring ACL (see Table 18 on p. 32). The status quo approach applies the same (2013-2015) proportional distribution of the stockwide ACL among the management areas, as well as the same seasonal (monthly) divisions of the Area 1A and Area 1B sub-ACLs.

When the stockwide Atlantic herring ACL is distributed across the four management areas under any of the alternatives, the resulting sub-ACLs change by less than 1,000 mt in most cases (see Table 3, p. 10). Therefore, because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort is expected to be minor, the impacts of the 2016-2018 sub-ACL distributions and seasonal divisions on the Atlantic herring resource are expected to be *negligible*.

4.1.1.1 Impacts of Alternative 1 (No Action)

Under the no action alternative, the annual specification of Atlantic herring OFL and ABC would remain 114,000 mt from 2016-2018. This ABC specification is higher than the SSC's recommended specification of 111,000 mt. Because this alternative specifies OFL and ABC at the same level in all three years, this alternative would result in no buffer between OFL and ABC to account for scientific uncertainty. This does not appear to be consistent with the best available scientific information.

Table 57 summarizes the biological impacts of Alternative 1 (no action) on the Atlantic herring resource with respect to fishing mortality and projected SSB for 2016-2018. Under Alternative 1, median Atlantic herring SSB is projected to decline 24% by 2018 to 421,000 mt, which would still be well above the biomass target of 311,145 mt (i.e., the stock would still be considered rebuilt). The projections indicate that there is a 2% chance that SSB could fall below the biomass threshold. Median fishing mortality would increase close to F_{MSY} levels over the three years, and there would be a 54% chance that fishing mortality would exceed F_{MSY} in 2018 (i.e., that overfishing would occur). Over the three-year simulation, expected Atlantic herring SSB and F under this alternative are within the same range as Alternatives 2 and 3 (based on the 80% confidence intervals, see Table 58 for the SSB/F projection under Alternatives 2 and 3). SSB declines, but the stock remains above its biomass target. Therefore, all three alternatives under consideration for the 2016-2018 fishery specifications are expected to have a *negligible* impact on the Atlantic herring resource because they would not jeopardize the biological status of the resource (rebuilt, i.e., above the SSB target).

However, because this alternative does not provide a buffer between OFL and ABC and allows annual catch to exceed the SSC recommendation for 2016-2018, and because there is a 54% probability that overfishing would occur in Year 3 (2018), this alternative is less conservative/precautionary than Alternatives 2 and 3. This is the least precautionary alternative under consideration. It is also not based on the best available scientific information (SSC advice). When compared to Alternatives 2 and 3, therefore, the impacts of Alternative 1 on the Atlantic herring resource are *more negative*.

Table 57 Three-Year F/SSB Projection Under Alternative 1 (No Action)

	No Action ABC (114,000mt)		
	2016	2017	2018
Median F	0.19	0.24	0.26
80%CI	0.13-0.30	0.15-0.37	0.15-0.44
Catch mt	114,000	114,000	114,000
Median SSB mt	555,000	454,000	421,000
80%CI	341,000-940,000	279,000-756,000	232,000-732,000
Prob SSB<(SSB_{MSY}/2)	0.00	0.00	0.02
Prob F>F_{MSY}	0.27	0.47	0.54

Projections assume that Atlantic herring catch equals the ABC specification in each of the three years.

4.1.1.2 Impacts of Alternative 2 (Non-Preferred)

Under Alternative 2 (as well as Alternative 3), the annual specification of Atlantic herring ABC for 2016-2018 would be 111,000 mt, based on the recommendations of the Council’s SSC. The ABC specification proposed for 2016-2018 only differs from the 2013-2015 ABC specification by 3,000 mt (2.6%). Table 58 summarizes the biological impacts of Alternative 2 (and Alternative 3) on the Atlantic herring resource with respect to fishing mortality and projected SSB for 2016-2018. Under the ABC specification proposed in Alternatives 2 and 3, median Atlantic herring SSB is projected to decline 23% by 2018 to 427,000 mt, which would still be well above the biomass target of 311,145 mt (i.e., the stock would still be considered rebuilt). By Year 3 (2018), median fishing mortality would increase close to F_{MSY} levels, but not as high as under Alternative 1, and there would be a 50% chance that fishing mortality would exceed F_{MSY} in 2018 (i.e., that overfishing would occur).

Over the three-year simulation, expected Atlantic herring SSB and F under this alternative are within the same range Alternative 1, provided that ABC is not exceeded (based on the 80% confidence intervals, see Table 57 for the projection under Alternative 1). SSB declines, but the stock remains above its biomass target. Therefore, all three alternatives under consideration for the 2016-2018 fishery specifications are expected to have a *negligible* impact on the Atlantic herring resource because they would not jeopardize the biological status of the resource (rebuilt, i.e., above the SSB target).

However, both Alternatives 2 and 3 are considered to be more precautionary than Alternative 1 because they have a lower risk of overfishing (exceeding the OFL); the impacts of Alternatives 2 and 3 on the Atlantic herring resource are therefore expected to be *more positive* than Alternative 1 (no action). Unlike Alternative 1, Alternatives 2 and 3 also provide a buffer between the OFL and ABC in Years 1 and 2 to account for scientific uncertainty. This is consistent with the application of the interim ABC control rule for Atlantic herring in the 2013-2015 fishery specifications and the advice from the Council’s SSC regarding the specification of ABC for 2016-2018. This buffer may afford more protection to the 2011 year class of Atlantic herring

that is just starting to recruit into the mobile gear fishery (see Atlantic herring operational assessment report for more information).

Alternatives 2 and 3 differ from each other in terms of the buffer they provide between the stockwide ACL/U.S. OY and the OFL, which reduces the probability of overfishing. The stockwide ACL represents the maximum amount of catch that the U.S. Atlantic herring fishery could take in a year. A lower stockwide ACL specification is considered to be more precautionary because it provides a greater buffer to account for management uncertainty (NB weir fishery catch) and reduces the likelihood of exceeding the OFL. The suite of AMs in the Atlantic herring fishery further prevent the stockwide ACL from being exceeded. In the case of the U.S. Atlantic herring fishery, the stockwide ACL has only been reached/exceeded once in the last ten years (see Table 42, p. 90).

Table 56 on p. 109 lists the potential annual removals of Atlantic herring that can be expected under each alternative, assuming that the stockwide Atlantic herring ACL/OY is fully utilized. Alternative 2 would allow for the highest annual removals of Atlantic herring from the U.S. fishery with a stockwide ACL specification of 108,000 mt. This is very slightly higher than the total removals allowed under Alternative 1 (stockwide ACL/OY 107,800 mt). However, the risk of overfishing is higher under Alternative 1, and the ABC specification in Alternative 1 is inconsistent with the best available scientific information. Under Alternative 3, the stockwide Atlantic herring ACL/OY would be 105,800 mt with the NB weir payback option and 104,800 mt without the NB weir payback option. When compared to Alternative 3, the risk of exceeding the OFL is slightly higher under Alternative 2, particularly in Year 3. Alternative 2 is therefore considered to be more precautionary than Alternative 1 and less precautionary than Alternative 3. While the overall impact of Alternative 2 on the Atlantic herring resource is expected to be *negligible*, Alternative 2 is expected to have *more positive* impacts on the Atlantic herring resource than Alternative 1, and *less positive* impacts than Alternative 3.

Table 58 Three-Year F/SSB Projection Under Alternatives 2 and 3

	Constant Catch with Probability $F > F_{MSY} = 0.50$ in 2018		
	2016	2017	2018
Median F	0.19	0.23	0.25
80%CI	0.13-0.29	0.15-0.36	0.15-0.42
Catch mt	111,000	111,000	111,000
80%CI	-	-	-
Median SSB mt	557,000	458,000	427,000
80%CI	343,000-942,000	283,000-760,000	237,000-738,000
Prob SSB < ($SSB_{MSY}/2$)	0.00	0.00	0.02
Prob $F > F_{MSY}$	0.23	0.43	0.50

Projections assume that Atlantic herring catch equals the ABC specification in each of the three years.

4.1.1.3 Impacts of Alternative 3 (*Preferred Alternative*)

Similar to Alternative 2, the specification of Atlantic herring ABC for 2016-2018 under Alternative 3 would be 111,000 mt, based on the recommendations of the Council's SSC. The three-year SSB and F projection under this alternative is provided in Table 58 (see previous section). Over the three-year projection, expected Atlantic herring SSB and F under this alternative are within the same range as Alternatives 1 and 2, provided that ABC is not exceeded (based on the 80% confidence intervals, see Table 57 for the projection under Alternative 1). Atlantic herring SSB declines, but the stock remains above its biomass target of 311,145 mt. For the reasons discussed above, all three alternatives under consideration for the 2016-2018 Atlantic herring fishery specifications are expected to have a *negligible* impact on the Atlantic herring resource. None of the alternatives are expected to change or jeopardize the biological status of the Atlantic herring resource (rebuilt, i.e., above the SSB target).

As previously discussed, both Alternatives 2 and 3 are considered more precautionary than Alternative 1 because they have a lower risk of overfishing (exceeding the OFL); the impacts of Alternatives 2 and 3 on the Atlantic herring resource are therefore expected to be *more positive* than Alternative 1 (no action). Unlike Alternative 1, Alternatives 2 and 3 also provide a buffer between the OFL and ABC in Years 1 and 2 to account for scientific uncertainty. This is consistent with the application of the interim ABC control rule for Atlantic herring in the 2013-2015 fishery specifications and the advice from the Council's SSC regarding the specification of ABC for 2016-2018. This buffer may afford more protection to the 2011 year class of Atlantic herring that is just starting to recruit into the mobile gear fishery (see Atlantic herring operational assessment report for more information).

Alternatives 2 and 3 differ from each other in terms of the buffer they provide between the stockwide ACL/U.S. OY and the OFL, which reduces the risk of overfishing in any one year. The stockwide ACL represents the maximum amount of annual catch that the U.S. Atlantic herring fishery could take. A lower stockwide ACL specification is considered to be more precautionary because it provides a greater buffer to account for management uncertainty (NB weir fishery catch) and reduces the probability of exceeding the OFL. A number of AMs in the Atlantic herring fishery further prevent the stockwide ACL from being exceeded. In the case of the U.S. Atlantic herring fishery, the stockwide ACL has only been reached/exceeded once in the last ten years (see Table 42, p. 90).

Table 56 on p. 109 lists the potential annual removals of Atlantic herring that can be expected under each alternative, assuming that the stockwide Atlantic herring ACL/OY is fully utilized by the U.S. fishery. Alternative 2 would allow for the highest annual removals of Atlantic herring from the U.S. fishery with a stockwide ACL specification of 108,000 mt. This is slightly higher than the total removals allowed under Alternative 1 (stockwide ACL/OY 107,800 mt). However, the risk of overfishing is higher under Alternative 1, and the ABC specification in Alternative 1 is inconsistent with the best available scientific information. Under Alternative 3, the stockwide Atlantic herring ACL/OY would be 105,800 mt with the NB weir payback option and 104,800 mt without the NB weir payback option. When compared to Alternative 2, the risk of exceeding the OFL is lower under Alternative 3, particularly in Year 3. Therefore, while the overall impact of Alternative 3 on the Atlantic herring resource is expected to be *negligible*, Alternative 3 is expected to have *more positive* impacts on the Atlantic herring resource than Alternative 1 and

Alternative 2. Of the three alternatives under consideration for the 2016-2018 Atlantic herring fishery specifications, Alternative 3 is expected to have the most positive impact on the Atlantic herring resource because it provides for the largest buffer between the OFL and the stockwide Atlantic herring ACL.

4.1.2 Impacts of 2016-2018 RH/S Catch Caps on Atlantic Herring

The alternatives under consideration for specifying the 2016-2018 RH/S catch caps are summarized in Table 22 on p. 38 of this document. The following subsections discuss the potential impacts of these alternatives on the Atlantic herring resource.

4.1.2.1 Impacts of RH/S Alternative 1 (No Action)

RH/S Alternative 1 represents the no action alternative. Alternative 1 would maintain the 2014/2015 RH/S catch caps implemented in Framework 3 for the 2016-2018 fishing years. Under this alternative, the 2016-2018 RH/S catch caps would be based on the median value of estimated RH/S catch from 2008-2012 from Framework 3 (see Table 19 on p. 35). Framework 3 became effective very late in the 2014 fishing year, so 2015 will be the first fishing year that the directed Atlantic herring fishery is operating under RH/S catch caps. The effects of the Framework 3 catch caps, therefore, have not yet been realized.

Overall, the alternatives for the 2016-2018 RH/S catch caps are not expected to substantially impact the Atlantic herring resource because they are not expected to affect the amount of Atlantic herring available for harvest in any given fishing year, which is specified through the Atlantic herring OFL, ABC, and the stockwide ACL/OY (see Section 4.1.1 of this document for a discussion of the impacts of these specifications on the Atlantic herring resource). The proposed RH/S catch caps (by gear and area) are intended to provide an opportunity for the vessels participating in the directed Atlantic herring fishery to fully utilize the total stockwide ACL for Atlantic herring (U.S. OY) if they can continue to avoid RH/S.

The continued collaborative effort between Atlantic herring fishermen, SMAST, and MA DMF (see Section 3.2.3.3, p. 60) is expected to increase the potential for RH/S avoidance and better ensure that the fleet can fully utilize the available annual herring yield under all of the alternatives. High levels of cooperation and participation by industry members in the avoidance program continues to be documented. The overall behavior of the vessels within the program's avoidance areas also provides evidence of cooperation, and the appearance of distinct spatial and temporal bycatch patterns within the target areas suggests vessels can avoid large catches of alosines. The RH/S catch caps specified for 2016-2018 may result in synergy between regulatory and voluntary bycatch mitigation efforts. The avoidance systems could provide fishermen with a tool that will help them stay below alosine catch limits, enabling them to fully utilize the available Atlantic herring OY. Assuming the fleet can continue to target Atlantic herring and avoid RH/S, the impacts of all of the RH/S catch cap alternatives under consideration for 2016-2018 on the Atlantic herring resource are expected to be *negligible*.

However, depending on which RH/S catch cap alternative is selected by the Council, it is possible that one or more of the RH/S catch caps may result in the closure of a RH/S Catch Cap Area(s) sometime during the 2016-2018 fishing years. This can be expected for the alternatives that base the catch caps on the median value of a recent time series of RH/S catch estimates (the median value suggests that if the directed fishery operates the same way as it did in the reference time frame, RH/S catch will be above the median level 50% of the time). The spatial distribution of (1) the proposed RH/S catch caps, (2) the Atlantic herring resource and available ACL, and (3) fishing effort in the directed Atlantic herring fishery will influence whether Atlantic herring catch may be reduced under any of the RH/S catch cap alternatives.

In general, if Atlantic herring catch is less than expected (based on the stockwide ACL), there could be a positive impact on the Atlantic herring resource. The potential to reduce Atlantic herring catch due to reaching a RH/S catch cap can be evaluated by considering the total removals of RH/S that would be allowed under each RH/S catch cap alternative. Presumably, alternatives that allow for more removals of RH/S would have a lower likelihood of closing the directed Atlantic herring fishery (and consequently reducing Atlantic herring catch), and alternatives that allow for fewer removals of RH/S would have a higher likelihood of closing the directed Atlantic herring fishery and reducing Atlantic herring catch.

Table 59 on p. 127 of this document summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration, Alternative 3 with the Weighted Mean (**Preferred Alternative**) would allow for the highest RH/S removals, followed by Alternative 1 (no action alternative), then Alternative 2 with the Weighted Mean, and Alternative 2 with the Median. Alternative 3 with the Median would allow for the lowest amount of total annual RH/S removals. Therefore, while the impacts of all of the RH/S catch cap alternatives on the Atlantic herring resource are expected to be *negligible*, there is a greater chance of closing the directed Atlantic herring fishery and reducing Atlantic herring removals in one or more areas under Alternative 1 only when compared to Alternative 3 Weighted Mean. In terms of potential impacts on the Atlantic herring resource, therefore, RH/S Alternative 1 is likely to be *more positive* than Alternative 3 Weighted Mean and *less positive* than all of the other alternatives under consideration.

4.1.2.2 Impacts of RH/S Alternative 2 (Non-Preferred)

Under RH/S Alternative 2, the 2016-2018 RH/S catch caps would be based on the Herring PDT's updates/revisions to the 2008-2012 RH/S catch estimates from Framework 3 (see Appendix I for more information). The same five-year time series that was utilized in Framework 3 (2008-2012 with updated/revised data) would be utilized to determine the RH/S catch caps under this alternative, with options to select either the median or weighted mean from the time series (see Table 20 on p. 36).

Option 1: Median. This option would allow for up to 190.9 mt of RH/S to be taken by midwater trawl vessels and 19.6 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 14% and would significantly decrease (78%) the amount of RH/S that could be taken by SNE/MA SMBT vessels. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 32.4% from 2015 levels under this option. This option includes the lowest RH/S catch cap for the southern New England/Mid-Atlantic SMBT fleet. Relative to the no action alternative, there is a higher likelihood that this option could reduce Atlantic herring catch by closing the directed fishery in one or more catch cap/AM areas.

Option 2: Weighted Mean. This option would allow for up to 241.3 mt of RH/S to be taken by midwater trawl vessels and 28.2 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 8.4% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 68.3%. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 13.5% from 2015 levels under this option. Relative to the no action alternative, there is a higher likelihood (although less than under the Median option) that this option could reduce Atlantic herring catch by closing the directed fishery in one or more catch cap/AM areas.

Impacts on Atlantic Herring

Overall, the impacts of RH/S Alternative 2 on Atlantic herring are expected to be similar to those under Alternative 1 (no action) and are discussed in the previous subsection. Any RH/S catch caps that are specified for 2016-2018 are not expected to substantially impact the Atlantic herring resource because they are not expected to affect the amount of Atlantic herring available for harvest in any given fishing year, which is specified through the OFL, ABC, and the stockwide ACL (see Section 4.1.1 of this document for a discussion of the impacts of these specifications on the Atlantic herring resource). The proposed RH/S catch caps (by gear and area) are intended to provide an opportunity for vessels participating in the directed Atlantic herring fishery to fully utilize the total stockwide ACL for Atlantic herring (U.S. OY) if the fleet can continue to avoid RH/S. If the fleet continues to avoid RH/S and is able to fully utilize the Atlantic herring OY, the impacts of this alternative (both options) on the Atlantic herring resource are expected to be *negligible*.

Table 59 on p. 127 of this document summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration, Alternative 3 Weighted Mean would allow for the highest RH/S removals, followed by Alternative 1 (no action), Alternative 2 Weighted Mean, and Alternative 2 Median. Alternative 3 Median would allow for the lowest amount of total RH/S removals. Therefore, while the impacts of Alternative 2 on the Atlantic herring resource are expected to be *negligible*, there is a greater chance of closing the directed Atlantic herring fishery in one or more areas under Alternative 2 when compared to Alternative 1 (no action) and Alternative 3 Weighted Mean. In terms of potential impacts on the Atlantic herring resource, therefore, RH/S Alternative 2 is likely to be *more positive* than RH/S Alternative 1 and RH/S Alternative 3 Weighted Mean and less positive than RH/S Alternative 3 Median. RH/S Alternative 2 Median could have a more positive impact than Alternative 2 Weighted Mean (due to reduced Atlantic herring catch) if the fleet cannot continue to avoid RH/S and fully utilize Atlantic herring OY.

4.1.2.3 Impacts of RH/S Alternative 3 (**Preferred**)

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT's revised/updated data (see Appendix I for more information). This alternative would incorporate RH/S catch estimates from the most recent two years as well, extending the time series to seven years, with options to select either the median or weighted mean values (Table 21 on p. 37). Alternative 3, Option 2 represents the **Preferred Alternative** for the 2016-2018 RH/S catch caps at this time.

Option 1: Median. This option would allow for up to 124.7 mt of RH/S to be taken by midwater trawl vessels and 24 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 44% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 73%. With respect to RH/S removals, this is the most conservative option under consideration for the 2016-2018 RH/S catch caps. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 52.2% from 2015 levels under this option. Relative to other alternatives under consideration, this alternative/option has the highest potential to reduce Atlantic herring catch by closing the directed fishery in one or more catch cap/AM areas.

Option 2: Weighted Mean (Preferred Alternative**).** This option would allow for up to 238.7 mt of RH/S to be taken by midwater trawl vessels and 122.3 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. This is the only option that includes an increase in the RH/S catch cap for southern New England/Mid-Atlantic SMBT vessels. Relative to Alternative 1 (no action), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 7.3% and would increase the amount of RH/S that could be taken by SNE/MA SMBT vessels by 37.6%. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would increase by 15.9% from 2015 levels under this option. Relative to other alternatives under consideration, this

alternative/option has the lowest potential to reduce Atlantic herring catch by closing the directed fishery in one or more catch cap/AM areas.

Impacts on Atlantic Herring

Overall, the impacts of RH/S Alternative 3 on Atlantic herring are expected to be similar to those under Alternative 1 (no action) and Alternative 2, and are discussed in the previous subsections. Any RH/S catch caps that are specified for 2016-2018 are not expected to substantially impact the Atlantic herring resource because they are not expected to affect the amount of Atlantic herring available for harvest in any given fishing year, which is specified through the OFL, ABC, and the stockwide ACL (see Section 4.1.1 of this document for a discussion of the impacts of these specifications on the Atlantic herring resource). The proposed RH/S catch caps (by gear and area) are intended to provide an opportunity for vessels participating in the directed Atlantic herring fishery to fully utilize the total stockwide ACL for Atlantic herring (U.S. OY) if the fleet can continue to avoid RH/S. If the fleet continues to avoid RH/S and is able to fully utilize the Atlantic herring OY, the impacts of this alternative (both options) on the Atlantic herring resource are expected to be *negligible*.

Table 59 on p. 127 of this document summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration, Alternative 3 with the weighted mean would allow for the highest RH/S removals, followed by Alternative 1 (no action), Alternative 2 with the weighted mean, and Alternative 2 with the median. Alternative 3 with the median would allow for the lowest amount of total RH/S removals. Therefore, while the impacts of Alternative 3 on the Atlantic herring resource are expected to be *negligible*, the options under Alternative 3 differ in terms of their potential to reduce Atlantic herring catch through closure of the directed fishery in one or more areas. Alternative 3 Median has the greatest likelihood of reducing Atlantic herring catch, and Alternative 3 Weighted Mean has the lowest likelihood of reducing Atlantic herring catch. In terms of potential impact on the Atlantic herring resource, therefore, RH/S Alternative 3 Median is likely to be *the most positive* alternative under consideration, and RH/S Alternative 3 Weighted Mean is likely to be the *least positive*.

4.2 IMPACTS ON NON-TARGET SPECIES

The primary non-target species in the directed Atlantic herring fishery are groundfish (particularly haddock) and the river herring/shad (RH/S) species. Spiny dogfish, squid, butterfish, Atlantic mackerel are also common non-target species in the directed Atlantic herring fishery (mackerel and some other non-target species catch is often landed and sold). Comprehensive information about the catch of these species in the Atlantic herring fishery can be found in Section 5.2 of the FEIS for Amendment 5 and Sections 3.2 (River Herring/Shad) and 3.3 (Other Non-Target Species) of Framework 3 to the Atlantic Herring FMP. Some updated and summary information about non-target species is provided in Section 3.2 of this document (p. 45). River herring and shad are non-target species of particular concern, and catch of RH/S in the directed Atlantic herring fishery is managed through gear and area-specific catch caps, which are proposed to be set for 2016-2018 in this management action.

The ASMFC completed the river herring benchmark stock assessment and peer review in 2012, examining 52 stocks of alewife and blueback herring with available data in US waters. The stock assessment technical team examined indices from fishery-dependent (directed river herring landings and bycatch estimates in ocean fisheries) and fishery-independent (young-of-year indices, adult net and electrofishing indices, coastal waters trawl surveys, and run count indices) datasets. From this information, the status of 23 stocks were determine to be *depleted* relative to historic levels, and one stock was increasing. Statuses of the remaining 28 stocks could not be determined, citing times-series of available data being too short. “*Depleted*” was used, rather than “*overfished*” and “*overfishing*,” due to many factors (i.e., directed fishing, incidental fishing/bycatch, habitat loss, predation, and climate change) contributing to the decline of river herring populations. Furthermore, the stock assessment did not determine estimates of river herring abundance and fishing mortality due to lack of adequate data. For many of these reasons, the stock assessment team suggested reducing the full range of impacts on river herring populations.

The following subsections discuss the impacts of the alternatives for the proposed 2016-2018 Atlantic herring fishery specifications and RH/S catch caps on non-target species, with particular focus on impacts to the RH/S stocks.

4.2.1 Impacts of Alternatives for 2016-2018 Atlantic Herring Fishery Specifications on Non-Target Species

General Impacts

Interactions between the Atlantic herring fishery and non-target species are managed through provisions required to minimize bycatch/bycatch mortality to the extent practicable (National Standard 9) as well as other required and discretionary provisions of the MSA. Available data indicate that the majority of catch by Atlantic herring vessels on directed trips is Atlantic herring, with low percentages of bycatch.

Each of the alternatives considered by the Council for the 2016-2018 Atlantic herring fishery specifications includes an annual specification for OFL, ABC, a stockwide Atlantic herring ACL (OY), DAH, DAP, USAP, BT, management area sub-ACLs (and seasons), RSA, and FGSA for 2016-2018. Under all of the alternatives for the 2016-2018 Atlantic herring fishery specifications, the following applies:

- Haddock catch by midwater trawl vessels in the Atlantic herring fishery will continue to be managed through a catch cap established in 2006 through Framework 43 to the Multispecies (Groundfish) Fishery Management Plan (FMP) and modified in 2011 through Framework 46. Currently, under the provisions established through Framework 46, the herring midwater trawl fleet (including both single and paired midwater trawl vessels) is subject to a stock-specific cap on haddock catch that is equal to 1% of the GB haddock ABC and 1% of the GOM haddock ABC (see Section 3.2.1, p. 45 for more information about the catch of haddock by midwater trawl vessels in the Atlantic herring fishery).
- River herring and shad (RH/S) are non-target species of particular concern that may be caught/landed incidentally by vessels in the directed Atlantic herring fishery. The catch of RH/S in the directed Atlantic herring fishery will continue to be managed by area-based and gear-based catch caps. The alternatives under consideration for 2016-2018 RH/S catch caps are described in Section 2.3 of this document (p. 35) and analyzed throughout Section 4.0.

In addition, regardless of which alternative is selected for the 2016-2018 Atlantic herring fishery specifications, the directed catch of non-target species and other sources of mortality will continue to be managed through their respective FMPs (Northeast Multispecies FMP and ASMFC Interstate Management Plans for River Herring and Shad) as well as other conservation/restoration efforts.

It is difficult to quantify specific positive or negative impacts on non-target species that may result from the proposed OFL/ABC levels for 2016-2018. In general, alternatives that allow for higher Atlantic herring catch may increase interactions with non-target species, but the impacts, whether positive or negative, will depend on changes in patterns in the Atlantic herring fishery (timing/effort) as well as the distribution/abundance of non-target species. Variability associated with these factors prevents specific predictions regarding impacts. However, in the two action alternatives under consideration (Alternative 2 and Alternative 3), the Atlantic herring ABC specification proposed for 2016-2018 is only 2.6% lower than the 2013-2015 ABC specification (Alternative 1). When the stockwide Atlantic herring ACL is distributed across the four management areas, the resulting sub-ACLs change by less than 1,000 mt in most cases (see Table 3, p. 10). Overall, because the change in Atlantic herring catch is expected to be minor

under any of the alternatives, and because interactions with the primary non-target species in the Atlantic herring fishery (haddock and RH/S) will continue to be managed through catch caps, the impacts of all three alternatives on non-target species are expected to be *negligible*.

Moreover, because available biological/fishery information does not indicate a need to consider major changes to the distribution of allowable catch in the Atlantic herring fishery or other specifications, the alternatives that the Council considered for 2016-2018 maintain the status quo for many specifications. The potential impacts on non-target species resulting from the status quo Atlantic herring fishery specifications (common to all alternatives) are discussed generally below. The impacts of each alternative considered by the Council are discussed individually in the following subsections.

DAH, DAP, BT, USAP

Specifications of DAH, DAP, BT, and USAP are consistent with the formulas in the Atlantic Herring FMP and are proposed to remain unchanged for the 2016-2018 fishing years. These fishery specifications are administrative in nature and represent components of the stockwide Atlantic herring ACL/OY for 2016-2018. None of these specifications affect removals of Atlantic herring or interactions with non-target species. Impacts of these specifications on non-target species, therefore, are expected to be *negligible*.

RSA

For the 2016-2018 Atlantic herring fishery specifications, the Council is proposing to maintain the specification of 3% RSA from each management area for the 2016-2018 fishing years. Overall, this specification is administrative in nature and does not affect removals of Atlantic herring from the fishery, assuming the RSAs are utilized. The impacts of the RSA specifications for 2016-2018 on non-target species are therefore expected to be *negligible*.

Of course, there are long-term benefits to the Atlantic herring resource, participants in the Atlantic herring fishery, non-target species, and protected resources from enhancing management through cooperative research. A 3% RSA for the 2016-2018 fishing year encourages the industry to continue to participate in the collection of scientific information and conduct research to reduce interactions with non-target species affected by the Atlantic herring fishery. The Council has identified river herring bycatch avoidance, portside sampling, electronic monitoring, and research to enhance the Atlantic herring stock assessment as top priorities for cooperative research to be funded through any RSA program supported by the 2016-2018 specifications (see Section 2.2.4, p. 33). Long-term benefits to non-target species and other fisheries can be expected from cooperative research programs that address these priorities. Allocating RSA for 2016-2018 under these research priorities is consistent with the goals and objectives of the Atlantic herring management program and the catch monitoring program implemented in Amendment 5.

FGSA

Specification of the FGSA is proposed to remain unchanged for the 2016-2018 fishing years. This specification is administrative in nature and represents a component of the Area 1A sub-ACL. Amendment 2 to the ASMFC Interstate Herring FMP requires fixed gear fishermen East of Cutler to report catch weekly through the federal IVR system. ME DMR requires the ME state commercial fixed gear fishermen to be compliant with the federal IVR weekly reporting requirements and regulations as well as reporting monthly to ME DMR. Any unused portion of the FGSA is returned to the Area 1A Atlantic herring fishery after November 1, and catch is tracked by NMFS against the Area 1A sub-ACL.

The FGSA specification does not affect interactions with non-target species. Impacts on non-target species, therefore, are expected to be *negligible*.

Sub-ACLs and Seasonal Sub-ACL Divisions

Because the Atlantic herring ABC specification recommended by the SSC for 2016-2018 (111,000 mt) is only 2.6% less than the 2013-2015 ABC specification (114,000 mt), the Council, in consultation with the PDT, AP, and Herring Committee, determined that there is no need to consider modifying the distribution of the stockwide Atlantic herring ACL among the four management areas for 2016-2018. Moreover, information from the Atlantic herring operational assessment report (April 2015) does not indicate that there is a biological need to consider modifying the distribution of the stockwide Atlantic herring ACL at this time. All of the alternatives for the 2016-2018 Atlantic herring fishery specifications therefore maintain a status quo approach to distributing the stockwide Atlantic herring ACL (see Table 18 on p. 32). The status quo approach applies the same (2013-2015) proportional distribution of the stockwide ACL among the management areas, as well as the same seasonal (monthly) divisions of the Area 1A and Area 1B sub-ACLs.

When the stockwide Atlantic herring ACL is distributed across the four management areas under any of the alternatives, the resulting sub-ACLs change by less than 1,000 mt in most cases (see Table 3, p. 10). Therefore, because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort is expected to be minor, the impacts of the 2016-2018 sub-ACL distributions and seasonal divisions on non-target species are expected to be *negligible*.

4.2.1.1 Impacts of Alternative 1 (No Action)

Under the no action alternative, the annual specification of Atlantic herring OFL and ABC would remain 114,000 mt from 2016-2018. This ABC specification is higher than the SSC's recommended specification of 111,000 mt. Because the seasonal/spatial distribution of Atlantic herring catch and fishing effort would not change from 2013-2015 levels, and due to the continuing management of non-target species catch in the Atlantic herring fishery and ongoing efforts to avoid/minimize bycatch, this alternative is not expected to affect the biological status of any non-target species. Alternative 1 is therefore expected to have *negligible* impacts on non-target species.

4.2.1.2 Impacts of Alternative 2 (Non-Preferred)

Under Alternative 2 (as well as Alternative 3), the annual specification of Atlantic herring ABC for 2016-2018 would be 111,000 mt, based on the recommendations of the Council's SSC. This is only 2.6% lower than the 2013-2015 Atlantic herring ABC specification (Alternative 1). When the stockwide Atlantic herring ACL is distributed across the four management areas under this alternative, there is very little change in the management area sub-ACLs when compared to Alternative 1 or Alternative 3 (see Table 3, p. 10). Because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort under this alternative is expected to be minor, and due to the continuing management of non-target species catch in the Atlantic herring fishery and ongoing efforts to avoid/minimize bycatch, this alternative is not expected to affect the biological status of any non-target species. The impacts of Alternative 2 on non-target species are expected to be *negligible*.

4.2.1.3 Impacts of Alternative 3 (Preferred Alternative)

Under Alternative 3 (as well as Alternative 2), the annual specification of Atlantic herring ABC for 2016-2018 would be 111,000 mt, based on the recommendations of the Council's SSC. This is only 2.6% lower than the 2013-2015 Atlantic herring ABC specification (Alternative 1). When the stockwide Atlantic herring ACL is distributed across the four management areas under this alternative, the change in management area sub-ACLs is less than 1,000 mt in most cases, when compared to Alternative 1 or Alternative 2 (see Table 3, p. 10). Because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort under this alternative is expected to be minor, and due to the continuing management of non-target species catch in the Atlantic herring fishery and ongoing efforts to avoid/minimize bycatch, this alternative is not expected to affect the biological status of any non-target species. The impacts of Alternative 3 on non-target species are expected to be *negligible*.

4.2.2 Impacts of 2016-2018 RH/S Catch Caps on Non-Target Species

The alternatives under consideration for specifying the 2016-2018 RH/S catch caps are summarized in Table 22 on p. 38 of this document. The following subsections discuss the potential impacts of these alternatives on non-target species. Because the proposed catch caps are focused exclusively on river herring and shad (RH/S), the impacts of the alternatives on other non-target species are expected to be negligible. Particular consideration is given in the following discussion to the potential impacts of the catch cap alternatives for 2016-2018 on river herring and shad (RH/S).

While stock and fishery data are not robust enough at this time to determine a biologically-based RH/S catch cap and/or the potential impacts of such a catch cap on the RH/S stocks, setting a cap on the catch of these species in the directed Atlantic herring fishery is a proactive action intended to manage and minimize catch to the extent practicable while allowing the Atlantic herring fishery to continue to operate and fully utilize OY during 2016-2018 if RH/S can be avoided. The catch of RH/S in the directed Atlantic herring fishery would likely be less under any of the alternatives when compared to not specifying catch caps in the fishery because catch would be capped, and there would be a regulatory incentive for the fleet to avoid RH/S. Generally, lower catches should result in positive impacts on RH/S.

Moreover, continuing to specify RH/S catch caps may generate more information, which can provide the Council with the ability to link RH/S catch in the Atlantic herring fishery to RH/S stock status and fishing mortality in the future. It is possible that this will allow for future RH/S catch caps in the directed Atlantic herring fishery to be set such that more specific impacts on the RH/S stocks can be quantified. Due to the depleted status of many of the RH/S stocks and concerns about the impact of RH/S catch/bycatch and associated mortality in the Atlantic herring fishery, there is likely to be a biological benefit to continuing to specify RH/S catch caps for the directed Atlantic herring fishery. The impacts of all of the RH/S catch cap alternatives on non-target species, particularly RH/S, are therefore expected to be *positive*.

There are, however, differences between the alternatives under consideration and their potential impacts on RH/S stocks. Specific biological impacts will be influenced by changes in directed Atlantic herring fleet behavior and shifts in the distribution/aggregation of RH/S stocks/sub-stocks resulting from changes in fishing activity, environmental factors, climate change, restoration efforts, and other factors. Comparing the total removals of RH/S that may be allowed under each catch cap alternative for 2016-2018 provides a basis for understanding the differences between the alternatives and their potential impacts on RH/S. Alternatives that would allow for lower annual RH/S removals in the directed Atlantic herring fishery are assumed to have a *more positive* impact on RH/S; alternatives that would allow for higher annual RH/S removals in the directed Atlantic herring fishery are assumed to have a *less positive* impact on RH/S.

Table 59 summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration for the 2016-2018 RH/S catch caps, Alternative 3 with the weighted mean would allow for the highest RH/S removals, followed by Alternative 1 (no action), Alternative 2 with

the weighted mean, and Alternative 2 with the median. Alternative 3 with the median would allow for the lowest amount of total RH/S removals.

Table 59 Potential Removals of River Herring/Shad (mt) Under Each RH/S Catch Cap Alternative

	Alt 1 (No Act)	Alt 2 (Median)	Alt 2 (Wgt Mean)	Alt 3 (Median)	Alt 3 (Wgt Mean)
Midwater Trawl GOM	85.5	98.1	98.3	11.3	76.7
Midwater Trawl Cape Cod	13.3	8.9	27.6	29.5	32.4
Midwater Trawl SNE/MA	123.7	83.9	115.4	83.9	129.6
Total Midwater Trawl	222.5	190.9	241.3	124.7	238.7
Small Mesh Bottom Trawl SNE/MA	88.9	19.6	28.2	24.0	122.3
Total RH/S Removals	311.4	210.5	269.5	148.7	361

**Estimated RH/S removals in the table above assume that 100% of the caps are taken on trips landing more than 6,600 pounds of Atlantic herring during the fishing year.*

4.2.2.1 Impacts of RH/S Alternative 1 (No Action)

RH/S Alternative 1 represents the no action alternative. Alternative 1 would maintain the 2014/2015 RH/S catch caps implemented in Framework 3 for the 2016-2018 fishing years. Under this alternative, the 2016-2018 RH/S catch caps would be based on the median value of estimated RH/S catch from 2008-2012 from Framework 3 (see Table 19 on p. 35). Framework 3 became effective very late in the 2014 fishing year, so 2015 will be the first fishing year that the directed Atlantic herring fishery is operating under RH/S catch caps. The effects of the Framework 3 catch caps on the RH/S stocks, therefore, have not yet been realized.

If 100% of the RH/S caps are taken in the directed Atlantic herring fishery (trips landing more than 6,600 pounds) during the fishing year, then Alternative 1 (no action) would allow for more total RH/S removals than Alternative 2 (Median and Weighted Mean) and Alternative 3 Median, but less total RH/S removals than Alternative 3 Weighted Mean (see Table 59).

As discussed above, due to the depleted status of many of the RH/S stocks and concerns about the impact of RH/S catch/bycatch and associated mortality in the Atlantic herring fishery, there is likely to be a biological benefit to continuing to specify RH/S catch caps for the directed Atlantic herring fishery. The impacts of all of the RH/S catch cap alternatives on non-target species, particularly RH/S, are therefore expected to be *positive*. When compared to the other alternatives, the impacts of Alternative 1 on non-target species is expected to be *less positive* than Alternative 2 (Median and Weighted Mean), *less positive* than Alternative 3 Median, and *more positive* than Alternative 3 Weighted Mean.

4.2.2.2 Impacts of RH/S Alternative 2 (Non-Preferred)

Under RH/S Alternative 2, the 2016-2018 RH/S catch caps would be based on the Herring PDT's updates/revisions to the 2008-2012 RH/S catch estimates from Framework 3. The same five-year time series that was utilized in Framework 3 (2008-2012 with updated/revised data) would be utilized to determine the RH/S catch caps under this alternative, with options to select either the median or weighted mean from the time series (see Table 20 on p. 36 and Appendix I for more information).

Option 1: Median. This option would allow for up to 190.9 mt of RH/S to be taken by midwater trawl vessels and 19.6 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to the no action alternative (2015 RH/S catch caps), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 14% and would significantly decrease (78%) the amount of RH/S that could be taken by SNE/MA SMBT vessels. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 32.4% from 2015 levels under this option. This option includes the lowest RH/S catch cap for the southern New England/Mid-Atlantic SMBT fleet.

Option 2: Weighted Mean. This option would allow for up to 241.3 mt of RH/S to be taken by midwater trawl vessels and 28.2 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to the no action alternative (2015 RH/S catch caps), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 8.4% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 68.3%. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 13.5% from 2015 levels under this option.

Impacts on Non-Target Species (RH/S)

Of the RH/S catch cap alternatives under consideration for 2016-2018, Alternative 3 Weighted Mean would allow for the highest annual RH/S removals, followed by Alternative 1 (no action), Alternative 2 Weighted Mean, and Alternative 2 Median (see Table 59 on p. 127). Alternative 3 Median would allow for the lowest amount of total RH/S removals and is the most conservative option under consideration with respect to removals. If 100% of the RH/S caps are taken in the directed Atlantic herring fishery (trips landing more than 6,600 pounds) during the fishing year, then Alternative 2 (Median and Weighted Mean) is more conservative with respect to total RH/S removals than Alternative 1 (no action) and Alternative 3 Weighted Mean (**Preferred Alternative**), and it is less conservative than Alternative 3 Median. Alternative 2 Median is more conservative than Alternative 2 Weighted Mean.

As discussed above, due to the depleted status of many of the RH/S stocks and concerns about the impact of RH/S catch/bycatch and associated mortality in the Atlantic herring fishery, there is likely to be a biological benefit to continuing to specify RH/S catch caps for the directed Atlantic herring fishery. The impacts of all of the RH/S catch cap alternatives on non-target species, particularly RH/S, are therefore expected to be *positive*. When compared to the other RH/S catch cap alternatives in terms of potential RH/S removals, the impacts of Alternative 2 Median on non-target species are expected to be *less positive* than Alternative 3 Median and *more positive* than the other alternatives under consideration. The impacts of Alternative 2

Weighted Mean on non-target species are expected to be *less positive* than Alternative 2 Median and Alternative 3 Median and *more positive* than Alternative 1 and Alternative 3 Weighted Mean.

4.2.2.3 Impacts of RH/S Alternative 3 (*Preferred*)

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT's revised/updated data (see Appendix I for more information). This alternative would incorporate RH/S catch estimates from the most recent two years as well, extending the time series to seven years, with options to select either the median or weighted mean values (Table 21 on p. 37). Alternative 3, Option 2 represents the *Preferred Alternative* for the 2016-2018 RH/S catch caps at this time.

Option 1: Median. This option would allow for up to 124.7 mt of RH/S to be taken by midwater trawl vessels and 24 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to the no action alternative (2015 RH/S catch caps), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 44% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 73%.

With respect to RH/S removals, this is the most conservative alternative/option under consideration for the 2016-2018 RH/S catch caps. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 52.2% from 2015 levels under this option. While this option would allow for midwater trawl removals of RH/S to increase in the Cape Cod Area, overall removals of RH/S allowed by midwater trawl vessels under this option are the lowest of the alternatives under consideration. This option also proposes a significant reduction in the RH/S catch cap for small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area.

Option 2: Weighted Mean (*Preferred Alternative*). This option would allow for up to 238.7 mt of RH/S to be taken by midwater trawl vessels and 122.3 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. This is the only option that includes an increase in the RH/S catch cap for southern New England/Mid-Atlantic SMBT vessels. Relative to the no action alternative (2015 RH/S catch caps), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 7.3% and would increase the amount of RH/S that could be taken by SNE/MA SMBT vessels by 37.6%. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would increase by 15.9% from 2015 levels under this option.

Impacts on Non-Target Species (RH/S)

Of the RH/S catch cap alternatives under consideration for 2016-2018, Alternative 3 Weighted Mean would allow for the highest annual RH/S removals, followed by Alternative 1 (no action), Alternative 2 Weighted Mean, and Alternative 2 Median (see Table 59 on p. 127). Alternative 3 Median would allow for the lowest amount of total RH/S removals. If 100% of the RH/S caps are taken in the directed Atlantic herring fishery (trips landing more than 6,600 pounds) during the fishing year, then Alternative 3 Median is the most conservative option under consideration with respect to total RH/S removals, and Alternative 3 Weighted Mean (***Preferred Alternative***) is the least conservative (see Table 59 on p. 127). Alternative 3 Weighted Mean would allow total RH/S removals to increase about 16% from the potential removals allowed under the 2015 RH/S catch caps (Alternative 1).

As discussed above, due to the depleted status of many of the RH/S stocks and concerns about the impact of RH/S catch/bycatch and associated mortality in the Atlantic herring fishery, there is likely to be a biological benefit to continuing to specify RH/S catch caps for the directed Atlantic herring fishery. The impacts of all of the RH/S catch cap alternatives on non-target species, particularly RH/S, are therefore expected to be ***positive***. When compared to the other RH/S catch cap alternatives in terms of potential RH/S removals, the impacts of Alternative 3 Median on non-target species are expected to be ***more positive*** than any other alternatives under consideration. The impacts of Alternative 3 Weighted Mean (***Preferred Alternative***) on non-target species are expected to be ***less positive*** than any other alternatives under consideration.

4.3 IMPACTS ON PHYSICAL ENVIRONMENT AND ESSENTIAL FISH HABITAT

A general description of the physical environment and EFH is provided in Section 3.3 of this document (p. 60). An assessment of the potential effects of the directed Atlantic herring commercial fishery on EFH for Atlantic herring and other federally-managed species in the Northeast region of the U.S. was conducted as part of an EIS that evaluated impacts of the Atlantic herring fishery on EFH (NMFS 2005). This analysis was included in Appendix VI, Volume II of the FEIS for Amendment 1 to the Atlantic Herring FMP. It found that midwater trawls and purse seines do occasionally contact the seafloor and may adversely impact benthic habitats utilized by a number of federally-managed species, including EFH for Atlantic herring eggs. However, after reviewing all the available information, the conclusion was reached that if the quality of EFH is reduced as a result of this contact, the impacts are minimal and/or temporary and, pursuant to MSA, do not need to be minimized, i.e., that there was no need to take specific action at that time to minimize the adverse effects of the herring fishery on benthic EFH. This conclusion also applied to pelagic EFH for Atlantic herring larvae, juveniles, and adults, and to pelagic EFH for any other federally-managed species in the region. Additional information can be found in the FEIS for Amendment 1 to the Atlantic Herring FMP, which was updated in the FEIS for Amendment 5 to the Atlantic Herring FMP.

The impacts of each of the alternatives considered by the Council in the 2016-2018 Atlantic herring fishery specifications package on the Physical Environment and EFH are discussed in the following subsections. Overall, given the minimal and temporary nature of adverse effects on EFH in the Atlantic herring fishery, the alternatives under consideration are expected to have a *negligible* impact on the physical environment and EFH.

4.3.1 Impacts of Alternatives for 2016-2018 Atlantic Herring Fishery Specifications on the Physical Environment and EFH

Each of the alternatives considered by the Council for the 2016-2018 fishery specifications includes an annual specification for OFL, ABC, a stockwide Atlantic Herring ACL (OY), DAH, DAP, USAP, BT, management area sub-ACLs (and seasons), RSA, and FGSA for 2016-2018. Because the Atlantic herring ABC specification proposed for 2016-2018 is only 2.6% lower than the 2013-2015 ABC specification, and because available biological/fishery information does not indicate a need to consider major changes to the distribution of allowable catch in the herring fishery or other specifications, the alternatives that the Council considered for 2016-2018 maintain the status quo for many specifications. Given the minimal and temporary nature of adverse effects on EFH in the Atlantic herring fishery, these specifications are expected to have a *negligible* impact on the physical environment and EFH. The impacts of each alternative are addressed individually below.

4.3.1.1 Impacts of Alternative 1 (No Action)

TBD

4.3.1.2 Impacts of Alternative 2 (Non-Preferred)

TBD

4.3.1.3 Impacts of Alternative 3 (*Preferred Alternative*)

TBD

4.3.2 Impacts of 2016-2018 RH/S Catch Caps on the Physical Environment and EFH

The alternatives under consideration for specifying the 2016-2018 RH/S catch caps are summarized in Table 22 on p. 38 of this document. The following subsections discuss the potential impacts of these alternatives/options on the physical environment and EFH.

4.3.2.1 Impacts of RH/S Alternative 1 (No Action)

RH/S Alternative 1 represents the no action alternative. Alternative 1 would maintain the 2014/2015 RH/S catch caps implemented in Framework 3 for the 2016-2018 fishing years. Under this alternative, the 2016-2018 RH/S catch caps would be based on the median value of estimated RH/S catch from 2008-2012 from Framework 3 (see Table 19 on p. 35).

TBD

4.3.2.2 Impacts of RH/S Alternative 2 (Non-Preferred)

Under RH/S Alternative 2, the 2016-2018 RH/S catch caps would be based on the Herring PDT's updates/revisions to the 2008-2012 RH/S catch estimates from Framework 3. The same five-year time series that was utilized in Framework 3 (2008-2012 with updated/revised data) would be utilized to determine the RH/S catch caps under this alternative, with options to select either the median or weighted mean from the time series (see Table 20 on p. 36).

Option 1: Median. This option would allow for up to 190.9 mt of RH/S to be taken by midwater trawl vessels and 19.6 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1, this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 14% and would significantly decrease (78%) the amount of RH/S that could be taken by SNE/MA SMBT vessels. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 32.4% from 2015 levels under this option.

Option 2: Weighted Mean. This option would allow for up to 241.3 mt of RH/S to be taken by midwater trawl vessels and 28.2 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1, this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 8.4% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 68.3%. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 13.5% from 2015 levels under this option.

Impacts on Physical Environment and EFH

TBD

4.3.2.3 Impacts of RH/S Alternative 3 (*Preferred*)

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT's revised/updated data (see Appendix I for more information). This alternative would incorporate RH/S catch estimates from the most recent two years as well, extending the time series to seven years, with options to select either the median or weighted mean values (Table 21 on p. 37). Alternative 3, Option 2 represents the *Preferred Alternative* for the 2016-2018 RH/S catch caps at this time.

Option 1: Median. This option would allow for up to 124.7 mt of RH/S to be taken by midwater trawl vessels and 24 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 44% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 73%. With respect to RH/S removals, this is the most conservative alternative/option under consideration for the 2016-2018 RH/S catch caps. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 52.2% from 2015 levels under this option.

Option 2: Weighted Mean (*Preferred Alternative*). This option would allow for up to 238.7 mt of RH/S to be taken by midwater trawl vessels and 122.3 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. This is the only option that includes an increase in the RH/S catch cap for southern New England/Mid-Atlantic SMBT vessels. Relative to Alternative 1 (no action), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 7.3% and would increase the amount of RH/S that could be taken by SNE/MA SMBT vessels by 37.6%. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would increase by 15.9% from 2015 levels under this option.

Impacts on Physical Environment and EFH

TBD

4.4 IMPACTS ON PROTECTED RESOURCES

The protected resources that are evaluated with respect to this management action are described in Section 3.4 of this document (p. 70). The ESA and MMPA requirements addressed in Section 3.4 further explain the protected species/resources and have been well-documented in the major gear types currently used in the Atlantic herring fishery. Additionally, actions to minimize takes on protected resources specifically certain cetaceans and harbor porpoise are required under ALWTRP and HPTRP measures respectively.

The following subsections discuss the impacts of the alternatives for the 2016-2018 Atlantic herring fishery specifications and RH/S catch caps on protected resources.

4.4.1 Impacts of Alternatives for 2016-2018 Atlantic Herring Fishery Specifications on Protected Resources

Each of the alternatives considered by the Council for the 2016-2018 Atlantic herring fishery specifications includes an annual specification for OFL, ABC, a stockwide Atlantic Herring ACL (OY), DAH, DAP, USAP, BT, management area sub-ACLs (and seasons), RSA, and FGSA for 2016-2018. Because the Atlantic herring ABC specification proposed for 2016-2018 is only 2.6% lower than the 2013-2015 ABC specification, and because available biological/fishery information does not indicate a need to consider major changes to the distribution of allowable catch in the herring fishery or other specifications, the alternatives that the Council considered for 2016-2018 maintain the status quo for many specifications. Therefore, the potential impacts on protected resources resulting from the status quo fishery specifications (common to all alternatives) are discussed generally below. The impacts of each alternative considered by the Council are discussed individually in the following subsections.

DAH, DAP, BT, USAP

Specifications of DAH, DAP, BT, and USAP are consistent with the formulas in the Atlantic Herring FMP and are proposed to remain unchanged for the 2016-2018 fishing years. These fishery specifications are administrative in nature and represent components of the stockwide Atlantic herring ACL/OY for 2016-2018. None of these specifications affect removals of Atlantic herring or interactions with protected resources. Impacts of these specifications on protected resources, therefore, are expected to be *negligible*.

RSA

For the 2016-2018 Atlantic herring fishery specifications, the Council is proposing to maintain the specification of 3% RSA from each management area for the 2016-2018 fishing years. Overall, this specification is administrative in nature and does not affect removals of Atlantic herring from the fishery, assuming the RSAs are utilized. The impacts of the RSA specifications for 2016-2018 on protected resources are therefore expected to be *negligible*.

Of course, there are long-term benefits to the Atlantic herring resource, participants in the Atlantic herring fishery, non-target species, and protected resources from enhancing management through cooperative research. A 3% RSA for the 2016-2018 fishing year encourages the industry to continue to participate in the collection of scientific information and conduct research

to reduce interactions with non-target species affected by the Atlantic herring fishery. The Council has identified river herring bycatch avoidance, portside sampling, electronic monitoring, and research to enhance the Atlantic herring stock assessment as top priorities for cooperative research to be funded through any RSA program supported by the 2016-2018 specifications (see Section 2.2.4, p. 33). Long-term benefits to non-target species and other fisheries can be expected from cooperative research programs that address these priorities. Allocating RSA for 2016-2018 under these research priorities is consistent with the goals and objectives of the Atlantic herring management program and the catch monitoring program implemented in Amendment 5.

FGSA

Specification of the FGSA is proposed to remain unchanged for the 2016-2018 fishing years. This specification is administrative in nature and represents a component of the Area 1A sub-ACL. Amendment 2 to the ASMFC Interstate Herring FMP requires fixed gear fishermen East of Cutler to report catch weekly through the federal IVR system. ME DMR requires the ME state commercial fixed gear fishermen to be compliant with the federal IVR weekly reporting requirements and regulations as well as reporting monthly to ME DMR. Any unused portion of the FGSA is returned to the Area 1A Atlantic herring fishery after November 1, and catch is tracked by NMFS against the Area 1A sub-ACL.

The FGSA specification does not affect interactions with protected resources. Impacts on protected resources, therefore, are expected to be *negligible*.

Sub-ACLs and Seasonal Sub-ACL Divisions

Because the Atlantic herring ABC specification recommended by the SSC for 2016-2018 (111,000 mt) is only 2.6% less than the 2013-2015 ABC specification (114,000 mt), the Council, in consultation with the PDT, AP, and Herring Committee, determined that there is no need to consider modifying the distribution of the stockwide Atlantic herring ACL among the four management areas for 2016-2018. Moreover, information from the Atlantic herring operational assessment report (April 2015) does not indicate that there is a biological need to consider modifying the distribution of the stockwide Atlantic herring ACL at this time. All of the alternatives for the 2016-2018 Atlantic herring fishery specifications therefore maintain a status quo approach to distributing the stockwide Atlantic herring ACL (see Table 18 on p. 32). The status quo approach applies the same (2013-2015) proportional distribution of the stockwide ACL among the management areas, as well as the same seasonal (monthly) divisions of the Area 1A and Area 1B sub-ACLs.

When the stockwide Atlantic herring ACL is distributed across the four management areas under any of the alternatives, the resulting sub-ACLs change by less than 1,000 mt in most cases (see Table 3, p. 10). Therefore, because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort is expected to be minor, the impacts of the 2016-2018 sub-ACL distributions and seasonal divisions on protected resources are expected to be *negligible*.

4.4.1.1 Impacts of Alternative 1 (No Action)

Under the no action alternative, the annual specification of Atlantic herring OFL and ABC would remain 114,000 mt from 2016-2018. This ABC specification is higher than the SSC's recommended specification of 111,000 mt.

Because Atlantic herring catch and fishing effort would not change, this alternative is expected to have *negligible* impacts on protected resources.

4.4.1.2 Impacts of Alternative 2 (Non-Preferred)

Under Alternative 2 (as well as Alternative 3), the annual specification of Atlantic herring ABC for 2016-2018 would be 111,000 mt, based on the recommendations of the Council's SSC. This is only 2.6% lower than the 2013-2015 Atlantic herring ABC specification (Alternative 1). When the stockwide Atlantic herring ACL is distributed across the four management areas under this alternative, there is very little change in the management area sub-ACLs when compared to Alternative 1 or Alternative 3 (see Table 3, p. 10). Because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort under this alternative is expected to be minor, the impacts on protected resources are expected to be *negligible*.

4.4.1.3 Impacts of Alternative 3 (*Preferred Alternative*)

Under Alternative 3 (as well as Alternative 2), the annual specification of Atlantic herring ABC for 2016-2018 would be 111,000 mt, based on the recommendations of the Council's SSC. This is only 2.6% lower than the 2013-2015 Atlantic herring ABC specification (Alternative 1). When the stockwide Atlantic herring ACL is distributed across the four management areas under this alternative, the change in management area sub-ACLs is less than 1,000 mt in most cases, when compared to Alternative 1 or Alternative 2 (see Table 3, p. 10). Because the change in the seasonal/spatial distribution of Atlantic herring catch and fishing effort under this alternative is expected to be minor, the impacts on protected resources are expected to be *negligible*.

4.4.2 Impacts of 2016-2018 RH/S Catch Caps on Protected Resources

The alternatives under consideration for specifying the 2016-2018 RH/S catch caps are summarized in Table 22 on p. 38 of this document. The following subsections discuss the potential impacts of these alternatives/options on protected resources.

Overall, the alternatives under consideration for the 2016-2018 RH/S catch caps are not expected to substantially impact protected resources because they are intended to provide an opportunity for the vessels participating in the directed Atlantic herring fishery to fully utilize the total stockwide ACL for Atlantic herring (U.S. OY) if they can continue to avoid RH/S. Any changes in fishing patterns and/or fishing effort in the Atlantic herring fishery resulting from the 2016-2018 RH/S catch caps are not likely to substantially impact interactions with protected resources and therefore are not likely to influence the biological status of protected resources. Moreover, the ongoing management protected resources interactions in the Atlantic herring fishery would continue to address fishing mortality and the conservation of protected resources. Therefore,

assuming the directed Atlantic herring fleet can continue to target Atlantic herring and avoid RH/S, the impacts of all of the RH/S catch cap alternatives under consideration on protected resources are expected to be *negligible*.

However, depending on which RH/S catch cap alternative is selected by the Council, it is possible that one or more of the RH/S catch caps may result in the closure of a RH/S Catch Cap Area(s) sometime during the 2016-2018 fishing years. This can be expected for the alternatives that base the catch caps on the median value of a recent time series of RH/S catch estimates (the median value suggests that if the directed fishery operates the same way as it did in the reference time frame, RH/S catch will be above the median level 50% of the time). The spatial distribution of (1) the proposed RH/S catch caps, (2) the Atlantic herring resource and available ACL, and (3) fishing effort in the directed Atlantic herring fishery will influence whether Atlantic herring catch may be reduced under any of the RH/S catch cap alternatives.

The specific impacts of the RH/S catch cap alternatives for 2016-2018 on protected resources cannot be predicted with certainty because they will result from changes in interactions and encounters with protected resources in the directed Atlantic herring fishery. The potential for interaction with protected resources may increase or decrease depending on when and how directed herring fishing effort changes as a result of the particular catch caps. In general, if Atlantic herring catch is less than expected (based on the stockwide ACL) because a RH/S catch cap precludes the directed fishery in one or more management areas, there could be a positive impact on protected resources if the reduction in Atlantic herring fishing effort reduces interactions with protected resources. Presumably, RH/S catch cap alternatives that allow for more removals of RH/S would have a lower likelihood of closing the directed Atlantic herring fishery (and consequently reducing Atlantic herring fishing effort), and alternatives that allow for fewer removals of RH/S would have a higher likelihood of closing the directed Atlantic herring fishery and reducing Atlantic herring fishing effort. The RH/S catch cap alternatives are evaluated accordingly to determine the potential impacts on protected resources in the following subsections.

4.4.2.1 Impacts of RH/S Alternative 1 (No Action)

RH/S Alternative 1 represents the no action alternative. Alternative 1 would maintain the 2014/2015 RH/S catch caps implemented in Framework 3 for the 2016-2018 fishing years. Under this alternative, the 2016-2018 RH/S catch caps would be based on the median value of estimated RH/S catch from 2008-2012 from Framework 3 (see Table 19 on p. 35).

Table 59 on p. 127 of this document summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration, Alternative 3 with the Weighted Mean (**Preferred Alternative**) would allow for the highest RH/S removals, followed by Alternative 1 (no action alternative), then Alternative 2 with the Weighted Mean, and Alternative 2 with the Median. Alternative 3 with the Median would allow for the lowest amount of total annual RH/S removals. Therefore, while the impacts of all of the RH/S catch cap alternatives on protected resources are expected to be *negligible*, there is a greater chance of closing the directed Atlantic herring

fishery and reducing Atlantic herring fishing effort in one or more areas under Alternative 1 only when compared to Alternative 3 Weighted Mean. In terms of potential impacts on protected resources, therefore, RH/S Alternative 1 is likely to be *more positive* than Alternative 3 Weighted Mean and *less positive* than all of the other alternatives under consideration.

4.4.2.2 Impacts of RH/S Alternative 2 (Non-Preferred)

Under RH/S Alternative 2, the 2016-2018 RH/S catch caps would be based on the Herring PDT's updates/revisions to the 2008-2012 RH/S catch estimates from Framework 3 (see Appendix I for more information). The same five-year time series that was utilized in Framework 3 (2008-2012 with updated/revised data) would be utilized to determine the RH/S catch caps under this alternative, with options to select either the median or weighted mean from the time series (see Table 20 on p. 36).

Option 1: Median. This option would allow for up to 190.9 mt of RH/S to be taken by midwater trawl vessels and 19.6 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 14% and would significantly decrease (78%) the amount of RH/S that could be taken by SNE/MA SMBT vessels. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 32.4% from 2015 levels under this option.

Option 2: Weighted Mean. This option would allow for up to 241.3 mt of RH/S to be taken by midwater trawl vessels and 28.2 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 8.4% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 68.3%. Overall, the amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 13.5% from 2015 levels under this option. Relative to the no action alternative, there is a higher likelihood (although less than under the Median option) that this option could reduce Atlantic herring fishing effort by closing the directed fishery in one or more catch cap/AM areas.

Impacts on Protected Resources

Overall, for the reasons discussed above, if the directed Atlantic herring fleet continues to avoid RH/S and is able to fully utilize the Atlantic herring OY, the impacts of this alternative (both options) on protected resources are expected to be *negligible*.

Table 59 on p. 127 of this document summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration, Alternative 3 Weighted Mean would allow for the highest RH/S removals, followed by Alternative 1 (no action), Alternative 2 Weighted Mean, and Alternative 2 Median. Alternative 3 Median would allow for the lowest amount of total RH/S removals. Therefore, while the impacts of Alternative 2 on protected resources are expected to be *negligible*, there is a greater chance of closing the directed Atlantic herring fishery in one or

more areas under Alternative 2 Median and Weighted Mean when compared to Alternative 1 (no action) and Alternative 3 Weighted Mean. There is a greater chance of closing the directed herring fishery under Alternative 2 Median when compared to Alternative 2 Weighted Mean. In terms of potential impacts on protected resources, therefore, RH/S Alternative 2 is likely to be *more positive* than RH/S Alternative 1 and RH/S Alternative 3 Weighted Mean and *less positive* than RH/S Alternative 3 Median. RH/S Alternative 2 Median could have a *more positive* impact than Alternative 2 Weighted Mean (due to reduced Atlantic herring fishing effort) if the fleet cannot continue to avoid RH/S and fully utilize Atlantic herring OY.

4.4.2.3 Impacts of RH/S Alternative 3 (*Preferred*)

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT's revised/updated data (see Appendix I for more information). This alternative would incorporate RH/S catch estimates from the most recent two years as well, extending the time series to seven years, with options to select either the median or weighted mean values (Table 21 on p. 37). Alternative 3, Option 2 represents the *Preferred Alternative* for the 2016-2018 RH/S catch caps at this time.

Option 1: Median. This option would allow for up to 124.7 mt of RH/S to be taken by midwater trawl vessels and 24 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. Relative to Alternative 1 (no action), this option would decrease the amount of RH/S that could be taken by midwater trawl vessels by 44% and would decrease the amount of RH/S that could be taken by SNE/MA SMBT vessels by 73%. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would decrease by 52.2% from 2015 levels under this option. Relative to other alternatives under consideration, this alternative/option has the highest potential to reduce Atlantic herring catch by closing the directed fishery in one or more catch cap/AM areas.

Option 2: Weighted Mean (*Preferred Alternative*). This option would allow for up to 238.7 mt of RH/S to be taken by midwater trawl vessels and 122.3 mt of RH/S to be taken by small mesh bottom trawl vessels fishing in the southern New England/Mid-Atlantic area. This is the only option that includes an increase in the RH/S catch cap for southern New England/Mid-Atlantic SMBT vessels. Relative to Alternative 1 (no action), this option would increase the amount of RH/S that could be taken by midwater trawl vessels by 7.3% and would increase the amount of RH/S that could be taken by SNE/MA SMBT vessels by 37.6%. Overall, the total amount of RH/S that could be taken by the directed Atlantic herring fishery would increase by 15.9% from 2015 levels under this option. Relative to other alternatives under consideration, this alternative/option has the lowest potential to reduce Atlantic herring catch by closing the directed fishery in one or more catch cap/AM areas.

Impacts on Protected Resources

Overall, for the reasons discussed above, if the directed Atlantic herring fleet continues to avoid RH/S and is able to fully utilize the Atlantic herring OY, the impacts of this alternative (both options) on protected resources are expected to be *negligible*.

Table 59 on p. 127 of this document summarizes the total potential removals of RH/S in the directed Atlantic herring fishery (trips landing more than 6,600 pounds of Atlantic herring) under the RH/S catch caps proposed in each alternative, assuming that 100% of the caps are caught. Of the alternatives under consideration, Alternative 3 Weighted Mean (***Preferred Alternative***) would allow for the highest RH/S removals, followed by Alternative 1 (no action), Alternative 2 Weighted Mean, and Alternative 2 Median. Alternative 3 Median would allow for the lowest amount of total RH/S removals. Therefore, while the impacts of Alternative 3 on protected resources are expected to be *negligible*, the options under Alternative 3 differ in terms of their potential to reduce Atlantic herring catch through closure of the directed fishery in one or more areas. Alternative 3 Median has the greatest likelihood of reducing Atlantic herring catch, and Alternative 3 Weighted Mean has the lowest likelihood of reducing Atlantic herring catch. In terms of potential impact on protected resources, therefore, RH/S Alternative 3 Median is likely to be *the most positive* alternative under consideration, and RH/S Alternative 3 Weighted Mean is likely to be *the least positive*.

4.5 IMPACTS ON FISHERY-RELATED BUSINESSES AND COMMUNITIES

The analysis of impacts on fishery-related businesses and communities characterizes the magnitude and extent of the economic and social impacts likely to result from the alternatives considered for the 2016-2018 Atlantic herring fishery specifications as compared to the no action alternatives. National Standard 8 requires the Council to consider the importance of fishery resources to affected communities and provide those communities with continuing access to fishery resources, but it does not allow the Council to compromise the conservation objectives of the management measures. Thus, continued overall access to fishery resources is a consideration, but not a guarantee that fishermen will be able to use a particular gear type, harvest a particular species of fish, fish in a particular area, or fish during a certain time of the year.

A fundamental difficulty exists in forecasting economic and social change relative to fishery management alternatives when communities or other societal groups are constantly evolving in response to numerous external factors, such as market conditions, technology, alternate uses of waterfront, and tourism. Certainly, management regulations influence the direction and magnitude of economic and social change, but attribution is difficult with the tools and data available. While this analysis focuses generally on the economic and social impacts of the proposed fishing regulations, external factors may also influence change, both positive and negative, in the affected communities. In many cases, these factors contribute to a community's vulnerability and ability to adapt to new or different fishing regulations.

When examining potential economic and social impacts of management measures, it is important to consider impacts on the following: the fishing fleet (vessels grouped by fishery, primary gear type, and/or size); vessel owners and employees (captains and crew); herring dealers and processors; final users of herring; community cooperatives; fishing industry associations; cultural components of the community; and fishing families. While some management measures may have a short-term negative impact on some communities, this should be weighed against potential long-term benefits to all communities which can be derived from a sustainable herring fishery.

The social impact factors outlined below can be used to describe the Atlantic herring fishery, its sociocultural and community context and its participants. These factors or variables are considered relative to the management alternatives and used as a basis for comparison between alternatives. Use of these kinds of factors in social impact assessment is based on NMFS guidance (NMFS 2007) and other texts (e.g. Burdge 1998). Longitudinal data describing these social factors region-wide and in comparable terms is limited. While this analysis does not quantify the impacts of the management alternatives relative to the social impact factors, qualitative discussion of the potential changes to the factors characterizes the likely direction and magnitude of the impacts. The factors fit into five categories:

- *Size and Demographic Characteristics* of the fishery-related workforce residing in the area; these determine demographic, income, and employment effects in relation to the workforce as a whole, by community and region.

- The *Attitudes, Beliefs, and Values* of fishermen, fishery-related workers, other stakeholders and their communities; these are central to understanding the behavior of fishermen on the fishing grounds and in their communities.
- The effects of the proposed action on *Social Structure and Organization*; that is, changes in the fishery's ability to provide necessary social support and services to families and communities.
- The *Non-Economic Social Aspects* of the proposed action; these include lifestyle, health, and safety issues, and the non-consumptive and recreational uses of living marine resources and their habitats.
- The *Historical Dependence on and Participation in* the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution, and rights (NMFS 2007).

In general, the economic effects of regulations can be categorized into regulations that change costs (including transactions costs such as search, information, bargaining, and enforcement costs) or change revenues (by changing market prices or by changing the quantities supplied). These economic effects may be felt by the directly regulated entities. They may also be felt by related industries. For the herring fishery, this might include, for example, participants in the lobster fishery, zoos, and purchasers of herring for food.

4.5.1 Impacts of Alternatives for 2016-2018 Atlantic Herring Fishery Specifications on Fishery-Related Businesses and Communities

General Impacts

Each of the alternatives considered by the Council includes an annual specification for OFL, ABC, a stockwide Atlantic herring ACL (OY), DAH, DAP, USAP, BT, management area sub-ACLs (and seasons), RSA, and FGSA for 2016-2018. Because the Atlantic herring ABC specification proposed for 2016-2018 (recommended by the SSC, see Section 2.1.1) only differs from the 2013-2015 ABC specification by 3,000 mt (2.6% lower), and because available biological/fishery information does not indicate a need to consider major changes to the distribution of allowable catch or other specifications, the alternatives for 2016-2018 maintain the status quo (2013-2015) for many of the fishery specifications. The alternatives considered by the Council differ primarily through the specification of management uncertainty and the overall (stockwide) Atlantic herring ACL.

Overall, relative to no action, the impacts to fishery-related businesses and communities is expected to be *negligible*, and there are only minor differences between the alternatives. Stability in specifications provides a sense of certainty about regulations and the future of the Atlantic herring fishery, which is a substantial benefit to business and household planning.

Over the long-term, harvesting within OFL, ABC, and ACL constraints should provide for a sustainable herring fishery, which has positive economic and social impacts. For the OFL, ABC, and ABC specification alternatives herein (Section 2.1), the SSC has determined that Alternatives 2 and 3 are biologically acceptable (NEFMC 2015). When considering the

importance of fishery resources to fishing communities, National Standard 8 specifies that, “All other things being equal, where two alternatives achieve similar conservation goals, the alternative that provides the greater potential for sustained participation of such [fishing] communities and minimizes the adverse economic impacts on such communities would be the preferred alternative (NMFS 2009).”

The analysis in this section assumes that the directed Atlantic herring fishery will not get shut down by the RH/S catch caps (Section 2.3), the negative consequences of which are described in Section 4.5.2.

DAH

Under all three alternatives, DAH would be set equal to Optimum Yield. This would maximize fishing opportunity for the industry. Given that the maximum difference in DAH between the alternatives is slight (only 3,200 mt or 3% of DAH), employment opportunities would largely be unchanged, resulting in *negligible* impacts to the *Size and Demographic Characteristics* of the fishery-related workforce and the *Historical Dependence on and Participation in* the fishery. Alternative 2 would have the highest DAH, so impacts may be slightly more positive relative to No Action and Alternative 3. Likewise, Alternative 3 has the lowest DAH, so impacts of Alternative 3 may be slightly lower than Alternative 1 (no action) and Alternative 2.

DAP

Under all three alternatives, DAP would remain at DAH minus 4,000 mt for border transfer. As with DAH, the maximum difference in DAP between the alternatives is slight (about 3% of DAP). Thus, impacts are *negligible*, similar to those described for DAH.

BT

Under all three alternatives, BT would remain at 4,000 mt. This specification does not represent an allocation from a specific management area or areas; rather, it represents a maximum amount of Atlantic herring (caught from any management areas) that can be caught in U.S. waters and transferred to Canadian vessels for trans-shipment to Canada. Because the set-aside for BT would be unchanged, there would likely be no new social or economic impacts relative to the status quo, such that the impacts are likely *negligible*. BT has generally decreased since 1994, with a peak of 3,690 in 1996 (Section 2.2.2; p. 29). The average BT between 1994 and 2011 has been 971 mt per year, but since 2007, the average has been 200 mt per year (5% of BT). There is no information available that would indicate a change in this trend, thus, the specification of BT will likely leave a few thousand mt of Atlantic herring uncaught. In the short-term, this would have slight negative impacts on the industry, but it would augment the buffers against overfishing, which would have long-term benefits to the industry.

USAP

Under all three alternatives U.S. At-sea Processing is set at 0 mt. Currently, there are no at-sea processing businesses in operation, so there is no need to allocate a portion of the catch in this manner. Thus, there would likely be no new social or economic impacts of USAP relative to any of the alternatives under consideration, such that the impacts are likely *negligible*.

RSA

Under all three alternatives, 3% of the ACL is deducted for use as a Research Set Aside. With no change in the amount of RSA catch, there would likely be no new social or economic impacts of RSA relative to any of the alternatives under consideration, such that the impacts are likely *negligible*. To the degree that research results stemming from RSA contribute to sustainable management of the Atlantic herring resource, the RSA program has long-term positive impacts on fishery-related businesses and communities.

FGSA

Under all three alternatives, a Fixed Gear Set-Aside of 296 mt has been specified. In recent years, catch under the FGSA has been low and there is no information to expect effort to increase. With no change in the FGSA, there would likely be no new social or economic impacts of the FGSA relative to any of the alternatives under consideration, such that the impacts are likely *negligible*. If the FGSA is not caught, there would be slight negative impacts on the industry, but it would augment the buffers against overfishing, which would have long-term benefits to the industry.

Sub-ACLs and Seasonal Sub-ACL Divisions

Under all three alternatives, there is no change in the percent distribution of the ACL to the sub-ACLs or in the seasonal restrictions of the sub-ACL areas. Thus, there would likely be no new social or economic impacts of this distribution relative to any of the alternatives under consideration, such that the impacts are likely *negligible*.

4.5.1.1 Impacts of Alternative 1 (No Action)

Under the no action alternative, the herring fishery specifications from 2015 would remain constant for 2016-2018 fishing years. The specification of Atlantic herring ABC would remain at 114,000 mt, which is above the SSC recommendation for 2016-2018 (111,000 mt).

With no change in the ABC, Alternative 1 would likely result in a degree of constancy and predictability for fishing industry operations and a steady supply to the market (in addition to the stability provided by a three-year specifications process). Maintaining the status quo ABC would likely result in negligible social and economic impacts in the short term. The *Size and Demographic Characteristics* of the fishery-related workforce would likely be unchanged, as would the *Historical Dependence on and Participation in* the fishery. However, since the ABC is slightly higher than the level recommended by the SSC to be biologically acceptable (e.g., there is a 54% probability that overfishing would occur in Year 3 (2018)), Alternative 1 may lead to overfishing in Year 3, which could have negative impacts if it necessitates a reduction in future Atlantic herring catch. There may also be a negative impact on the *Attitudes, Beliefs, and Values* of stakeholders towards management should overfishing actually occur. Overall, because of the relatively low probability of overfishing associated with this alternative, the impacts of Alternative 1 on fishery-related businesses and communities are expected to be *negligible*.

4.5.1.2 Impacts of Alternative 2 (Non-Preferred)

Alternative 2 would specify Atlantic herring ABC at the level recommended by the SSC (111,000 mt) and would maintain a status quo approach to specifying the management uncertainty buffer for 2016-2018 (value is 3,000 mt lower). All other fishery specifications (e.g., border transfer) would be unchanged.

Relative to Alternative 1, Alternative 2 provides essentially the same fishing opportunities for participants in the Atlantic herring fishery in all three years (the stockwide Atlantic herring ACL would be 200 mt greater under Alternative 2 and slightly more than Alternative 3 (3,200 mt greater without the NB weir payback provision). Because ready substitutes for Atlantic herring exist, prices are not likely to change dramatically when the quantity supplied of herring changes, so an increase in supply relative to No Action is likely to correspond to an increase in revenue (Section 3.5.5). If a minor increase in quantity supplied is realized, employment opportunities would either be stable or slightly increase, resulting in negligible to low positive impacts to the *Size and Demographic Characteristics* of the fishery-related workforce relative to Alternative 1. The *Historical Dependence on and Participation* in the fishery would either be sustained or increased. Like Alternative 1, this alternative maintains a constant ABC over the specifications period (2016-2018), providing consistency for fishing industry operations, stability for the industry and a steady supply to the market (in addition to the stability provided by a three-year specifications process).

Overall, as previously discussed, the impacts of Alternative 2 on fishing businesses and communities are likely *negligible*. Relative to Alternative 1, the impacts of Alternative 2 on fishing businesses and communities are expected to be *more positive*, and relative to Alternative 3, the impacts are expected to be *less positive*.

4.5.1.3 Impacts of Alternative 3 (Preferred Alternative)

Alternative 3 would specify Atlantic herring ABC at the level recommended by the SSC (111,000 mt) and would maintain the status quo value for the management uncertainty buffer for 2016-2018. All other specifications (e.g., border transfer) would be unchanged.

Relative to Alternatives 1 and 2, Alternative 3 would provide slightly less fishing opportunity in 2016-2018 for participants in the herring fishery (the stockwide Atlantic herring ACL lower by 3,000 and 3,200 mt, respectively, without the NB weir payback provision). If a decrease in quantity supplied is realized, employment opportunities would likely decrease, resulting in low negative impacts to the *Size and Demographic Characteristics* of the fishery-related workforce relative to Alternatives 1 and 2. The *Historical Dependence on and Participation* in the fishery would either be sustained or decreased. Like Alternatives 1 and 2, this alternative maintains a constant ABC over the specifications period, providing consistency for fishing industry operations, stability for the industry and a steady supply to the market (in addition to the stability provided by a three-year specifications process).

Alternative 3 contains an option that up to 1,000 mt of catch could be added to the Area 1A sub-ACL in October of each year should NMFS determine that less than 4,000 mt has been caught by the New Brunswick weir fishery by that time. Relative to Alternative 1 and Alternative 2, this option would have *positive* impacts on the fishery-related businesses (82% purse seines in 2012-2014, Table 47) and communities (primarily Portland, Rockland, Gloucester; Table 54) that rely on fishing in Area 1A.

Overall, as previously discussed, the impacts of Alternative 3 on fishing businesses and communities are likely *negligible*. Relative to Alternatives 1 and 2, the impacts of Alternative 3 on fishing businesses and communities are expected to be *more negative* because the stockwide Atlantic herring ACL available to the fishery would be lower. There are no discernable differences between the impacts of Alternatives 1 and 2 relative to Alternative 3 because the stockwide ACLs are almost the same in Alternatives 1 and 2.

4.5.2 Impacts of 2016-2018 RH/S Catch Caps on Fishery-Related Businesses and Communities

The 2016-2018 RH/S catch cap alternatives (Table 22, p. 38) would apply to midwater trawl vessels in the Gulf of Maine and Cape Cod Catch Cap Areas, and to both midwater trawl and small mesh bottom trawl vessels in the southern New England/Mid-Atlantic Catch Cap Area (see RH/S Catch Cap Areas shaded on Figure 1, p. 3) on all trips landing more than 6,600 pounds of Atlantic herring. No RH/S catch cap would be adopted for the GB Catch Cap Area. Since only limited access herring vessels (permit categories A/B/C) are allowed to land more than 6,600 pounds of Atlantic herring, these are the vessels that this alternative would directly impact. The trips landing more than 6,600 pounds of Atlantic herring accounted for 96% or more of annual Atlantic herring landings between 2008 and 2012. While the catch caps directly impact the active limited-access herring vessels, they may indirectly impact users of herring (e.g. lobstermen who use herring as bait). Framework 3 details the impacts of establishing a catch cap program, which has only been in place for 2015, so analysis of the impact of the alternatives in this section are somewhat hampered by scant data on the performance of the caps to date.

General Discussion of Positive Impacts: RH/S catch caps are unlikely to have substantial negative impacts on fishery-related businesses and communities, as long as the caps do not constrain Atlantic herring harvest. RH/S catch caps incentivize participants in the directed herring fishery to find innovative, low-cost solutions to avoid river herring and shad. Communication networks developed for river herring avoidance might be used for other reasons, for example, safety-related circumstances that arise suddenly or other fisheries or fishing-related problems. Having a RH/S catch cap in inshore areas may incentivize fishing offshore which may reduce gear conflicts. To the extent that the caps successfully lead to increases in RH/S abundance, establishing caps would increase the sense of well-being of those whose businesses rely on herring as forage, and RH/S stocks could eventually be of less concern. It would likely lead to improved coordination with the MAFMC, resulting in greater trust in management among the industry, a positive impact on the formation of *Attitudes* and *Beliefs*. To the extent that the caps successfully limit catch of RH/S, the herring catch may be cleaner, requiring less culling.

General Discussion of Negative Impacts: RH/S catch caps could result in some negative impacts on fishery-related businesses and communities as well. If the RH/S catch cap is reached for a gear type in the directed fishery in a particular area(s), the resultant closure of the directed fishery could reduce fishing profits in the herring fishery. This could lead to lower employment and a decrease in the *Size and Demographic Characteristics* of the fishery-related workforce. Fishermen could hold negative *Attitudes* and *Beliefs* towards management if herring fishing is closed part-way through the year. Interruption in the supply of herring could raise the cost of bait for the lobster fishery and other users, thereby potentially affecting the *Size and Demographic Characteristics* of the lobster industry. Additional reporting burdens could produce negative *Attitudes* about management. Closing the fishery to certain gear types in certain areas may cause resentment or conflict between fishing groups, a negative social impact in the form of changes to *Social Structures and Organizations*. Closing the fishery inshore may incentivize smaller vessels to fish offshore, which may lead to unsafe fishing conditions, a negative impact on the *Non-Economic Social Aspects* of the action.

4.5.2.1 Impacts of RH/S Alternative 1 (No Action)

Under the no action alternative, the 2016-2018 RH/S catch caps would be based on the median value of estimated RH/S catch from 2008-2012 from Framework 3 (Table 19, p. 35).

Based on the performance of the fishery under the first year of the RH/S catch caps so far (2015 not yet complete), the impacts of Alternative 1 on fishery-related businesses and communities are likely to be *neutral*. The status quo would be maintained, and the caps have not yet shut down the directed Atlantic herring fishery (see Table 30 in Section 3.2.3.2 (p. 57) for information about RH/S catch under the 2015 catch caps YTD). Most of the RH/S interactions have been in the Cape Cod and Southern New England areas (no catch to date in the GOM midwater trawl fishery). Although 57% of the SNE bottom trawl fishery RH/S catch cap has been caught, that fishery is most active in the early months of the year, so it is unlikely that this fishery will be constrained this year.

4.5.2.2 Impacts of RH/S Alternative 2 (Non-Preferred)

Under RH/S Alternative 2, the 2016-2018 RH/S catch caps would be based on the Herring PDT's updates/revisions to the 2008-2012 RH/S catch estimates from Framework 3. The same five-year time series that was utilized in Framework 3 (2008-2012 with updated/revised data) would be utilized to determine the RH/S catch caps under this alternative, with options to select either the median or weighted mean from the time series (Table 20, p. 36).

If the Alternative 2 caps constrain the directed Atlantic herring fishery, there would be negative impacts on fishery-related businesses and communities. For the Gulf of Maine midwater trawl fishery, the Alternative 2 caps are higher than Alternatives 1 and 3, but none are likely to be constraining based on 2015 performance to date. The cap with the greatest potential to be constraining under Alternative 2 is the cap for the SNE/MA bottom trawl fishery, as the cap (19.6 or 28.2 mt) is much lower than catch to date in 2015 (46.9 mt). Using more accurate RH/S catch data for the basis of management would have positive impacts on the *Attitudes and Beliefs* of stakeholders on their perceptions of management. Overall, the impacts of Alternative 2 would be *negligible* relative to No Action, except for the SNE/MA bottom trawl fleet, which would likely have *negative* impacts.

Option 1: Median. Option 1 uses the median values of the 2008-2012 revised data. The impacts of Option 1 on fishery-related businesses and communities would be *more negative* relative to Option 2. The caps would be more constraining of the directed Atlantic herring fishery. Option 1 would allow more river herring to remain in the ecosystem, a positive impact to users of the river herring resource.

Option 2: Weighted Mean. Option 2 uses the weighted mean values of the 2008-2012 revised data. The impacts of Option 2 on fishery-related businesses and communities would be *more positive* relative to Option 1. The caps would be less constraining of the directed Atlantic herring fishery. Option 2 would allow less river herring to remain in the ecosystem, a negative impact to users of the river herring resource.

4.5.2.3 Impacts of RH/S Alternative 3 (*Preferred*)

Under RH/S Alternative 3, the 2016-2018 RH/S catch caps would be specified based on RH/S catch estimates from 2008-2014, using the Herring PDT's revised/updated data (Appendix I). This alternative would incorporate RH/S catch estimates from the most recent two years as well, extending the time series to seven years, with options to select either the median or weighted mean values (Table 21, p. 37). Alternative 3, Option 2 represents the *Preferred Alternative* for the 2016-2018 RH/S catch caps at this time.

The impacts of Alternative 3 on fishery-related businesses and communities are likely to be *negligible* relative to Alternative 1. Using improved data for the basis of management would have positive impacts on the *Attitudes and Beliefs* of stakeholders on their perceptions of management. Alternative 3 would lower the catch caps for some gear types and areas, but increase them for others, relative to Alternatives 1 and 2.

If the Alternative 3 caps constrain the directed Atlantic herring fishery, there would be negative impacts on fishery-related businesses and communities. For the Gulf of Maine midwater trawl fishery, the Alternative 3 caps are lower than Alternatives 1 and 2, but none are likely to be constraining based on 2015 performance to date. The cap with the greatest potential to be constraining under Alternative 3 is the median cap for the SNE/MA bottom trawl fishery, as the cap (24.0 mt) is much lower than catch to date in 2015 (46.9 mt). Using more accurate RH/S catch data for the basis of management would have positive impacts on the *Attitudes and Beliefs* of stakeholders on their perceptions of management. Overall, the impacts of Alternative 3 would be neutral, except potentially for the SNE/MA bottom trawl fleet (should the median value be selected), which would likely have negative impacts.

Option 1: Median. Option 1 uses the median values of the 2008-2014 data. The impacts of Option 1 on fishery-related businesses and communities would be *more negative* relative to Option 2. The caps would be more constraining of the directed Atlantic herring fishery (particularly for the SNE/MA bottom trawl fleet). Option 1 would allow more river herring to remain in the ecosystem, a positive impact to users of the river herring resource.

Option 2: Weighted Mean (*Preferred Alternative*). Option 2 uses the weighted mean values of the 2008-2014 data. The impacts of Option 2 on fishery-related businesses and communities would be *more positive* relative to Option 1. The caps would be less constraining of the directed Atlantic herring fishery. Option 2 would allow less river herring to remain in the ecosystem, a negative impact to users of the river herring resource.

4.6 CUMULATIVE EFFECTS ASSESSMENT

To be completed for Final Document

A cumulative effects assessment (CEA) is a required part of an EIS or EA according to the Council on Environmental Quality (CEQ) (40 CFR part 1508.7) and NOAA's agency policy and procedures for NEPA, found in NOAA Administrative Order 216-6. The purpose of the CEA is to integrate into the impact analyses the combined effects of many actions over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective but, rather, the intent is to focus on those effects that are truly meaningful. This section serves to examine the potential direct and indirect effects of the alternatives in Framework 2 and the 2013-2015 Atlantic herring fishery specifications together with past, present, and reasonably foreseeable future actions that affect the environment related to the Atlantic herring fishery. It should also be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature.

The regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the MSA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, impacts on all VECs (except short-term impacts to human communities) from past, present and reasonably foreseeable future actions, when combined with baseline conditions, have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the various VECs are not experiencing negative impacts, but rather that when taken as a whole and compared to the level of unsustainable effort that existed prior to and just after the fishery came under management control, the overall long-term trend is positive.

The following analysis will identify and characterize the impact on the environment from the proposed 2016-2018 Atlantic herring specifications when analyzed in the context of other past, present, and reasonably foreseeable future actions. The analysis is generally qualitative in nature because of the limitations of determining effects over the large geographic areas under consideration.

4.6.1 Valued Ecosystem Components

Consistent with the guidelines for CEA, cumulative effects can be more easily identified by analyzing the impacts of the Proposed Action on valued ecosystem components (VECs). The affected environment is described in this document based on VECs that were identified for consideration relative to the proposed specifications. VECs represent the resources, areas, and human communities that may be affected by a Proposed Action or alternatives and by other actions that have occurred or will occur outside the Proposed Action. VECs are generally the "place" where the impacts of management actions are exhibited. An analysis of impacts is performed on each VEC to assess whether the direct/indirect effects of an alternative adds to or

subtracts from the effects that are already affecting the VEC from past, present and future actions outside of the Proposed Action (i.e., cumulative effects).

The Affected Environment is described in this document (Section 3.0) based on VECs that were identified specifically for Framework 4. The VECs for consideration in this assessment include:

1. Atlantic Herring (Section 3.1);
2. Non-Target Species (Section 3.2);
3. Physical Environment and Essential Fish Habitat (EFH) (Section 3.3);
4. Protected Resources (Section 3.4); and
5. Fishery-Related Businesses and Communities (Section 3.5).

TBD for final document

4.6.2 Spatial and Temporal Boundaries

The geographic area that encompasses the physical, biological and human communities impacts to be considered in the cumulative effects analysis are described in detail in Section 3.0 of this document (Affected Environment). The geographic range for impacts to fish species is the range of each fish species in the western Atlantic Ocean. The physical environment, including habitat and EFH, is bounded by the range of the Atlantic herring fishery, from the Gulf of Maine through the mid-Atlantic Bight, and includes adjacent upland areas (from which non-fishing impacts may originate). For protected species, the geographic range is the total range of Atlantic herring. The geographic range for fishery-related businesses and communities is defined in the Affected Environment as well.

Overall, while the effects of the historical herring fishery are important and are considered in the analysis, the temporal scope of past and present actions for Atlantic herring, non-target species and other fisheries, the physical environment and EFH, protected species, fishery-related businesses and communities is focused principally on actions that have occurred since 1996, when the MSA was amended and implemented new fisheries management and EFH requirements. The temporal scope for marine mammals begins in the mid-1990s, when NMFS was required to generate stock assessments for marine mammals that inhabit waters of the U.S. EEZ that create the baseline against which current stock assessments are evaluated. For turtle species, the temporal scope begins in the 1970s, when populations were noticed to be in decline. The temporal scope for Atlantic herring is focused more on the time since the Council's original Herring FMP was implemented at the beginning of the 2001 fishing year. The Atlantic Herring FMP serves as the primary management action for the Atlantic herring fishery and has helped to shape the current condition of the resource.

While the Atlantic herring fishery specifications are assessed only for the 2016-2018 fishing years, the temporal scope of other management measures proposed in this framework/specifications document generally extends five years into the future for all VECs. This period was chosen because of the dynamic nature of resource management and lack of specific information on projects that may occur in the future, which make it difficult to predict

impacts beyond this time frame with any certainty. This is also the rebuilding time frame for the Atlantic herring resource, as defined in the Atlantic Herring FMP, should the resource become overfished and subject to a rebuilding program in the future.

4.6.3 Analysis of Total Cumulative Effects

A cumulative effects assessment ideally makes effect determinations based on the culmination of the following: (1) impacts from past, present and reasonably foreseeable future actions; plus (2) the baseline condition for resources and human communities (note – the baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions); plus (3) impacts from the Proposed Action and alternatives.

A description of past, present and reasonably foreseeable future actions is presented in **XXX**. The baseline conditions of the resources and human community are subsequently summarized in Section , although it is important to note that beyond the stock managed under this FMP and protected species, quantitative metrics for the baseline conditions are not available. Finally, a brief summary of the impacts from the alternatives contained in this specifications is included. The culmination of all these factors is considered when making the cumulative effects assessment.

4.6.4 Past, Present, and Reasonably Foreseeable Future Actions

TBD

4.6.5 Baseline Conditions

TBD

4.6.6 Summary of Impacts from 2016-2018 Atlantic Herring Fishery Specifications

TBD

4.6.7 Cumulative Effects Summary

TBD

5.0 RELATIONSHIP TO APPLICABLE LAW

5.1 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT (MSA)

5.1.1 National Standards

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that fishery management plans (FMPs) contain conservation and management measures that are consistent with ten National Standards:

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In General. – Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this title shall be consistent with the...national standards for fishery conservation and management.

(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The primary goal of managing the Atlantic herring fishery is to maintain long-term sustainable catch levels, consistent with the National Standards of the MSA. The first objective of the Herring FMP is to prevent overfishing. The Herring FMP established a fishery specifications process that ensures a consistent review of the herring stock status, fishery performance, and other factors in order to manage by annual catch limits (ACLs) and prevent overfishing. The additional management measures implemented in the herring fishery should further achieve the goals/objectives and reduce the possibility of overfishing the Atlantic herring resource. Optimum yield (OY) for the Atlantic herring fishery is defined in the Herring FMP (as modified by Amendments 1 – 4) and specified annually (in this document for 2016-2018) so that it will not exceed the Allowable Biological Catch (ABC, which accounts for scientific uncertainty), and cannot exceed the overfishing limit (OFL), which is based upon a target fishing mortality rate that is determined as prescribed in the overfishing definition. This ensures that yield from the fishery can be optimized while preventing overfishing on a continuing basis.

(2) Conservation and management measures shall be based upon the best scientific information available.

Biological information from peer-reviewed stock assessments is used to formally evaluate stock condition. In 2012, the 54th stock assessment workshop (SAW 54) completed an Atlantic herring benchmark stock assessment. These formal stock assessments undergo rigorous development and review, and are peer-reviewed through the Stock Assessment Review Committee (SARC) process, which are the only such comprehensive assessments. This assessment therefore represents the best available information regarding the status of the Atlantic herring resource. Conclusions and results were available during the development of the action proposed in this document were evaluated with respect to the alternatives/options considered during the 2016-2018 Atlantic herring specifications process.

The economic analyses provided in this document are based primarily on landings, revenue, and effort information collected through the NMFS data collection systems used for this fishery. Although there are some limitations to the data used in the analysis of impacts of management measures, these data have been thoroughly reviewed and are considered to be the best available. Information about bycatch is based on reports collected by the NEFSC Sea Sampling (Observer) Branch and incorporated into the NOAA Fisheries observer database. The observer data are collected using an approved, scientifically-valid sampling process. Furthermore, the analyses were prepared by and reviewed by the Council's Herring Plan Development Team and complies with the Information Quality Act (IQA, see Section 5.6 for more discussion related to the IQA).

TBD

(3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The Atlantic Herring FMP and all related management actions address the long-term management of Atlantic herring throughout the range of the species in U.S. waters, in accordance with the jurisdiction of U.S. law. Most Atlantic herring are caught in the Exclusive Economic Zone (EEZ). While most herring are landed in Maine, Massachusetts, and Rhode Island, Atlantic herring landings have been reported in every state from Maine through Virginia. In order to address that portion of the resource that is caught in State waters, the Herring FMP and related actions, including this framework adjustment and specifications package, were developed in close coordination with the Atlantic States Marine Fisheries Commission.

TBD

(4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Fishery-related businesses and communities that participate in/depend on the Atlantic herring fishery are described in detail in Section 3.5 of this document. The proposed 2016-2018 Atlantic herring specifications do not discriminate between residents of different States. This action does not allocate or assign fishing privileges among various fishermen.

The measures proposed in the 2016-2018 Atlantic herring fishery specifications are intended to be applied equally to herring permit holders of the same category (A/B, C, and/or D), regardless of homeport or location. However, the fact that fish are not distributed evenly, and that individual vessels may target specific stocks at different times of the year, means that distributive impacts cannot be avoided in some cases. While the measures do not discriminate between permit holders from different States, they may result in variable impacts across permit holders/fishery participants. The impacts of the proposed measures on fishing-related businesses

and communities are discussed in various sections throughout Section 4.5 of this document; differential impacts are identified and evaluated to the extent possible in the analyses.

TBD

(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The management measures proposed in this document should promote efficiency in the utilization of fishery resources through appropriate measures intended to provide access to the herring fishery for both current and historical participants while minimizing the race to fish in any of the herring management areas. Economic allocation is not the sole purpose the proposed 2016-2018 Atlantic herring fishery specifications. The ***Preferred Alternatives*** in this document are intended to promote biological stability in the fishery and also provide a benefit to the industry over the long-term.

TBD

(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Changes in fisheries occur continuously, both as the result of human activity (for example, new technologies or shifting market demand) and natural variation (for example, oceanographic perturbations). There are a number of factors which could introduce variations into the Atlantic herring fishery. As discussed in the Herring FMP as well as other recent stock assessment documents, there is some uncertainty in the estimate of current stock size. In addition, the structure and status of individual spawning components cannot be determined with precision, resulting in the assessment of a coastal stock complex rather than separate assessments for each individual spawning component. Because of the lack of a permitting and reporting system prior to VTR requirements and implementation of the Herring FMP, there is some uncertainty regarding the total harvest of Atlantic herring and the proportion of herring that is utilized for food/bait, particularly in more historical years. Market fluctuations, environmental factors, and predator-prey interactions constantly introduce additional variations among, and contingencies in, the herring resource, the fishery, and the available catch.

TBD

(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

As always, the Council considered the costs and benefits associated with the proposed 2016-2018 Atlantic herring specifications. Any costs incurred as a result of the measures proposed in this document are considered to be necessary in order to achieve the goals and objectives of the herring management program and are viewed to be outweighed by the benefits of taking the management action. The management measures proposed in this document are not duplicative

and were developed in close coordination with NMFS, the Atlantic States Marine Fisheries Commission (ASMFC), and other interested entities and agencies to minimize duplication.

The proposed 2016-2018 Atlantic herring specifications are intended to minimize costs and avoid unnecessary duplication, to the extent possible. **TBD**

(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

TBD

(9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

TBD

(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Fishing is a dangerous occupation; participants must constantly balance the risks imposed by weather against the economic benefits. A management plan should be designed so that it does not encourage dangerous behavior by the participants. According to the National Standard guidelines, the safety of the fishing vessel and the protection from injury of persons aboard the vessel are considered the same as “safety of human life at sea. The safety of a vessel and the people aboard is ultimately the responsibility of the master of that vessel. Each master makes many decisions about vessel maintenance and loading and about the capabilities of the vessel and crew to operate safely in a variety of weather and sea conditions. This national standard does not replace the judgment or relieve the responsibility of the vessel master related to vessel safety. The Councils, the USCG, and NMFS, through the consultation process of paragraph (d) of this section, will review all FMPs, amendments, and regulations during their development to ensure they recognize any impact on the safety of human life at sea and minimize or mitigate that impact where practicable.”

TBD

5.1.2 Other Required Provisions of MSA

Section 303 of the Magnuson-Stevens Fishery Conservation and Management Act contains 14 additional required provisions for FMPs, which are discussed below. Any FMP prepared by any Council, or by the Secretary, with respect to any fishery, shall:

- (1) *contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are-- (A) necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery; (B) described in this subsection or subsection (b), or both; and (C) consistent with the National Standards, the other provisions of this Act, regulations implementing recommendations by international organizations in which the United States participates (including but not limited to closed areas, quotas, and size limits), and any other applicable law;*

TBD

- (2) *contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any;*

TBD

- (3) *assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;*

TBD

- (4) *assess and specify-- (A) the capacity and the extent to which fishing vessels of the United States, on an annual basis, will harvest the optimum yield specified under paragraph (3); (B) the portion of such optimum yield which, on an annual basis, will not be harvested by fishing vessels of the United States and can be made available for foreign fishing; and (C) the capacity and extent to which United States fish processors, on an annual basis, will process that portion of such optimum yield that will be harvested by fishing vessels of the United States;*

TBD

- (5) *specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors;*

TBD

- (6) *consider and provide for temporary adjustments, after consultation with the Coast Guard and persons utilizing the fishery, regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safe conduct of the fishery; except that the adjustment shall not adversely affect conservation efforts in other fisheries or discriminate among participants in the affected fishery;*

TBD

- (7) *describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;*

TBD

- (8) *in the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) (including any plan for which an amendment is submitted to the Secretary for such review) or is prepared by the Secretary, assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan;*

TBD

- (9) *include a fishery impact statement for the plan or amendment (in the case of a plan or amendment thereto submitted to or prepared by the Secretary after October 1, 1990) which shall assess, specify, and describe the likely effects, if any, of the conservation and management measures on-- (A) participants in the fisheries and fishing communities affected by the plan or amendment; and (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants;*

TBD

(10) *specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;*

TBD

(11) *establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided;*

TBD

(12) *assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish;*

TBD

(13) *include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors;*

TBD

(14) *to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery.*

TBD

5.2 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

NEPA provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is designed to meet the requirements of both the MSA and NEPA. The Council on Environmental Quality (CEQ) has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508). All of those requirements are addressed in this document, as referenced below.

To prepare the 2016-2018 Atlantic herring fishery specifications, the Council held meetings of its Scientific and Statistical Committee, Herring Plan Development Team, Herring Oversight Committee, and Herring Advisory Panel, in addition to Council meetings. All of these meetings were open to the public. Final selection of the Atlantic herring fishery specifications proposed in this document occurred at the September 2015 New England Fishery Management Council meeting.

5.2.1 Environmental Assessment

The required elements of an Environmental Assessment (EA) are specified in 40 CFR 1508.9(b). They are included in this document, in addition to other relevant sections, as follows:

- An Executive Summary (beginning of the document);
- A Table of Contents (beginning of the document);
- The need for this action is described in Section 1.2;
- The alternatives that were considered are described in Section 2.0;
- A description of the Affected Environment is found in Section 3.0;
- The environmental impacts of the Proposed Action are described in Section 4.0;
- Cumulative impacts of the Proposed Action are discussed in Section 4.6;
- A Finding of No Significant Impact is provided in Section 5.2.2 (below);
- The list of preparers and agencies consulted on this action is provided in Section 7.0.

5.2.2 Finding of No Significant Impact (FONSI)

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National Oceanic and Atmospheric Administration Order (NAO) 216-6 (revised May 20, 1999) provides sixteen criteria for determining the significance of the impacts of a final fishery management action. These criteria are discussed below:

- 1. Can the Proposed Action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?**

Response: The proposed action is not expected to jeopardize the sustainability of the target species affected by this action – Atlantic herring. Relative to the no action alternative, the proposed action is more conservative and is consistent with the best available scientific information (Atlantic herring operational assessment, April 2015). Overall, based on the updated stock assessment and related recommendations provided by the Herring PDT and the SSC, the Council has concluded the Atlantic herring resource is healthy at this time (rebuilt), and the proposed action is therefore biologically-sound. The acceptable biological catch level for 2016-2018 has been endorsed by the Council’s SSC.

Three-year projections provided in Section 4.1.1 of this document (p. 108) indicate that Atlantic herring SSB is expected to decrease under the catch levels implemented through the 2016-2018 specifications, but not to a level that would change or jeopardize the biological status of the stock (rebuilt, above the SSB target). Moreover, the proposed 2016-2018 Atlantic herring specifications continue to manage the fishery at reduced harvest levels when compared to historical levels. **TBD**

2. Can the Proposed Action reasonably be expected to jeopardize the sustainability of any non-target species?

Response: The action proposed in the 2016-2018 Atlantic herring fishery specifications cannot reasonably be expected to jeopardize the sustainability of any non-target species that may be affected. Non-Target species are generally described in Section 3.2 of this document, and impacts are discussed throughout Section 4.0. **TBD**

3. Can the Proposed Action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?

Response: The proposed 2016-2018 Atlantic herring specifications cannot be reasonably expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identifies in the FMP. EFH and habitat are generally described in Section 3.3 of this document, and impacts are discussed throughout Section 4.0. In general, EFH that occurs in areas where the fishery occurs is designated as the bottom habitats consisting of varying substrates (depending upon species) within the Gulf of Maine, Georges Bank, and the continental shelf off southern New England and the Mid-Atlantic south to Cape Hatteras. The primary gears utilized to harvest Atlantic herring are purse seines and midwater trawls which typically do not impact bottom habitats. An evaluation of the impacts to EFH in the proposed 2016-2018 specifications package stated that **TBD**

4. Can the Proposed Action be reasonably expected to have a substantial adverse impact on public health or safety?

Response: Nothing in the proposed 2016-2018 Atlantic herring specifications can reasonably be expected to have a substantial adverse impact on public health or safety. When developing management measures, the Council usually receives extensive comments from affected members

of the public regarding the safety implications of measures under consideration. No such impacts were expected from specifications for previous years, and the Council has received no comments from affected members of the public suggesting that such impacts could be expected from the specifications that are proposed for the 2016-2018 fishing years. The safety of human life at sea is discussed further in Section 5.1.1 of this document (National Standard 10).

- Can the Proposed Action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

Response: Protected resources that may be affected by the proposed action are generally described in Section 3.4 of this document, and impacts are discussed throughout Section 4.0. The proposed action is not reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat for these species. The activities to be conducted under the proposed action are within the scope of the FMP and do not change the basis for the determinations made in previous consultations. Though the proposed action may increase interactions with protected species as compared to the status quo, there is likely to be continued minimal interaction.

5. Can the Proposed Action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

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Response: The proposed 2016-2018 Atlantic herring fishery specifications are not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. While Atlantic herring is recognized as one of many important forage fish for marine mammals, other fish, and birds throughout the region, the resource appears to be large enough at this time to accommodate all predators including Atlantic bluefish, Atlantic striped bass, and several other pelagic species such as shark and tuna. The Atlantic herring itself is not known to prey on other species of fish but prefers chaetognaths and euphausiids. Consumption of Atlantic herring by predator species was factored into the 2012 benchmark stock assessment (SAW 54, July 2012) and affected current biological reference points including MSY (see Section 3.1.1 for more information). To the extent possible, the proposed 2016-2018 Atlantic herring fishery specifications account for these important issues.

The proposed action is intended to continue to ensure biodiversity and ecosystem stability over the 2016-2018 fishing years, and the proposed specifications account for scientific and management uncertainty and have been endorsed by the Council's SSC. In addition to accounting for predation through the stock assessment, the proposed buffer between the F_{MSY} -based catch level (OFL) and the U.S. OY (ACL) should ensure that an adequate forage base continues to be available for important fish, marine mammal, and bird species in the Gulf of Maine region during the upcoming years.

6. Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: A complete discussion of the potential impacts of the proposed 2016-2018 Atlantic herring fishery specifications is provided in Section 4.0 of this document. The environmental assessment concludes that no significant natural or physical effects will result from the implementation of the 2016-2018 Atlantic herring specifications. **TBD**

NMFS has determined that despite the potential socio-economic impacts resulting from this action, there is no need to prepare an EIS. The purpose of NEPA is to protect the environment by requiring Federal agencies to consider the impacts of their Proposed Actions on the human environment, defined as "the natural and physical environment and the relationship of the people with that environment." This Environmental Assessment (EA) describes and analyzes the proposed specifications and alternatives and concludes there will be no significant impacts to the natural and physical environment. Any impacts expected from the proposed specifications do not require the preparation of an EIS, as supported by NEPA's implementing regulations at 40 C.F.R. 1508.14. Consequently, because the EA demonstrates that the action's potential natural and physical impacts are not significant, the execution of a FONSI remains appropriate under criteria 7.

7. Are the effects on the quality of the human environment likely to be highly controversial?

Response: The effects of the proposed 2016-2018 Atlantic herring specifications on the quality of human environment are not expected to be highly controversial. The need to maintain a sustainable Atlantic herring resource is grounded in Federal fisheries law and forms the basis of the goals and objectives of the herring management program, as described in the Atlantic Herring FMP. The Council developed the proposed 2016-2018 herring fishery specifications while considering the needs of herring fishery participants, other fishery-related interests, and the long-term health of the Atlantic herring resource.

8. Can the Proposed Action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

Response: The proposed 2016-2018 Atlantic herring fishery specifications are not expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. The proposed action affects fishing for herring in the U.S. Exclusive Economic Zone and is not expected to have any impacts on shoreside historical and/or cultural resources. In addition, the proposed action is not expected to substantially affect fishing and other vessel operations around the unique historical and cultural resources encompassed by the Stellwagen Bank National Marine Sanctuary.

9. Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: The proposed 2016-2018 Atlantic herring fishery specifications are not expected to result in highly uncertain effects on the human environment or involve unique or unknown risks. The specifications proposed in this document are generally consistent with those adopted in past years and are based on the provisions for the specifications process outlined in the Atlantic Herring FMP. Scientific uncertainty related to the Atlantic herring stock assessment is addressed through the reduction in the F_{MSY} -based catch level to the proposed ABC level, as recommended by the Council's SSC. Management uncertainty is addressed through the reduction in the ABC to the total U.S. OY (stockwide Atlantic herring ACL). The proposed specifications account for uncertainty such that the risk of overfishing the Atlantic herring resource has been minimized to the extent practicable.

10. Is the Proposed Action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: The proposed 2016-2018 Atlantic herring specifications are not related to other actions with individually insignificant, but cumulatively significant impacts. The cumulative effects analysis presented in Section 4.6 of this document considers the impacts of the proposed action in combination with relevant past, present, and reasonably foreseeable future actions and concludes that no additional significant cumulative impacts are expected from the 2016-2018 Atlantic herring fishery specifications.

11. Is the Proposed Action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

Response: The proposed 2016-2018 Atlantic herring fishery specifications are not likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor is the proposed action expected to cause loss or destruction to significant scientific, cultural, or historical resources. The proposed action is specific only to the specifications and catch levels for the Atlantic herring fishery, which occurs primarily in the EEZ.

12. Can the Proposed Action reasonably be expected to result in the introduction or spread of a non-indigenous species?

Response: The proposed 2016-2018 Atlantic herring fishery specifications are not expected to result in the introduction or spread of a non-indigenous species. The proposed action relates specifically to removals of Atlantic herring in the Northeast Region using traditional fishing practices. Vessels affected by the proposed action are those currently engaged in the Atlantic herring fishery. The fishing-related activity of these vessels is anticipated to occur solely within the Northeast Region and should not result in the introduction or spread of a non-indigenous species.

13. Is the Proposed Action likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

Response: The proposed 2016-2018 Atlantic herring fishery specifications are not likely to establish a precedent for future actions with significant effects and does not represent a decision in principle about a future consideration. The proposed action adopts specifications for the 2016-2018 fishing years only, with flexibility for the Council to adjust the specifications during the interim years if the need arises or if new information becomes available. This action is consistent with specifications adopted in past years and is based on the provisions for the specifications process outlined in the Atlantic Herring FMP. The intent of the process is to establish specifications and other sub-ACLs for a short time frame (in this case, three years) so that new stock and fishery information can be reviewed and considered prior to making decisions about specifications in future years. The measures are designed to specifically address current stock and fishery conditions and are not intended to represent a decision about future management actions that may include other measures.

14. Can the Proposed Action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Response: The proposed 2016-2018 Atlantic herring fishery specifications are intended to establish catch levels that will offer protection to marine resources, particularly Atlantic herring, and would not threaten a violation of Federal, State, or Local law or other requirements to protect the environment. NMFS will determine whether this action is consistent with the Coastal Zone Management Act (CZMA) requirements of the affected States.

15. Can the Proposed Action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: As specified in the responses to the first two criteria of this section, the proposed 2016-2018 Atlantic herring specifications are not expected to result in cumulative adverse effects that would have a substantial effect on target or non-target species. As described in the subsections contained in Section 4.0 of this document, impacts on resources encompassing herring and other stocks are expected to be minimal.

In view of the analysis presented in this document, the establishment of the 2016-2018 Atlantic herring fishery specifications will not significantly impact the quality of the human environment as described above and in the supporting Environmental Assessment. In addition, all beneficial and adverse impacts of the Proposed Action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not required.

Assistant Administrator for Fisheries, NOAA

Date

5.3 MARINE MAMMAL PROTECTION ACT (MMPA)

The New England Fishery Management Council has reviewed the impacts of the proposed 2016-2018 Atlantic herring fishery specifications on marine mammals and has concluded that the management actions proposed are consistent with the provisions of the MMPA. Although they are likely to affect marine mammals inhabiting the management unit, the specifications will not alter the effectiveness of existing MMPA measures to protect those species, such as take reduction plans, based on the overall reductions in fishing effort and the effectiveness of other management measures that have been implemented through the Atlantic Herring FMP.

5.4 ENDANGERED SPECIES ACT (ESA)

Section 7 of the Endangered Species Act requires federal agencies conducting, authorizing or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species. A description of the protected resources potentially affected by the proposed 2016-2018 Atlantic herring fishery specifications is provided in Section 3.4 of this document (p. 70). For further information on the potential impacts of the fishery as well as the *Preferred Alternative* and other alternatives considered by the Council on listed species, see Section 4.0 of this document.

5.5 PAPERWORK REDUCTION ACT (PRA)

The purpose of the PRA is to control and, to the extent possible, minimize the paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by or for the Federal Government. The authority to manage information and recordkeeping requirements is vested with the Director of the Office of Management and Budget (OMB). This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications.

The proposed Atlantic herring fishery specifications for the 2016-2018 fishing years contain no new or additional collection-of-information requirements.

5.6 INFORMATION QUALITY ACT (IQA)

TBD for Final Document

Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554, also known as the Data Quality Act or Information Quality Act) directed the Office of Management and Budget (OMB) to issue government-wide guidelines that “provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies.” OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with the OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the Data Quality Act. Information must meet standards of utility, integrity and objectivity. This section provides information required to address these requirements.

Utility of Information Product

The proposed 2016-2018 Atlantic herring fishery specifications include: a description of the management issues to be addressed, statement of goals and objectives, a description of the proposed action and other alternatives/options considered, analyses of the impacts of the proposed specifications and other alternatives/options on the affected environment, and the reasons for selecting the preferred specifications. These proposed modifications implement the FMP’s conservation and management goals consistent with the Magnuson-Stevens Fishery Conservation and Management Act as well as all other existing applicable laws.

Utility means that disseminated information is useful to its intended users. “Useful” means that the content of the information is helpful, beneficial, or serviceable to its intended users, or that the information supports the usefulness of other disseminated information by making it more accessible or easier to read, see, understand, obtain or use. The information presented in this document is helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the proposed action is included so that intended users may have a full understanding of the proposed action and its implications. The intended users of the information contained in this document are participants in the Atlantic herring fishery and other interested parties and members of the general public. The information contained in this document may be useful to owners of vessels holding an Atlantic herring permit as well as Atlantic herring dealers and processors since it serves to notify these individuals of any potential changes to management measures for the fishery. This information will enable these individuals to adjust their fishing practices and make appropriate business decisions based on the new management measures and corresponding regulations.

The information being provided in the 2016-2018 Atlantic herring specifications package concerning the status of the Atlantic herring fishery is updated based on landings and effort information through the 2013 and 2014 fishing years when possible. Information presented in this document is intended to support the proposed specifications for the 2016-2018 fishing years, which have been developed through a multi-stage process involving all interested members of

the public. Consequently, the information pertaining to management measures contained in this document has been improved based on comments from the public, fishing industry, members of the Council, and NOAA Fisheries.

The media being used in the dissemination of the information contained in this document will be contained in a *Federal Register* notice announcing the Proposed and Final Rules for this action. This information will be made available through printed publication and on the Internet website for the Northeast Regional Office (NERO) of NOAA Fisheries. In addition, the final 2016-2018 Atlantic Herring Specifications document will be available on the Council's website (www.nefmc.org) in standard PDF format. Copies will be available for anyone in the public on CD ROM and paper from the Council's office.

Integrity of Information Product

Integrity refers to security – the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification. Prior to dissemination, NOAA information, independent of the intended mechanism for distribution, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NOAA adheres to the standards set out in Appendix III, “Security of Automated Information Resources,” OMB Circular A-130; the Computer Security Act; and the Government Information Security Reform Act. If information is confidential, it is safeguarded pursuant to the Privacy Act and Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business and financial information).

Objectivity of Information Product

Objective information is presented in an accurate, clear, complete, and unbiased manner, and in proper context. The substance of the information is accurate, reliable, and unbiased; in the scientific, financial, or statistical context, original and supporting data are generated and the analytical results are developed using sound, commonly-accepted scientific and research methods. “Accurate” means that information is within an acceptable degree of imprecision or error appropriate to the particular kind of information at issue and otherwise meets commonly accepted scientific, financial, and statistical standards.

For purposes of the Pre-Dissemination Review, this document is considered to be a “Natural Resource Plan.” Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, Fishery Management Plan Process; the Essential Fish Habitat Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act. Several sources of data were used in the development of this document, including the analysis of potential impacts. These data sources include, but are not limited to: landings data from vessel trip reports, landings data from individual voice reports, information from resource trawl surveys, data from the dealer weighout purchase reports, descriptive information provided (on a voluntary basis) by processors and dealers of Atlantic herring, and ex-vessel price information. Although there are some limitations to the data used in the analysis of impacts of management measures and in the description of the affected environment, these data are considered to be the best available.

This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Stock status (including estimates of biomass and fishing mortality) reported in this document are based on either assessments subject to peer-review through the Stock Assessment Review Committee (SARC) or on updates of those assessments. Landings and revenue information is based on information collected daily VMS catch reports and VTR reports, and supplemented with state/federal dealer data. Information on catch composition and bycatch is based on reports collected by the NOAA Fisheries Service observer program and incorporated into the sea sampling or observer database systems. These reports are developed using an approved, scientifically valid sampling process. In addition to these sources, additional information is presented that has been accepted and published in peer-reviewed journals or by scientific organizations. Original analyses in this document were prepared using data from accepted sources, and the analyses have been reviewed by members of the Herring Plan Development Team.

The 2016-2018 Atlantic herring specifications package is supported by the best available scientific information. The supporting science and analyses, upon which the proposed action is based, are summarized and described in Section 2.2 and Section 4.0 of this document. All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency. Qualitative discussion is provided in cases where quantitative information was unavailable, utilizing appropriate references as necessary.

The review process for any action under an FMP involves the Northeast Regional Office (NERO) of NOAA Fisheries, the Northeast Fisheries Science Center (Center), and NOAA Fisheries Headquarters (Headquarters). The Council review process involves public meetings at which affected stakeholders have the opportunity to provide comments on the proposed changes to the FMP. Reviews by staff at NERO are conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. The Center's technical review is conducted by senior-level scientists with specialties in population dynamics, stock assessment methodology, fishery resources, population biology, and the social sciences.

Final approval of the 2016-2018 Atlantic herring specifications package and clearance of the Proposed and Final Rules is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget. This review process is standard for any action under an FMP, and provides input from individuals having various expertise who may not have been directly involved in the development of the proposed actions. Thus, the review process for any FMP modification, including the fishery specifications for the 2016-2018 fishing years, is performed by technically-qualified individuals to ensure the action is valid, complete, unbiased, objective, and relevant.

5.7 IMPACTS ON FEDERALISM/E.O. 13132

This E.O. established nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. The E.O. also lists a series of policy making criteria to which Federal agencies must adhere when formulating and implementing policies that have federalism implications. This action does not contain policies with federalism implications sufficient to warrant preparation of an assessment under E.O. 13132. The affected States have been closely involved in the development of the proposed fishery specifications through their representation on the Council (all affected states are represented as voting members of at least one Regional Fishery Management Council) and coordination with the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council.

5.8 ADMINISTRATIVE PROCEDURES ACT (APA)

This action was developed in compliance with the requirements of the Administrative Procedures Act, and these requirements will continue to be followed when the proposed regulation is published. Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. At this time, the Council is not requesting any abridgement of the rulemaking process for this action.

5.9 COASTAL ZONE MANAGEMENT ACT (CZMA)

Section 307(c)(1) of the Federal CZMA of 1972 requires that all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Pursuant to the CZMA regulations at 15 CFR 930.35, a negative determination may be made if there are no coastal effects and the subject action: (1) Is identified by a state agency on its list, as described in § 930.34(b), or through case-by-case monitoring of unlisted activities; or (2) which is the same as or is similar to activities for which consistency determinations have been prepared in the past; or (3) for which the Federal agency undertook a thorough consistency assessment and developed initial findings on the coastal effects of the activity. The Council has determined that this action is consistent with the coastal zone management plan and policies of the coastal states in this region. NMFS will formally request consistency reviews by CZM state agencies following Council submission of Framework 2 and the 2013-2015 Atlantic herring fishery specifications.

5.10 REGULATORY FLEXIBILITY ACT (RFA)/E.O. 12866 (REGULATORY PLANNING AND REVIEW)

TBD FOR FINAL DOCUMENT

5.10.1 Regulatory Flexibility Act (RFA) – Initial Regulatory Flexibility Analysis

TBD FOR FINAL DOCUMENT

5.10.2 E.O. 12866 (Regulatory Planning and Review)

TBD FOR FINAL DOCUMENT

5.11 E.O. 13158 (MARINE PROTECTED AREAS)

The Executive Order on Marine Protected Areas requires each federal agency whose actions affect the natural or cultural resources that are protected by an MPA to identify such actions, and, to the extent permitted by law and to the extent practicable, avoid harm to the natural and cultural resources that are protected by an MPA. The E.O. defines a Marine Protected Area as “any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.” The E.O. requires that the Departments of Commerce and the Interior jointly publish and maintain such a list of MPAs. The Tilefish Gear Restricted Areas in Oceanographer, Lydonia, Veatch, and Norfolk canyons are included in the National System of Marine Protected Areas (MPAs). This action under the Atlantic Herring FMP is not expected to occur within any of these MPAs. No further guidance related to this Executive Order is available at this time.

5.12 E.O 12898 (ENVIRONMENTAL JUSTICE)

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations provides guidelines to ensure that potential impacts on these populations are identified and mitigated, and that these populations can participate effectively in the NEPA process (EO 12898 1994). These individuals or populations must not be excluded from participation in, denied the benefits of, or subjected to discrimination because of their race, color, or national origin. Although the impacts of the Atlantic herring specifications may affect communities with environmental justice concerns, the actions in this document should not have disproportionately high effects on low income or minority populations. The proposed measures would apply to all participants in the affected area, regardless of minority status or income level.

The existing demographic data on participants in the Atlantic herring fishery (i.e. vessel owners, crew, dealers, processors, employees of supporting industries) do not allow identification of those who live below the poverty level or are racial or ethnic minorities. Thus, it is not possible to fully determine how the actions within this specification document may impact these

population segments. The public comment processes is an opportunity to identify issues that may be related to environmental justice, but none have been raised relative to the 2016-2018 Atlantic herring specifications. The public has never requested translations of documents pertinent to the Atlantic herring fishery.

6.0 REFERENCES

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7.0 LIST OF PREPARERS AND AGENCIES CONSULTED

This document was prepared by the New England Fishery Management Council and the National Marine Fisheries Service, in consultation with the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council. Members of the New England Fishery Management Council's Herring Plan Development Team include:

- Lori Steele, NEFMC Staff, Herring PDT Chair
- Rachel Feeney, NEFMC Staff
- Michelle Bachman, NEFMC Staff
- Matt Cieri, ME DMR Biologist, ASMFC Herring TC Chair
- Sara Weeks, NEFOP
- Jon Deroba, NEFSC Population Dynamics
- Min-Yang Lee, NEFSC Social Sciences
- Micah Dean, MA DMF Biologist
- Madeleine Hall-Arber, MIT Sea Grant
- Carrie Nordeen, NMFS GARFO
- Tim Cardiasmenos, NMFS GARFO
- Danielle Palmer, NMFS GARFO
- Brandt McAfee, NMFS GARFO
- Jason Didden, MAFMC Staff
- Renee Zobel, NH Fish and Game Marine Biologist

The following agencies were consulted during the development of the 2013-2015 Atlantic Herring Specifications, either through direct communication/correspondence and/or participation on the Herring Committee or Herring PDT:

- NOAA Fisheries, National Marine Fisheries Service, Greater Atlantic Regional Office, Gloucester MA
- Northeast Fisheries Science Center, Woods Hole MA
- Atlantic States Marine Fisheries Commission and Atlantic Herring Section (Ashton Harp, ASMFC Staff)
- Mid-Atlantic Fishery Management Council (Jason Didden, MAFMC Staff)

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2016-2018 Atlantic Herring Fishery Specifications Package

APPENDIX I

Development of Options for River Herring and Shad Catch Caps in the Atlantic Herring Fishery, 2016-2018

Atlantic Herring Plan Development Team
New England Fishery Management Council

September 2015

Background and Herring PDT Methods for Updating Catch Data and Estimating RH/S Catch

During the development of specifications for the 2016-18 Atlantic herring (AH) fishery, the PDT re-examined all available data on river herring and shad (RHS) catch, as well as the methods previously used to set the catch cap. The RHS catch caps were originally established by the Council under Framework 3 and were set at the median level of catch observed over a 5 year reference period (2008-2012). At that time, an examination of available data identified a weak relationship between the total landings per trip (K_{ALL}) and RHS catch. Therefore, the annual RHS catch was estimated by multiplying the average observed catch rate per trip by the total number of trips that occurred in the fishery, instead of using a ratio estimator that relied on K_{ALL} . However, this created an inconsistency between the setting and monitoring of the RHS catch cap, because NOAA uses ratio estimators to monitor all catch caps. To ensure uniformity throughout the process, the PDT modified their methods for the 2016-2018 specifications by using a ratio estimator to derive annual RHS catch:

$$RHS_{tot} = K_{ALL_{tot}} * \frac{\sum RHS_{obs}}{\sum K_{ALL_{obs}}}$$

This assumes that the amount of RHS caught on an AH trip is proportional to the total landings of all species on that trip. This modification has resulted in significant change in the estimated amount of annual RHS catch, particularly for gears and areas that have some large trips with low observed RHS catch (e.g., GOM midwater trawl) (Table 1).

There is considerable interannual variability in the total annual RHS catch amount estimated for this fishery (Figure 1; Table 2). As such, it is difficult to establish an “average” annual RHS catch level (the basis of the catch caps) from only five years. For this reason, the PDT recommends including two additional years (2013-2014) to the reference period to provide better representation of the distribution of annual catch amounts. However, going forward it is not recommended to continue to include additional years to this reference period; 2014 is the last year that the AH fishery operated without the limitations imposed by a RHS catch cap. Including “cap years” in the reference period would provide incentive for fishermen to increase their RHS catch, which is in opposition to the goal of the RHS catch caps.

The PDT also recommends using a weighted average of annual catch amounts (weighted by the number of samples in each year) to represent the “average” annual RHS catch, instead of the median. There has been considerable variation in the number of observed trips between years, and a weighted mean takes into account this varying level of precision among annual estimates (Figures 2 and 3). The use of a median gives years with very few samples (e.g., SNEMA bottom trawl in 2008 – 1 observation) the same amount of weight as years with many samples (e.g., SNEMA bottom trawl in 2013 – 163 observations).

Under the original five year reference period (2008-2012), it was noted that nearly all of the observed RHS catch was landed and not discarded at-sea. Because only rare small amounts of discarded bycatch were observed at-sea, the PDT did not consider this a problem for combining portside and at-sea datasets at the time. However, upon reviewing catch data from the most recent two years (2013-2014), it has become apparent that discards now constitute a much larger proportion of total RHS catch, particularly for SNE/MA bottom trawl (up to ~73% in 2014).

Therefore, a more formal treatment of the two data types (landed catch vs discarded catch) is now warranted.

The method of calculating RHS catch was modified by estimating total RHS_{kept} separately from RHS_{discards} . RHS_{kept} was estimated using the combined dataset of at-sea and portside observations of landed catch. RHS_{discards} was estimated using only the at-sea observations of discarded bycatch. The variances for each component were added together to achieve the variance of total RHS catch.

Several other changes were made to either the data or methods used to estimate annual RHS catch, all of which had a relatively minor influence over the resulting values:

- Included some shad landings that were previously omitted from RHS estimates
- Included some trips that were previously omitted because sub-trips did not meet 6600 lbs AH criteria
- Improved matching of trips sampled by multiple agencies (for removal of redundancies)
- Use of DMIS (NOAA-reconciled dealer/fishermen database) for K_{ALL} (total lbs of all species kept) in all expansions (to the trip and to the fishery).

Table 1. Possible RHS catch cap values based on annual estimates of total RHS catch from two time periods (2008-2012; 2008-2014). “Wgt Mean” is the arithmetic average of the total RHS catch per year, weighted by the number of sampled trips. The previous cap values are shaded in gray.

		Bottom Trawl		Midwater Trawl	
		Median	Wgt Mean	Median	Wgt Mean
GOM	Old (08-12)			85.5	96.3
	New (08-12)			98.1	98.3
	New (08-14)			11.3	76.7
CC	Old (08-12)			13.3	32.5
	New (08-12)			8.9	27.6
	New (08-14)			29.5	32.4
SNE/MA	Old (08-12)	88.9	61.5	123.7	235.3
	New (08-12)	19.6	28.2	83.9	115.4
	New (08-14)	24.0	122.3	83.9	129.6

Table 2. Annual estimates of total RHS catch (landed + discarded) from the Atlantic herring fishery.

Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Median	Weighted Mean
Bottom Trawl	GOM				0.6	0.1	0.0		0.1	0.3
	SNEMA	0.0	105.9	13.5	19.6	24.0	236.5	58.5	24.0	122.3
Midwater Trawl	GOM	157.2	98.1	146.8	5.9	1.9	11.3	6.7	11.3	76.7
	CC	39.8	0.0	0.7	8.9	49.6	29.5	45.3	29.5	32.4
	SNEMA	348.7	83.9	28.0	29.6	157.3	231.5	30.3	83.9	129.6
	GBK	0.0	0.2	1.6	0.9	0.5	1.3	0.4	0.5	0.8
Purse Seine	GOM	2.0	2.8	2.9	0.1	1.2	4.1	66.5	2.8	7.0
	Total	547.7	290.8	193.5	65.6	234.4	514.2	207.6		

Table 3. Total number of trips and total landings from trips that landed > 6600 lbs of Atlantic herring.

Trips with Atlantic Herring Landings >6600 lbs									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	GOM	5	18	24	9	27	3	9	95
	CC	0	0	0	0	0	0	0	0
	SNEMA	70	135	103	118	73	223	175	897
	GBK	36	103	87	183	169	189	154	921
Midwater Trawl	GOM	88	115	109	65	25	23	36	461
	CC	40	16	40	28	50	39	75	288
	SNEMA	152	188	116	77	148	219	146	1046
	GBK	1	0	1	0	2	0	0	4
Purse Seine	GOM	243	225	205	265	275	314	313	1840
	CC	0	0	1	0	0	0	0	1
	SNEMA	0	0	0	0	0	0	2	2
	GBK	0	0	0	0	0	0	0	0
	Total	635	800	686	745	769	1010	910	5555
Total Landings (MT) from Trips with Atlantic Herring Landings >6600 lbs									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	GOM	32	100	109	40	121	10	39	451
	CC	0	0	0	0	0	0	0	0
	SNEMA	3186	5952	4558	4629	4935	9422	5503	38185
	GBK	7564	26669	14237	32172	30355	35795	27052	173844
Midwater Trawl	GOM	17663	22803	18628	12875	4258	6563	7381	90171
	CC	7280	2806	5522	5769	12569	6002	17199	57147
	SNEMA	26460	36070	22158	9799	18207	16788	14230	143712
	GBK	67	0	66	0	89	0	0	222
Purse Seine	GOM	25200	21694	8272	17001	19295	22981	27247	141690
	CC	0	0	9	0	0	0	0	9
	SNEMA	0	0	0	0	0	0	58	58
	GBK	0	0	0	0	0	0	0	0
	Total	87452	116094	73559	82285	89829	97561	98709	645489

Table 4. Sampled RH/S Catch Cap Trips by Strata, 2008-2014

NEFOP At-Sea Observed Cap Trips*									
<i>* only includes trips with >6,600 lbs herring</i>									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	GOM	0	0	0	2	2	1	0	5
	SNEMA	1	9	7	20	19	46	47	149
Midwater Trawl	CC	11	9	24	11	38	14	36	143
	GBK	12	33	79	77	114	72	44	431
	GOM	17	40	40	25	8	11	20	161
	SNEMA	26	30	34	34	23	13	5	165
Purse Seine	GOM	24	35	22	51	35	31	15	213
	Total	91	156	206	220	239	188	167	1267
MADMF Portside Observed Cap Trips*									
<i>* only includes trips with >6,600 lbs herring that were not also sampled at-sea by NEFOP</i>									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	SNEMA	0	0	0	9	49	112	67	237
	CC	2	0	2	0	6	12	9	31
Midwater Trawl	GBK	0	2	0	9	13	9	22	55
	GOM	8	4	9	3	4	6	13	47
	SNEMA	0	7	4	5	20	31	18	85
Purse Seine	GOM	0	2	0	0	0	0	1	3
	Total	10	15	15	26	92	170	130	458
MEDMR Portside Observed Cap Trips*									
<i>* only includes trips with >6,600 lbs herring that were not also sampled at-sea by NEFOP</i>									
Gear	Cap Area	2008	2009	2010	2011	2012	2013	2014	Total
Bottom Trawl	SNEMA	0	0	1	1	2	5	4	13
	CC	0	0	0	0	1	0	0	1
Midwater Trawl	GBK	0	0	0	0	1	0	0	1
	SNEMA	0	2	0	0	1	11	7	21
	GOM	0	0	0	0	0	1	1	2
Purse Seine	GOM	0	0	0	0	0	1	1	2
	Total	0	2	1	1	5	17	12	38

**If a trip occurred in multiple areas, it was assigned to the area where the majority of catch occurred.*

Figure 1. Estimated total RHS catch from trips that caught >6600 lbs of Atlantic herring by year, gear and cap area. The blue error bars represent 2 standard errors, and the number above each bar is the number of observed trips.

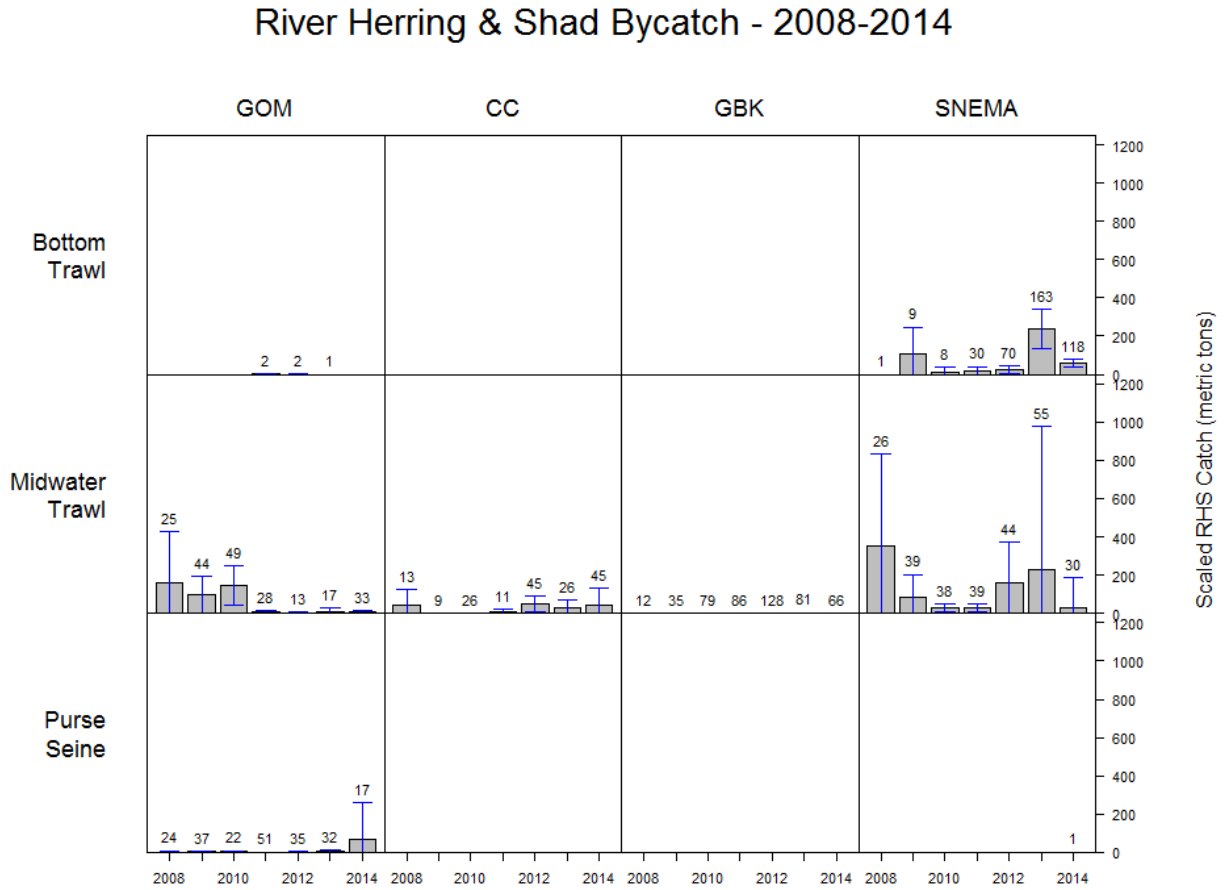


Figure 2. Total number trips that caught >6600 lbs of Atlantic herring by year, gear, and cap area. The dark portion of each bar represents the proportion of total trips that was observed in that year, with the % observed shown above each bar.

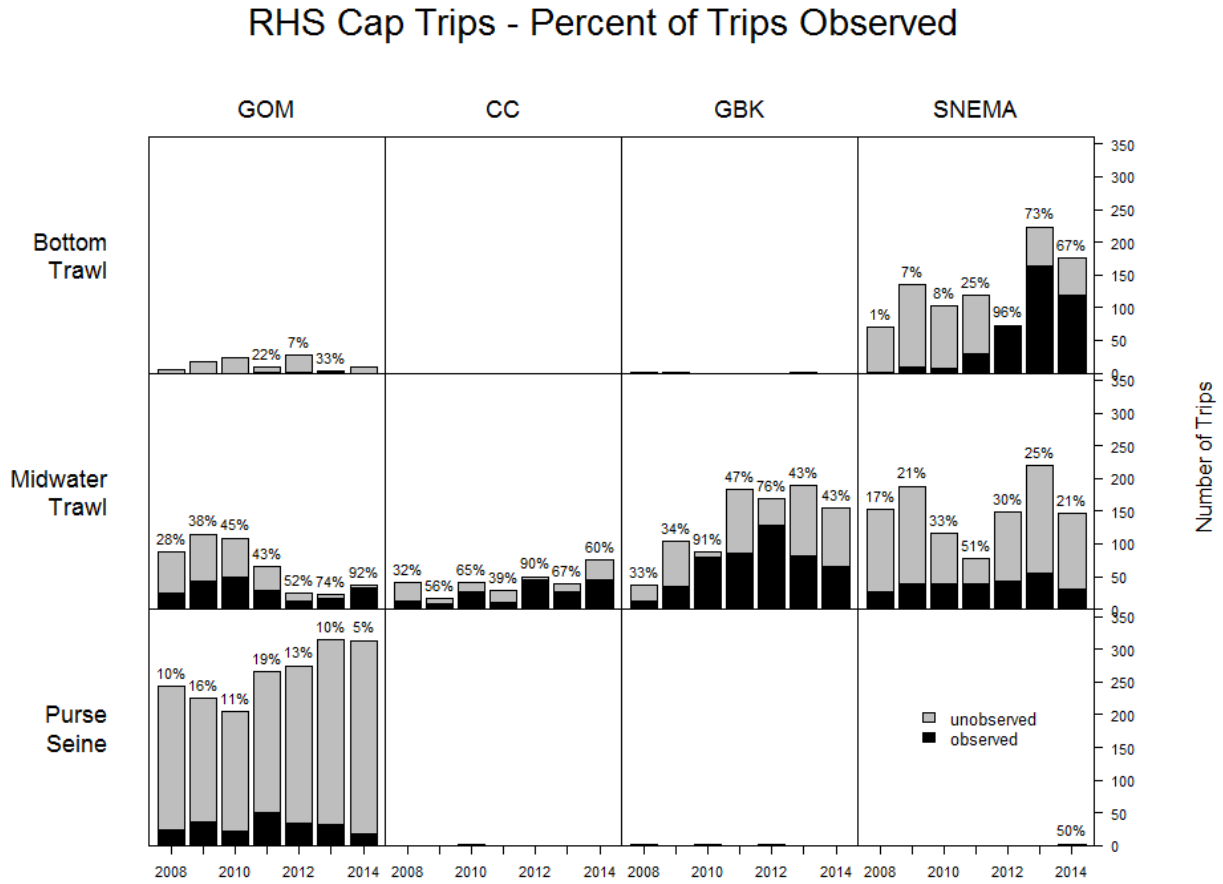
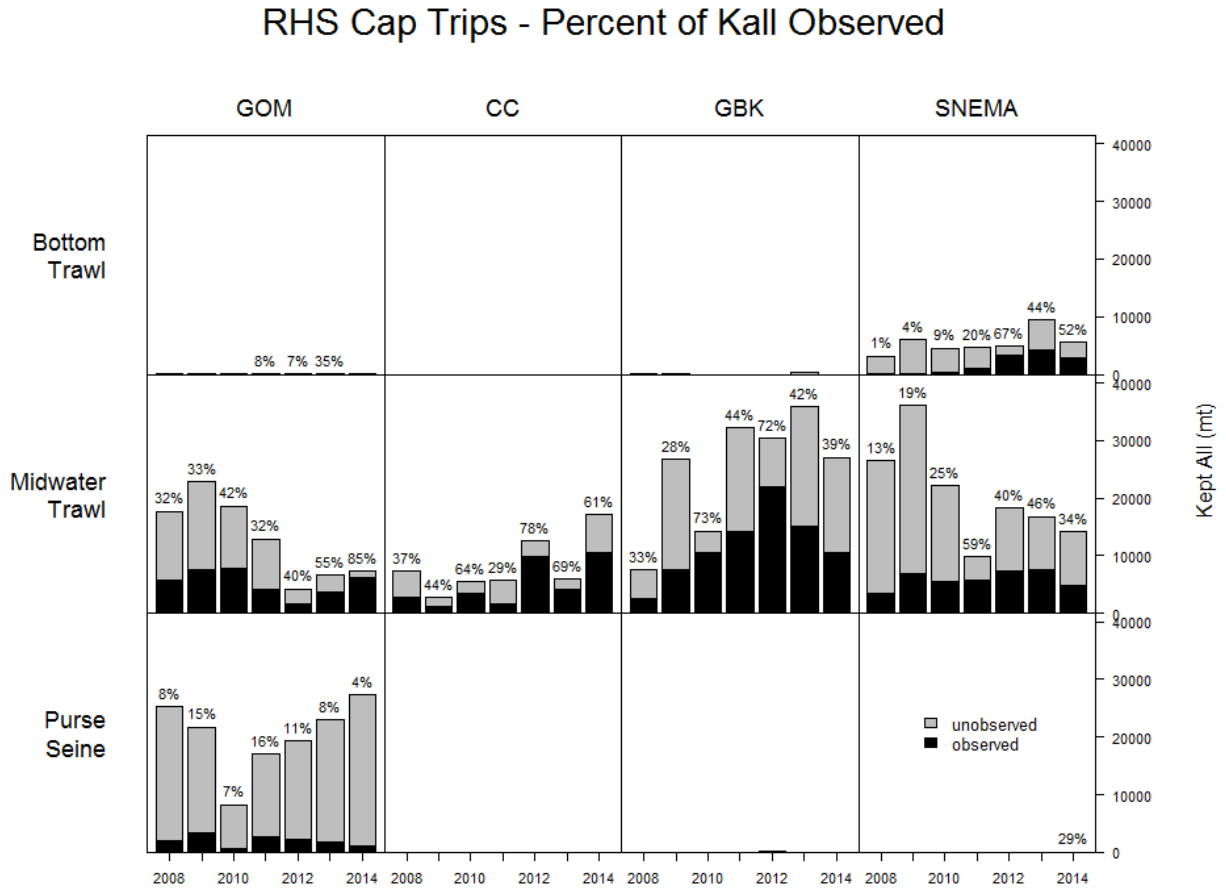


Figure 3. Total catch of all species (Kall) from trips that caught >6600 lbs of Atlantic herring by year, gear, and cap area. The dark portion of each bar represents the proportion of total Kall that was observed in that year, with the % observed shown above each bar.



Sender: Derek Duplissis
RE: Herring spawning please read
Date: August 26, 2015

I'm writing to you as a Herring fisherman who's concerned about the spawning closures. It's not that I don't think we should have them or that I want more time fishing. It's that the timing of the closures is completely WRONG. The date now is August 25 and for nearly 10 days we have been catching spawners. It doesn't take a biology degree to notice a fish full of eggs or sperm. Last year I witnessed the same thing happen. For 3-4 weeks the siener fleet fished spawners not until the close to the end did they get sent to the easterd. My question is if one siener catches 200,000 lbs of spawners how many herring are we losing for the future. There needs to be a closer eye kept on what's going on with the herring. Mother nature doesn't have time for buerocracy or the patience for a letter to get signed. Herring are the bait fish for the ocean and we need to insure a good stock for future fish and fisherman. If this email isn't enough please just go to Maine lobster wharf and take a look at the bait. The ocean can afford to lose cod but not herring too much depends on it.

I'm a simple fisherman trying to insure a future for myself and everyone else who depends on the ocean. Please forward this to anyone with the power to help out.

Atlantic States Marine Fisheries Commission

Summer Flounder, Scup, and Black Sea Bass Management Board

November 2, 2015
1:45 – 3:45 p.m.
St. Augustine, Florida

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*D. Pierce*) 1:45 p.m.
2. Board Consent 1:45 p.m.
 - Approval of Agenda
 - Approval of Proceedings from February 2015
3. Public Comment 1:50 p.m.
4. Review Marine Recreational Information Program Wave 4 Harvest Estimates for Summer Flounder, Scup, and Black Sea Bass (*K. Rootes-Murdy*) 2:00 p.m.
5. Consider Management Approaches for 2016 Summer Flounder and Black Sea Bass Recreational Fisheries (*K. Rootes-Murdy*) **Action** 2:15 p.m.
6. Review and Consider Approval of the 2016 Black Sea Bass Benchmark Stock Assessment Terms of Reference (*K. Rootes-Murdy*) **Action** 2:45 p.m.
7. Reconsider the 2016-2017 Black Sea Bass Quotas (*K. Rootes-Murdy*) **Final Action** 2:55 p.m.
8. Discuss Management Priorities for Scup and Black Sea Bass Amendments (*K. Rootes-Murdy*) 3:25 p.m.
 - Update on MAFMC Priorities (*C. Moore*)
9. Consider 2015 FMP Reviews and State Compliance (*K. Rootes-Murdy*) **Action** 3:40 p.m.
 - Summer Flounder
 - Scup
 - Black Sea Bass
10. Other Business/Adjourn 3:45 p.m.

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
Monday November 2, 2015
1:45-3:45 p.m.
St. Augustine, Florida

Chair: David Pierce(MA) Assumed Chairmanship: 10/13	Technical Committee Chair: John Maniscalco (NY)	Law Enforcement Committee Representative: Snellbaker (NJ)
Vice Chair: Mike Luisi (MD)	Advisory Panel Chair: vacant	Previous Board Meeting: February 4, 2015
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, PRFC, VA, NC, NMFS, USFWS (14 votes for Black Sea Bass; 12 votes for Summer Flounder and Scup)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February 4, 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Review Marine Recreational Information Program Wave 4 Harvest Estimates for Summer Flounder, Scup, and Black Sea Bass (2:00-2:15 p.m.)

Background

- Preliminary Wave 4 recreational harvest estimates were posted on October 15th. Harvest estimates through wave 4 (July/August) provide the most complete update of the current year's fishery to date.
- Preliminary harvest estimates (in weight) for summer flounder is lower than last year at 57% of the 2015 recreational harvest limit (RHL) through wave 4. Preliminary harvest estimates (in weight) for black sea bass is approximately 7% over the 2015 RHL. Preliminary harvest estimates (in weight) for scup are down 13% relative to 2014 and below the 2015 RHL (**Briefing Materials**)

Presentations

- Presentation of wave 3 and 4 MRIP harvest estimates for summer flounder, scup, and black sea bass by K. Rootes-Murdy

5. Consider Management Approaches for 2016 Summer Flounder and Black Sea Bass Recreational Fisheries (2:15-2:45 p.m.) Action

Background

- Addendum XXV to the Summer Flounder, Scup, and Black Sea Bass FMP allowed for the

use of ad-hoc regional management approaches for the Black Sea Bass recreational fishery in 2014 and 2015. The Addendum expires at the end of 2015 and without action coastwide management measures for the black sea bass recreational fishery would be in place for 2016.

- Addenda XXV and XXVI to the Summer Flounder, Scup, and Black Sea Bass FMP allowed for regional management for Summer Flounder in 2014 and 2015. Addendum XXVI also had a provision that allows the Board to extend this management strategy into 2016.

Presentations

- Review of Summer Flounder and Black Sea Bass Recreational Management options for 2016 by K. Rootes-Murdy

Board Actions for Consideration

- Initiation of an addendum for the Black Sea Bass recreational fishery in 2016 if coastwide management measures are not preferred.
- Initiation of an addendum for the Summer Flounder recreational fishery in 2016 if neither current regional management strategy or state-by-state conservation equivalency are preferred

6. Review and Consider Approval of the 2016 Black Sea Bass Benchmark Stock Assessment Terms of Reference (2:45-2:55 p.m.) Action

Background

- The Black Sea Bass Benchmark Stock Assessment is currently scheduled for November/December 2016.
- ASMFC staff, Mid-Atlantic Fishery Management Council (Council) staff, Black Sea Bass Technical Committee members, and NOAA Northeast Fisheries Science Center staff have all reviewed and contributed to the draft Terms of Reference (**Briefing Materials**)

Presentations

- Overview of the 2016 Black Sea Bass Stock Assessment Terms of Reference by K. Rootes-Murdy

Board Actions for Consideration

- Approval of the 2016 Black Sea Bass Stock Assessment Terms of Reference

7. Reconsider the 2016-2017 Black Sea Bass Quotas (2:55-3:25 p.m.) Final Action

Background

- In September 2015 the Council's Science and Statistical Committee (SSC) conducted a peer review of Data Limited Approaches for setting the Black Sea Bass Acceptable Biological Catch (ABC) in 2016/2017. Based on the peer review, the SSC recommended an increased ABC for 2016/2017 from 5.5 million lbs to 6.67 million lbs.
- At the MAFMC October 2015 meeting the Council voted to increase the Black Sea Bass ABC for 2016 and 2017 to 6.67 million lbs. This results in a revised commercial quota of 2.71 million lbs and RHL of 2.82 million lbs for 2016 and 2017. (**Briefing Materials**)

Presentations

- Overview of the revised Black Sea Bass Commercial Quota and Recreational Harvest Limit for 2016 and 2017 by K. Rootes-Murdy (**Supplemental Materials**)

Board Actions for Consideration

- Approval of the revised Black Sea Bass Commercial Quota and Recreational Harvest Limit for 2016 and 2017

8. Discuss Management Priorities for Scup and Black Sea Bass Amendments (3:25-3:40 p.m.)

Background

- In 2010, the Council initiated a draft Amendment to address black sea bass recreational regional management. Addendum XXI was passed by the Board in March 2011 to allow ad-hoc regional management for the black sea bass recreational fishery in 2011. The draft Amendment was tabled shortly after being initiated.
- In 2012, the Board and Council passed a motion to initiate a draft Amendment to revise the scup quota allocation between the commercial and recreational sectors and between the commercial quota periods. Due to competing priorities and constraints on staff time, the Amendment has not moved forward since then.
- In August 2015, Board and Council agreed to initiate a scoping process for the draft Scup Amendment before the end of the year.
- At the October 2015 Council meeting, the Council's Executive Committee discussed tabling the Scup Amendment and instead moving forward with a new Black Sea Bass Amendment

Presentations

- Update on MAFMC Priorities by C. Moore

9. Consider 2015 FMP Reviews and State Compliance (3:40-3:45 p.m.) Action

Background

- Summer Flounder, Scup, and Black Sea Bass Compliance Reports are due June 1, 2015. The Plan Review Team reviewed state reports and compiled the annual FMP Review. **(Briefing Materials)**
- Delaware has requested *de minimis* status for summer flounder and scup

Presentations

- Overview of the Summer Flounder, Scup, and Black Sea Bass FMP Review Reports by K. Rootes-Murdy

Board Actions for Consideration

- Accept 2015 FMP Review and State Compliance Reports
- Approve *de minimis* requests

10. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
SUMMER FLOUNDER, SCUP AND BLACK SEA BASS MANAGEMENT BOARD**

**The Westin Alexandria Hotel
Alexandria, Virginia
February 4, 2015**

**These minutes are draft and subject to approval by the Summer Flounder, Scup and
Black Sea Bass Management Board.
The Board will review the minutes during its next meeting.**

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

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**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

INDEX OF MOTIONS

1. **Approval of agenda by consent** (Page 1).
2. **Approval of proceedings of October 2014 by consent** (Page 1).
3. **Move to approve Option 2, Adaptive Regional Management, as the management program under Addendum XXVI** (Page 11). Motion by James Gilmore; second by David Simpson. Motion carried (Page 13).
4. **Move to approve Regional Option 1, status quo** (Page 13). Motion by Dave Simpson; second by Emerson Hasbrouck. Motion carried (Page 16).
5. **Move to approve Option 2 under Section 3.1.1, Time Frame for Summer Flounder Measures** (Page 16). Motion by David Simpson; second by James Gilmore. Motion carried (Page 18).
6. **Motion to approve Addendum XXVI as modified today** (Page 20). Motion by Bill Adler; second by Emerson Hasbrouck. Motion carried (Page 21).
7. **Move to approve the black sea bass proposals and methodologies for use in 2015 management as approved by the technical committee** (Page 27). Motion by David Simpson; second by Bill Adler. Motion carried (Page 28).
8. **Move to approve Connecticut's reduction in minimum size to 10 inches and increase in bag limit to 30 fish to be consistent with the states of Rhode Island, Massachusetts and New York for 2015** (Page 31). Motion made by David Simpson; second by James Gilmore. Motion carried (Page 31).
9. **Motion to adjourn by consent** (Page 32).

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

ATTENDANCE

Board Members

Doug Grout, NH (AA)	Tom Fote, NJ (GA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Bill Adler, MA (GA)	Roy Miller, DE (GA)
David Pierce, MA, proxy for P. Diodati (AA)	John Clark, DE, proxy for D. Saveikis (AA)
Bob Ballou, RI (AA)	Mike Luisi, MD, proxy for T. O'Connell (AA)
Mark Gibson, RI, Administrative proxy	David Sikorski, MD, proxy for B. Goldsborough (GA)
Rick Bellavance, RI, proxy for Sen. Sosnowski (LA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
David Simpson, CT (AA)	Kyle Schick, VA proxy for Sen. Stuart (LA)
James Gilmore, NY (AA)	Louis Daniel, NC (AA)
Emerson Hasbrouck, NY (GA)	Martin Gary, PRFC
Katherine Heinlein, NY, proxy for Sen. Boyle (LA)	Michael Ruccio, NMFS
Tom Baum, NJ, proxy for D. Chanda (AA)	Mike Millard, USFWS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

John Maniscalco, Technical Committee Chair

Staff

Robert Beal	Marin Hawk
Toni Kerns	Mark Robson
Kirby Rootes-Murdy	

Guests

Russell Brown, NOAA	Casey Kenney, NYS DEC
John Bullard, NMFS	Tom Eidle, NYS DEC
Kelly Denit, NMFS	Mike Luisi, MD DNR
Kiley Dancy, MAFMC	Brandon Muffley, NJ DFW
Jeff Deen, MAFMC	Raymond Kane, CHOIR
Jason McNamee, RI DEM	Ed O'Brien, Chesapeake Beach, MD
Russ Allen, NJ DFW	Jack Travelstead, CCA
Michael Armstrong, MA DMF	Arnold Leo, Town of E. Hampton, NY
Michelle Duval, NC DMF	

**These minutes are draft and subject to approval by the
Summer Flounder, Scup and Black Sea Bass Management Board.
The Board will review the minutes during its next meeting**

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

The Summer Flounder, Scup and Black Sea Bass Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, February 4, 2015, and was called to order at 3:20 o'clock p.m. by Chairman David Pierce.

CALL TO ORDER

CHAIRMAN DAVID PIERCE: We're starting a little bit early, which means we can end a little bit early. We scheduled for 3:30 to 6:30; and I suspect we can cut the meeting far short of 6:30 in light of what we expect to receive for advice and the decisions that we'll make on scup and on black sea bass.

Fluke I think will be the species that takes a bit more time in light of the fact that we have an addendum to discuss and to approve, hopefully. Fortunately, we begin this meeting with some good news. I don't mean the New England Patriots spectacular win. I mean that we have not exceeded the recreational harvest limit for fluke, the coast-wide limit, at least not by much.

I had been a bit of a pessimistic regarding that; and I had thought we might exceed it and I was wrong. Fortunately, that was the case.

APPROVAL OF AGENDA

CHAIRMAN PIERCE: We have an agenda before us. Does anyone have any suggested changes to the agenda? All right, I see none; therefore, we will adopt the agenda by consent. The proceedings from October 28; Jim.

MR. JAMES J. GILMORE, JR.: Just one minor change, Mr. Chairman; Anthony Dellernia was in the audience at the Mid-Atlantic Council. They listed him as Joseph Dellernia, so just that minor correction.

APPROVAL OF PROCEEDINGS

CHAIRMAN PIERCE: Thank you for that correction. Anything else regarding the

proceedings? A motion to approve the proceedings? All right, I see no one willing to make a motion; so with no objection to adopt the proceedings, we will consider the proceedings adopted.

PUBLIC COMMENT

CHAIRMAN PIERCE: Public comment; as always do, we afford the public an opportunity to address issues that are not on the agenda related to fluke, scup and black sea bass.

Is there anyone in the audience who cares to make a comment?

**DRAFT ADDENDUM XXVI
FOR FINAL APPROVAL**

CHAIRMAN PIERCE: With no interest expressed, we will then get to the first item on the agenda, which is Draft Addendum XXVI, final action. We brought that draft addendum to public hearing.

REVIEW OF OPTIONS

CHAIRMAN PIERCE: I will now turn to Kirby who will review the options in the addendum; and then after he does that, after he refreshes our memories, we will then have him go through the summary of public comments that were received at the many hearings that we scheduled on the addendum. That will be followed by the advisory panel report; and then we will get on to the discussion of the addendum itself and final approval.

MR. KIRBY ROOTES-MURDY: As Dr. Pierce mentioned, I'm going to go through the addendum real quickly just to refresh the board's memory and what the options are and then go into the public comment summary; first, the public hearing summary and then the written comment summary. After that, Mark Robson will walk us through the Law Enforcement Committee's Summary Review and we will conclude with the advisory panel summary comments.

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

For some background, Draft Addendum XXVI was approved for public comment at the Joint ASMFC/Mid-Atlantic Council Meeting in December of 2014. It proposed status quo and regional management options for summer flounder. The public comment period closed on January 23rd. In terms of the purpose of the document, it moved to try to continue some of the provisions that were outlined in Addendum XXV, which sought to address concerns of equity across the management unit.

As many people know, summer flounder has changed both in terms of abundance and distribution over the last 20 years with the 2011 stock assessment update declaring the resource rebuilt. During the last 20 years, there have been changes to the resource and as such the states have shown an interest in moving away from state-by-state management towards regional management, which was approved in Addendum XXV.

Draft Addendum XXVI offered two main options. First was to go back to what we call the fishery management plan status quo, which is state-by-state conservation equivalency. That was approved for use at the joint meeting in December. The other option is Option 2, adaptive regional management, which can be done under conservation equivalency.

In the document it outlines a number of adaptive regional management options. I'll go through those now briefly. First, just as a refresher, what the state-by-state conservation equivalency could look like in 2015 if that was the preferred option by the board. Presented right now is what state harvests are through Wave 5 in number of fish.

Here is what the 2014 state-by-state harvest targets would have been if state-by-state conservation equivalency has gone with in 2015; those targets are what each of the states will be evaluated against. In the far right

column is what the 2015 state-by-state harvest targets would be in number of fish.

Again, adaptive regional management offers for states within a region to have the same bag and size limit within the region. While season start and end dates may vary, they all must have the same length. The goal is to propose management measures that are similar to the previous year's regulation.

It is important that the option is not intended to implement new state allocations and is not intended to set the precedent for state allocations. If adaptive regional management is approved for continuation today, the technical committee will develop regional management measures based on the option chosen with direction from the board and will present those management measures back to the board for review and approval.

One other note is just in terms of the time frame. As outlined earlier, if the board chooses to go back to state-by-state management under conservation equivalency, the states will be evaluated against what their state targets would be, which is taking the proportion of their harvest in 1998 and applying it to a given year's recreational harvest limit; so that would applying their proportion in 2014 to that RHL. That would be done for 2015 as well.

In continuing adaptive regional management, depending on the option that is chosen by the board, the technical committee will look to the board for guidance on how and where changes to management measures are needed, depending on the regional alignment and what type of coast-wide buffer, there should be one, how big it should be for setting a projected coast-wide harvest.

In reviewing the adaptive regional management options, the first is to continue what was essentially the status quo from 2014. This slide differs from what was presented during the

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

public hearings as it shows what the projected coast-wide harvest could be under these example measures which are what were in place in 2014.

Keep in mind that those projections, as they are for all the examples I'll go through, are based on data through Wave 5 of 2014, which is still preliminary and not finalized. As you can see, this projection harvest is about 99.4 percent of what the recreational harvest limit is in 2015. The next option is similar to the regional management status quo with the addition of Rhode Island into the northern region.

In terms of projected harvest, these set of management measures could achieve approximately 95 percent of the 2015 RHL. Then as a refresher for Options 3 through 5, Option A offers Massachusetts and Rhode Island to stay as individual separate regions; whereas, Option B has Rhode Island included in the northern states' region.

Regional Option 3A offers to split the state of New Jersey at approximately Little Egg Inlet, creating a set of management measures for Connecticut through northern New Jersey and a different set of management measures for southern New Jersey through Virginia. As noted in the document, in order to do this technically New Jersey would have to become its own state region in order to self-divide itself into northern and southern sections.

The example management measures in here would achieve approximately 97 percent of 2015 RHL. Regional Option 3B moves to include Rhode Island with that northern region. The projected harvest is listed. Regional Option 4 moves to extend the southern region up through the Delaware Bay and creating a set of management measures from Delaware Bay south through Virginia.

The northern region would constitute the states of Connecticut through New Jersey. The

demarcation of that extent in Delaware Bay is yet to be determined, whether it be Cape May or a similar location. Options 3 and 4 both offer a scenario where New Jersey would have to become its own state-specific region in order to divide area-specific management measures.

Option 4B moves to include Rhode Island in that northern region of states. Regional Option 5 creates a Delaware Bay specific set of management measures that differ from the rest of Delaware and differ from the management measures set for the rest of the state of New Jersey. The difference between Option 5 and the previous two options is that this would create state-specific regions for Delaware and New Jersey as well to self-divide area-specific management measures. Option 5B moves to include Rhode Island in that northern region.

The proposed time frame; the addendum offers the option for whatever is chosen of the adaptive regional management; they could either be continued for one year, just for the 2015 fishing year, or for 2015, Option 2, the option to have it for 2015 with the ability to extend it for an additional year, through 2016.

PUBLIC COMMENT SUMMARY

MR. ROOTES-MURDY: In moving through to the public comment summary, public hearings were held in the states of Virginia through Massachusetts in January 2015. Approximately 75 people attended these public hearings across the eight states. Commissioners were in attendance as well. Written comments were submitted in addition to public hearing comments that were recorded. A total of 63 comments were received with three comments being offered by organizations and/or groups.

In terms of attendance, it varied across the coast. Fifteen members of the public attended in Delaware; whereas, Virginia had one member of the public in attendance. Comments varied in terms of scope, stated preference and form. We did receive a number of comments both in

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

the public hearing and in the written comments that did not offer a specific preferred regional option but did list preferred management measures.

With regards to the public hearings, support was split between the eight states for regional management options one or two; as mentioned before, either status quo or the addition of Rhode Island into the northern region; and Options 4 and 5, which offer variations on splitting Delaware Bay either as part of the southern region or as a region-specific area.

Total number of comments from the public hearings favored either maintaining the regional alignment in 2014 or moving to include Rhode Island in the northern region were just slightly above comments offered for support of Regional Options 4 and 5. In terms of reasons that were cited in favor of either maintaining the regional status quo or adding Rhode Island to the northern region was signified by satisfaction the many anglers had in terms of the management measures that were in place in 2014.

Concerns were raised regarding how enforcement could be carried out for regional options three through five. The reasons cited for regional management option two was a preference to move Rhode Island in with the northern states that were in the 2014 northern region so as to have compatible management measures.

Reasons that were cited in support of Option 4 and 5 signified a preference for having the same regulations between neighboring states and bordering regions. For 2014 the states of New Jersey and Delaware had a difference of about two inches in their size limit and about 128 days in their season length.

There was also concern raised over loss of business to regions with less restrictive measures; so an effort shift from New Jersey to

Delaware. There was concern that there was a different fish that many anglers were actually catching in southern New Jersey versus the rest of the state as well as Delaware Bay in relation to northern New Jersey.

Another reason cited for support of these options was for the northern region to have a longer season under the example management measures that were included in the document. In terms of the written comments received, almost all of the individual comments that we received indicated a preference for continuing regional management with a slight majority in favor of splitting New Jersey either through regional option three, a split across the state, or regional option four.

Some of the concerns listed are similar to what was outlined in the public hearings regarding concern of loss of business from the northern region to the southern region as well as the availability of fish that were smaller than the legal size limit for the northern region in 2014. That was an 18-fish fish. Again, concern over fishing on the same water body of the Delaware Bay while having different management measures.

A breakdown of what those comments were is provided here. As noted in the document, some people offered both support and opposition with regards to certain options. People were offering comments that were not simply counted once but could counted twice depending on if they were specifying support for one and opposition to another.

**LAW ENFORCEMENT COMMITTEE
SUMMARY REVIEW**

CHAIRMAN PIERCE: The next is the LEC Summary Review and I will turn to Mark Robson to walk us through that.

MR. MARK ROBSON: The Law Enforcement Committee was able to convene a teleconference call on January 26th to review

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
February 2015**

these various management options in the addendum and provide comments. I will try to summarize those for you. They're pretty well bulleted here on the display. In general, the LEC appreciated the efforts that were made when we went to the adaptive regional management in 2014 because it did appear to help make the size limits more consistent among the states than the previous iteration.

In general, as with many law enforcement comments, the larger or greater the regionalization that you can have with regard to regulation, the better it is in terms of enforceability, particularly when you have a number of states that are very contiguous to each other. It does help to minimize angler confusion and also unintentional violations by recreational anglers.

When we looked at the regional adaptive management proposals and the effort to try to deal with the problem between New Jersey and Delaware size limits, enforcement officers that were on the call – and we did have representation from New Jersey, Delaware, Maryland and Virginia on the call – they did not report any significant enforcement issues with that differing size limit.

However, as again with an effort always towards consistency, they felt that it would be much better if you could have the same size limit that would certainly aid enforceability; but they didn't note any significant enforcement issues dealing with those differences in size limits. There was a lot of discussion about the various options that split areas and geographically either splitting New Jersey in half or splitting the Bay; but for Option 3, which is splitting New Jersey into two regions, it was expressed pretty strongly that it would present a lot of enforcement challenges and would create confusion among anglers.

Of course, as a group not seeing specifics as to where these lines would be drawn, they were

careful to point out that how and where that dividing line is created would determine the type and the level of enforceability concerns that we might have to deal with. Along those lines, it came out eventually that obviously if you could use state boundary lines in any type of designation like this, these would be preferable from an enforcement perspective to any other type of geographical line or some other method of dividing a geographical area.

State lines are clear. They are well-established, obviously, and they are easier to enforce for the officer on the water or at the docks. They also are more understandable to the anglers. They do not recommend splitting states or water bodies without using established state boundaries. Depending on where the lines are drawn again, it may be possible for anglers to catch legal fish in one area and then cross the line, obviously, where their catch would become illegal. This is a problem for enforcement officers because in most situations they're enforcing strict liability standards.

It may be very clear that an angler did not intend to violate a regulation when he came back to port and had an undersized fish. Nonetheless, the officer is obligated to enforce the regulations at that location; and that is what we mean by strict liability regardless of intent. It puts the angler and the officer in a difficult situation and not a place where they would like to be if they can avoid it.

Option 4 presents the same concerns, again depending on where the dividing lines are drawn, but the potential does exist for enforcement problems and angler concerns particularly in the Cape May area, depending on, again, how that line is drawn between the two areas. For Option 5, creating Delaware Bay as a specific region, they felt that pretty much the same enforcement problems would ensue; but in this case instead of perhaps just on one side of the Bay, you'd have the same kinds of problems on both sides of the Bay.

**Draft Proceedings of the Summer Flounder, Scup, and Black Sea Bass Management Board Meeting
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Without the benefit of knowing how these boundaries would be drawn, it is difficult to assess in this conference call our specific enforcement concerns, but they could be significant particularly down in the southern part of the Bay area if that line is drawn in a particular way. For the option of time frame, obviously, the Law Enforcement Committee is pretty consistent in this recommendation a lot.

We would certainly like to see a regulation of whatever is implemented put in place and left in place for as long as possible. We would certainly prefer having implementation through at least 2016. Thank you, Mr. Chairman.

BOARD DISCUSSION

CHAIRMAN PIERCE: Are there any questions for Kirby or for Mark? Rob.

MR. O'REILLY: I direct a question to Kirby. Thank you, Kirby, for your presentation. You put a lot of information right out front and I think that's good. A couple of things that I'm interested in about your presentation, which will come up later, so I just want to sort of get a plug in now for equity because the word was a pretty big component of many calls we had last year and was used over and over again.

I just want to say that when it comes time to talk about maybe a failing of the regional approach, it might concern equity; that when there is trouble, when there is an overage of the RHL, which is more substantial than what we're looking at this year, if in fact depending on whether you look at the number of fish or whether you look at the weight where the overage is; but when we revisit some of those year such as 2006 and 2007 – and there are other years back in time – when there are overages and when we have some year classes that resemble the 2009 year class against, since we haven't really had one since then, then equity should apply.

I think it does to the way we approach addressing the overages. We're going to have a conversation about that later, but you brought up the word "equity" and I think it has two avenues. One is to allow for harvest. Since we know from 2009 through 2013, we really didn't allow that; it didn't occur.

Most of the time was spent making sure that we were, I'll say, ultra-conservative that we didn't run any risk. I think that is really not the objective. I think the harvest objective is more important. Equity is one thing you mentioned. The second thing you mentioned was "buffer", talking about the buffer, and that is going to be a conversation in depth probably a little bit later as well. However, I think as we go forward today, we should have some information from you, Kirby.

It doesn't have to be exact; but where do we stand with Bmsy; where do we stand with our year class strengths; where do we stand with the next assessment update. My understanding is we did not have one recently. We're going to have one; and so that brings into question this idea that the ASAP Model has been showing sort of a diminution of that 2009 year class, 2008 year class, and some others. I think it is important when we talk about buffer later; that we talk about it in the context of the status of the stock or the best description you can give us right now. I didn't mean to load you down with that, but I think it is important as we move forward.

CHAIRMAN PIERCE: Thank you, Rob. There was a question in there, I know. You're a plan development team member so I cut you some slack. Next I'm asking for specific questions; no comments, please. Comments will be entertained when a motion is made. A question to Kirby or Mark. Jim.

MR. GILMORE: Kirby, I think I have this right, but say we take one of the examples and we did an Option 5 or whatever; that right now that

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says we have a set of numbers there that I think would be 18.5 inches or four fish. Again, that was emphasized clearly that was an example; so we could use that same option and have an 18-inch size limit if we wanted to adjust the numbers; is that correct?

MR. ROOTES-MURDY: Yes; that is correct. These were example measures that the technical committee put together based on the regional alignment. Again, there was little to no guidance offered by the board when it came to offering what those management measures could be for each of the regions; but the technical committee did review and it technically was sound by their vote.

As I mentioned earlier, what the board should move forward with today, if they choose to go with a regional option, is choosing the preferred regional option with the understanding that off of that they would then provide the technical committee with guidance on what would be preferred management measures for a given region, understanding that constraints need to be put in place to constrain the coast-wide harvest to the recreational harvest limit. There are variations allowed from what was included in the document.

CHAIRMAN PIERCE: To iterate, we will be getting from the technical committee not today but at a subsequent gathering the specific regional measures that would enable us to not exceed the recreational harvest limit. All of the measures that are in these tables that we brought to public hearing were examples; and obviously that posed a challenge for many of the members of the public because they looked at those tables and they thought they were the measures, but we made it clear that they were not.

Those measures will be offered up to us for our consideration after we provide the technical committee with our decision as what option we are going to select for 2015 and perhaps

beyond. In addition, those measures that they will provide based on the option we select will be influenced by another decision we might have to make today – and it is up to the board – are we going to be satisfied with the buffer that we adopted for 2014 or do we want to have a larger buffer, for example, in 2015. Depending upon the decision that we make; that will provide guidance to the technical committee as to the measures they will then bring forward to us. David.

MR. DAVID SIMPSON: Hopefully, you can help me with this. I'm trying to figure out sort of to Rob's point about equity and what we're trying to achieve here. I'm thinking about Delaware Bay and wondering how many fish would be required to get the Jersey portion of Delaware Bay in line with Delaware's 16 inches and however many fish and open season. One of the challenges of the options – and you can't do an unlimited number – is embedded in the option that shows up in a proposal is that 95 percent target.

When I look at it, when my constituents look at that option, they see it costs Connecticut and neighboring states a half an inch to get Delaware Bay on the same page. Now, checking back home, the thought was it could be as much as 100,000 fish to bring the Jersey portion of Delaware Bay in line with Delaware or is it a fraction of that? Is this a rounding error or is it substantial, if John or Kirby could help?

CHAIRMAN PIERCE: John is working on the analysis; so while he is doing that, let me turn to you, John, and, David, we'll get to you with an answer, we hope.

MR. JOHN CLARK: Kirby, I'm just still kind of confused by the regions in some of these options. Last year my recollection, based on what was in Framework 2 and some of the earlier amendments, all states in a region had to have the same size limits and the same possession limits. Now we're at the point

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where we have regions that are states and within those states there are sub-regions.

For example, one of these options has Delaware having two different size limits within the state. I'm just curious is a region just whatever we say it is or are there any limits on what is called a region? Then the second part of that is if you can have different size limits within a state; is one of them kind of the actual limit for the region and then the other part of that is the state is being asked to be more conservative or more liberal in a certain part of the state? How does that work?

MR. ROOTES-MURDY: In terms of the conservation equivalency dictates that if regions are to be formed, they have to have the same, as you said, size limit, bag limit and season length. The reason for – and I tried to highlight – it was tried to be pointed out in the document; but for a state to divide itself and in order for it to do so, it would have to be its own region.

Otherwise, each state within that region would have the ability to self-divide. If it was New Jersey, say Option 3, each state within that northern region would have to be able to self-divide; so New York would be able to divide at some point, maybe on Long Island. Connecticut would have to be able to self-divide at some point in their state.

In order for only one state within a state to divide itself by area, you'd have to really just have that state as a stand-alone region, similar to how Massachusetts and Rhode Island were their own stand-alone regions in 2014.

MR. CLARK: If I could just follow up on that; but in these cases where the state has separate size limits within its own state, within one state, is there an option that is being passed now and then that state is being asked to be – like I said, take Delaware's here.

Are we given a 16-inch size limit and then said as a region, in Delaware Bay you have to be more conservative and have a 17-inch limit; or is this region, right off the bat, having two different size limits. In that case, it is not really a region, right? I mean, we'd have to – as a region we'd have one size limit and one possession limit; and then we could be more conservative or more liberal in the sub-region? If that's the case, can we be compelled to do that?

MR. ROOTES-MURDY: What we tried to outline in the public hearing process was that the management measures on paper would be your regions; but how conservation equivalency defines regions in theory, that state that is self-dividing itself would be a region onto itself. All the other states within that region would set themselves to a certain bag, size, season; and then that single state – say, for example, Delaware where you have to have two separate sets of measures – the request would be for Delaware to have the two separate sets of measures that align with either their northern or their southern extent. In actuality, as I said, Delaware would be its own region, its own state-specific region. It would be requested that state would then fall in line with those regional measures. Does that make sense?

MR. CLARK: It does. Like I said, it just seems very convoluted for a regional approach, but thank you.

MR. JOHN MANISCALCO: In 2014 it is estimated that New Jersey's portion of Delaware Bay landed about 86,000 summer flounder; so by time you're done expanding the season and decreasing the size limit, that would require 113,000 fish.

MR. MICHAEL LUISI: Mr. Chairman, this question is either for you or Kirby regarding the question that you're looking for today from the board. I understand that we are going to make a decision regarding adaptive regional

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management, potentially selecting an option and then having a discussion regarding the buffer that would be put in place towards the 2015 TAC.

The next step to that would be the technical committee going back to create measures within the regions. However, there is no direction in the plan at all about which regions are going to be responsible for achieving let's say a small reduction in order to get down from a proposed 99 percent catch down to let's say the board decides on a 95 percent buffer or a 5 percent buffer.

I guess the question is, is that additional element? Are you looking for the board to provide direction as to which regions are going to be the ones who will need to take those hits? I think about this given there are some states within the regions who have given a lot of what they're kind of donating in there, the donor states, to this regional approach based on their 1998 allocation. It is just a thought about where you guys want to go with this at the end of the day.

MR. ROOTES-MURDY: Yes; that is correct. The technical committee, depending on what regional option is chosen, will need direction from the board, from today's meeting, on how to in turn craft management measures for that region.

CHAIRMAN PIERCE: Yes; it can be as Kirby said or we can do it across the board, all states having the same – having to take necessary steps to achieve that overall additional cut that would relate to a larger buffer, if indeed that's what the board decides to do. We haven't gotten there yet. Anyone else who hasn't yet asked a question? Rob.

MR. O'REILLY: This is my first question for the record.

MR. O'REILLY: Is made to sound as if something magical is going to happen from the technical committee and two thoughts here specifically to the examples, which were mentioned that these are examples. There has to be some realism about these examples.

I can't imagine the technical committee using the 2014 data as the base is going to have a lot more flexibility than what we see in these examples. They can change a little bit; but I'd like to hear about that, first of all, specifically because when I look at some of the regions, looking at the option which as New Jersey split in Option 3A, Virginia falls to 102,299 fish.

I know this is coastwide, an offset of coastwide, and it is regional; but there are projections involved on the state still within a region. It gets a little worrisome when you realize that Virginia had 97,000 fish in 2013 just in its worst wave, Wave 2, March and April. My overall question is how much flexibility is the technical committee really going to have to make this to constrain to the RHL? That is the question.

MR. ROOTES-MURDY: In terms, as I mentioned before, of providing guidance to the technical committee and crafting up the potential regional management measures; the board can specify if they prefer a certain time frame within the fishery as a consideration for developing those measures. At this point, I think that is the extent I can probably speak to it.

CHAIRMAN PIERCE: We will have to come to that, Rob, because it is not clear to me and certainly not clear to you, the degree of flexibility, so we'll come back to that once we make a determination as to the option that we will pick for this year. Adam.

MR. ADAM NOWALSKY: To the end of a lot of these questions about what some alternative measures could be with regards to the three, four and five options, the state of New Jersey

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had put together some alternatives for 5A. Kirby, do you have those and were you planning to provide those to the board today as it might answer some of the questions about what some alternatives could be?

CHAIRMAN PIERCE: My understanding is that you and your New Jersey colleagues have provided some additional options to Kirby. I will turn to Kirby or Toni and ask for your opinion regarding whether or not those particular options can be entertained since I don't believe they were brought to public hearing.

MR. ROOTES-MURDY: New Jersey provided commission staff with variations on Regional Option 5A for consideration last week; in addition, another regional management option that was not included in the document. We have those items and we could put them up. In terms of the second one, commission staff found that Option 6 was outside of the scope of the document that went out to public comment and that the region was not in concert with other regions that were being offered or considered. In terms of Options 5A1 and 5A2, we can put those up if New Jersey wants to provide clarification on what they offer relative to the options in the document.

CHAIRMAN PIERCE: So you're saying then that a couple of suggestions offered up by New Jersey are consistent with the scope of the document we brought to public hearing? That's a very important point for us now because we don't want to discuss any options that cannot be seriously entertained because they were outside the scope of what we brought to public hearing.

MR. ROOTES-MURDY: That is correct. They offered two variations on Regional Option 5. It is further down the slide and I'll work with staff to get it up on the board. There were four total and the latter two were not within the scope of the document.

CHAIRMAN PIERCE: All right, do we have any handouts that would provide those specific options that New Jersey might want to offer up? We don't; okay. All right, board members, apparently these are within the scope of the public hearings. They potentially would be options that can be considered amongst the mix. With your forbearance, Adam, did you want to speak to these options to explain what we have up on the board? Is there any need for elaboration; that's my question?

MR. NOWALSKY: No; I think the intent of these, Mr. Chairman, was just to highlight that there were options. The information we put forth included some of the fish numbers that have been discussed here. With regards to Virginia, some of these numbers kept their numbers up near 140,000 fish, which was consistent with some of the other options that were here.

Again, the intent here was just to put forth some options to say Delaware Bay could be kept separate while maintaining the 18-inch size limit from New Jersey to Rhode Island. That was our intent to the board so that they would have that information in moving forward with what option to move forward with today.

MR. GILMORE: Mr. Chairman, I just wanted to get some clarification. As we went through this, we went through this quickly again this year. When we first put the addendum out, there was some numbers that were put in, and it was different things that were actually in the supplemental material. I just want to make sure we're on the same page; so just bear with me for a moment.

First off, when the addendum came out based upon the projections on Wave 5, we were 4 percent over the RHL. Then when we got to some of the public hearings, there were things like in Massachusetts that were indicating that not only did the region from New Jersey through Connecticut overharvest; they were

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actually maybe overharvesting affecting Massachusetts harvest.

Essentially there were other indications that the Connecticut through New Jersey region had gone way over. I just wanted to clarify that the most recent information that I have – and this is with talking through the technical committee folks, whatever – is that, first off, in terms of that issue about the harvest in the Connecticut through New Jersey region, we actually harvested 150,000 less fish than we had previously the year before.

Then Massachusetts harvest actually went up three times; so I think we actually helped Massachusetts in terms of getting more fish, if you want to look at it, so those numbers were a little skewed from whatever. That seems to be the actual information right now that is correct.

When we looked at the New York Region with that 150 – New York through Connecticut and New Jersey, we actually harvested 150,000 less than the previous year; so we were at 99.6 percent of the target. So, just a long discussion about and what I'm trying to get at is that we hit the target.

There was information in the target by a little bit over, but slightly over but not dramatically where there was some – and I think that is what was put in some of the document; so I wanted to clarify that; that we pretty much hit the target that has worked pretty well. Again, if you looked at different versions of the documents as we went along, some of them were sort of saying wildly inaccurate things. When you're ready, Mr. Chairman, I do have a motion.

CHAIRMAN PIERCE: Yes; we all did an excellent job with regard to our planning and the execution of that plan and the target was not exceeded. A combination of luck, perhaps, and good planning; so, anyway, a pat on our collective backs.

ADVISORY PANEL REPORT

CHAIRMAN PIERCE: Before I entertain any motions, however, there was another report to be given; so let's get that report before we move on to specific options. That would be the report of the advisory panel.

MR. ROOTES-MURDY: The AP met by conference call last week and provided a few comments with regards to Draft Addendum XXVI. Overall, the group felt that regional management alignment and management measures worked well. There was concern raised over the restriction in harvest for the northern region with regards to Wave 3 as 45 days were specified as part of the management measures.

Concern was also raised over how and where harvest effort may shift in 2015 depending on the region alignment changes. Two AP members also offered up some information from NEAMAP with regards to trawl information on length frequency as an effort to offer a justification on where a regional boundary could be drawn in the state of New Jersey.

The first one shows the length-frequency distribution for summer flounder caught by NEAMAP Trawl Survey north and south of Little Egg Inlet. As you can see, the trend mirrors across the spatial extent; the other one being the NEAMAP Trawl Survey for north and south of Barnegat Inlet where there is overlap but deviation between that spatial extent. That concludes the AP's comments.

CHAIRMAN PIERCE: All right, we have been at this for an hour or so. I think it is time for a motion; so, Jim, you indicated you had a motion to make and if you would, please, make that motion.

MR. GILMORE: Mr. Chairman, I would move to approve Option 2 Adaptive Regional

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**Management as the management program
under Addendum XXVI.**

**CONSIDERATION OF FINAL APPROVAL OF
ADDENDUM XXVI**

CHAIRMAN PIERCE: All right, we have a motion. Is there a second to the motion? Second by David Simpson. I'll read the motion. The motion is to approve Option 2, Adaptive Regional Management, as the management program under Addendum XXVI. Motion by Mr. Gilmore; seconded by Mr. Simpson. Discussion on the motion. Rick.

MR. RICK BELLAVANCE: Yes; just to clarify, that is the management option under the two options as opposed to conservation equivalency or a regional option. Is that what we're getting from that or is it Regional Option Number 2 in the options under regional options?

CHAIRMAN PIERCE: Jim, would you speak to that question?

MR. GILMORE: I'm sorry; could you state that again, Rick. There were only two options. It was either one or two, so took Option 2.

CHAIRMAN PIERCE: Well, let me jump in. To clarify; Option 2 is adaptive regional management, right, and then under adaptive regional management we have choices; Regional Option 1, Regional Option 2, Regional Option 3; so if you could clarify your intent.

MR. GILMORE: I guess there were three sections to this, Mr. Chairman, and I thought it might be easier to take them one at a time; so we're going to go with the management option and then we go with the regions and then we would go with the time frame. This was just to the first part.

CHAIRMAN PIERCE: All right, thank you; that makes discussion on the motion I think a little bit easier. Clarification has been given by Jim; we're talking about regional management

versus – we're talking about Option 1 versus Option 2; Option 1 being the FMP status quo, coastwide or conservation equivalency; and then Option 2 being the adaptive regional management; so we're talking about adaptive regional management. Further discussion on the motion? I see none. All those in favor of the motion, please signify by raising your hand. I apologize; is there a need for a caucus? Apparently there is.

MR. THOMAS FOTE: David, can we have a little discussion on the fact, too?

CHAIRMAN PIERCE: I asked if there was any discussion on the motion and I saw no hands. The motion is on the board. Do you care to discuss the motion? If you do, fine, go ahead, Tom.

MR. FOTE: I just wanted to comment on what happened last year and what we're looking for this year in the discussion. As you know, New Jersey opposed regional management last year very strongly; and states forced us into regional management and then changed its mind in the following conference call and let two other regions split out as their own individual regions but still not allowing New Jersey to do that.

There were some changes as we went out to public hearings in what we did. The consequences of what you did last year; you did it to basically – you know, the National Marine Fisheries Service pushed it because we weren't being fair and equitable with New York because our size limits were different. What it did create was a little bit of a windfall for Delaware and a real problem with the people that fish in Delaware Bay.

I mean, you only had not even a one-inch size limit; you had a two-inch size limit and a difference of a 128-day season now and a year-round season. We're looking at going forward with this, but we need that issue addressed as

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we get further down the line. That's one of the reasons we're not voting against it today.

CHAIRMAN PIERCE: All right, thank you, Tom. Is there a need for a caucus? I see no need. All those in favor of the motion, please signify by raising your hand; those in opposition; null votes; abstentions, one abstention. **All right, the motion passes; so adaptive regional management is the choice of the board.** I look now to the board for any additional motions regarding the nature of that adaptive regional management. David Simpson.

MR. SIMPSON: Our great experiment last year, I'll call it, seemed to work out pretty well. It was a long journey to get there. I think it certainly improved equity; and we apparently have hit the numbers; some combination of being good and lucky, perhaps, but it always takes a little bit of luck in this business.

In terms of looking at region-by-region expected harvest; region by region I think we did pretty well with the exception of Rhode Island, perhaps. It was over the expected harvest and the expected harvest if we were working on '98-based allocations. I'm also sensitive – this is a long prelude, but I think it is important. In terms of issues of timeliness, it is February. We do need to get on with rulemaking; and I'm loathe to consider starting all over again if we pick Options 2 through – and that we aren't done. We will have another month or two of this.

With the understanding or hope that Rhode Island could make some adjustments to come a little closer toward where the Connecticut to New Jersey Region is in terms of their management measures; **I would move Regional Option 1, status quo.**

CHAIRMAN PIERCE: All right, the motion is Regional Option 1; the regional approach used in 2014. Is there a second to the motion; Emerson, okay. We have a motion and I will

read it: move to approve Regional Optional 1, status quo. Motion by Mr. Simpson and seconded by Mr. Hasbrouck. Discussion on the motion. Adam.

MR. NOWALSKY: Mr. Chairman, clearly, the move to regional management was in deference to the inequities and shared waters and essentially all we have done is displaced that inequity. Therefore, I would move to substitute Option 5A. I would also add to 5A that no region would have greater than an 18-inch size limit. If I can get a second to that and then we can have further discussion on that.

CHAIRMAN PIERCE: All right, there is a motion to substitute. Is there a second to Adam's motion to substitute? Is there a second? I see no second. All right, we're back on the motion as made by David. Rob.

MR. O'REILLY: Although I realize that there are quite a few options to look at and it is difficult to balance everything; I think we're still in the experimental phase. I think that it makes sense to me to stay put and have status quo at this time. I know that doesn't sit well with some, but I think we need to see another round of this at least.

CHAIRMAN PIERCE: Anything further on the motion? Tom.

MR. FOTE: I've talked to a lot of you over the last couple of days and you were kind of understanding what was going on in Delaware Bay, but let me reiterate what went on. When you raised the size limit by two inches in Delaware Bay on the New Jersey side and dropped Delaware to a 16-inch size, it made for a reallocation of where people fished.

Unlike the border between New York and New Jersey, people are not running from northern New Jersey to New York to fish or back and forth like that mainly because it costs you twenty-seven dollars just for the two bridge

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tolls before you make the trip over unlike going to Delaware to fish. The boats that are fishing on the Delaware Bay, out of Fortesque and those areas, really suffered a huge setback in monetary means.

Now, this is what you put in regionalization last year. I sat here and listened to John Bullard basically push this point that we needed to be fair and equitable about this and this will make the size limit the same. Right now you're telling us that you cannot do that at the other end of the state; and you don't care what the other economic impact it is to those fishermen, which was greater than was the impact that was going on between New York and New Jersey by having a different size limit.

This has really you put a community in bankruptcy by selling boats. I mean, it is just as simple as that when you can't take people out fishing because it is easier from Pennsylvania to go down to Delaware and it doesn't cost you any difference in tolls or anything else. It is just what you can catch.

If you can go down there and catch 16-inch size limit, why should I come to Fortesque or any of those ports along there and basically fish. We were hoping that would be addressed because it was an experiment; and we felt the effects of that experiment in New Jersey very hard. It didn't affect anybody else; and, of course, Delaware felt a good windfall on that.

I can understand why they want to stay status quo, but this is supposed to be a commission that works together. People said, well, we have to reallocate. Well, you did a lot of reallocating last year and we're looking for some relief from that reallocation. What I hear around this table is there is no support for that. It is kind of like burying heads under the table and saying, well, tough for New Jersey again like we did last year.

It doesn't send the right message. New York came in complained and threatened lawsuits,

got their senators involved and everything else. I guess that is the only recourse New Jersey has of getting fair and equitable treatment at the commission on this issue because it has really affected the people.

When you're taking money out of people's pockets – and that is a depressed area of the state as you look at the joblessness rate that is going down there and sport fishing was important to those people on the Delaware Bay. It is one of the few industries we've got there that is located on the bay. You take a town like Fortesque, which totally depends on fishing, and basically take their only means of making an income, it affects all the businesses down there. We're just asking for a small recourse and completely get shut out with the status quo. I'm very, very upset.

MR. CLARK: I don't want to get into the whole Delaware Bay issue, but just to say that it hasn't been a windfall for Delaware that Tom is making it seem like. As Roy brought up last year, we've had differences in the size limits across the bay for years and years except the shoe has always been on the other foot. We haven't had complaints about it. I was just curious based on the estimation that Option 1 would lead to us pretty much filling the RHL; what is Rhode Island planning to do to lower the take there, because I see Option 2 would put us down into a safer area of 95 percent of RHL?

MR. LUISI: My question was just answered but my comment was to what Mr. Simpson kind of alluded to as he was preparing to make the motion; his point that we can go with Option 1 at status quo if Rhode Island can do a little something to balance off the RHL from being at that 100 percent or 99 – I don't have the number in front of me – 99.9 percent – point 4 – I'm getting yelled at from one side here. My other side is all messed up.

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I would like to hear a little bit about the speculating that will be the case because the question I asked earlier was once we make the decision on the option and then we discuss as a board what buffer we'd like to consider, the technical committee is going to need some more guidance on that. If that guidance is that Rhode Island make some change to account for a buffer that we discuss, I would like to hear what the thoughts are on that from Rhode Island.

CHAIRMAN PIERCE: Well, John and Michael have asked the question of Rhode Island and I'll ask if Rhode Island would care to comment?

MR. ROBERT BALLOU: Thank you for the consideration in terms of asking Rhode Island to look at what it can do to help address its overage with regard to the region that it is in under Regional Option 1. I will say that there is an opportunity here to come down a bit on bag and season I think in particular; but I don't that is going to necessarily make much of a difference in terms of the buffer issue.

I think that is more of an optics issue than anything else. There are not many options available to us, as I see it, that would lead to significant reductions, if you will, in the coast-wide RHL. I just have to be honest about that. I think we're talking about two different issues here. I think on the one hand there might be sense that because Rhode Island did go over – and, by the way, several states went over their state-based RHL.

I guess on a regional basis there is the issue for Rhode Island that we would have to address; and we would be prepared to address it in whatever way the technical committee advises. I think that is the best answer I can offer you, Mike. I really don't see what we can offer right here right now in the way of concrete adjustments that address the buffer issue because I think that is a lot fish.

Five percent of the coast-wide RHL is a lot of fish, a lot more than Rhode Island could possibly accommodate in terms of any reduction. I think the board just needs to be aware of that; that we might be looking at a situation very similar in 2015 to the one that we had in 2014, which, by the way, resulted in being right on the target. It is really a discussion more about the buffer and whether the board wants to pursue that and how we should get there. I don't know what else we can offer.

CHAIRMAN PIERCE: Thank you for your frankness; I appreciate that. David.

MR. SIMPSON: Yes; to be clear because I don't want to choose an option that forces one state to make a change and not others, but I really do feel that gestures are important and some movement in that harvest reduction and direction I think will be very helpful to know when they review our conservation equivalency proposal.

I certainly understand Rhode Island can't reduce harvest to achieve a 5 percent reduction on the coast. They only have about a 5 or 8 percent share on the coast. I would not expect them to go up on the minimum size. I think my hope and expectation would be that they would match the Connecticut to New Jersey area in terms of measures.

Eighteen 18 inches, five fish and 128-day open season, I think the public would see as a very fair and very reasonable thing to do, even recognizing that it is not going to bring Rhode Island's harvest within the requirements that the '98-based allocation would argue or what our expected harvest from last year would argue; but I think it would be a very important gesture for a couple of reasons if they could make that kind of commitment.

CHAIRMAN PIERCE: Again, to the motion? All right, is there a need for a caucus? There is.

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(Whereupon, a caucus was held.)

CHAIRMAN PIERCE: Are we all set? All those in favor of the motion, please signify by raising your hand; those in opposition; any null votes; any abstentions. **All right, the motion passes;** nine in favor, one opposition and two abstentions. We have selected the regional option for this year. David.

MR. SIMPSON: I'm anticipating you're looking for another motion and that would be do this for one year or one year with an option two; **and I would move the latter, one year with an option for a follow-up year without going out to addendum.**

CHAIRMAN PIERCE: Okay, your motion is?

MR. SIMPSON: **Jim says I'm moving Option 2.**

CHAIRMAN PIERCE: All right, let's make sure we've got the correct language. Option 2 would be on Page 17 of the addendum, I believe. **Option 2 is one year with the option to extend for one year.** To be complete with regard to a description of what this option is, just so everyone understands; the board would take action through a board vote to extend the addendum for one year, expiring at the end of 2016.

After 2016 measures would revert back to the FMP status quo coast-wide measures. That is Option 2. Is there a second to the motion; Jim. All right, the motion is before the board. I'll read it again: **motion to approve Option 2 under Section 3.1.1, time frame for summer flounder measures.** Motion by Mr. Simpson; seconded by Mr. Gilmore. Discussion on the motion? Rob.

MR. O'REILLY: It is difficult enough having gone through one year of regional management and it fit to some extent. The management measures in the region that Virginia is in are the same that were available in 2013 and that

hasn't changed. Despite the difficulty, I think as long as we don't get into these situations where we're wondering about intent and good faith and the ad hoc approach, I think it makes sense to go forward right now what a two-year approach; but I think there has to be some afterwards about what we do for the future. I'll have something to follow up on that minute.

MR. MANISCALCO: I just want to state that as far as a two-year option goes, it prolongs this board from looking at the discrepancy in measures amongst water bodies; and that will remain for that much longer.

MR. GILMORE: I think what Dave hopefully put this up for was that really to save work. I mean, if we hopefully get to the same point next year, we'll shortcut the addendum process a bit. If we get to the point where we are having problems, I think we'll have to revisit this whole thing. That was my intent in seconding this; that it was really a work-saving measure if we do indeed have a good year again in 2015.

CHAIRMAN PIERCE: Yes; my assumption is that in light of the discussions we've have had about New Jersey and Delaware in particular; that there would be further conversations between the states, between the industry and between the board members as to what can be done and what should be done; is it possible for the two states to come up with something that this board could entertain as a satisfactory outcome for both states. David.

MR. SIMPSON: Yes; and I don't make this motion to preclude that discussion and investigation. That is why I asked early on how many fish would it take to address the Delaware Bay issue. My hope is we do a little better this year and we can come back to that with some fish to work with. We're not foreclosing on it by any means. I'm not.

CHAIRMAN PIERCE: David has made it clear that there is no foreclosure. Toni.

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MS. TONI KERNS: I was going to say in addition we're working on this Omnibus Amendment with the Mid-Atlantic Council; and as we build that amendment we are looking at recreational measures and how to move forward with that. I'm assuming that this board will be working on this very issue with that and hopefully that amendment would be completed by the end of 2017, fingers crossed, so that we would have something to work forward with and not have to go out for another addendum later on.

MR. BELLAVANCE: Mr. Chairman, actually Toni just brought up what I was going to also state that this will give us a chance to get a few years of one consistent type of management. If everything goes well next year, we can continue that trend and hopefully use that information as we work towards that more Omnibus Amendment.

MR. NOWALSKY: Thank you very much; I appreciate the comments that doing for potentially two years doesn't preclude work on addressing the Delaware Bay discrepancy; but I would ask, Mr. Chairman, if we don't have Delaware Bay as a separate region, what is there to work on? If New Jersey is constrained by the same regulations in terms of number of days, size and bag limit as New York and Connecticut and Delaware is constrained by the same with Maryland and Virginia, what exactly is there to work on?

CHAIRMAN PIERCE: Further comments on the motion? Tom.

MR. FOTE: When we discussed regionalization many years ago, we looked at what real regions are with similar fisheries and how they would be affected by changing regulations and putting it together. I mean, we're going to look at tautog later; and one of the things about tautog is that we should be looking at a region like Long Island Sound as a separate region.

We're going to wind up with the same thing; well, how do you divide it between the states? Well, that is a region. I mean, I lived on the North Shore. I fished on the North Shore many years before I moved to New Jersey. I understand that it is a separate region. It is a lot different from the west end of Long Island, which I grew up in Brooklyn, than the east end of Long Island.

When we basically did this, we were saying we were going to be fair and equitable and try to reduce to people's problems. You created a giant problem. Boats are going out of business in Delaware Bay because of this problem on the Jersey side. In another year we will have more boats going out of business.

If this was Rhode Island or Massachusetts, there would be screaming and yelling and carrying on and we'd be doing a separate amendment to look at this. It just seems that we've got caught in the middle, as we usually do, because as we sit in the middle of the Mason/Dixon Line they formed coalitions on both sides and we get kind of caught in the middle of a lot of these plans as they go forward. It is just very depressing that we have an industry in New Jersey and a community that is really based on fishing; that is suffering so greatly in a low income area; and we're going to basically cause problems. I can see this coming.

We had the options to handle this problem in this document that went out to public hearings. We couldn't even get a second to look at this. A lot of people for the last couple of days says, yes, we should look at this; but even for discussion you wouldn't give it. You're going to be doing this again next year unless we put some real pressure from other places. Sorry about that.

CHAIRMAN PIERCE: With no objection, I'm going to call the question. **All those in favor of the motion, please signify by raising your hand; those in opposition; any null votes; any**

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abstentions. Nine in favor, one opposed and two abstentions; so the motion carries. Does the board care to address the question of the buffer. If not, then we will continue with the buffer that we used for 2014, the 5 percent buffer, I believe. Adam.

MR. NOWALSKY: Could you just provide a clarification on that statement; what in the addendum would require us to use the 5 percent?

MR. ROOTES-MURDY: As mentioned before, there is actually nothing in the addendum that specifies what the buffer would be under any of the management options; nor does it specify specifically where changes will be made to regional management options. Again, as outlined in the document, the board would need to provide direction to the technical committee on both of those fronts.

CHAIRMAN PIERCE: Well, again, my assumption is that the 5 percent buffer that we subscribed to for 2014 would be used again for 2015 unless the board decides to go in a different direction; 7 percent, less than 5. What is the board's pleasure? David.

MR. SIMPSON: My understanding and my intent from my motion was we're going to do exactly what we did last year. When we developed those rules last year, we incorporated some sort of buffer, 4 or 5 percent, and so I hope what you're saying is that by applying the same rules this year, in '15 that we applied in '14, we have incorporated a buffer. My intention, after that motion passes, is to adopt an 18-inch minimum size, 5-fish limit and an open season from May 17th to September 21st, just what we did last year.

CHAIRMAN PIERCE: All right, there is some confusion about the buffer on my part apparently, but Kirby is going to provide some clarification. Toni.

MS. KERNS: Dave, I think what you're asking is when the technical committee comes back to the board with a set of management measures that would achieve but not exceed the RHL; that we provide you with options that actually achieves 95 percent of the RHL as we provided you last year; that is what we did. That is not what you're asking for? Okay.

CHAIRMAN PIERCE: Well, that colors things a little bit. David, if you would –

MR. SIMPSON: Right; specifically to avoid everyone having to go back through these questions of which regions cut how much and all that; my intent in my motion that passed and I thought it was everyone's understanding is we're going to adopt the measures we adopted last year. That is the end of it.

That precludes the discussion about if we choose an alternative to what we did last year; is our target 100 percent of our RHL 95 percent? I mean, I can make a case that adopting the same measures incorporates the same buffer; but if you feel we need a vote now for 100 percent of the target or 95, fine, you can ask for that motion. My intention and my expectation is we're going to adopt status quo measures.

CHAIRMAN PIERCE: All right, there is a need for a clarification. Kirby.

MR. ROOTES-MURDY: Just to clarify; as I mentioned at the beginning of my presentation, there was a request that the board choose which regional management option, if that was the pleasure of the board. That didn't specify what the management measures would be in that regional management alignment.

Just to understand what the management measures for 2014 could possibly affect for the coast-wide harvest in 2015; it is a different projection than it was in 2014. As such, that is a different buffer than what the technical

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committee crafted last year. Again, to try to make sense of it, if you set the buffer relative to what the 2015 recreational harvest limit is; that will give you a coast-wide harvest to work with that would create different management measures. If you approve a set of management measures that were in line with what was in place in 2014; that will not ensure the same buffer that was in place in 2014.

CHAIRMAN PIERCE: All right, so it wouldn't necessarily ensure the same buffer; are you saying, Kirby, that at this point in time we don't know what that buffer would be?

MR. ROOTES-MURDY: Well, as included in the document based on data through Wave 5, if management measures were held constant, under regional management status quo the projected coast-wide harvest would be approximately 99.4 percent of the RHL. Again, these are based on projections. The difference between that and setting say a 5 percent buffer to what the 2015 recreational harvest limit is, is that coast-wide harvest then would require a different set of management measures by regions.

CHAIRMAN PIERCE: Toni, you're having a little bit of a sidebar here; is there a disagreement within staff? No? All right, well, anyways, we did vote and we did vote to go with Regional Option Number 1, which would be the same measures for 2015. That was the motion that was adopted. Michael.

MR. LUISI: Mr. Chairman, I'm still a little bit confused. This is the same issue I've brought up twice now about the further direction to the technical committee. If the board is happy at this point with going forward in 2015 with like measures from 2014 with a 99.4 percent chance of reaching the RHL; then we all go home today and nobody has to make any changes. There was some discussion and there were some questions asked and answered regarding the possibility for Rhode Island – I'll be specific – to

go back and say, well, maybe we can do a little more to find a little more balance to that northern region.

I'm understanding if we don't have any more discussion or motions on this point right now, the technical committee is not going to go and provide any recommendations or options for the states. Let's say we pick a 4 percent buffer; it is my understanding that the technical committee would go back, they would look at the regions, and we all may face some changes for next year, for which I think is going to be an incredible challenge for me and my state to go back – if the technical committee recommends that we all share in that burden; to have to go back to my fishermen and say we've given up two-thirds of our 1998 allocation; we have underachieved as a region yet we're going to have to cut a few months off the season or make an adjustment to the size limit.

There is two different paths we can take right now; and I would like to get some more feedback and thought from other board members on which path they think is the appropriate path. I personally feel like we should come up with some buffer of more than 99.4 percent as the projected catch in 2015 is being presented to us under status quo measures. Thank you.

CHAIRMAN PIERCE: All right, thank you, Michael. When Kirby gave his presentation initially, he mentioned that particular option would likely result in 99.4 percent of the total RHL for 2015. That is the number we were given. A motion was made relative to that particular option and was adopted by the board. That is the way it stands right now. Rob.

MR. O'REILLY: So just to let everyone know, the plan development team have had a conference call and this was one of the issues. I don't think it really came to any type of consensus. I know the technical committee is very anxious to have what the amount of the buffer is. My thoughts

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on the buffer are that there is a pretty good number of years where states applied buffers for the most part on their own under conservation equivalency when it was state-specific.

The three years 2008 through '10 it was about a 38 percent underage of the RHL. If there is going to be problems, I don't think the difference between 95 percent and 99.4 percent really is going to be a big issue. The reason I asked about the stock status – and I'm not going to ask now – is just to give everyone a feel for what to expect what is out there, what is the SSB, what is really going on with the stock. I support the 99.4 percent. In the background, I'm still wary.

I'm still wary of the future of what we're doing. I would like to ask, when the time is right, to ask about what the PDT can do to move towards these situations that will face us in the future when we're not worried about 99.4 or 95; we're worried about 20 percent over the RHL. I would like to talk about that when the chair allows. I will support the current 99.4 percent that Dave Simpson included.

CHAIRMAN PIERCE: All right, we've made our decision. However, in light of what Rob just said, it would be useful for the board to be given a brief summary of the conference call that was held by the plan development team. As you indicated, Rob, the plan development team did have some thoughts relative to future planning for how we should do our business relative to the RHL and the buffer.

Kirby, would you provide us with a summary of what was discussed and if there were any conclusions or recommendations. After Kirby is through, if there is something that he has not covered, then I will turn to other members of the plan development team and get your views as well.

MR. ROOTES-MURDY: As Rob noted, yes, the plan development team met via conference call on Friday of last week to discuss the two elements regarding the Draft Addendum XXVI; the first being how and where reductions could be made to regions under different scenarios if there was a preferred consensus on the approach. The group did not offer one in particular.

The other discussion point was with regards to developing a set of management measures that account for a buffer relative to the coast-wide recreational harvest limit. The technical committee members on the call were able to explain that under different scenarios that different buffers could possibly be applied in terms of increased precision; but again there was no consensus offered on how addressing a buffer under any of the specific regional management options should go forward. Lastly, the plan development team also was able to review the options that New Jersey had provided and did not offer any specific comments on those options.

CHAIRMAN PIERCE: So the issues were discussed; there was no consensus; just different points of view were expressed. I'm assuming, therefore, the plan development team will continue those discussions. In the meantime we have made our decision for 2015; status quo measures. We'll see how it plays out. Bill Adler.

MR. WILLIAM A. ADLER: Mr. Chairman, do you need a motion to approve the addendum as approved today; do we need that?

CHAIRMAN PIERCE: Yes, I believe we've finished our business on the different options for consideration in the addendum; so I would entertain a motion along those lines.

MR. ADLER: Okay, I will make that motion to approve Addendum XXVI as modified today.

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CHAIRMAN PIERCE: Motion by Bill Adler; seconded by Emerson. I will read it: move to approve Addendum XXVI as modified today. Motion by Mr. Adler; seconded by Mr. Hasbrouck. Discussion on the motion. Tom.

MR. FOTE: I just remind you it is a roll call vote.

CHAIRMAN PIERCE: Thank you for that, Tom; unless it is unanimous, but I suspect it is not; so we will have a roll call vote. Kirby, please read the roll.

MR. ROOTES-MURDY: Commonwealth of Massachusetts.

MASSACHUSETTS: Yes.

MR. ROOTES-MURDY: State of Rhode Island.

RHODE ISLAND: Yes.

MR. ROOTES-MURDY: State of Connecticut.

CONNECTICUT: Yes.

MR. ROOTES-MURDY: State of New York.

NEW YORK: Yes.

MR. ROOTES-MURDY: State of New Jersey.

NEW JERSEY: No.

MR. ROOTES-MURDY: State of Delaware.

DELAWARE: Yes.

MR. ROOTES-MURDY: State of Maryland.

MARYLAND: Yes.

MR. ROOTES-MURDY: Potomac River Fisheries Commission.

POTOMAC RIVER FISHERIES COMMISSION: Yes.

MR. ROOTES-MURDY: Commonwealth of Virginia.

VIRGINIA: Yes.

MR. ROOTES-MURDY: State of North Carolina.

NORTH CAROLINA: Yes.

MR. ROOTES-MURDY: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE: Abstain.

MR. ROOTES-MURDY: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE: Abstain.

MR. ROOTES-MURDY: **The motion passes nine to one to zero to two.**

CHAIRMAN PIERCE: All right, so the motion passes and the addendum has been adopted.

**CONSIDERATION OF
STATE 2015 BLACK SEA BASS
RECREATIONAL PROPOSALS**

CHAIRMAN PIERCE: Next on the agenda is consider approval of the state 2015 black sea bass recreational proposals. This is final action. We have, first of all, the technical committee report from John.

TECHNICAL COMMITTEE REPORT

MR. MANISCALCO: In 2014 the board and council voted to continue ad hoc regional management. This splits the coast into a northern region of Massachusetts to New Jersey, where they have individual state proposals; and the southern region, which adopts federal measures. In 2015 that will be 12.5 inches, 15 fish possession limit, May 15th through September 21st and October 22nd through December 31st.

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Total harvest for 2014 is projected to be 1.9 million fish, which is significantly over the 2014 RHL. The 2015 RHL is approximately 1.3 million fish, which requires a 32.8 percent reduction. That reduction is going to come out of the northern states where the overharvest has occurred. Some of these states are considering using changes to the minimum size as a tool to achieve that reduction. To illustrate the impacts of that size change we've calculated the number of additional dead discards due to size change. You will see that in the proposals from Rhode Island, Connecticut, New York and New Jersey.

The Massachusetts 2014 fishery harvested 438,000 fish. All modes had a possession limit of eight fish at 14 inches from May 17th through September 15th. There was also the for-hire Letter of Authorization Program, which had a 20-fish possession limit during September and did not fish during Wave 4.

There were no MRIP intercepts in Massachusetts for black sea bass during Wave 5, which is the period of the increased possession limit for LOA Program in the for-hire modes actually possessed more than eight fish per contributor. Harvest by the LOA fishery has not been reviewed by the technical committee.

All we really know about it is that there were eight vessels that participated and therefore it is difficult to assess the impact of the LOA Program on state harvest. All of the Massachusetts proposals included a 14-inch minimum size limit. All of the options have the same measures for all modes. The status of the LOA Program is uncertain at this time.

Possession limits that use to achieve their reduction ranged from one to eight fish with various seasons. This table should be available to you in your material; so I'm not going to go through all the options at this time.

Rhode Island's 2014 black sea bass fishery landed 203,000 fish. They had a 13-inch minimum size, a split possession limit of three and seven fish with a season that ranged from June 29th through December 31st. The proposal for Rhode Island was straightforward, and they will use a combination of season, size and possession limit changes to achieve their reduction.

Again this table is available; and I'm going to go through it. I'll just point that the options at the bottom utilized the 14-inch minimum size, which is a one-inch size increase. The additional dead discards associated with these measures is equivalent to approximately 6,000 fish.

Connecticut's 2014 recreational sea bass fishery harvested 373,000 fish. They had a 13-inch minimum size. All modes had a split possession limit, three fish and eight fish, with a season that went from June 21st through December 31st. They did have a for-hire exemption program, which is equivalent to Massachusetts LOA, in which the eight-fish possession limit existed throughout the entire season.

Connecticut has a logbook program for their exemption program; and they reported that 31 out of 40 vessels participated. They reported 593 trips and approximately 20,000 fish harvested. Connecticut's for-hire mode is 16 percent of the state's recreational black sea bass harvest. I will say that after Connecticut analyzed their logbook data only a small percentage of the harvest actually was attributed to possession limits over the three-fish possession limit.

Something like three to four thousand fish were actually a result of the increased bag limit. Connecticut's measures consider size limits of 13 through 14 inches, split possession limits and season contractions and extensions. In some cases if you utilize a 14-inch minimum size, you could actually extend your season because you

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account for more than the required reduction. They also anticipate continuing their LOA Program or their exemption program.

In this case in instances where there were 13.5 inch minimum sizes used, there is approximately 9,000 additional discards; and when the 14-inch minimum size is used, approximately 20,000 additional discards.

New York's 2014 recreational black sea bass fishery had a 13-inch minimum size, eight fish from July 15th through December 31st and harvested approximately 517,000 fish. The proposal from New York is also straightforward. We used season, length and possession limit changes to achieve the reduction. In New York measures that utilized the 13.5 inches generated approximately 9,000 additional dead discards; whereas, when we used 14 inches, it is about 25,000 additional discards.

New Jersey's measures included 12.5 inches, 15 fish from a number of interrupted seasons with a three-fish possession limit during Wave 4. They harvested 386,000 fish. New Jersey also had a straightforward proposal using season, possession and minimum size to achieve the reduction. When New Jersey utilized the 13-inch minimum size limit, they do have 9,000 additional discards.

CHAIRMAN PIERCE: The technical committee report has been given by John; and my understanding is that the technical committee has approved all of the black sea bass recreational proposals for 2015. Okay, that has been confirmed. Questions of the technical committee report and their findings. Tom.

MR. FOTE: Since they were all charterboats in that program, did you happen to look at the logbooks to see what the logbooks said on the catch since the logbooks are mandatory with federal permits?

MR. MANISCALCO: Tom, what state are you referring?

MR. FOTE: Massachusetts, when you had no report from MRIP and nobody sampled those boats, I was wondering if you had looked at the logbooks to get some information on what went on since you did that with Connecticut; they had logbooks.

MR. MANISCALCO: Connecticut did that analysis and presented it to the technical committee. We haven't received any analysis of the LOA Program from Massachusetts yet.

CHAIRMAN PIERCE: If I may, Tom, our new staff taking over for Paul Caruso, Michael Bednarski, he, of course, is involved in the technical committee's deliberations. He has been given the charge within our state to take a look at all of those logbooks. He hasn't yet finished that work.

Obviously, my agency is curious as to how well did it work, how well was the LOA, was it effective, how many black sea bass were caught. Whether or not we're going to have that LOA for 2015 is still an open question; we may not. We have to evaluate it first. That is all the information I can give you for now.

MR. FOTE: So when that work is done you will bring it before the board?

CHAIRMAN PIERCE: We will bring it before the board to let you know the conclusions that we have reached, bring the data to the board so you will know. Obviously, we don't want to approve an LOA Program and let it go forward that will cause problems relative to the take of black sea bass in 2015.

We did the LOA in 2014 because partyboat operators, primarily charterboat operators, felt that they needed the option for fall fishing; so we gave them the option of making a choice of you can fish earlier in the year or not, LOA in

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the fall. Some did take advantage of it; but too many, but some did. We will see what the results are; and then we get those results, we'll share them with the board. David.

MR. SIMPSON: Yes, just related, I was going to say for Connecticut – you know, I understand there were some changes in the MRIP procedures in terms of how they handled charterboats last year. I will say between 2013 and 2014 we saw much better correspondence between the MRIP harvest estimate for those modes and the information we got from the logbook; so that was reassuring.

That lined up much better in 2014. In 2013 MRIP didn't pick up more than a couple of party/charter trips; and so that segment of the fishery really wasn't represented at all. That was actually one of our initial motivations for having the program because they were very concerned that their small but important to them fishery would not be recognized and wouldn't have a chance in the future.

I guess while I have the mike, as we think about meeting our expectations here for black sea bass and back to summer flounder – I've made this comment to a couple other individuals – I guess it is too late, but we could use some help in federal waters is my point. We could use some more aggressive, more conservative management in federal waters in terms of minimum sizes for black sea bass and summer flounder. That would help the buffer a lot.

I guess that ship has sailed for 2015; but it creates incredible problems for our state's ability to manage these harvest limits and get enforcement and compliance on these two species in particular. I have shared of the experiences I know people on my staff have had on for-hire vessels fishing in federal waters where it is pretty much perceived to be a free fishing day.

You can pretty do anything you want in federal waters; just have all the fish processed and put away before you come back into state waters. That is very concerning to me. I brought that up on summer flounder last year, pretty good evidence of that, a lot of non-compliance with minimum sizes because there is not much in the way of conservation measures in place in federal waters. I think it is any area – if we're looking to be a little more conservative, we could do that with a fairly level playing field up and down the coast.

CHAIRMAN PIERCE: Thank you, David. Since Tom raised the question about Massachusetts, a legitimate question, I should make a couple points for the benefit of the board. A presentation was given at the NEAMAP meeting a little earlier on regarding our bottom trawl survey that we do in the spring and the fall in Massachusetts.

We use, of course, as a way to judge availability of black sea bass and other species to recreational and commercial fisheries. The 2014 index of abundance for black sea bass skyrocketed; I mean, really skyrocketed; again pointing out that abundance of black sea bass certainly in the New England area and absolutely in Massachusetts waters it continues to rise.

Fish, of course, are moving around the Cape and have been heading up to the state Maine and New Hampshire, which is why Terry Stockwell is sitting here and why Steve Train is here as well, and Doug Grout, for that matter; so the abundance is there. As a consequence of that, Massachusetts Division of Marine Fisheries with our advisory commission; we've taken some further steps to deal with all sorts of issues regarding black sea bass compliance, recreational fisheries compliance.

In 2014, last year, we actually went to public hearing with some proposals that would affect charter vessels, the headboat operators; and

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we then, as a consequence of those proposals, public hearings, we enacted some regulations that will make charterboat and headboat operators responsible for any violations that may be committed on their vessels.

We have taken a rather significant step in putting the burden on the captains and the vessel owners to hold their clients accountable. Otherwise, they will pay the price for any compliance problems that may exist on board their vessels on any particular trip. In addition, we're seeking an increase in fines for any fish violations that may occur.

We're also stepping up our meetings with our Massachusetts Environmental Law Enforcement to call to their attention the likelihood of there being a compliance problem in 2015 because of this increased abundance of black sea bass. In addition, now they know we have this improvement in enforcement relative to who is going to bear the responsibility of any infractions and then, of course, the possibility of increase in fines.

We're taking non-compliance very seriously in our state through actions that we've taken. The partyboat operators and the for-hire operators are supportive of it as well, reluctantly, but they understand the need to be held accountable as well in light of this resurgence of black sea bass – this high abundance of black sea bass in waters. I just wanted to give that information to the board so you'd know that we're doing everything we can to be on top of the situation. Tom.

MR. FOTE: I didn't say any comments when we got to the discussion about summer flounder, whether we should be 95 or 99, because we're still listed in summer flounder as Tier 3. That means we have a lot of buffers built in because they're not satisfied with the data so they take it right off the top of the stock assessment.

I always ask the question since summer flounder we have the most information on and we're still at Tier 3; what do we do to get to Tier 2 or Tier 1, where it should be. The same thing with black sea bass when we talk about buffers; they still have it listed as Tier 4. We're fishing below what the stock assessment tells us what we should be fishing at and probably underestimating what the stock is because that is so data poor.

Now, that wouldn't be problem if we had just started having this data-poor problem, but I remember sitting here in '93 when we started the plan saying it was data poor and we needed to do something better for black sea bass and scup. We're sitting here 21 years later and have not done anything better.

The fishermen, both commercial and recreational, suffer the consequences; and we're having all these problems trying to stay within a quota that is based on a stock that is way above the size that they're setting up regulations, so it makes our job very difficult every year in trying to do this. I wish sooner or later we start moving them up the steps. Can somebody from the Mid-Atlantic actually tell me how long we're going to have to wait for that? I know about a year ago they said there was going to be some progress in moving those up I got from the National Marine Fisheries Service and I don't really see any progress in moving them up.

CHAIRMAN PIERCE: Before I ask for a motion regarding the black sea bass recreational proposals for 2015; we should be updated with regards to what possibly may happen this year relative to the overall quota for black sea bass that would affect, of course, the recreational take as well. My understanding is that there have been some discussions between our technical committee and the Mid-Atlantic Council's SSC. This has implications for 2015 and maybe even 2016, more likely '16. Kirby or

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John, could you give us an update as to where we stand with that?

MR. ROOTES-MURDY: In follow-up to the December joint meeting between the Mid-Atlantic Council and the ASMFC, a subsection of the technical committee in concert with the Mid-Atlantic staff have met to plan out and try to address a strategy to put forward to the SSC by their March 2015 meeting alternative approaches for setting the 2015 ABC, allowable biological catch.

In doing so, a subsection of the technical committee in concert with a subsection of the SCC are going to evaluate a couple of different strategies to be considered and then presented which could allow for the SSC to reconsider the current 2015 ABC. That has yet to be forward officially to the SSC in terms of results.

Another important point to point out is that in doing so, timing-wise has been communicated to the commission by the Mid-Atlantic staff is that it will likely not be in time to change the federal measures; and as such if there is a change to the 2015 ABC, it may only affect what the subsequent ACL and accountability measures may be as those are multiyear running averages.

CHAIRMAN PIERCE: All right, so these are discussions in progress with the technical committee with some ideas being offered up to the SSC. We'll see how it works out and possibly we would have an increase in the ABC or obviously the SSC would have to recommend to the Mid-Atlantic Council an increase in the ABC.

The National Marine Fisheries Service would have a review that and consider whether it was appropriate. If indeed it was increased for 2015; that would have implications for 2016; meaning if there is an overage in '15, it might not be as great. In other words, it may not be

as much payback, if any payback in 2016. Again, it is up in the area.

We don't know, but at least credit needs to be given to our technical committee for the work that they've done on this, with ideas that they have generated, so we'll just have the technical committee keep us updated as to their progress. Certainly, Mid-Council members around this table will be well aware of the nature of those discussions through your involvement with your own SSC. Rob.

MR. O'REILLY: So as much as I'd like to be that optimistic, I think probably things won't occur as fast. As Tom Fote said, they've already been 21 years in a situation. The technical committee is doing an incredible volume of work already. It is really something. Having been there in the past, by far they're really just doing incredible work. I want to commend the technical committee.

I have one suggestion which is now that there has been four out of five overages because there is a lot of fish and because regulations constrain the amount of fish that can be taken; so in five years there have been four overages. They bounced around a little bit. The last two I remember – of course, the one today that John presented, 32.8 percent; we finally settled on around 3 percent last time around.

Since the constant catch is still there and having an influence for black sea bass; is there something the technical committee either has looked at or could look at in terms of the seasons? I was really surprised to hear the way the technical committee or some of the members can work with MRIP data down to very small levels.

I think if the tradition is still now – the new tradition from about ten years ago to look at a wave and to look at harvest as spread across that wave evenly; that if there hasn't been time to look at the data that has gone the last four or

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five years to sort of pinpoint that there might be a better way to look at these seasonal closures. I don't know whether that has been done. I don't know how much of an impact we've had. The only reason I bring it up is if we're stuck in this system that we've been in, anything might help the swings that we seem to be having year to year in the management.

CHAIRMAN PIERCE: Thank you, Rob; those are good comments. I'm going to hold them in abeyance for a second, though, because I would like to get a motion on the board relative to the black sea bass proposals for this year. Rick.

MR. BELLAVANCE: Mr. Chairman, I just have one quick question, if I could, for John. My question is in regards to the tables that were submitted by Rhode Island, is it that the methodology used to create those options is what was approved or is it those specific numbers? I asked because maybe due to public hearings at our state, we may end up with a little variation of those. If the methodology is the same; could it be assumed that those would be also approved or are we stuck with the measures that are listed in that particular table?

MR. MANISCALCO: For the past several years, we've always asked the board to essentially approve the methodology and left that flexibility for states to adjust as long as they still constrain their harvest to the required reduction.

CHAIRMAN PIERCE: All right, is there a motion? David.

MR. SIMPSON: **Move to approve the proposals and methodologies for use in 2015 management as reviewed and approved by the technical committee.**

CHAIRMAN PIERCE: All right, the motion is on the screen. David, is that your motion?

MR. SIMPSON: That's it, yes. Do I need to say black sea bass, the black sea bass proposals just to be real clear?

CHAIRMAN PIERCE: Yes, please. There is the motion; is there a second? Bill Adler has seconded the motion. I will read the motion: move to approve the black sea bass proposals and methodologies for use in 2015 management as approved by the technical committee. Motion by Mr. Simpson; second by Mr. Adler. Is there discussion on the motion? Adam.

MR. NOWALSKY: Let me first say again I appreciate the efforts of the technical committee recently working with the Mid-Atlantic's SSC, the Mid-Atlantic staff, the Mid-Atlantic Council members and members of this commission. Five years ago we were looking at an ABC of less than 2.5 million pounds for black sea bass; we're now at 5.5 million. Clearly, the efforts of all those involved have been good for the fishery headed in the right direction.

That being said, the measures that we put forth today are essentially untenable to the for-hire sector; untenable to a targeted black sea bass fishery that affects marinas, bait and tackle stores, restaurants involved with this fishery. I'm embarrassed to be sitting here today looking at these regulations and knowing that there hasn't been something better to do for fishermen.

It is painful to see those. It is painful to see the impact that it has had. It is painful to hear that the regulations we put forth today are going to waste fish by discards. This is not the intent of this commission. This is not the intent of federal laws under Magnuson-Stevens of what we should be doing. It is just painful to me to sit here today and do this.

I feel I've already used my quota of motions that won't get a second, so I'll refrain from moving forward with a motion for status quo on

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measures although I believe is in the best interest of the fishermen that we represent and probably the fish that we are supposedly here to protect and make the best decisions for as well. But that being said, there is no way that I can support this motion that is before the board today.

CHAIRMAN PIERCE: Further discussion on the motion? Is there a need for a caucus? Okay, 60 seconds or so for a caucus.

(Whereupon, a caucus was held.)

CHAIRMAN PIERCE: All right, are through with the caucusing? I believe we are. Okay, all those in favor of the motion, please signify by raising your hand – I'm sorry; it is a roll call vote.

MR. ROOTES-MURDY: Maine.

MAINE: Yes.

MR. ROOTES-MURDY: New Hampshire.

NEW HAMSHIRE: Yes.

MR. ROOTES-MURDY: Commonwealth of Massachusetts.

MASSACHUSETTS: Yes.

MR. ROOTES-MURDY: State of Rhode Island.

RHODE ISLAND: Yes.

MR. ROOTES-MURDY: Connecticut.

CONNECTICUT: Yes.

MR. ROOTES-MURDY: State of New York.

NEW YORK: Abstain.

MR. ROOTES-MURDY: State of New Jersey.

NEW JERSEY: No.

MR. ROOTES-MURDY: State of Delaware.

DELAWARE: Yes.

MR. ROOTES-MURDY: State of Maryland.

MARYLAND: Yes.

MR. ROOTES-MURDY: Potomac River Fisheries Commission.

POTOMAC RIVER FISHERIES COMMISSION: Yes.

MR. ROOTES-MURDY: Commonwealth of Virginia.

VIRGINIA: Yes.

MR. ROOTES-MURDY: State of North Carolina.

NORTH CAROLINA: Yes.

MR. ROOTES-MURDY: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE: Abstain.

MR. ROOTES-MURDY: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE: Abstain.

CHAIRMAN PIERCE: **Okay, the motion is adopted with a vote of ten in favor, one opposed, no null votes and three abstentions.**

**CONSIDERATION OF STATE 2015 SCUP
RECREATIONAL PROPOSALS**

CHAIRMAN PIERCE: Next on the agenda is the state 2015 scup recreational proposals for final action. The technical committee report from John.

MR. MANISCALCO: I probably should have brought this up with the black sea bass

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proposals, and I apologize. How we handle non-compliance in the intercepts has been an issue that we have been discussing actually for the last couple of years. We're still working on a method or at a least policy of how we handle things in a standardized manner so that all states calculate their reductions in the same way.

This is a work in progress for the technical committee; but with regards to the proposal you saw today for black sea bass, in general we assumed that non-compliance with respect to possession limits and size limits will remain non-compliant in the face of new more restrictive measures. We feel that this is generally a conservative approach.

So 2014 measures for the states of Massachusetts, Rhode Island and New York was a 10-inch minimum size, 30-fish possession limit and a season from May 1st to December 31st. This is for scup. Each table also had a single-wave bonus season for the for-hire vessels in which the possession limit was 45 fish for anglers fishing from them.

Connecticut had different measures in 2014. They had 10.5-inch minimum size for private anglers and an 11-inch minimum size for the for-hire vessels and a 9-inch minimum size at their enhanced shore sites. The possession limit was 20 fish for all, although Connecticut did have a for-hire bonus season of 45 fish during Wave 5.

The 2014 recreational harvest of scup was approximately 4.4 million pounds or 4.1 million fish. The northern states, Massachusetts through New York, accounted for 99 percent of the coast-wide harvest in 2014; and that is a pretty consistent trend, 99 percent/98 percent of the coast-wide harvest. The 2013 harvest was 5 million pounds so there was a decrease despite the liberalization of regulations.

The RHL for 2015 is 6.8 million pounds, so there is room for as much as a 50 percent liberalization although there is a new stock assessment in 2016 and there is a great deal of uncertainty regarding just how large that biomass actually is. The 2015 measures for Massachusetts, Rhode Island and New York propose to remain at status quo.

However, changes to federal measures will allow for-hire vessels to pursue the higher possession limits during the bonus season in federal waters. In 2015 Connecticut proposes to liberalize their regulations to match those in the other states in the northern region; so that would include again a 10-inch minimum size, 30-fish possession limit, the season going from May 1st to December 31st with the 45-fish bonus season for the for-hire fleet in Wave 5. They also will continue to offer a 9-inch minimum size at enhanced shore sides. While there is a 56 percent liberalization for Connecticut, it is only an 8 percent liberalization for the northern region.

CHAIRMAN PIERCE: Any questions for John? Bob.

MR. BALLOU: John, with reference to the increased federal allowance on the bonus to 50 fish; is it your representation that the states of Massachusetts, Rhode Island and New York are offering regulations that are compliant with that; that are consistent, I should say, with that; or is there a need to adjust to become consistent?

MR. MANISCALCO: None of the states offered proposals to increase their bonus season possession limit beyond 45.

CHAIRMAN PIERCE: If I could follow up, Mr. Chair, I think we would want to do that. I'm wondering if this is the time and place. I think we would be out of sync if didn't have state water regulations that were consistent with the newly adopted federal water regulations. As I

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remember, they were adopted at the joint meeting in December.

If this is too late – if Rhode Island among perhaps the other neighboring states didn't get the proposals in on time, then I guess we would have to deal with that; but is there a time and opportunity here today to propose state measures that would be consistent with the federal – particularly given where we with scup? Thank you.

MS. KERNS: We would need to know what the impacts are, but the federal measures are not consistent with your entire set of measures, anyway. I mean, that would put your bag limits the same, but the federal measures are typically designed – let me go back for a second.

Because 97 percent of the harvest is really caught in these four northern states with a small portion being caught in New Jersey, we do this conservation equivalency program through the commission so that we can set regulations that meet the needs of those five states and that federal measures are typically set in conjunction more in line with New Jersey, which has the actual fishery in federal waters; whereas, the majority of the northern states fishery is occurring in state waters.

So your season and your size limits do not line up with the federal measures either; so typically we don't even look at the federal measures when we're putting together these four states' proposals. Unless we can do it on the fly, we would need to know what the impacts of changing the bag limit would be right now in order put that proposal forward.

Typically, we haven't lined up in the past with federal measures for these states because they have been so divergent in how we've had to put those measures together in order to provide that flexibility to those northern states to meet the needs of their fishermen in particular in times when we've had to be more restrictive.

CHAIRMAN PIERCE: Thank you, Toni. All right, is there a motion? David.

MR. SIMPSON: Yes; the feds adopting 50 fish just like with the other species again frustrates me because state waters fishermen always have to carry the load in these federally driven plans; so that is very frustrating to me. Reluctantly, you know, we've held status quo measures in Connecticut for something like three years.

When we were allowed to liberalize, we didn't for two reasons. One, we were trying to provide that stability in measures over time that the public asked for; and, two, I've believed for a long time that the stock isn't as big as the stock assessment suggests it is. That is why all of a sudden the recreational fishery has gone from can't be constrained to the harvest to can't possibly catch it even with 45-fish bag limits in the partyboats and 10-inch minimum sizes and so forth.

The commercial fishery can't come close to catching their quota no matter what they set for a trip limit. Having said all that, facing a stock assessment next year, I have to protect our fishery and I have to liberalize so that we don't get stuck with a lower allocation in the future if there is this expected-to-me correction in the actual stock size. With that long preamble, I'm going to move approval of Connecticut's measures for 2015 to bring our state consistent with our neighbors and what the plan allows.

CHAIRMAN PIERCE: Okay, so your motion is specific to Connecticut. I'll wait until it is up on the board. Could I make a suggestion for a change to make this simpler; because we don't know – something along the lines of to approve the New York, Rhode Island and Massachusetts measures for 2015 and Connecticut's measures for 2015 to ensure consistency with the other states, something like that.

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MR. SIMPSON: That is fine or I can just spell them out. I think it should be clear Connecticut's reduction in minimum size and increase in bag limit to be consistent with Massachusetts, Rhode Island and New York, perhaps.

CHAIRMAN PIERCE: All right, we'll go with your wording. Is that your motion?

MR. SIMPSON: Marin, maybe we'll just start again; **move to approve Connecticut's reduction in minimum size to 10 inches and increase in bag limit to 30 fish to be consistent with the states of Rhode Island, Massachusetts and New York for 2015** with the understanding that we will – I don't think this needs to be in the motion, but the understanding for everyone that our 9-inch shore mode would also be continued in 2015. I think that will be clear enough six months from now when people read what we did.

CHAIRMAN PIERCE: All right, that is the motion; is there a second. Okay, Jim. All right, I'll read the motion: **move to approve Connecticut's reduction in minimum size to 10 inches and increase in bag limit to 30 fish to be consistent with the states of Rhode Island, Massachusetts and New York for 2015.** Motion by Mr. Simpson; seconded by Mr. Gilmore.

This is specific to Connecticut; it doesn't include any reference to what will be in place in the other states. We need a roll call vote this, I assume. This is a final action specific to Connecticut with consistency with the other states being made clear.

All right, any discussion on the motion? I see no discussion. Caucus? **No, so roll call vote. All right, any objections? No objections. All right, so with no objection, the motion is adopted.** Any other motions relative to scup measures for 2015? I assume with no motion; it will be status quo for the other states. All right, is that clear to the board? Bob.

MR. BALLOU: Mr. Chairman, I realize it is late in the day so this is my thought. I'm going to ask Toni or Kirby to walk me through again this issue of where we are with regard to the federal regulations on scup for 2015 and how they compare with the – I guess it would be the status quo state regulations.

I'm just concerned about the disconnect. I will just stop there and ask if you could please review so I can be reminded as to where we stand because there were changes made at the joint meeting in December and I just want to try to reconcile those with where we are here today.

CHAIRMAN PIERCE: Toni, are you up to that? Okay, Kirby.

MR. ROOTES-MURDY: At the joint meeting in December, the board/council approved for federal measures to be 9 inches, 50 fish and an open year-round season. In previous years the southern states, which constitutes Delaware south through – New Jersey south, excuse me, through North Carolina, have made their measures match those of the federal measures. As such, the intention is for them to continue with matching their measures in 2015 with that of the federal measures.

MR. BALLOU: Thank you for that; so it is clear that the federal waters regulations for 2015 will be 9-inch minimum size, 50 fish and a year-round season. Unless there is another motion, the board seems prepared to allow or to continue status quo measures for the four states, Connecticut, Rhode Island, Massachusetts and New York.

That has a 45-fish bonus season, as I understand it, associated with them. For Rhode Island and the other three states, the increase in the bag limit to 50 fish will not be something that the states can avail themselves – for-hire vessels and others from those four states cannot avail themselves of those more liberal federal

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regulations. Am I correct in my understanding of how that will work?

MR. ROOTES-MURDY: That is correct.

CHAIRMAN PIERCE: Yes, that correct unless a motion is made to increase it to 50. If a motion is made to increase it to 50, if I understand Toni correctly, that would necessitate some technical committee review. I would assume that review would indicate there is no problem in light of the fact that we are falling far short of the harvest – falling far short of our target for 2014.

MS. KERNS: We haven't done an analysis. You are correct, Dave, we fell far short of our RHL for scup. I don't know what the measure would be, but normally our process is that the states would submit proposals after the December meeting in order to come to this meeting with measures. We approve those measures here and go forward.

If it is the will of the board to want to consider this, we can move forward with having the technical committee just do a check on it to make sure that it is copasetic with our RHL; is it something that the board is interested in doing; then we can either do an e-mail vote to increase it if that is something that you are interested in doing.

CHAIRMAN PIERCE: It is February and if there is a desire to increase it by 5 fish for the bonus season, then we will have to postpone any final action. Each state will have to postpone final action on what to do in 2015 until after that review occurs. It is up to the board as to whether or not it is a desired action. David.

MR. SIMPSON: It is not to me. As I've said every opportunity I get, the federal government does not do as much as the states. They're more liberal. They're more liberal on summer flounder; they're more liberal on black sea bass;

they're more liberal on scup. It always falls to the states to do the bulk of the conservation.

I do not want to consider a 9-inch minimum size and a 50-fish limit with an open season year round for all our fisheries. I don't think that would be the right thing to do a year before a stock assessment unless you want to set the stage for a reallocation argument, but I don't think it would be reasonable to do on the fly.

CHAIRMAN PIERCE: Thank you, David. I have to turn to staff for some clarification. We did take action on Connecticut. Are we going to need action on scup recreational proposals for the balance of the states?

MS. KERNS: As you said on the record before, you were all indicating that you wanted to stay status quo; so therefore no motion is necessary because you put that on the record.

ADJOURNMENT

CHAIRMAN PIERCE: All right, thank you; I just wanted to make sure. We've gone through fluke, scup and black sea bass. There is nothing else on the agenda regarding those stocks. Is there any other business before the board? I see none; therefore, the meeting is adjourned.

(Whereupon, the meeting was adjourned at 5:45 o'clock p.m., February 4, 2015.)



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

MEMORANDUM

October 21, 2015

To: Summer Flounder, Scup, and Black Sea Bass Management Board
From: Kirby Rootes-Murdy, FMP Coordinator
RE: 2015 Summer Flounder, Black Sea bass, and Scup Recreational Harvest Update through Wave 4

NOAA’s Marine Recreational Information Program (MRIP) released 2015 preliminary harvest estimates through Wave (W) 4 (January 1-August 30) for summer flounder, black sea bass, and scup. The data will be the basis for the discussion at the Summer Flounder, Scup, and Black Sea Bass Board meeting next month in St. Augustine, Florida.

Summer Flounder

Tables 1 and 2 provide updates of coastwide 2015 summer flounder preliminary harvest estimates relative to 2014 (W 1-4). Harvest in numbers of fish is down approximately 34.3% at 1,450,463 fish compared to 2,206,433 fish in 2014. The 2015 recreational harvest limit (RHL) is 7.38 million pounds or approximately 2,453,037 fish, approximately 59% of which has already been harvested. Preliminary harvest estimates in weight through wave 4 is approximately 57% of the 2015 RHL at 4,200,003 pounds.

Table 1. 2015 preliminary coastwide MRIP recreational harvest estimates (A+B1) for summer flounder (in numbers of fish).

Year	Harvest through wave 4	RHL	Percent of RHL
2014	2,206,433	2,421,720	91.11%
2015	1,450,463	2,453,037	59.13%
Percent Change	-34.3	1.3	-35.1

Table 2. 2015 preliminary coastwide MRIP recreational harvest estimates (A+B1) for summer flounder (in pounds).

Year	Harvest through wave 4	RHL (millions of lbs)	Percent of RHL
2014	6,703,542	7.01	95.63%
2015	4,200,003	7.38	56.91%
Percent Change	-37.3	5.3	-40.5

In February 2015, the Board approved continuing the use of adaptive regional management measures for the recreational summer flounder fishery (Table 3). In using this approach, regions crafted similar management measures, that when combined with other regions, would constrain the coastwide harvest to the RHL. Table 4 provides preliminary estimates of regional harvest through Wave 4, as well as the percentage harvested relative to the technical committee projected 2015 regional harvests presented in February 2015. Table 4 lists the regional management measures.

Table 3. 2015 preliminary MRIP recreational harvest (A+B1) estimates through Wave 4 for summer flounder (in numbers of fish) by region.

Regions	MASSACHUSETTS	RHODE ISLAND	CONNECTICUT-NEW JERSEY	DELAWARE-VIRGINIA	NORTH CAROLINA
Preliminary regional total (W 1-4)	65,059	153,958	990,311	212,897	28,238
Projected regional Total	112,840	184,484	1,652,832	231,728	24,549
Harvest as percent of projected total	57.7	83.5	59.9	91.9	115

Table 4. 2015 Summer flounder recreational regional management measures

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16	5 fish	May 22-September 23
Rhode Island	18	8 fish	May 1-December 31
Connecticut	18	5 fish	May 17- September 21
CT Shore Program (45 designed shore sites)	16		
New York	18	5 fish	May 17- September 21
New Jersey	18	5 fish	May 23- September 27
NJ pilot shore program 1 site	16	2 fish	Tentatively May 23-September 27
Delaware	16	4 fish	January 1- December 31
Maryland	16	4 fish	January 1- December 31
PRFC	16	4 fish	January 1- December 31
Virginia	16	4 fish	January 1- December 31
North Carolina	15	6 fish	January 1- December 31

Black Sea Bass

Tables 5 and 6 provide state 2015 black sea bass preliminary harvest estimates relative to 2014 (W 1-4). Coastwide harvest in numbers of fish has increased approximately 10.7% at 1,425,802 fish compared to 1,288,433 fish in 2014. The 2015 RHL is 2.33 million pounds or approximately 1,356,048 fish. Preliminary harvest estimates in weight through wave 4 is approximately 7% over the 2015 RHL at 2,489,090 pounds. Current recreational regulations allow for the continued harvest of black sea bass from Rhode Island through North Carolina (see Table 7). Table 8 provides

a comparison of the harvest estimates by region. Note: North Carolina harvest estimates are post-stratified at Cape Hatteras.

Table 5. 2015 preliminary MRIP recreational harvest (A+B1) estimates through Wave 4 for black sea bass (in numbers of fish).

Year	MASSACHUSETTS	RHODE ISLAND	CONNECTICUT	NEW YORK	NEW JERSEY	DELAWARE	MARYLAND	VIRGINIA	NORTH CAROLINA	Coastwide Harvest
2014	349,058	110,394	195,786	269,963	307,798	18,011	32,434	4,383	606	1,288,433
2015	347,372	98,162	125,395	473,604	323,115	9,212	12,093	35,644	1,205	1,425,802
Percent Change	-0.5	-11.1	-36.0	75.4	5.0	-48.9	-62.7	713.2	98.8	10.7

Table 6. 2015 preliminary MRIP recreational harvest (A+B1) estimates through Wave 4 for black sea bass (in pounds).

Year	MASSACHUSETTS	RHODE ISLAND	CONNECTICUT	NEW YORK	NEW JERSEY	DELAWARE	MARYLAND	VIRGINIA	NORTH CAROLINA	Coastwide Harvest
2014	937,556	193,543	295,903	544,007	413,242	23,723	41,052	4,463	1,005	2,454,494
2015	757,432	187,702	202,054	754,803	499,894	10,628	16,509	57,619	2,449	2,489,090
Percent Change	-19.2	-3.0	-31.7	38.7	21.0	-55.2	-59.8	1191.0	143.7	1.4

Table 7. 2015 Black sea bass state-by-state recreational management measures

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 18
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	14	8 fish	May 23-August 27
Rhode Island	14	1 fish	July 2- August 31
		7 fish	September 1-December 31
Connecticut (Private & Shore)	14	3 fish	June 1-August 31
		5 fish	September 1-December 31
CT Authorized Party/Charter Monitoring Program Vessels	14	8 fish	June 21-December 31
New York	14	8 fish	July 15- October 31;
		10 fish	November 1-December 31
New Jersey	12.5	2 fish	July 1-July 31
		15 fish	May 27-June 30; October 22-December 31
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 19-September 21; October 18-December 31

Table 8. 2015 preliminary MRIP recreational harvest (A+B1) estimates through Wave 4 for black sea bass (in pounds) by region

Year	Northern Region (MA-NJ)	Southern Region (DE-NC)	Coastwide Harvest
2014	2,384,251	70,243	2,454,494
2015	2,401,885	87,205	2,489,090
Percent Change	0.7	24.1	1.4

Scup

Table 9. 2015 preliminary MRIP recreational harvest (A+B1) estimates through Wave 4 for scup (in lbs).

Year	MASSACHUSETTS	RHODE ISLAND	CONNECTICUT	NEW YORK	NEW JERSEY	DELAWARE	MARYLAND	VIRGINIA	NORTH CAROLINA	Coastwide Harvest
2014	1,530,016	751,874	263,880	838,554	0	28	0	0	389	3,384,741
2015	1,210,452	496,525	224,871	984,594	3210*	0	0	9*	86*	2,919,747
Percent Change	-20.9	-34.0	-14.8	17.4	32100	-100.0	-	900.0	-77.9	-13.7

*Proportional standard error (PSE) higher than 50, indicating a very imprecise estimate



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

October 14, 2015

Mr. John Bullard
NMFS, GARFO
55 Great Republic Drive
Gloucester, MA 01930

Dear John:

At our October Council meeting, the Council revised its previous (August 2015) recommendations for 2016-2017 black sea bass Acceptable Biological Catch (ABC), based on updated advice from the Scientific and Statistical Committee (SSC). We are writing to request that GARFO implement these specifications in place of the Council's August 2015 recommendations, which were described in the 2016-2018 Specifications Environmental Assessment (EA) for Summer Flounder, Scup, and Black Sea Bass submitted to your office by Council staff.

At their September 2015 meeting, the SSC revised their previous recommendation for the 2016-2017 black sea bass ABC, using a new, internally peer reviewed methodology for recommending ABCs for stocks for which an overfishing limit cannot be specified. The SSC determined the new ABC to be 6.67 million lb (3,024 mt), an increase from the previously recommended ABC of 5.50 million lb (2,494 mt). The SSC plans to revisit the 2017 ABC next summer using 2015 catch data and the NEFSC spring survey index for 2016.

On October 7, the Council reviewed the September SSC recommendations and unanimously voted to revise the ABCs to be consistent with the new SSC advice. Specifically, the Council moved to "revise its recommendations to GARFO on black sea bass for 2016 and 2017 to an ABC of 6.67 million lb, a commercial quota of 2.71 million lb, and a recreational harvest limit of 2.82 million lb."

The Council's Monitoring Committee had previously recommended that sector-specific Annual Catch Targets (ACTs) be set equal to sector-specific Annual Catch Limits (ACLs). In a discussion via email, the Monitoring Committee considered whether there was a need to revisit this recommendation in light of revised ABC recommendations. The Monitoring Committee concluded that reconsideration of its previous advice was not necessary, given that there is no additional information to consider regarding management uncertainty. Additionally, the increase in the ABC, resulting from a method of setting catch limits that is responsive to a survey index of abundance, may improve the ability to set measures which will constrain landings to the harvest limits. Thus, based on the previous Monitoring Committee advice, the recommended sector-specific ACTs are set equal to the revised sector-specific ACLs, and the methods used to derive the sector-specific landings limits remain unchanged.

The Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board will consider the revised recommendations at the Commission's Annual Meeting in November.

Please call if you have any questions.

Sincerely,



Christopher M. Moore, Ph.D.
Executive Director

cc: R. Robins, L. Anderson, M. Luisi, B. Beal, K. Dancy, M. Kelly

DRAFT Assessment TORs for Black Sea Bass (SAW/SARC-62 in late 2016)
(vers. Sept. 2, 2015)

A. Black sea bass

1. Evaluate the distribution, movement and potential for spatial structure of the stock, the ability of existing data to support alternative spatial structure, and their consequences for the stock assessment.
2. Estimate catch from all sources including landings and discards. Characterize the uncertainty in these sources of data. Evaluate available information on discard mortality and, if appropriate, update mortality rates applied to discard components of the catch. Describe the spatial and temporal distribution of fishing effort.
3. Present the survey data being used in the assessment (e.g., indices of abundance, recruitment, state surveys, age-length data, etc.). Investigate the utility of fishery dependent indices as a measure of relative abundance. Characterize the uncertainty and any bias in these sources of data.
4. Consider the consequences of environmental factors on the estimates of abundance or relative indices derived from surveys.
5. Investigate implications of hermaphroditic life history on stock assessment model. If possible, incorporate parameters to account for hermaphroditism.
6. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock), using measures that are appropriate to the assessment model, for the time series (integrating results from TOR-4&5), and estimate their uncertainty. Include a historical retrospective analysis and past projection performance evaluation to allow a comparison with most recent assessment results.
7. Estimate biological reference points (BRPs; point estimates or proxies for B_{MSY} , $B_{THRESHOLD}$, F_{MSY} , and MSY), including defining BRPs for spatially explicit areas if appropriate, and provide estimates of their uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the appropriateness of existing BRPs and the “new” (i.e., updated, redefined, or alternative) BRPs.
8. Evaluate stock status with respect to a new model or new models corresponding to spatial units developed for this peer review.
9. Develop approaches and apply them to conduct stock projections.
 - a. Provide numerical annual projections (3-5 years) and the statistical distribution (e.g., probability density function) of the OFL (overfishing level) that fully incorporates observation, process and model uncertainty (see Appendix to the SAW TORs). Each projection should estimate and report annual probabilities of exceeding threshold BRPs for F , and probabilities of falling below threshold

BRPs for biomass. Use a sensitivity analysis approach in which a range of assumptions about the most important uncertainties in the assessment are considered (e.g., terminal year abundance, variability in recruitment, and definition of BRPs for black sea bass).

- b. Comment on which projections seem most realistic. Consider major uncertainties in the assessment as well as the sensitivity of the projections to various assumptions.
 - c. Describe this stock's vulnerability (see "Appendix to the SAW TORs") to becoming overfished, and how this could affect the choice of ABC.
10. Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in recent SARC reviewed assessments and review panel reports. Identify new research recommendations.

Appendix to the SAW Assessment TORs:
Clarification of Terms used in the SAW/SARC Terms of Reference

On “Overfishing Limit” and Acceptable Biological Catch” (DOC Nat. Stand. Guidel. Fed. Reg., v. 74, no. 11, 1-16-2009):

Acceptable biological catch (ABC) is a level of a stock or stock complex’s annual catch that accounts for the scientific uncertainty in the estimate of [overfishing limit] OFL and any other scientific uncertainty...” (p. 3208) [In other words, $OFL \geq ABC$.]

ABC for overfished stocks. For overfished stocks and stock complexes, a rebuilding ABC must be set to reflect annual catch that is consistent with schedule of fishing mortality rates in the rebuilding plan. (p. 3209)

NMFS expects that in most cases ABC will be reduced from OFL to reduce the probability that overfishing might occur in a year. (p. 3180)

ABC refers to a level of “catch” that is “acceptable” given the “biological” characteristics of the stock or stock complex. As such, [optimal yield] OY does not equate with ABC. The specification of OY is required to consider a variety of factors, including social and economic factors, and the protection of marine ecosystems, which are not part of the ABC concept. (p. 3189)

On “Vulnerability” (DOC Natl. Stand. Guidelines. Fed. Reg., v. 74, no. 11, 1-16-2009):

“Vulnerability. A stock’s vulnerability is a combination of its productivity, which depends upon its life history characteristics, and its susceptibility to the fishery. Productivity refers to the capacity of the stock to produce MSY and to recover if the population is depleted, and susceptibility is the potential for the stock to be impacted by the fishery, which includes direct captures, as well as indirect impacts to the fishery (e.g., loss of habitat quality).” (p. 3205)

Interactions among members of a SAW Assessment Working Group:

Anyone participating in SAW assessment working group meetings that will be running or presenting results from an assessment model is expected to supply the source code, a compiled executable, an input file with the proposed configuration, and a detailed model description in advance of the model meeting. Source code for NOAA Toolbox programs is available on request. These measures allow transparency and a fair evaluation of differences that emerge between models.

One model or alternative models:

The preferred outcome of the SAW/SARC is to identify a single “best” model and an accompanying set of assessment results and a stock status determination. If selection of a “best” model is not possible, present alternative models in detail, and summarize the relative utility each model, including a comparison of results.



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

August 17, 2015

Robert Beal
Executive Director
ASMFC
1050 N. Highland St.
Suite 200A-N
Arlington, VA 22201

Dear Bob:

At our Council meeting in New York, the Council adopted the following motion:

“Move that the Council send a letter to ASMFC encouraging the Commission to initiate a review of developing a landing flexibility process amongst the states for summer flounder.”

We recognize that the Council and Board are currently developing an amendment to the Summer Founder FMP and hope that this review will complement that process.

Thank you for your consideration.

Sincerely,

Christopher M. Moore, Ph.D.
Executive Director

cc: L. Anderson, K. Dancy, M. Luisi, R. Robins

Atlantic States Marine Fisheries Commission

American Eel Management Board

*November 3, 2015
10:15 – 11:15 a.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*J. Clark*) 10:15 a.m.
2. Board Consent 10:15 a.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 10:20 a.m.
4. Update on Endangered Species Act Listing Determination by USFWS 10:30 a.m.
(*M. Millard*)
5. Technical Committee Report (*M. Waine*) **Action** 10:35 a.m.
 - Review Recommendations on Maine Life Cycle Survey Design
6. Consider Addendum IV Implementation Plans (*M. Waine*) **Action** 10:45 a.m.
7. Consider Approval of 2015 and 2014 FMP Reviews and State Compliance 11:00 a.m.
(*M. Waine*) **Action**
8. Other Business/Adjourn 11:15 a.m.

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

Atlantic States Marine Fisheries Commission

MEETING OVERVIEW

American Eel Management Board Meeting

November 03, 2015

10:15 – 11:15 a.m.

St. Augustine, Florida

Chair: John Clark Assumed Chairmanship: 8/15	Technical Committee Chair: Sheila Eyster (USFWS)	Law Enforcement Committee Representative: Cornish
Vice Chair: Martin Gary	Advisory Panel Chair: Martie Bouw	Previous Board Meeting: August 5, 2015

Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, VA, NC, SC, GA, FL, D.C., PRFC, USFWS, NMFS (19 votes)

2. Board Consent:

- Approval of Agenda
- Approval of Proceedings from August 2015 Board Meeting

3. Public Comment:

At the beginning of the meeting, public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign-up at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Board Chair will not allow additional public comment. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Update on Endangered Species Act Listing Determination by USFWS (10:30 – 10:35 a.m.)

Background

- USFWS conducted a status review for American Eel because it was petitioned to be listed under the Endangered Species Act.
- In October 2015, the USFWS determined that a listing of American eel under the Endangered Species Act is not warranted at this time.

5. Technical Committee Report (10:35– 10:45 a.m.) Action

Background

- Addendum IV requires that any state or jurisdiction with a commercial glass eel fishery must implement a fishery-independent life cycle survey covering glass, yellow, and silver eel life stages within at least one river system.
- Maine developed an updated life cycle survey based on recommendations from the Technical Committee (TC) and a working subcommittee (**Briefing Materials**).
- The TC reviewed the updated survey design and formulated recommendations to the Board regarding approval of the life cycle survey design (**Briefing Materials**).

<p>Presentation</p> <ul style="list-style-type: none"> • Technical Committee Report by M. Waine
<p>Board Actions for Consideration</p> <ul style="list-style-type: none"> • Consider approval of Maine’s life cycle survey design

<p>6. Consider Addendum IV Implementation Plans (10:45 – 11:00 a.m.) Action</p>
<p>Background</p> <ul style="list-style-type: none"> • Addendum IV contains management triggers where if the coast wide quota (907,671) is exceeded by more than 10% in a given year (998,438 pounds), or if the quota is exceeded by any amount for two consecutive years, then state-by-state commercial yellow eel quotas will be automatically implemented as detailed in Addendum IV. • As required by Addendum IV, states/jurisdictions submitted implementation plans for Technical Committee (TC) review that detail how a state intends to monitor and manage its quota if triggered (Briefing Materials). • The TC met to formulate recommendations on Addendum IV implementation plans (Briefing Materials).
<p>Presentation</p> <ul style="list-style-type: none"> • Review of Addendum IV Implementation Plans and TC recommendations by M. Waine
<p>Board Actions for Consideration</p> <ul style="list-style-type: none"> • Consider approval of Addendum IV Implementation Plans

<p>7. Consider Approval of 2015 and 2014 FMP Review and State Compliance (11:00 – 11:15 a.m) Action</p>
<p>Background</p> <ul style="list-style-type: none"> • State Compliance Reports are due on September 1 (Meeting Room Table) • Because of ASMFC staff transition both the 2015 and 2014 FMP Reviews are being presented at this meeting. The 2015 FMP Review details performance of the 2014 fishing year, which is the implementation year for Addendum III. • The Plan Review Team reviewed each state report and drafted both the 2015 and 2014 FMP Reviews (Briefing Materials). • The states/jurisdictions of New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia all requested <i>de minimis</i> status and meet the criteria.
<p>Presentations</p> <ul style="list-style-type: none"> • Overview of the 2015 and 2014 Fishery Management Plan Review by M. Waine
<p>Board actions for consideration at this meeting</p> <ul style="list-style-type: none"> • Consider the 2015 and 2014 Fishery Management Plan Reviews and <i>de minimis</i> requests from New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia

8. Other Business/ Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
AMERICAN EEL MANAGEMENT BOARD**

The Westin Alexandria
Alexandria, Virginia
August 5, 2015

These minutes are draft and subject to approval by the American Eel Management Board.
The Board will review the minutes during its next meeting.

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TECHNICAL COMMITTEE REPORT 1

TECHNICAL COMMITTEE RECOMMENDATIONS ON THE MAINE LIFE CYCLE SURVEY

DESIGN..... 2

UPDATE ON ADDENDUM III IMPLEMENTATION Error! Bookmark not defined.

ELECTION OF VICE-CHAIR 6

ADJOURNMENT 6

INDEX OF MOTIONS

1. **Approval of Agenda by Consent** (Page 1).
2. **Approval of Proceedings of August, 2015** by Consent (Page 1).
3. **Motion to recommend to the ISFMP Policy Board that the State of Delaware be found out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel** (Page 3). Motion by Louis Daniel; second by Doug Grout. Motion carried (Page 6).
4. **Move to adjourn** by consent (Page 6).

ATTENDANCE

Board Members

Pat Keliher, ME (AA)	Leroy Young, PA, proxy for J. Arway (AA)
Rep. Walter Kumiega, ME (LA)	John Clark, DE, proxy for D. Saveikis (AA)
Terry Stockwell, ME, proxy for S. Train (GA)	Roy Miller, DE (GA)
Doug Grout, NH (AA)	Craig Pugh, DE, proxy for W. Carson (LA)
G. Ritchie White, NH (GA)	Bill Goldsborough, MD (GA)
Dan McKiernan, MA, proxy for P. Diodati (AA)	Lynn Fegly, MD, proxy for D. Goshorn (AA)
Jocelyn Cary, MA, proxy for S. Peake (LA)	David Sikorski, MD, proxy for D. Stein (LA)
William Adler, MA (GA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Robert Ballou, RI (AA)	Kyle Schick, VA, proxy for R. Stuart (LA)
Eric Reid, RI, proxy for S. Sosnowski (LA)	Catherine Davenport, VA (GA)
Rep. Craig Miner, CT (LA)	Louis Daniel, NC (AA)
Lance Stewart, CT (GA)	Doug Brady, NC (GA)
Dave Simpson, CT (AA)	Ross Self, SC, proxy for R. Boyles, Jr. (AA)
James Gilmore, NY (AA)	Pat Geer, GA, proxy for Rep. Burns (LA)
Emerson Hasbrouck, NY (GA)	Jim Estes, FL, proxy for J. McCawley (AA)
Katherine Heinlein, NY, proxy for P. Boyle (LA)	Thad Altman, FL (LA)
Adam Nowalsky, NJ, proxy for R. Andrzejczak (LA)	Sherry White, USFWS
Russ Allen, NJ, proxy for D. Chanda (AA)	Derek Orner, NMFS
Tom Fote, NJ (GA)	Martin Gary, PRFC
J. Thomas Moore, PA, proxy for Rep. Vereb (LA)	Leroy Young, PRFC
Loren Lustig, PA (GA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Jon Cornish, Law Enforcement Committee Rep.
Sheila Eyler, Technical Committee Chair

Staff

Robert Beal
Toni Kerns
Mike Waive

The American Eel Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 5, 2015, and was called to order at 8:00 o'clock a.m. by Chairman John Clark.

CALL TO ORDER

CHAIRMAN JOHN CLARK: Good morning! The American Eel Board is now in session. Before we get started, I'd like to turn it over to Bob to introduce new commissioners.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I just want to introduce two new commissioners or proxies sitting at the table. Tom Moore from Pennsylvania is a proxy for Representative Mike Vereb. David Sikorski is a proxy for Delegate Dana Stein from Maryland. Thank you.

CHAIRMAN CLARK: Another commissioner note, as you know our good friend Tom O'Connell, who chaired this board so ably, is not on the ASMFC anymore. I just wanted to thank him for the superb work he did getting us through Addendum IV and the great work he did as a commissioner here. I hope we see him back here on ASMFC in the future.

APPROVAL OF AGENDA AND PROCEEDINGS

CHAIRMAN CLARK: The first item is consent to the agenda and the proceedings. Does anybody have any additions to the agenda? Seeing none; I will ask for approval of the agenda and minutes. If nobody has any objections, we will consider those approved.

PUBLIC COMMENT

CHAIRMAN CLARK: We will move on to the next item, which is public comment. We have not had anybody sign up for public comment, which brings us to Agenda Item 4, the technical

committee report. I will turn it over to Sheila Eyler.

TECHNICAL COMMITTEE REPORT

MS. SHEILA EYLER: The technical committee was asked to review a life cycle survey that was submitted by the state of Maine. I just want to give some background on the life cycle survey requirements. As part of Addendum IV, a life cycle survey was required for states that have glass eel harvest that is greater than 750 pounds. At this time that only applies to the state of Maine.

The survey requirements require sampling of all life stages of eels, including the glass, yellow and silver eel. The sampling needs to be done in at least one river system within the state. There are several sampling requirements that are listed in Addendum IV; and I'll go through those later as we talk specifically about Maine's proposal.

Maine submitted this life cycle survey design to the technical committee this summer; and the technical committee reviewed that on a conference call in July. Just to give an overview of the proposed survey from Maine, it is a three-year proposed survey to be conducted on all life stages of eels, including glass, yellow and silver eels.

It is going to occur in the Cobbooseecontee Stream Drainage. Just to give an idea of the intensity of sampling required for this effort, it is seven months' worth of daily sampling on various different life stages and using different gear types. Some of the details of the proposed survey is that it falls under the requirements of Addendum IV. It looks at an index of abundance by life stage, biomass by life stage, mortality, prevalence of the parasitic nematode and average length and weight of eels in all life stages. In addition, age analysis will also be done on yellow and silver eels.

**TECHNICAL COMMITTEE RECOMMENDATIONS ON
THE MAINE LIFE CYCLE SURVEY DESIGN**

MS. SHEILA EYLER: The technical committee commended Maine for the survey design that they had put together, but we did have some concerns over the science and the management applicability to the results from the study. The biggest concern from the technical committee was the duration of the study. Maine proposed a three-year study.

The intent from the technical committee is this would be a life cycle survey to be conducted over at least one life cycle of the American eel, which in Maine could be 15 to 20 years. The fact that it was a three-year study, we were very concerned that we couldn't do the cohort analysis that we wanted to do on the survey results.

We also had some concerns about the size of the watershed. It seemed to be relatively small. We weren't sure of the applicability of the results to the other watersheds in Maine where the glass eel harvest is occurring. We had some concerns about the tagging models that were being used in the study. Tagging early life stages of eels, both glass and elver eels has not been conducted vigorously in the field, and so a pilot study might be necessary to verify some of the model assumptions used for those tagging methods.

The technical committee is supportive of the designs at this time, but we'd like to see a little bit more development of that. We would like to reestablish a subcommittee that we had working on the life cycle survey design. Prior to the development of Addendum IV, the technical committee had a subcommittee working on an ideal life cycle survey.

We would like to work with Maine not only to develop this ideal life cycle survey that other states could use if they want to implement a life cycle survey but also refine the survey that is being proposed by Maine. We're hoping that we

can follow up again with the survey approval in the November meeting and that Maine will be able to implement the survey starting in 2016. That's the end of my presentation, Mr. Chair.

CHAIRMAN CLARK: Thank you, Sheila. Do we have any questions for Sheila? Pat.

MR. PATRICK C. KELIHER: Thanks, Sheila, for that overview. I do want to just create a little clarity around the issue of the duration of the study. There was some miscommunication between myself and my technical staff regarding this. The three-year timeframe that was referred to by my staff related to the budget associated with it.

As you all know, many states are budgeted on a biennium process; and so my commitment to start the life cycle study was for the remainder of the fiscal year that we were in and the following biennium year; so for FY '15 and '16. The commitment from the state of Maine is to fully follow through with the full life cycle study, which would be roughly 15 to 20 years, and to follow it through to the end.

Obviously, from a budgetary standpoint, I can't say I'm going to commit money every year for 20 years. The focus is to fully fund it. The money is within the budget through our Eel and Elver Management Fund. The funds are there for three years; and we anticipate with the continuation of this fishery and the continued sale of licenses, as well as other funds that are put into it such as fine money and the money associated with what we consider pecuniary gains – if some somebody goes over their quota, they have to actually pay the state the value of that quota back – that is what will continue to secure funding into the future for this study. Thank you, Mr. Chairman.

CHAIRMAN CLARK: Thank you for that explanation, Pat. Any other questions? Okay, seeing none, we will move right along. It is time for me to turn the meeting over to Executive

Director Bob Beal as we have an item that affects the great state of Delaware.

UPDATE ON ADDENDUM III IMPLEMENTATION

EXECUTIVE DIRECTOR BEAL: In order to introduce the topic for this agenda item, I'm going to ask Mike Waine to go over a summary of Delaware's management program under Addendum III.

MR. MICHAEL WAINE: Just to bring everybody up to speed, this is Addendum III. It is the addendum that was implemented prior to Addendum IVA. This Addendum III was completed in 2013 and implemented on January 1, 2014. This was impacting the 2014 fishing year. Going through the requirements for Addendum III, there was a change in the minimum size for the yellow eel recreational and commercial fisheries to nine inches.

Remember these measures that I'm going through were in response to the depleted stock condition that came out of the assessment and our looking to lower the fishing mortality on the species. A nine-inch minimum size with an increase from six inches; there was a half inch by half inch minimum mesh size put in for yellow eel pots with the allowance of the four by four inch escape panel of this half by half inch mesh beginning January 1, 2014, for three years.

That was intended to give the industry some ability to transition their current gear to the new regulation that was an interim step. The recreational bag limit was decreased to 25 fish per day per angler, but there was still an allowance for crew and captains of the for-hire industry to have a 50-fish bag limit per day for charters and their clients.

For Delaware's measures with Addendum III, they maintained their six-inch minimum size limit in the commercial and recreational fisheries for yellow eel. They have no minimum mesh size

for pots, and their recreational possession limit was kept at 50 fish per angler. Delaware's measures are not currently consistent with Addendum III to the American Eel FMP. Thank you, Mr. Chairman.

EXECUTIVE DIRECTOR BEAL: Thank you, Mike. Any questions for Mike on Delaware's current management program? Not seeing any questions; what is the pleasure of the board? Mike has pointed out some inconsistencies between Delaware's management program and the requirements under Addendum III. Dr. Daniel.

DR. LOUIS B. DANIEL, III: I'm prepared to offer a motion.

EXECUTIVE DIRECTOR BEAL: That would probably be good to get the conversation started.

DR. DANIEL: That should do it. **I'd move that the American Eel Management Board recommend to the ISFMP Policy Board that the State of Delaware be found out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel.** Delaware has not implemented the following regulations required by Addendum III: the nine-inch minimum size for yellow eel recreational and commercial fisheries; half by half inch minimum mesh size for yellow eel pots; allowance of four by four inch escape panel in pots of half inch by half inch mesh for 3 years (beginning on January 1, 2014); recreational 25 fish bag limit per day per angler; crew and captain involved in for-hire are exempt and allowed 50 fish bag limit per day.

The implementation of these regulations is necessary to achieve the conservation goals and objectives of the FMP to rebuild the depleted American eel stock. In order to come back into compliance the State of Delaware must implement all measures listed above as

contained in Addendum III to the Fishery Management Plan for American Eel. If I get a second, Mr. Chairman, I'd like to speak to my motion.

EXECUTIVE DIRECTOR BEAL: **Is there a second; Doug Grout.** Go ahead, Louis.

DR. DANIEL: My comments here are just related to the process. This is not an indictment of the folks from Delaware. I know that the staff and our members are concerned about this issue, but Delaware's legislature has had two opportunities to implement these regulations per their process in Delaware and have failed to do so. I think this is a critical finding that we need to move forward with.

EXECUTIVE DIRECTOR BEAL: Doug, do you have any comment as seconder? Other comments around the table? Yes, John Clark.

MR. CLARK: I might just take a second, Bob, to say what we've been trying to do in the fabulous first state on the American Eel Issue. We did bring this up to the legislature in 2014, as Louis alluded to. We have a quirk in our law that eels are a separate chapter in our code and everything applying to eels is prescriptive in the code itself.

Last year we asked the legislature to consider making eels like the rest of our finfish and allow us to manage them through regulation. We had some snags in going that route. This year we tried that again, and there was still some concern in the legislature about that. Also in timing in getting the change for the prescriptive regulation to the – or change in law to the legislature this year, there was concern in the legislature they didn't have enough time to consider this; and they tabled it until January. We do know that our legislature will be re-examining this in January when the next session starts and hopefully will correct this at that time. Thank you.

EXECUTIVE DIRECTOR BEAL: Any questions for Delaware or comments on the motion that's on the board? Not seeing any; is the board ready to vote? I'll give a 30-second caucus and then we'll take a vote on this issue.

EXECUTIVE DIRECTOR BEAL: Yes, Mr. Adler.

MR. WILLIAM A. ADLER: If this passes, what is the timeline on moving forward with this versus when Delaware's legislature will have a chance to reconsider; how does that work?

EXECUTIVE DIRECTOR BEAL: John, can you answer that?

MR. CLARK: Well, I don't know the timeframe of how quickly this out-of-compliance finding will make its way through the bureaucratic process here; but I know in Delaware our legislature reconvenes in January, but I would not guess this would be like something that would happen right away. I'm guessing before the end of the session – our session ends June 30th of next year, so I'd go as far as to say something will be done before June 30, 2016, to rectify the situation.

EXECUTIVE DIRECTOR BEAL: And just to remind everyone of the ASMFC process; it has been a couple of years since we've had a non-compliance issue come before the board. If this motion were to pass, it would be forwarded to the ISFMP Policy Board; and if a similar motion passes at the Policy Board, that gets forwarded to the full commission.

If a motion passes at the commission, the timeline is that I have ten working days to send a letter to the Secretaries of Commerce and Interior notifying them of the non-compliance finding. The Departments of Interior and Commerce then have 30 days to make the determination whether the state is out of compliance.

They look at two questions. One is has the state implemented consistent regulations with the

FMP; and if not, does the lack of those regulations impact the conservation of the species? If both those questions are answered yes, then the secretaries can implement a moratorium on fishing in that state.

The secretaries do have a six-month discretionary window on the implementation date of that moratorium. I can't comment on how long the decision would take in that 30-day period or if the six-month discretionary window would be used. That is the overall timeline since it has been a little while since the commission has dealt with a non-compliance issue. Any other questions before the states caucus? All right, seeing none, 30-second caucus, please. And just as a reminder, this is a final action of the commission so I will ask Mike to have a roll call vote.

(Whereupon, a caucus was held.)

EXECUTIVE DIRECTOR BEAL: Does anyone need more time to caucus? Seeing hands up; Mike, will you take the roll call vote, please.

MR. WAINE: Maine.

MAINE: Yes.

MR. WAINE: New Hampshire.

NEW HAMPSHIRE: Yes.

MR. WAINE: Commonwealth of Massachusetts.

MASSACHUSETTS: Yes.

MR. WAINE: Rhode Island.

RHODE ISLAND: Yes.

MR. WAINE: Connecticut.

CONNECTICUT: Yes.

MR. WAINE: New York.

NEW YORK: Yes.

MR. WAINE: New Jersey.

NEW JERSEY: Yes.

MR. WAINE: Pennsylvania.

PENNSYLVANIA: Yes.

MR. WAINE: Delaware.

DELAWARE: Yes.

MR. WAINE: Maryland.

MARYLAND: Yes.

MR. WAINE: District of Columbia. (No response)
Potomac River Fisheries Commission.

POTOMAC RIVER FISHERIES COMMISSION: Yes.

MR. WAINE: Commonwealth of Virginia.

VIRGINIA: Yes.

MR. WAINE: North Carolina.

NORTH CAROLINA: Yes.

MR. WAINE: South Carolina.

SOUTH CAROLINA: Yes.

MR. WAINE: Georgia.

GEORGIA: Yes.

MR. WAINE: Florida.

FLORIDA: Yes.

MR. WAINE: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE: Abstain.

ADJOURNMENT

MR. WAINE: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE: Abstain.

EXECUTIVE DIRECTOR BEAL: **The motion carries unanimously with two abstentions from the federal services.** I think that takes care of this. As I mentioned before, this motion will be brought forward to the Policy Board for their deliberations tomorrow morning.

ELECTION OF VICE-CHAIR

EXECUTIVE DIRECTOR BEAL: The only other agenda item to come before the Eel Board is the nomination of a vice-chair for the board. Do we have any nominations? Lynn Fegley.

MS. LYNN FEGLEY: I would like to nominate Mr. Marty Gary from PRFC for the position of vice-chair.

EXECUTIVE DIRECTOR BEAL: Is there a second to that nomination? Russ Allen, thank you. Any objection to electing Marty Gary as the vice-chair of this board? Seeing none; congratulations, Marty. I think you have about two years to get up to speed on all the eel issues.

MR. MARTIN GARY: Thank you, Mr. Chairman. If the board can tolerate back-to-back Aggies chairing the committee, I'd be honored to do so.

EXECUTIVE DIRECTOR BEAL: They'll tough it out, I'm sure. Any other business before the Eel Management Board? Seeing none; I introduced a couple of people at the beginning and I want to introduce a couple more now that we're wrapping up the Eel Board. We have Bob Steinburg from North Carolina sitting next to Louis, who is the new legislative representative from North Carolina. Louis is no longer sitting alone in the back of the room.

EXECUTIVE DIRECTOR BEAL: We have two new staff members that I think were introduced yesterday; but this is the first coast-wide board so I want to reintroduce those folks. Ashton Harp is the new FMP coordinator at the commission. She has been on board for two or three weeks now. We also have Kristen Anstead. Kristen is the new stock assessment person at commission, filling the vacancy that we've had for a little while. Kristen has been here three days.

Any other issues before the Eel Board? Not seeing any; the Eel Board is adjourned.

(Whereupon, the meeting was adjourned at 8:25 o'clock a.m., August 5, 2013.)

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Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

MEMORANDUM

October 16, 2015

To: American Eel Management Board
From: American Eel Technical Committee
RE: Update on Maine's American Eel Life Cycle Survey Proposal

Addendum IV to the Interstate Fishery Management Plan for American Eel requires that any state or jurisdiction with a commercial glass eel fishery must implement a fishery-independent life cycle survey covering glass, yellow, and silver eel life stages within at least one river system.

In June 2015, Maine had proposed a three-year survey on glass, yellow, and silver eel life stages in the Cobboosecontee Stream drainage. However, the Technical Committee (TC) expressed concern about the use and applicability of that survey design for science and management. The TC recommended further development of Maine's life cycle survey design prior to implementation, and re-established a subcommittee to help address concerns with the survey design that were expressed by the TC.

Since the August Board meeting, the subcommittee worked with Maine to refine the proposed survey design that would meet the study objectives for this particular river system. The updated Life Cycle Survey proposal for Maine is enclosed. The recommended duration of the Life Cycle Survey is at least 17 years, representing one life cycle. The TC commended the subcommittee for the work on the survey design, and endorsed its implementation noting a few comments below to consider:

- 1.) Explore mechanisms to eliminate poaching of glass eels at the fyke net sampling site.
- 2.) Cannibalism of elvers on glass eels in the fyke net may be an issue and should be monitored if possible.
- 3.) The release site for the glass eels should be in a location that minimizes the potential for recapture.
- 4.) Glass eels may not be uniformly distributed across the channel so finding a mechanism to measure distribution would be a good way to test that assumption.
- 5.) For the yellow eel mark recapture methods: a commercial box pot design should be used over a Gee minnow trap; and overnight hauls should occur instead of few 2-day soaks.
- 6.) Subsamples of yellow eels needs to be representative for development of an age-length key.

The TC would like to receive an update from the state of Maine in spring 2017 that reports on the first year implementation of the survey design and any issues/concerns encountered. The TC would also add that this sampling framework was approved specifically for the Cobboosecontee Stream drainage in Maine. Future life cycle survey designs for other river systems will need to be reviewed and approved by the TC as sampling methodology is specific to individual river systems and survey methods may not be transferrable between river systems.

Enc: Maine Proposed American Eel Life Cycle Study

M15-87

Maine Proposed American Eel Life Cycle Study

October 8, 2015

Introduction

Addendum IV to the Interstate Fishery Management Plan for American Eel requires that any states or jurisdiction with a commercial glass eel fishery must implement a fishery independent life cycle survey covering glass, yellow, and silver eels within at least one river system. If possible and appropriate, the survey should be implemented in the river system where the glass eel survey (as required under Addendum III) is being conducted to take advantage of the long term glass eel survey data collection. At a minimum the survey must collect the following information: fisheries independent index of abundance, age of entry into the fishery/survey, biomass and mortality of glass and yellow eels, sex composition, age structure, prevalence of *Anguillicoloides crassus*, and average length and weight of eels in the fishery/survey. Survey proposals will be subject to the American Eel Technical Committee (TC) review and Board approval.

Study area

The Maine Department of Marine Resources (MDMR) will conduct a fishery independent life cycle study of American eel in Cobbooseecontee Stream drainage (Figure 1). West Harbor Pond, location of the glass eel survey (Figure 1) was excluded as a potential study site, because the pond has become increasingly anoxic due to salt water intrusion, and Boothbay Harbor is drawing increased amounts of water from the upper drainage. Cobbooseecontee Stream drainage was selected for its configuration, its proximity to MDMR's office, and the presence of three dams (Figure 2) that provide places to monitor and sample eels. In addition, MDMR previously conducted a study of glass eels and tested upstream eel passage designs in the lower portion of this drainage. Glass eels have been harvested at the mouth of Cobbosseecontee Stream annually since 1996; therefore MDMR will close the stream to the harvest of glass eels and elvers for the duration of this study. A silver eel fishery existed at the outlet of Cobbosseecontee Lake (Figure 2) until the mid-1990s, but there is no harvest information for that fishery.

Methods –general

The life cycle study will be conducted over a period of at least 17 years, the average age at which females eels emigrate in Maine (Oliveira and McCleave 2000). Sampling typically will be conducted from April through October and life stages will be sampled with different gears at different frequencies and at different locations throughout the drainage to accomplish life stage-specific objectives. Between November and March, biological samples will be processed and data will be digitized and analyzed.

Methods – glass eels

The specific objectives for the glass eel study are to 1) develop an annual index of abundance and determine 2) biomass, 3) mortality, and 4) average length and weight of eels in the survey. Age, sex composition, and prevalence of *A. crassus* will not be determined for glass eels.

To accomplish objectives 1, 2, and 4, glass eels will be captured daily just upstream of the mouth of Cobbosseecontee Stream with fyke nets that will be set on either side of the stream. By Maine law, the net must be 30 feet or less in length from cod end to either wing tip, is fitted with netting that measures 1/8-inch bar mesh or less, contains a 1/2-inch or less bar mesh excluder panel that covers the entrance of the net, and consists of not more than one funnel end, one cod end and 2 wings. Nets will be deployed in spring when glass eels begin migrating upstream in this area (approximately mid-May through mid-June) as soon as spring flows have subsided. Sampling will occur 24 hours per day during the first year, with nets being tended during each ebbing tide. If daytime sampling indicates little to no glass eel upstream migration during that time period, daytime sampling may be eliminated in future years. Similar to the mandatory young-of-year surveys, the daily catch will be weighed to obtain total biomass, and the weight and number of glass eels in a subsample will be used to estimate the number of eels in the catch. Environmental variables including water temperature, water level, and discharge will also be recorded, as well as gear fishability (1=good to 4=void). Once a week, 60 glass eels will be individually weighed and measured and pigment stage assessed.

A secondary glass eel collection device, termed an artificial habitat collector device (Silberschneider et al. 2001), will be fished just upstream of Dam 1 to determine if any glass eels are exiting the survey area by climbing over or through the dam (Figure 3). If sampling determined that glass eels are not escaping upstream of Dam 1, this sampling effort can be eliminated after the first study year.

Assumptions of Sampling Methods:

- 1) Fyke nets capture a consistent proportion of the population each day and from year-to-year.
- 2) Migration is uniform across the width of the river. During the first year, field observations will be made to confirm this assumption.
- 3) There is no net-induced mortality (i.e., no predation on glass eels in the net)
- 4) Glass eels are captured once and there is no fall-back behavior.
- 5) Others?

Impacts to Survey results if Assumptions are not met:

- 1) Will add significant noise to the glass eel abundance index making comparisons with older ages of the same cohort difficult.
- 2) If more eels migrate along the sides of the river, then we may overestimate abundance by assuming the same number is passing through the middle of the river where nets are not being deployed, and underestimate natural mortality of glass eels. If the opposite is true, then we will be underestimating glass eel abundance.
- 3) Predation on glass eels in the net would reduce our estimate of abundance and may impact our assessment of the strength of the glass eel run if compared with other

systems. May not necessarily impact this life-cycle survey, since we are following the cohort.

- 4) Cause an overestimate of recruitment and overestimate of natural mortality.

Methods - yellow eels

The objectives for the yellow eel studies are to 1) develop an index of abundance; 2) determine age of entry into the survey, 3) biomass, 4) mortality, 4) age structure, 5) prevalence (percent of eels infected) of *A. crassus*, and 5) average length and weight of yellow eels in the survey. In order to accomplish these objectives, yellow eels will be sampled using one of the two methods listed below in conjunction with upstream monitoring.

Method 1:

Sample multiple sites between the mouth of Cobbosseecontee Stream and Dam 1 (actual number and size of sites to be determined). These sites will be selected in a stratified random sampling design with strata representing distinct habitat types. Sites will have block nets on the upstream and downstream ends to meet the assumptions of a closed population for a removal estimator. At each site, four electrofishing passes will be conducted. By using four electrofishing passes, capture efficiency can be allowed to vary between electrofishing passes in a generalized removal estimator (White et al. 1982), thus allowing for less biased population estimates. Catches of eels on each pass will be enumerated within length classes (appropriate length classes to be determined) and population estimates will be made for each length class. A subsample of eels from each length class will be sacrificed for otolith extraction, aging, and development of an age length key. During the first year, we will attempt to sample 10-15 eels in each 50-mm size class from 100-849 mm TL). Subsamples in subsequent years may be adjusted based on the results from year 1.

Method 2:

Mark-recapture methods may be employed to estimate yellow eel abundance if electrofishing is not feasible throughout the study reach of Cobbosseecontee Stream. Baited eel pots will be deployed for at least 48 hours for a marking period, captured eels will be enumerated within length classes and marked with a fin clip or fin punch, and then released alive. After a period of 1 week, pots will be set again for a recapture period. Eel pots will be rectangular with a single funnel entrance terminating in a cloth tube to reduce escapement. Again catches of eels in each length class will be enumerated and the number of marked eels from the previous sampling will be noted. During the recapture period, a subsample of eels from each length class will be sacrificed for otolith extraction, aging, and development of an age length key.

Upstream Monitoring:

The number of eels passing upstream of Dam 1 during the course of the year (prior to when annual electrofishing or mark recapture surveys are conducted) can also be partitioned by age classes based on the age length key. The numbers passing upstream can then be added to the number of each age class estimated via electrofishing to yield a grand total number of eels in each age class that inhabited the reach between the mouth of Cobboseecontee Stream and Dam 1.

Sampling from the first year may indicate that eels do not pass the dam until they are older than age 1 or 2. If this is the case, then population estimates of eels larger than the size classes

corresponding to age 1 or 2 would not be necessary. Population estimates of the youngest age classes are of greatest interest so that mortality from the age 0 glass eels stage can be estimated. There is no yellow eel fishery in this system, so we will have to capture older, larger eels to determine age distributions, and develop catch curves for estimating natural mortality of this life stage.

Also, population estimates of eels in the reach upstream of the mouth of Cobboseecontee Stream assume no immigration or emigration of eels from/to the mainstem of the Kennebec River. The ability to restrict population estimates to the youngest age classes would be expected to most closely meet this assumption.

At the lowermost dam (Figure 2, Dam 1), upstream migrating eels will be captured at the top of one or more eel passages from approximately May through September. This is an effective method of sampling small yellow eels; 99% of the yellow eels using upstream passage at this barrier from 1997–1999 were ≤ 150 -mm TL (Wippelhauser unpublished data). For yellow eels captured at the lowermost barrier, the daily catch will be weighed to obtain total biomass, and the weight and number of eels in a subsample will be used to estimate the number of eels in the catch. Once a week, 60 eels will be individually weighed and measured and euthanized for later determination of age and examination for the presence of *A. crassus*.

Mark-recapture methods will be used to assess the abundance of yellow eels in upstream lakes and ponds. Because there are numerous large lakes in the drainage that cannot be sampled simultaneously within the three-year study period, MDMR will focus on sampling Pleasant Pond (746 acres). A total of 36 baited eel pots made of 0.5-inch mesh will be deployed in a grid pattern throughout the pond and allowed to fish for 48 hours before being tended. This mesh size is expected to provide an unbiased sample of eels ≥ 30 -cm TL (Morrison and Secor 2003).

For yellow eels captured by electrofishing or in pots, each captured yellow eel will be weighed, measured, and PIT tagged (12 mm tag) if > 150 mm TL, with the exception of a subsample that will be euthanized for later determination of age, sex, and presence of *A. crassus*.

Assumptions of Sampling Methods:

- 1) All, or a significant majority of the yellow eels are captured by the passage structure.
- 2) Immigration and emigration from the Kennebec River are equal.
- 3) Catch curve assumptions apply (no trend in recruitment over time, Z is constant among age groups above a certain age (M in this case since there is no yellow eel fishery), other assumptions apply if a longitudinal catch curve is used (catchability is constant among age groups, and there is known CPUE).

Impacts to Survey results if Assumptions are not met:

- 1) Biased estimates of mortality if catch curve assumptions are not met.

Methods – silver eels

The objectives for the silver eel studies are to 1) develop an index of abundance; 2) determine age of entry into the survey, 3) biomass, 4) mortality, 5) age structure, 6) prevalence (percent of

eels infected) of *A. crassus*, and 7) average length and weight of silver eels in the survey. In order to accomplish the first objective, silver eels from the entire drainage will be enumerated with a DIDSON (Dual Identification SONar) at the American Tissue Project downstream eel passage (Figure 2, Dam 2). The DIDSON will be aimed at the deep gate through which eels pass downstream (the turbine intake is screened with one-inch punch plate), and will record during the nighttime. This method of visualizing migrating eels was tested successfully at the site in 2007 (Gail Wippelhauser unpublished data). A fyke net will be set downstream to capture eels for biological sampling (length, weight, otolith for ageing, and swim bladder parasite).

Assumptions of Sampling Methods:

- 1) Only silver eels are passing through the American Tissue Project eel passage.
- 2) The passage is the only way downstream.

Impacts to Survey results if Assumptions are not met:

- 1) Overestimating silver eel abundance if yellow eel also use the eel passage structure; we will need to know proportions if yellow eels do use the passage to reduce silver eel abundance estimates.
- 2) Underestimate silver eel abundance if there is another way downstream.

1. **Analysis – glass eels** The total number of glass eels recruited during each day, p , will be estimated by multiplying the total number of glass eels caught in each fyke net by the proportion of the width of the stream sampled. The total estimate of glass eel recruitment, R , will be estimated using the area-under-the-curve (AUC) method:

$$R = AUC = 0.5 \sum_{i=2}^n (t_i - t_{i-1})(p_i + p_{i-1})$$

Where t_i is the number of days measured from the first day glass eels enter the stream to the i th sampling day. If all days are sampled, then we can simply sum the catch for each day and do not need the AUC, in fact they would be the same.

2. For each year, the average length and weight of glass eels will be calculated from the weekly measurements made on individual glass eels.

Analysis – yellow eels at upstream passage (≤ 150 -mm)

1. If electrofishing is used to assess yellow eels, the total population estimate for each size class can be calculated as in Hankin (1984) and Sweka et al. (2006).

$$\hat{Y}_s = \frac{N}{n} \sum \hat{Y}_i$$

$$\hat{V}(\hat{Y}_s) = \frac{N_s(N_s - n_s) \sum (\hat{Y}_i - \hat{Y}_s)^2}{n_s(n_s - 1)} + \frac{N_s \sum \hat{\sigma}_i^2}{n_s}$$

Where \hat{Y}_s = the total population in stratum s , \hat{Y}_i = the population estimate at site i , N_s = the number of potential sites in stratum s , n_s = the number of sites sampled in stratum s , $\hat{V}(\hat{Y}_s)$ = the variance of the stratum s population estimate, $\hat{Y}_s = \sum \hat{Y}_i/n_s$ = the mean population estimate in stratum s , and $\hat{\sigma}_i^2$ = the variance of the population estimate in site i .

2. Once the total population estimates for each size class are calculated, these can be multiplied by the proportion at age in each size class to derive an estimate of the abundance of each age class within a size class. Abundance of each age class from different size classes can be summed for the total abundance of an age class.
3. If mark-recapture is used to assess yellow eel, Chapman and Bailey's modified Petersen estimator will be used to estimate the abundance of each size class (Seber 1982)

$$\hat{Y} = \frac{(M + 1)(C + 1)}{(R + 1)} - 1$$

$$\hat{V}(\hat{Y}) = \frac{(M + 1)(M - R)(C - R)}{(R + 1)^2(R + 2)}$$

Where M = the number marked in the first sample, C = the number of individuals captured in the second sample, and R = the number of individuals in the second sample that were marked.

4. For each year, the total number and biomass of eels using upstream passage at the lowermost barrier will provide an annual index of abundance of eel recruitment into inland waters of eels.
5. For each year, the average length and weight of glass eels will be calculated from the weekly measurements made on individual eels.
6. Sagittal otoliths will be aged. Annular rings in each otolith or otolith section will be counted at least twice by two readers.
7. The presence of *A. crassus* nematodes found inside the swim bladder of each subsampled eels will be recorded.
8. Because there is no commercial or recreational fishery for yellow eels in the watershed, natural losses will be estimated from catch curves.

Analysis – yellow eels ≥ 150 -mm and silver eels

1. For each year, the abundance of yellow eels in Cobbosseecontee Stream will be estimated from multiple pass depletion (electrofishing) and of yellow eels in Pleasant Lake (baited pots) from marked and recaptured eels (equations in Lockwood and Schneider 2000).

2. For each year, the number of silver eels emigrating from the watershed at the second dam will be estimated by visual inspection of the high-resolution, DIDSON image files.
3. For each year, the average length and weight of yellow eels and silver eels will be calculated from the weekly measurements made on individual eels.
4. Sagittal otoliths from yellow eels >100-cm TL and silver eels will be aged using the sectioning and dyeing techniques described by Oliveira (1996). Annular rings will be counted in each otolith section at least twice by two readers.
5. The presence of *A. crassus* nematodes found inside the swim bladder of each subsampled eels will be recorded.
6. Because there is no commercial or recreational fishery for yellow eels in the watershed, natural losses will be estimated from catch curves.
7. Gonads will be examined macroscopically and by the squash method of Guerrero and Sheldon (1974) and classified as male, female, or undifferentiated. Oliveira and McCleave (2000) reported that sex in 95% of the American eels sampled in four river systems in Maine could be differentiated by 250–270 mm TL, depending on the river system.

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Table 1. Schedule of field activities to be conducted annually during the study period.

Activity	Apr	May	Jun	Jul	Aug	Sep	Oct
Glass eel fyke netting							
at stream mouth	daily	daily	daily				
at head-of-tide	daily	daily	daily				
Yellow eel e-fishing or potting							
mouth to Dam 1				1-2 weeks			
Yellow eel recruitment							
at Dam 1		daily	daily	daily	daily	daily	
Yellow eel potting							
in lakes			biweekly	biweekly			
Silver eel DIDSON							
at Dam 2					daily	daily	daily

Figure 1. Location of proposed study area for life cycle study in Cobboseecontee Stream drainage (large oval) and location of glass eel survey in West Harbor Pond drainage (small oval).

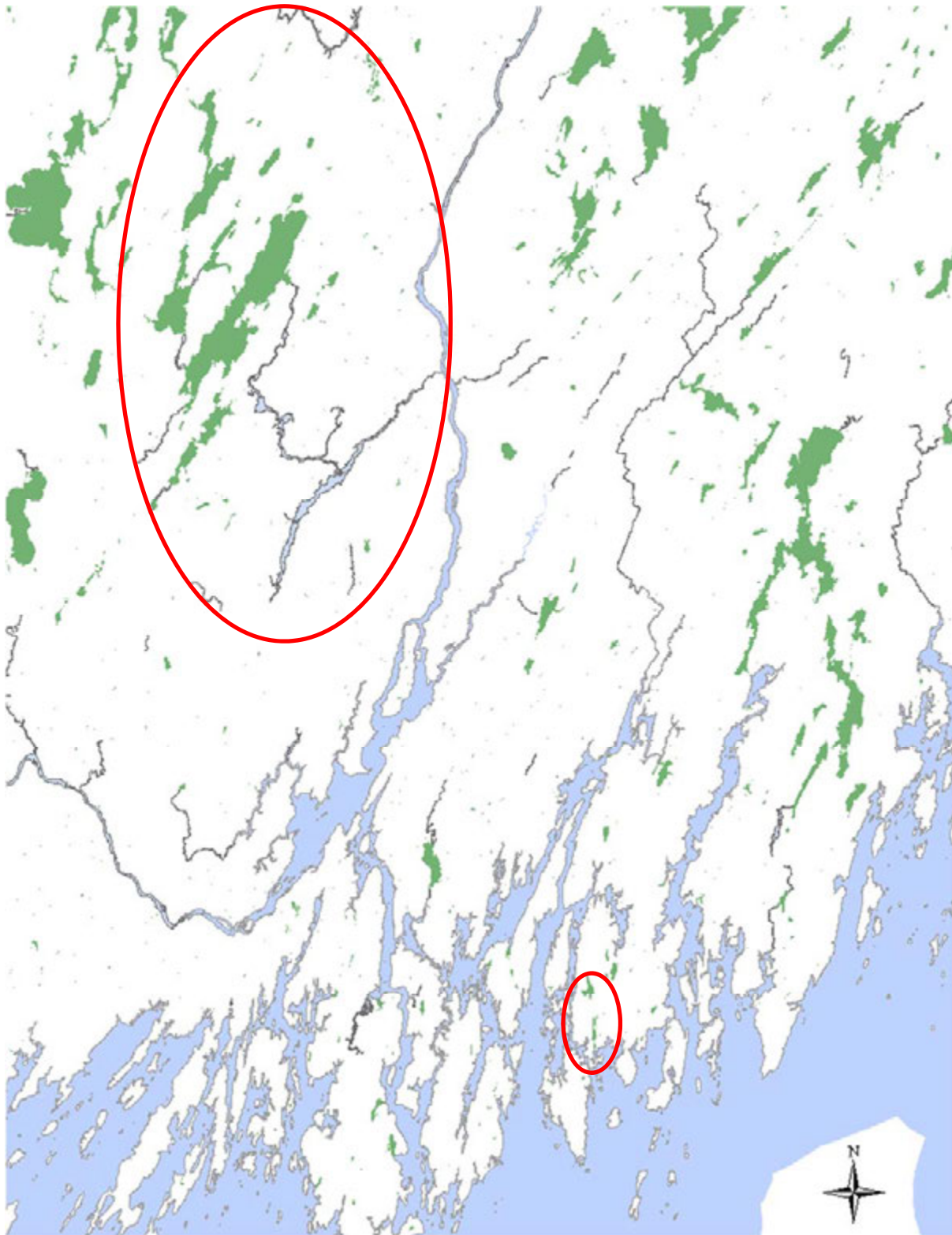


Figure 2. Detailed map of Cobbosseecontee Stream drainage showing location of major water bodies and dams (red circles). None of the dams have upstream eel passage. The American Tissue Hydropower Project (Dam 2) has a downstream eel passage facility.

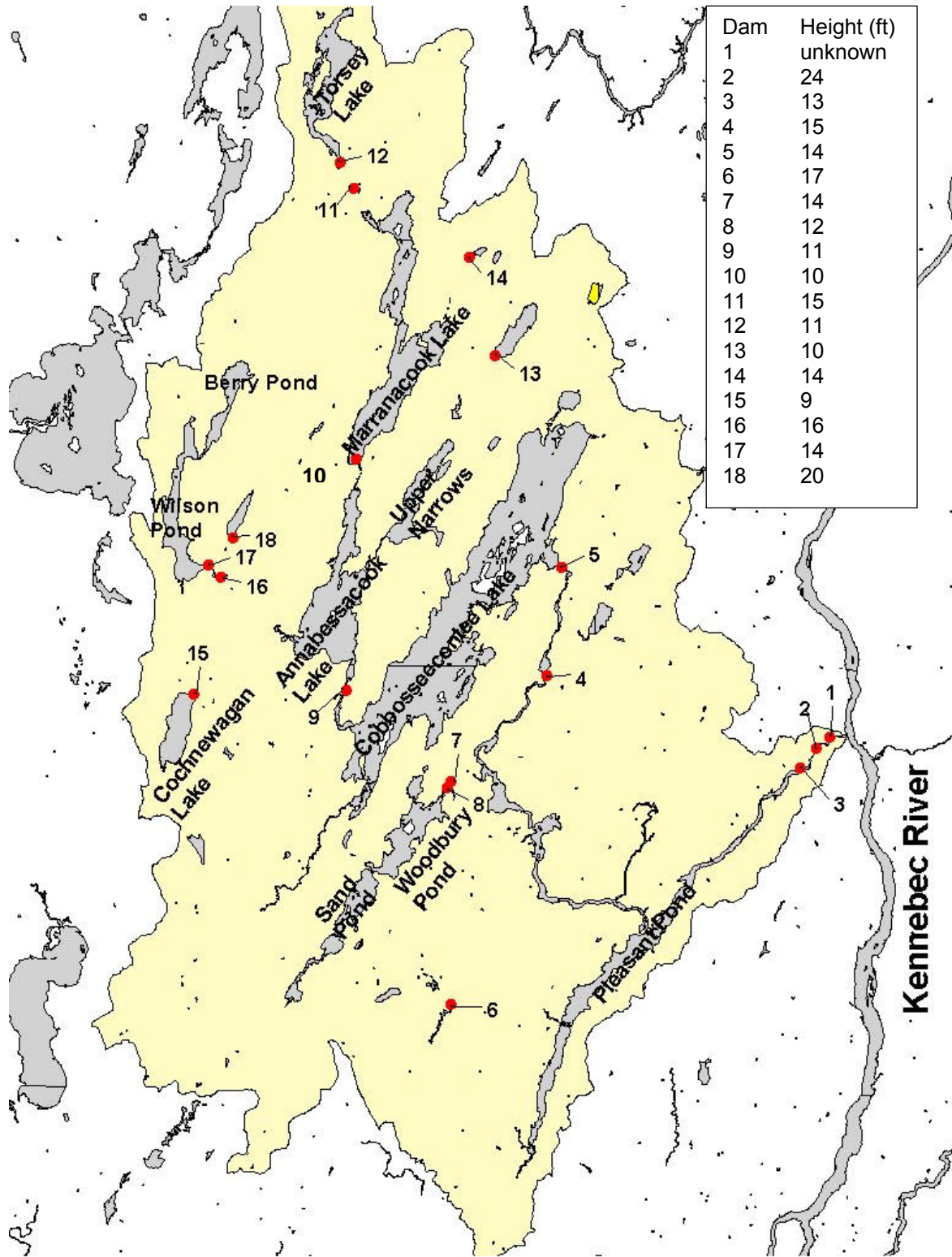


Figure 3. Artificial habitat collectors as described in Silberschneider et al. 2001. Photo credit: Sheila Eyler (USFWS).





Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

MEMORANDUM

October 16, 2015

To: American Eel Management Board
From: American Eel Technical Committee
RE: Recommendation on Addendum IV Implementation Plans

Addendum IV to the American Eel Fishery Management Plan implemented a coast wide quota of 907,671 pounds for the yellow eel commercial fishery starting in 2015. Addendum IV also contains management triggers where if the coast wide quota is exceeded by more than 10% in a given year (998,438 pounds), or if the quota is exceeded by any amount for two consecutive years, then state-by-state commercial yellow eel quotas will be automatically implemented as detailed in Addendum IV.

As required by Addendum IV, states/jurisdictions submitted implementation plans for Technical Committee (TC) review that detail how a state intends to monitor and manage its quota if triggered. The implementation plans detail (1) the rulemaking process, (2) the current reporting structure for eels, (3) type of reporting used for monitoring quota, (4) a mechanism to account for quota overages, (5) a mechanism for quota transfers, and (6) any additional management measures planned to control harvest. Table 1 is a summary of all state/jurisdiction implementation plans, and Table 2 summarizes the current reporting structure within states/jurisdictions.

The TC met via conference call to review the implementation plans and formulated the following recommendations.

- 1.) The TC recommends that state/jurisdictions use harvester reporting to monitor state quotas because it minimizes concerns of double counting from harvesters in one state selling to dealers in another state. Also, using harvester reports should account for eels that are harvested for personal use or bait that would not be accounted for in dealer reports.
- 2.) To determine if the trigger is met, the TC recommends that updated landings be submitted to ASMFC by February 1st of each year, with a follow up submission of preliminary landings by March 1st. The TC notes that this is earlier than the compliance report due date of September 1st, but will allow the Board to assess whether the trigger has been met by its May Board meeting.

Table 1. Summary of state/jurisdiction implementation plans. Pennsylvania and the District of Columbia do not have a commercial yellow eel fishery, and therefore did not need to submit an implementation plan because they were not allocated quota in Addendum IV.

State	Rulemaking Process	Rulemaking Timeframe	Reporting to monitor quota	Overages and Transfers	Additional Measures Planned
Maine	DMR Authority	up to 100 days	Monthly harvester. Likely to use swipe card system	Y	Possible seasons and days out by 2017
New Hampshire	Director Authority	at least 1 month	Monthly harvester	Y	None, but can if needed
Massachusetts	MF Advisory Commission	by March 2016	Weekly dealer (personal bait not counted)	Y	Close H&L gear Sept 1-Dec 31
Rhode Island	Director Authority	30 day public comment	Dealer twice a week	Y	None, but can if needed
Connecticut	DEEP Authority	10 days public notice	Monthly harvester	Y	None, but can if needed
New York	DEC Authority	6 months	Monthly harvester (river/marine) and weekly dealer (marine)	Y	Closing pot fishery on Delaware River. Need adjustment to quota through transfers or management addendum.
New Jersey	Commissioner/Council Rulemaking	3-4 months	Monthly harvester	Y	Limited entry based on 2007-2014 harvest. Possible pot maximum, and seasons. Some through notice process while others up to two years.
Delaware	Legislature (resumes in Jan 2016)	Legislature Session Jan-June	Daily harvester	Legislature	None, but can if needed
Maryland	DNR Authority	100 days or 48h with public notice authority	Daily harvester	Y	Harvester permit by 03/2016 with reporting requirement
PRFC	PRFC Authority	1-2 months	Weekly harvester	Y	None, but can if needed
Virginia	VMRC Authority	1 month	Monthly harvester with dealer check	Y	Possible seasonal closures and possession limits. Quota trigger to implement weekly/daily dealer reports.
North Carolina	NCDMF Authority	Immediate	Monthly dealer and harvester log books	Y	Proactive reporting trigger program to weekly/daily and closure at 85% of quota.
South Carolina	Legislature, but permitting authority	Permit cycle June 30	Monthly harvester and dealer	Y	Possible gear restrictions, seasons, catch limits, or closure
Georgia	Natural Resources Authority	Up to 90 days	Monthly harvester and dealer	Y	Likely close eel commercial fishery if state by state quotas are implemented
Florida	Executive Order Rulemaking	Governor-commission meets 5 times a year	Monthly harvester, weekly harvester when 50% quota is reached	Y	None, but can if needed. Issue of harvester selling to dealers outside the state and potential double counting of quota

Table 2. Summary of the current reporting timeframes for American eel by state/jurisdiction.

State	Dealer Reporting	Harvester Reporting	Notes (identify any changes if quota is implemented)
ME	Elvers – daily report with swipe card program Yellow eels – monthly report of daily data	Elvers – monthly report of daily landings Yellow eels – monthly report of daily landings	Dealer reports used to track elver quota. Yellow eel dealers can report electronically or on paper the 10th of the following month.
NH	monthly (Dealers not required to report, but monthly harvester includes identification of dealer)	monthly	No eel dealers to date. Mandatory monthly reporting for commercial eel harvesters is required.
MA	weekly	daily reports sent monthly	The present system will have at least a one month lag in reporting and not all harvester transactions will be recorded by permitted dealers. The existing daily reporting through monthly reports for harvesters will need to be augmented to improve the timing of harvester reporting.
RI	twice weekly	quarterly/daily	Dealer landings are reported directly in SAFIS and harvester logbooks are entered in to ACCSP database quarterly as submitted. Both reporting mechanisms are required by law and per our commercial licensing agreement with the dealers/harvesters.
CT	weekly/monthly	monthly	Dealer - Eel are not typically sold through seafood dealers in CT
NY	weekly	monthly	Harvester logbooks (inland) and could also call harvesters to get information. ALL licenses under marine jurisdiction
NJ	monthly (as part of the harvester reporting - no forms from actual dealers)	monthly	Mandatory monthly reporting for commercial eel harvesters is required.
DE	DE has no dealer reporting at this time	monthly/daily	Harvesters landing American eel are required to report landings monthly via individual logbooks; if needed, mandatory daily reporting via IVR will be implemented.
MD	monthly	daily reports sent monthly	On average it takes just over a month from the time the harvest report is received until it is entered into our landings database. If a quota is implemented, daily reporting as prescribed by the Department will be required.

Table 2. Continued. State/jurisdiction reporting timeframes.

State	Dealer Reporting	Harvester Reporting	Notes (identify any changes if quota is implemented)
PRFC	none	daily reports sent weekly	Mandatory daily harvest reporting submitted weekly. Quota would be tracked by date the data was entered and by date of catch.
VA	Daily purchases sent monthly	daily harvest reports sent monthly	Currently in Place: Buyers and self-marketers required to obtain a specialized permit. All buyers and harvesters report daily records by the 5th of the following month. Quota Management: Trigger that permit holders and buyers would have to report more timely by a call-in process or by weekly reports.
NC	monthly (combined reports)		Single trip ticket with dealer and harvester information submitted monthly. We could implement a permit with a quicker reporting requirement if needed but might require a rule change that could take up to 2 years to complete.
SC	monthly (combined reports)		Monthly reporting of daily information from harvester and dealer. Very little harvest.
GA	monthly (combined reports with Harvester)	daily reports sent monthly	Single trip ticket with dealer and harvester information.
FL	None (for eels)	Daily reports sent monthly	Daily trip tickets with harvester information required monthly. We could change the permit to require quicker reporting, if needed.

Maine American Eel Addendum IV Implementation Plans

Addendum IV to the American Eel Fishery Management Plan requires states to submit implementation plans for Board review at its Annual 2015 meeting. The main purpose of the plan is to detail how a state intends to implement and monitor a state specific quota for yellow eels if triggered for 2016.

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

The Commissioner of Maine DMR has rulemaking authority over this species and legislative changes will not be needed. A specific quota for yellow eels in the State of Maine would be implemented through rulemaking, a process that typically requires 100 days to complete.

2.) Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

The eel reporting timeframes in the table for Maine are correct.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

They yellow eel harvest will be monitored by both dealer and harvester reporting. If the board moved forward with a state by state quota Maine would likely utilize its current swipe card program to monitor the fishery.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

Maine would mirror our current elver quota payback – pound over, pound payed back.

5.) Identify a mechanism to transfer quota if needed.

Maine would suggest a process such as what exists with bluefish.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Maine's yellow eel harvest is minimal at this time. We plan to continue to monitor catch and determine if seasons and days out would be appropriate to reduce harvest if needed. Any regulatory changes will be done by April of 2017.

State of New Hampshire
Addendum IV Implementation Plans for American Eel
September 15, 2015

- 1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

-The Executive Director has the authority to establish rules relative to the taking, inspection and processing of marine species pursuant to RSA 211:62. However, because we still have a notice and hearing requirement, it generally takes a minimum of one month to implement rules.

211:62 Authority for Regulating Taking, Inspection and Processing of Marine Species. –

I. Rules relating to the taking, inspection, and processing of marine species may be made by the executive director of the fish and game department with the approval of the fish and game commission, and upon the advice and cooperation of the advisory committee on marine fisheries.

II. The rules relating to marine species may include, but are not limited to, the following:

(a) The size, number, sex, and quantity that may be taken;

(b) The areas to be opened or closed to their taking;

(c) The manner of their taking;

(d) The transportation of marine species within and through the state of New Hampshire;

(e) The sale, inspection, and processing of marine species; and

(f) Appropriate definitions.

III. Existing rules shall continue in effect until the effective date of new rules adopted in accordance with RSA 541-A.

IV. Conservation officers shall have the authority granted to public health officers and agents under RSA 143:4; RSA 143:23 through 28; and RSA 146:20, for the purpose of enforcing laws and rules pertaining to marine species.

V. Rules pertaining to marine species managed under the Atlantic States Marine Fisheries Compact under RSA 213 shall be exempt from the rulemaking requirements of RSA 541-A. The executive director may adopt such rules after notice and hearing as determined by the executive director to be practicable. Rules adopted under this paragraph shall be filed with the director of legislative services and with the joint legislative committee on administrative rules.

- 2.) Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

-Eel reporting timeframes in the table are correct.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

-American Eel quota will be monitored using harvester reporting.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

- New Hampshire has *de minimis* status for the American eel. Harvest of eels in NH has been less than 1% of the coast wide total. Harvest will be monitored using monthly harvester reports and in the event of quota overages, rules will be established according to RSA 211:62.

5.) Identify a mechanism to transfer quota if needed.

- New Hampshire has *de minimis* status for the American eel. Harvest of eels in NH has been less than 1% of the coast wide total.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

- NH does not intend to implement additional management measures to control harvest. In the event that rules need to be changed, the Executive Director has the authority to establish rules relative to the taking, inspection and processing of marine species pursuant to RSA 211:62.

Massachusetts Implementation Plan

Addendum IV to the Interstate Fishery Management Plan for American Eel



Prepared by Nichola Meserve, Policy Analyst
Massachusetts Division of Marine Fisheries
September 2015

Per Addendum IV, states and jurisdictions are required to approve regulations that would allow for implementation of a state-specific commercial quota management program for yellow eels and timely monitoring of harvest, should the coastwide cap triggers be exceeded, no later than March 2016. Implementation plans are due for Board review and approval at the Atlantic States Marine Fisheries Commission's 2015 Annual Meeting.

The Massachusetts Division of Marine Fisheries (*Marine Fisheries*) has commenced its regulatory process in order to fulfill the compliance measures of Addendum IV. Needed revisions to the Commonwealth's American eel regulations at 322 CMR 6.30 have been drafted that would establish a quota management program for yellow eels (see below). The draft regulations do not distinguish the quota as being for yellow eels solely; any landings reported as American eel will be counted against the quota. However, our minimum size limit prohibits the landings of elvers and our seasonal gear prohibition practically precludes the harvest of silver eel. The draft regulations take into account the requirement to address quota overages and allow quota transfers.

Marine Fisheries' existing harvester and dealer monitoring programs meet the requirement for trip-level reporting submitted at least monthly. Should state-by-state yellow eel quotas be triggered, the Division will use dealer data (submitted weekly) to monitor the quota, as per usual for other quota managed species. Yellow eels harvested under the authority of a commercial permit that are kept for personal use (e.g., bait) will consequently not be counted against the quota as there is no transaction with the dealer. These landings, as reported in MA harvester reports and federal VTRs, have been minor in recent years, averaging 4% of the commercial landings for 2012–2014, although we suspect under-reporting. Counting these landings against the quota could serve to further reduce reporting compliance by harvesters. *Marine Fisheries* will continue ongoing efforts to make both harvesters and dealers aware of all reporting requirements. These efforts include annual reminders sent out with permit renewal documents and following-up with specific harvesters and dealers for whom post-season accounting has indicated a failure to report correctly or fully.

Other modifications in the attached draft regulatory language seek to improve syntax or correct errors. Of note is the amendment to the list of gears exempted from the seasonal (September through December) harvest restriction intended to protect out-migrating silver eels. Our regulations allow rod & reel, although this is not actually permitted in Addendum III (only baited pots/traps and spears). We accidentally included rod & reel in the exempted gears for the same reason that baited pots/traps were included: because out-migrating silver eels don't feed, making the gear ineffective at catching silver eels (but still able to catch yellow eels). The other prohibited gears—fyke nets, pound nets, and weirs—don't have this type of selectivity. In addition, eel harvest by rod & reel occurs mainly as bycatch during shoreline fishing and is a minor contributor to total landings. We are proposing to amend our regulations to comply with Addendum III, but request an ASMFC review of the need to seasonally restrict rod & reel eel harvest in the name of protecting out-migrating silver eels.

Regarding a timeline, the Division is planning for a fall or early winter public comment period and hearing schedule. The Massachusetts Marine Fisheries Advisory Commission will need to approve the rule changes at a subsequent monthly business meeting before the Division can promulgate a final rule. Barring unforeseen circumstances, we will achieve rule implementation by the March 2016 deadline.

Proposed Regulations at 322 CMR

6.30: American Eels

(1) Definitions. The following words and terms shall have the following meanings:

American Eel means that species of eel known as *Anguilla rostrata*.

Commercial Fisherman means any person fishing under the authority of a permit issued in accordance with M.G.L. c. 130 § 80 and 322 CMR 7.01(2).

Commercial Quota means the Commonwealth's annual total allowable commercial harvest of American eel as established by the Atlantic States Marine Fisheries Commission, as modified by any quota transfer or any quota overage incurred in the previous year.

Director means the Director of the Massachusetts Division of Marine Fisheries.

Eel Pot or Eel Trap means any wire pot, trap or other device designed to catch eels that is enclosed on two or three sides with an inverted funnel or throat on one or two sides that act as openings.

Fyke Net means any bag-shaped nets designed to catch eels that are held open by hoops and can be linked together to create long chains.

Recreational Fisherman means any person authorized pursuant to M.G.L. c. 130 § 17C and 322 CMR 7.10 to take or attempt to take finfish for personal or family use, sport or pleasure and which are not sold, traded or bartered.

(2) Commercial Fishing Permit. **Without a regulated fishery permit for American eels issued by the Director pursuant to M.G.L. c. 130 § 80 and 322 CMR 7.01(2) and 322 CMR 7.01(4)(a), it is unlawful for any person to either: harvest and sell, barter or trade American eels; or harvest, possess while fishing or land American eels in excess of the non-commercial recreational harvest limit at 322 CMR 6.30(6) without a regulated fishery permit for American eels issued by the Director pursuant to M.G.L. c. 130 § 80 and 322 CMR 7.01(2) and 322 CMR 7.01(4)(a).**

(3) Commercial Reporting. Each holder of commercial fisherman permit, issued pursuant to 322 CMR 7.01(2), shall file a monthly catch report on forms supplied by the Division. This catch report shall include any catch of eels that were harvested to be sold or kept for bait or personal use. Failure to report shall be grounds for suspension and non-renewal of the permit.

(4) Commercial Quota Management. It is unlawful for commercial fishermen to harvest or land American eel when the Commonwealth's commercial quota has been reached and the fishery is closed through a Declaration of Closure issued in accordance with 322 CMR 6.41(2).

(45) Dealers. ~~Wholesale~~ Dealers who purchase American eels from licensed fishermen shall register with the Division and report all purchases of eels from commercial fishermen to the Division.

(56) Minimum Size. It is unlawful for any person to fish for, take, or have in possession American eels measuring less than nine inches in total length unless authorized by a special permit issued by the Director.

(67) ~~Non-commercial~~ **Recreational Harvest Limit**. It is unlawful for ~~any person~~ **recreational fishermen** to ~~take harvest, possess~~ or land more than 25 eels per calendar day, or possess more than 25 eels while eel fishing, ~~unless said person holds a regulated fishery permit for American eel~~. This limit shall apply to the vessel regardless of the number of persons on-board.

(a) Exemption. It is lawful for for-hire permit holders, permitted pursuant to M.G.L. c. 130 § 17C and 322 CMR 7.10(5), to ~~take, possess~~ **harvest** or land up to 50 eels per calendar day, or possess up to 50 eels while fishing. This limit shall apply to the vessel regardless of the number of persons on-board.

(78) Restrictions of Fishing Gear.

(a) Small Mesh Prohibition. During the period of February 15th through June 15, it is unlawful for any person, while in the coastal waters of the Commonwealth or upon the banks of rivers and streams within the coastal waters of the Commonwealth, to abandon, set, possess or have under his or her control any device capable of catching eels with openings or mesh measuring less than $\frac{1}{8}$ inch in inside diameter. These devices include, but are not limited to, dip nets, set nets, fyke nets and traps adapted for the taking of juvenile eels.

(b) Eel Pot Restrictions. It is unlawful to abandon, set, possess or have under his or her control any eel pot that does not have a wire mesh of at least $\frac{1}{2}$ x $\frac{1}{2}$ inch inside area.

(c) Other Gear Restrictions. During the period of September 1st through December 31st, it is unlawful **for commercial fishermen to attempt to catch or to catch harvest** American eels with any gear except for ~~rod and reel~~, eel pots, eel traps and spears **and for recreational fishermen to harvest American eels with any gear except for rod and reel, eel pots, eel traps, and spears.**



Rhode Island
Department of Environmental Management

DIVISION OF FISH AND WILDLIFE

277 Great Neck Road
West Kingston, RI 02892

401 789-0281
FAX 401 783-7490

MEMORANDUM

To: Michael Waine
Atlantic States Marine Fisheries Commission

From: Phil Edwards and Jason McNamee
RI Division of Fish and Wildlife

Date: September 8, 2015

SUBJECT: Implementation Plan Requirements for Addendum IV Compliance

Below are RI's revised plans for the implementation requirements for Addendum IV to the Interstate Fishery Management Plan for American eel, set forth in the format requested.

1. Regulatory Process and Timeline

- a) RI has an existing mechanism to close directed commercial fisheries in state waters. RI promulgated regulations to meet Addendum III mandates on December 19, 2013. RI publishes notice of all regulatory closures through our secretary of states office and through our marine fisheries listserv, which the ASMFC is on. RI can add any additional ASMFC staff that may need to be added to this listserv, please contact Jason McNamee to accomplish this (Jason.mcnamee@dem.ri.gov). The closures will also be incorporated in to the annual compliance report, as is done with the current management plan in RI state waters.
- b) For our regulatory process, RIDEM publishes a legal notice for regulatory changes. After 30 days a public hearing will occur on the proposed amendments. After the public hearing the Rhode Island Marine Fisheries Council (RIMFC) advises the Director of RIDEM as to their recommendations and then the Director promulgates regulations. The Director has regulatory authority, the RIMFC is advisory, and therefore any American eel amendments that would come forward would not have to go to a legislative process.

2. Timeframes and Table Accuracy

- a) American eel reporting timeframes are correct in the table, and the information in the notes column is accurate. The Director of RIDEM has the authority to manage any species quotas without any further regulatory amendments needed.

3. Dealer or Harvester Reporting-Monitoring Requirements

- a) Rhode Island currently uses and will continue to use SAFIS to report all commercial landings in the state including eel. All dealers, state and federal are required to report trip level data for all fishermen landing any marine product twice a week.
- b) Beginning in 2007, RI implemented a catch and effort logbook. This requirement captures the eel harvesting information from any commercial harvester who would fish and land in this state. Catch and effort log books are required to be submitted to the state quarterly. In addition, many state fishers are using electronic log book reporting (etrrips).
- c) The state monitors all of its quotas through electronic dealer reporting.

4. Mechanism to account for quota overages

By using electronic dealer reporting, if an overage were to occur the state would identify this overage and deduct it from the following year's quota prospectively. The Director has the authority to manage quotas without the need for further regulatory measures.

5. Mechanism to transfer quota

The Rhode Island system of quota monitoring and management is flexible enough to identify any quota that would be available for transfer. The Director has the authority to enact a transfer if needed.

6. Additional management measures and implementation date

Rhode Island does not need any additional management measures to manage an eel quota. Amendment III measures were implemented in December 2013 and no American eel may be commercially harvested from the marine or freshwaters of the state and offered for sale without a valid commercial fishing license per Rhode Island Marine Fisheries (RIMF) regulations.

- A. Copy of the State of Rhode Island's 2015 regulations for the management of American eel fisheries.

Rhode Island
Department of Environmental Management
Division of Fish and Wildlife
FISHING REGULATIONS

Part I – Freshwater Fisheries Regulations - 2015

1.5 The minimum size limit for American Eel *Anguilla rostrata* shall be nine (9) inches (measured from the tip of the snout to the end of the tail).

Rhode Island
Department of Environmental Management
Division of Fish and Wildlife
MARINE FISHERIES STATUTES AND REGULATIONS

Part VII - Minimum Sizes of Fish/Shellfish - 2014

7.6 Minimum sizes, other species -- Except as specifically noted, no person shall possess or take any of the following species which are less than the following minimum size
EEL: Commercial and Recreational - 9"

7.16 American Eel

7.16.1 Recreational:

- (A) Minimum size: Nine (9) inches.
- (B) Season: January 1 through December 31, annually.
- (C) Possession limit: Twenty-five (25) fish per angler per day.

7.16.2 Licensed Party and Charter vessel season and possession limit:

- (A) Season: January 1 through December 31, annually.
- (B) Possession limit: Fifty (50) fish per angler per day for the licensed captain and any employed crew member; and twenty-five (25) fish per angler per day for any paying customer.

7.16.3 Commercial:

- (A) Minimum size: Nine (9) inches.
- (B) Season: January 1 through December 31 annually.
- (1) Closed season: September 1 through December 31 annually for any gear type other than baited traps/pots or spears.
- (C) Possession limit: Unlimited.
- (D) Commercial Eel pot restrictions: Eel pots shall have a minimum mesh size of ½ by ½ inches or shall have a 4 by 4 inch escape panel constructed of a mesh size of at least ½ by ½ inch mesh. The escape vent allowance will be in effect from January 1, 2014 – December 31, 2016, after which the entire pot must meet the ½ by ½ inches mesh requirement.

State of Connecticut
American eel Addendum IV FMP Implementation Plan
September 15, 2015

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

The DEEP Commissioner has declaration authority under RCSA Sec. 26-159a-22 that enables the department to implement elements of a quota management program including setting trip limits, trip limit adjustment values, and establishing and adjusting closed seasons upon 10 days public notice.

2.) Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

The table is correct however for eels it is important to recognize that the dealer reporting requirement applies only to Seafood Dealers. For eels and other species taken and sold as bait Connecticut relies on monthly harvester reporting. Most eels harvested in Connecticut are sold directly to retail bait customers and do not pass through an intermediate dealer. Consequently, a dealer reporting requirement would not serve as an independent verification of landings/sales as occurs with most seafood products.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

Monitoring would be accomplished through harvester reporting.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

As with any other state quota managed species this state manages the quota specified in the Commission or federal FMP. For eels the Commission would need to formally deduct any overage from the previous year to set the current year quota. Connecticut would manage the net quota.

5.) Identify a mechanism to transfer quota if needed.

RCSA Sec. 26-159a-27. Transfer of quotas. Authorizes the DEEP Commissioner to transfer commercial quota to another state upon request subject to a determination that Connecticut will not be able to utilize the transferred amount.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

No further management measures are contemplated at this time.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife and Marine Resources, Bureau of Marine Resources
205 North Belle Mead Road, Suite 1, East Setauket, NY 11733
P: (631) 444-0430 | F: (631) 444-0434 | FW.Marine@dec.ny.gov
www.dec.ny.gov

American Eel Addendum IV Implementation Plan for New York

Regulatory Process and Timeline for American Eels:

The Department of Environmental Conservation has the authority to establish seasons, catch limits, and taking of fish. Necessary regulatory changes to American eel will be carried out by established rule making procedures, in accordance with the New York State Administrative Procedures Act (SAPA). Rule Makings take an average of six months to be permanently adopted.

Quota Management:

Delaware and Hudson Rivers: Hudson and Delaware River quotas will be monitored with harvester reporting. Harvesters are required to report their total harvest whether eels are sold or kept for personal use.

Harvesters on the Delaware River are required to check their weirs once daily after their rack has been installed, and record for each day: date, time, species and number of fish caught and released, and number and/or pounds of eels harvested. The catch reports must be submitted to the NY DEC by the harvester, within 15 days after the end of each month, for the duration of the issued license. Weekly follow-up or calling could occur in addition to strict adherence to the reporting requirements.

Commercial harvesters on the Hudson River are required to record trip level reports which must be submitted monthly by the harvester to the NY DEC for the duration of the issued license. Weekly follow-up or calling could occur in addition to strict adherence to the reporting requirements.

Marine District: Marine District landings and quota usage will be monitored weekly through dealer and harvester reports. Trip level reporting is required by marine district commercial harvesters, within 15 days after the end of each month, and they must send their reports to the NY DEC (or record electronically on the ACCSP eTrips database). Weekly follow-up or calling could occur in addition to strict adherence to the reporting requirements.

Food Fish and Crustacea Dealer and Shipper license holders must report weekly to the NY DEC (or report electronically on the ACCSP eDR database).

All Landings (Marine/Hudson/Delaware R) will be checked weekly, and monitored for discrepancies. If harvester and dealer reported landings do not agree, New York will use the larger number to count toward its quota.

Under both the catch cap and quota systems outlined in Addendum IV, all New York American eel landings (i.e. from both the yellow and silver eel fisheries) are included, unless they can otherwise be shown to be precluded.

Quota Overages:

	Initial Allocation	Final Quota
Maine	0.48%	3,907
New Hampshire	0.01%	2,000
Massachusetts	0.04%	2,000
Rhode Island	0.16%	4,642
Connecticut	0.19%	2,000
New York	4.26%	15,220
New Jersey	10.19%	94,899
Delaware	6.97%	61,632
Maryland	56.72%	465,968
PRFC	4.67%	52,358
Virginia	9.58%	78,702
North Carolina	4.94%	107,054
South Carolina		2,000
Georgia	0.11%	2,000
Florida	1.69%	13,287
Total	100%	907,669

This quota would only be implemented if either management trigger is tripped:

Management Triggers

1. The coastwide catch cap of 907,669 lbs. is exceeded by more than 10% in a given year (i.e., $\geq 998,438$ lbs.).
2. The coastwide catch cap of 907,669 lbs. is exceeded for two consecutive years, regardless of percent overage.

State Quota Transfer: If the state quota system is implemented, and New York exceeds its quota, then we will seek to obtain transferred quota from another state before reducing our quota for the following year. New York will request quota transfer from any state that has not fished its state quota. In order to do this, any state or jurisdiction may request approval from the ASMFC Board Chair or Commission Chair to

transfer all or part of its annual quota to one or more states, including states that receive the automatic 2,000 pound quota. Requests for transfers must be made by individual or joint letters signed by the principal state official with marine fishery management authority for each state involved. The Chair will notify the requesting states within ten working days of the disposition of the request. In evaluating the request, the Chair will consider: if the transfer would preclude the overall annual quota from being harvested, the transfer addresses an unforeseen variation or contingency in the fishery, and if the transfer is consistent with the objects of the FMP. Transfer requests for the current fishing year must be submitted by December 31 of that fishing year.

The transfer of quota would be valid for only the calendar year in which the request is made. These transfers do not permanently affect the state-specific shares of the quota, i.e., the state specific shares remain fixed. Once quota has been transferred to a state, the state receiving quota becomes responsible for any overages of transferred quota.

Adjusted Quota for the Following Year: NY will first try to implement quota management through the use of quota transfers. However, based upon the recent performance of the fishery, quota transfers are unlikely to be available since the coastwide quota was exceeded in 2014 and possibly in 2015. With the pound for pound payback provision, this would result in a complete closure of New York's eel fishery which was never the intent of Addendum IV. If this situation occurs, New York would seek consideration through the American eel Board at its next meeting to correct this unanticipated consequence.

Other Management Measures: The Chief of the Bureau of Marine Resources has the authority to establish quota periods, allocations, directed fishery thresholds, trip limits, closures, and gear restrictions for quota-managed species in the Marine District. Delaware River pot licenses were issued in 2014 and 2015. Zero (0) American eels were caught by pot on the Delaware River in 2014. Therefore, NY will discontinue issuing Delaware River pot licenses in 2016.

New Jersey Addendum IV Draft Implementation Plan for American Eel

The following is New Jersey's draft implementation plan as of September 28, 2015 for American eel in regards to Addendum IV to the FMP. Items are subject to change pending final actions by the Commissioner of the New Jersey Department of Environmental Protection (Commissioner) and New Jersey's Marine Fisheries Council (Council).

Regulatory Process and Timeline

The Commissioner, in conjunction with the Council, has authority to modify regulations pertaining to American eel. The majority of future regulatory actions expected for eel will be completed through our Notice of Administrative Change Process (Notice) and would likely take a maximum of three to four months after any ASMFC action regarding state by state quotas. Other actions not covered under the Notice process would require full rule making following the New Jersey Administrative Procedures Act (APA) process. This process is more involved and may take somewhat longer to complete but none of the quota monitoring portions of any regulatory action would be affected. Most regulations, including all American eel regulations can be found in N.J.A.C. 7:25, subchapter 18.

Reporting Timeframe

Currently all American eel harvesters/dealers are required to report monthly with harvesters/dealers reporting daily harvest information through their monthly reports. With the implementation of a limited entry license/permit for commercial eel harvest through regulatory action expected in early 2016, New Jersey could require weekly/daily reporting through the Notice process pending any ASMFC action regarding state by state quotas.

Monitoring Process

At this point New Jersey intends to monitor any potential quota through our current dealer reporting system. This includes monthly reporting of daily harvest. As noted above, we could require weekly/daily reporting through the Notice process pending any ASMFC action regarding state by state quotas. We will also continue to use harvester reporting, as needed, as a cross referencing tool to ensure accuracy of dealer and harvester reporting.

Quota Overages

The easiest and most expeditious mechanism to account for quota overages will be to insert regulatory language through the Notice process that allows the Commissioner to administer any NJ eel quota as determined by ASMFC. If the quota for any year is exceeded, the amount overharvested will be deducted from the following year's quota. This will allow for the ability to be flexible should it be necessary to deal with a quota overage. Similar language is already found in existing regulations for other quota managed species (ex. summer flounder, black sea bass and bluefish).

Quota Transfers

The quota transfer process is fairly straightforward and does not need to go through the regulatory process in order to implement a transfer. For ASMFC and Mid-Atlantic Fishery Management

Council quota managed species, the Marine Fisheries Administrator currently has the ability to make decisions on quota transfers (either transferring quota to a state or receiving quota from a state) on a case by case basis.

Additional Measures

The Council and its advisors are currently developing regulatory specifications that will institute a limited entry program based on harvest from 2007 to 2014. Other potential changes include a pot limit (maximum of 300), fishing seasons (spring/fall), and other management measures to control harvest and effort. This will ensure that New Jersey's eel harvesters are in-line with ASMFC recommendations. Some of these items will be implemented through the Notice process while others will need to take a longer regulatory route of up to two years to implement. This regulatory process will likely begin in late 2015 or early 2016.

DRAFT

American Eel Addendum IV Implementation Plan for Delaware

1.) *Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).*

American Eel limits are prescribed by Delaware state law (7 Delaware Code Chapter 18) and must be changed by the Legislature. Changes associated with Addendums III and IV of the American Eel Fishery Management Plan were tabled during the last General Assembly session. The Delaware General Assembly will resume in January 2016.

2.) *Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.*

Eel reporting timeframes and changes to reporting under quota management have been updated in the supplied table for DE.

3.) *Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.*

Under quota based management, American Eel landings will be called in daily to the DDFW's IVR (Interactive Voice Response) system. The DDFW uses this system for all quota based fisheries (striped bass, black sea bass, horseshoe crab, Atlantic menhaden) and all data is backed up and time-stamped.

4.) *Identify a mechanism to account for quota overages by adjusting quota the following year.*

Should commercial harvesters exceed the quota in any given year, the overage (pounds) will be deducted from the following year's quota and distributed evenly among eligible harvesters.

5.) *Identify a mechanism to transfer quota if needed.*

Only eligible commercial eel harvesters with a valid commercial eel license will be allowed to transfer their individual quota to another eligible participant.

American Eel Addendum IV Implementation Plans

Purpose: To detail how a state intends to implement and monitor a state specific quota for yellow eels if triggered for 2016.

State of Maryland by Keith Whiteford

1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

Maryland Department of Natural Resources has statutory authority to implement all necessary regulatory actions. It takes approximately 100 days to implement a regulatory change, unless the Department has authority to make changes through a public notice.

The process to make a regulatory change is as follows: the regulation is first submitted to a legislative review committee (AELR) and a committee housed in the Maryland Department of Business and Economic Development (DBED). The AELR review takes two weeks. The DBED review is a new legislative requirement that will begin on October 1, 2015. DBED will have the same two week period as AELR to review the proposed regulations. Upon approval by those two committees, the regulation is published in the Maryland Register, with a 30-day comment period. After the comment period, the Department reviews the comments and makes a decision on whether to move forward. A final regulation is generally sent to be published in the Maryland Register roughly two weeks after the close of the public comment period, with an effective date 2-3 weeks after that.

If the Department has authority to make changes through a public notice, the change can be made with very short notice. Public notices must be issued at least 48 hours prior to the effective date and time of the change and can usually be published on the Department's website.

Maryland Department of Natural Resources will submit a regulatory package in early November 2015 (effective by March 2016) that will propose to manage eel quotas, seasons, and catch limits through public notice in order to streamline the management process.

2.) Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

The eel reporting timeframes reported in this table are correct for Maryland. Harvester reporting will begin in 2016 under the requirements listed in the table. However, if a state quota is implemented, daily reporting as prescribed by the Department will be required.

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

Maryland intends to monitor the eel quota through harvester reporting.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year. 5.) Identify a mechanism to transfer quota if needed.

Maryland's regulations would allow the Department to manage quotas, which would include the ability to transfer quota or modify quota in the result of previous year overage.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Maryland will establish an eel harvester permit that will be required for all commercial eel harvesters, This includes commercial finfish and crab license holders (allowed to harvest eels for crab bait). If a state quota is implemented, all eel permit holders will be subject to new reporting requirements as prescribed by the Department. These reporting requirements will comply with Addendum IV. The implementation date for the establishment of an eel harvester permit will be March 1, 2016.



MARYLAND - VIRGINIA
"Potomac River Compact of 1958"

Potomac River Fisheries Commission

222 Taylor Street

P.O. BOX 9

Colonial Beach, Virginia 22443

TELEPHONE: (804) 224-7148 · (800) 266-3904 · FAX: (804) 224-2712

www.prfc.us prfc@verizon.net



American Eel Implementation Plan

September 30, 2015

The Potomac River Fisheries Commission's (PRFC) has regulatory authority over the fishery resources in the main stem of the Potomac River from the Woodrow Wilson Bridge downstream to the mouth of the river. No regulation shall be adopted by the PRFC unless a public hearing is held thereon, notice of the proposed regulation has been advertised on a timely basis in local newspapers, a copy of the proposed regulation is mailed to each clerk of court in the counties adjacent to the Potomac River on a timely basis, and the regulation is approved by at least six members of the eight-member Commission. No regulation shall become effective until at least 30 days after its adoption by the PRFC. The PRFC may also issue Orders of the Commission, which shall have the same force, effect, be published, and be enforceable and punishable in the same method and manner as regulations of the Commission. An Order of the Commission may become effective ten days after its adoption or such later date as set by the PRFC.

The PRFC will maintain the daily harvester reporting on a weekly basis. We would closely track the American eel commercial harvest from the Potomac River. Since the eel pot fishery accounts for about 99 percent of the eel harvest, eel pot fishermen could be required to call-in their weekly total eel harvest each Sunday once 70 percent of the quota is projected to be landed. All eel pot fishermen and significant buyers would be notified when 90 percent of the catch limit is reached and when the fishery shall be closed. A closure notice will be mailed to all PRFC licensed fishermen and the ASMFC.

The PRFC can establish an Order to set the American eel quota. Any overage of the PRFC quota will be subtracted from the following year's quota. In the event that the ASMFC needs to adjust the allocation for the Potomac, the PRFC can revise this Order and it will become effective ten days after its adoption.

Quota transfers, if any, will be on a case by case basis as needed. The ASMFC will be notified as to the date, amount, the transferor and the transferee of any such transactions.

Virginia American Eel Addendum IV Implementation Plans

- 1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

In the case of regulatory changes, the Virginia Marine Resources Commission (VMRC) must provide the intent of the regulatory action and allow for 15 days of public comment before it is reviewed at a formal public hearing at the monthly Commission meeting. Commission meetings are held on the fourth Tuesday of every month. The VMRC also has the ability to establish an emergency regulation at any Commission meeting. If the Commission adopts an emergency regulation, that regulation must be advertised at least 15 days before the day of the subsequent public hearing.

- 2.) Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

Modifications were made in the notes section.

- 3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

If state specific quotas are established, the VMRC will monitor harvest monthly through the Mandatory Harvest Reporting Program. Landings will be monitored monthly through the Mandatory Eel Buyers Reports. Both of these reports are due the fifth of the following month. A regulatory trigger will be implemented that will require more timely reporting by both harvesters and buyers.

- 4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

The regulatory process described in section one, above, allows Virginia to modify quota adjustments within one month of receiving the adjustment.

- 5.) Identify a mechanism to transfer quota if needed.

Virginia recommends the transfer process utilized in other ASMFC quota managed species of a formal request to the director of the ASMFC from both parties. Virginia's regulatory structure described in section one, above, allows a timely adjustment of the state specific quota in such cases.

- 6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Virginia proposes a series of industry and advisory meetings to discuss effort control strategies in order to optimize opportunities for Virginia harvesters. These strategies may include seasonal closures or possession limits.

North Carolina Implementation Plan for
Addendum IV to the Interstate Fishery Management Plan
for American Eel

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries
PO Box 769
Morehead City, NC 28557

September 2015

Background

In October 2014 the Atlantic States Marine Fisheries Commission (ASMFC) adopted Addendum IV to the Interstate Fishery Management Plan for American Eel

(http://www.asmf.org/uploads/file//55318062Addendum_IV_American_Eel_oct2014.pdf).

Addendum IV implemented a coast wide catch cap of 907,671 pounds for the American eel yellow eel fishery. Under the catch cap, there are two management triggers:

1. The coast wide catch cap is exceeded by more than 10% in a given year (998,438 pounds), or
2. The coast wide catch cap is exceeded for two consecutive years, regardless of percent over.

If either trigger is activated then state-by-state commercial yellow eel quotas will be implemented. The annual coast wide quota is set at 907,669 pounds, with allocation levels varying among states. North Carolina's allocation for the commercial yellow eel fishery is 107,054 pounds. See Appendix A in Addendum IV for a description of the allocation methodology (ASMFC 2014). The coast wide catch cap has been exceeded from 2010 through 2013 and recently was exceeded by more than 10 percent in 2011 and 2012 (Figure 1).

States and jurisdictions were required to approve regulations to allow implementation of a quota management program and timely monitoring of harvest no later than March 2016. This was to ensure if a management trigger is activated in the first year of implementation (2015) the required management action could be taken. The quota management program must include a provision to address quota overages and allow quota transfers. If the state-by-state quota system is implemented and a state or jurisdiction has an overage in a given fishing year, then the state or jurisdiction is required to reduce their following year's quota by the same amount the quota was exceeded, pound for pound.

Implementation Plan

- 1.) Explain the regulatory process and timeline for American eels in your state (e.g., Director has executive order, or must go through legislative process).

The North Carolina Marine Fisheries Commission has delegated to the Fisheries Director the ability to issue proclamations to suspend or implement rules that may be affected by variable conditions. The proclamation authority includes the ability to open and close seasons and fishing areas, set harvest and gear limits, and establish conditions governing various fishing activities. Regulations implemented by proclamation can be effective immediately for quota-managed fisheries. Previously, to constrain harvest of some quota-managed fisheries in North Carolina, harvest seasons were established and adjusted by proclamation.

- 2.) Please check that eel reporting timeframes are correct in [this table](#) for your state. Identify in the notes column any changes to reporting that would occur if a quota was implemented.

State	Dealer Reporting	Harvester Reporting	Notes (identify any changes if quota is implemented)	Done By:
NC	Monthly (combined reports)	Monthly (logbooks)	Currently we monitor eel landings with a single trip ticket with dealer and harvester information submitted monthly. We also monitor eel landings through eel pot logbooks that each harvester is required to submit monthly. If a quota is implemented, we could use existing authority to require more frequent reporting (daily or weekly).	Jason Rock

3.) Identify whether your state intends to monitor quota with dealer or harvester reporting, or both.

North Carolina intends to monitor an American eel yellow eel quota through mandatory monthly dealer reporting already required by the North Carolina Trip Ticket Program. Currently most American eel landings are reported using paper tickets but some dealers are reporting electronically (Table 1). Over time more dealers should begin to report electronically, decreasing the time it takes for landings data to become available. North Carolina may also use existing authority to require dealers or harvesters to report landings more frequently if the current monthly reporting requirement is deemed inadequate.

4.) Identify a mechanism to account for quota overages by adjusting quota the following year.

Open and closed harvest seasons may be established and adjusted by proclamation to constrain American eel landings to North Carolina's quota and to account for any overages in a previous year.

5.) Identify a mechanism to transfer quota if needed.

North Carolina will follow the quota transfer procedure outlined in Addendum IV (summarized below) to transfer quota to and from North Carolina and other states, if necessary.

The mechanism to transfer quota would be:

- A formal letter will be sent requesting approval from the Board Chair or Commission Chair to transfer all or part of one states annual quota to one or more states, and
- Requests for transfers will be made by individual or joint letters signed by the principal state official with marine fishery management authority for each state involved.

6.) Identify any additional management measures that your state intends to implement to control harvest. Also identify the intended implementation date of the additional management measures.

Previously, North Carolina would have exceeded the 107,054 pound state quota five times since 1998 (Figure 2). In the last 10 years, North Carolina would have exceeded the state quota once, in 2010 (Table 1). Over the last five years (2010-2014) annual landings have averaged 68,322 pounds, approximately 64% of the North Carolina quota (Figure 3). For 2010-2014, the highest daily landings average in the North Carolina American eel yellow eel fishery was 4,131 pounds (Figure 4)

To monitor for higher than normal landings, a landings threshold for the spring fishery (January – April) of 10% of the North Carolina quota (approximately 10,705 pounds) will be established. Typically, this level of landings in the spring fishery is a good indicator of above average landings in the fall fishery (Table 2; Figure 5). In years where the spring fishery exceeded 10% of the quota, landings averaged 106,384 pounds. If the landings threshold is reached for the spring fishery, North Carolina would use existing authority to require more frequent dealer or harvester reporting (e.g., daily or weekly) to more closely monitor the fall fishery. Once landings reach approximately 85% of the quota (roughly 91,000 pounds) the fishery will be closed. This value was chosen to reduce the risk of the quota being exceeded and due to the pulse reporting nature of the fishery. The highest daily landings recorded in the fall fishery was 15,200 pounds in October 2010 (Figure 6). Once the preliminary landings are tallied, after the closure is in effect, the fishery may be reopened in short windows depending on how much, if any, quota is left.

Table 1. North Carolina American eel yellow eel landings including the percent of landings from paper and electronic trip ticket submission and the number of dealers reporting by paper and electronic trip tickets.

Year	Landings		Dealers		Total Landings (lb.)
	% Paper	% Electronic	# Paper	# Electronic	
2004	99.94	0.06	22	1	128,875
2005	100	0	17	0	49,278
2006	99.98	0.02	11	1	33,581
2007	100	0	15	0	37,937
2008	100	0	11	0	23,833
2009	99.92	0.08	13	2	65,481
2010	99.97	0.03	11	1	122,104
2011	100	0	12	0	61,960
2012	99.99	0.01	15	1	64,110
2013	53.77	46.23	12	4	33,980
2014	91.43	8.57	12	3	59,458

Table 2. North Carolina annual American eel landings in the spring (January-April) yellow eel fishery. Bold years are years where the quota would have been exceeded if it were in place.

Year	January-April Landings (lb.)	January-April Percent of Quota	Total Landings (lb.)	January-April Percent of Total Landings
1998	22,257	20.8%	91,084	24%
1999	23,058	21.5%	99,939	23%
2000	47,375	44.3%	127,099	37%
2001	38,923	36.4%	107,070	36%
2002	21,402	20.0%	59,940	36%
2003	26,059	24.3%	172,065	15%
2004	29,229	27.3%	128,875	23%
2005	14,074	13.1%	49,278	29%
2006	4,507	4.2%	33,581	13%
2007	2,874	2.7%	37,937	8%
2008	2,407	2.2%	23,833	10%
2009	4,606	4.3%	65,481	7%
2010	13,538	12.6%	122,104	11%
2011	8,688	8.1%	61,960	14%
2012	5,375	5.0%	64,110	8%
2013	1,302	1.2%	33,980	4%
2014	1,329	1.2%	59,458	2%
2010-2014 Average	6,924	6.5%	68,322	10%

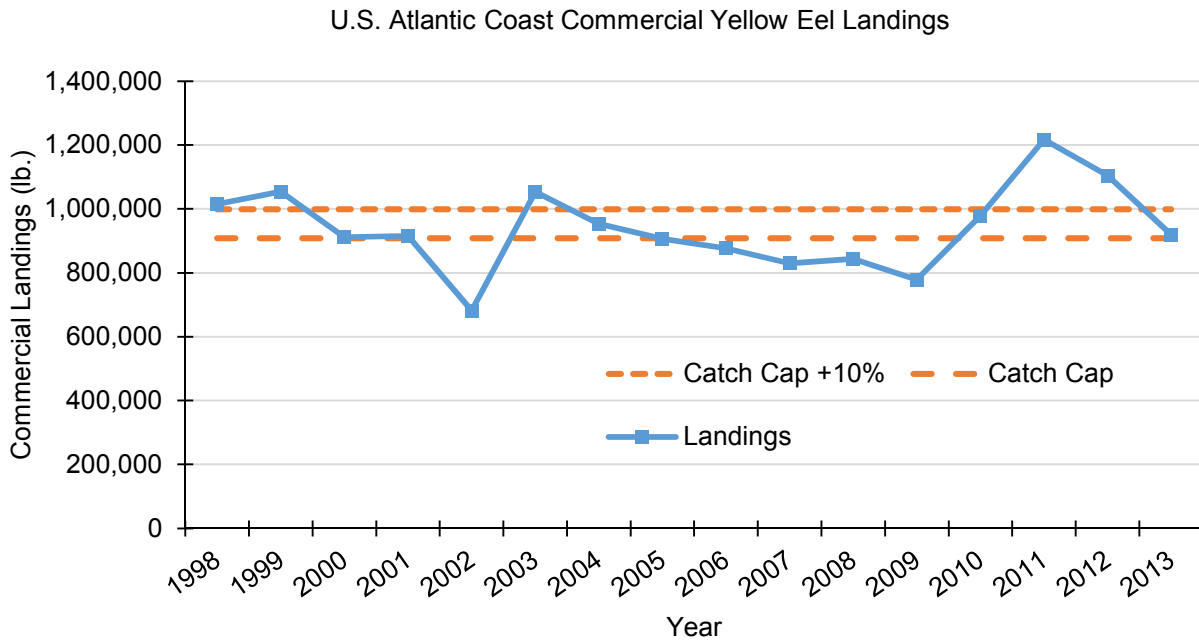


Figure 1. Commercial yellow eel landings along the U.S. Atlantic Coast, 1998–2013. The dashed lines represent the two management triggers for state-by-state quotas.

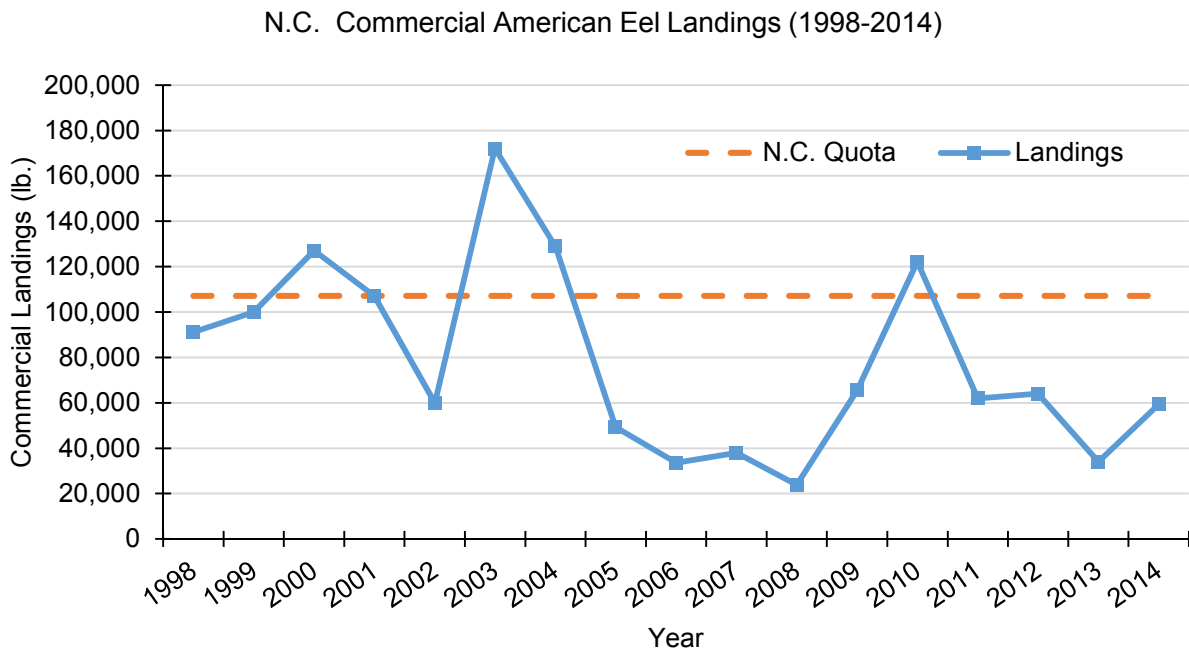


Figure 2. American eel landings in North Carolina, 1998 to 2014. The dashed line represents North Carolina's quota allocation for the commercial yellow eel fishery (107,054 pounds).

Cumulative American Eel Landings (2010 - 2014)

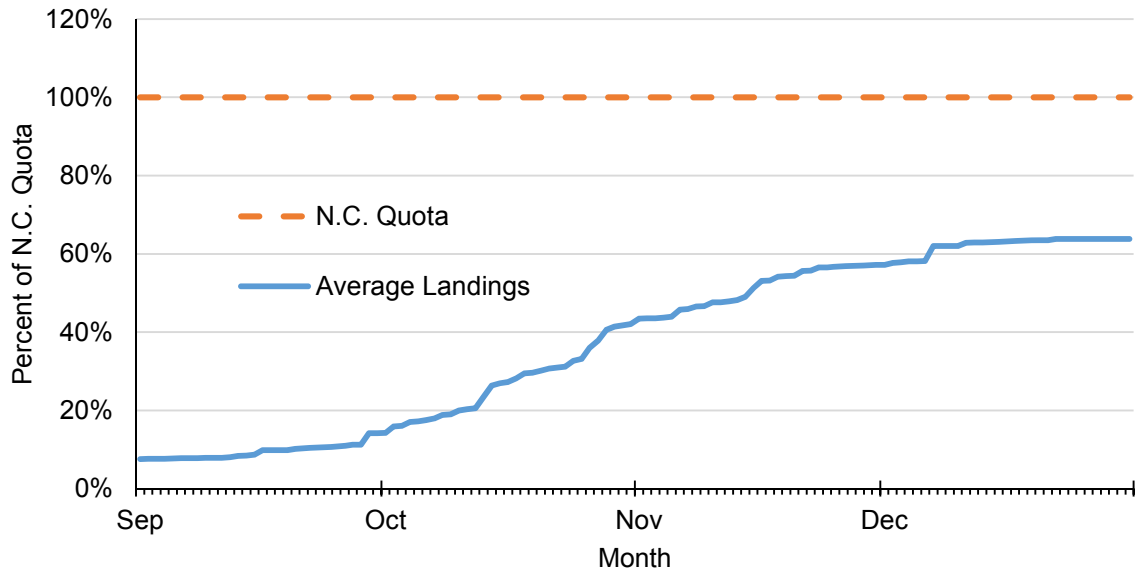


Figure 3. Average cumulative daily landings for the North Carolina American eel yellow eel fishery, 2010-2014.

American Eel Average Daily Landings (2010-2014)

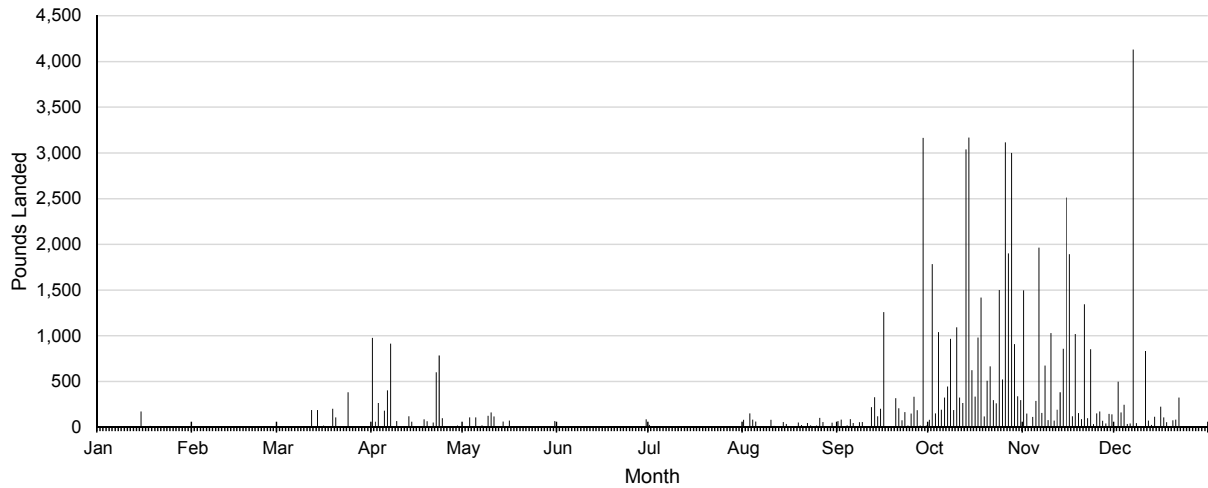


Figure 4. Average daily landings for the North Carolina American eel yellow eel fishery, 2010-2014.

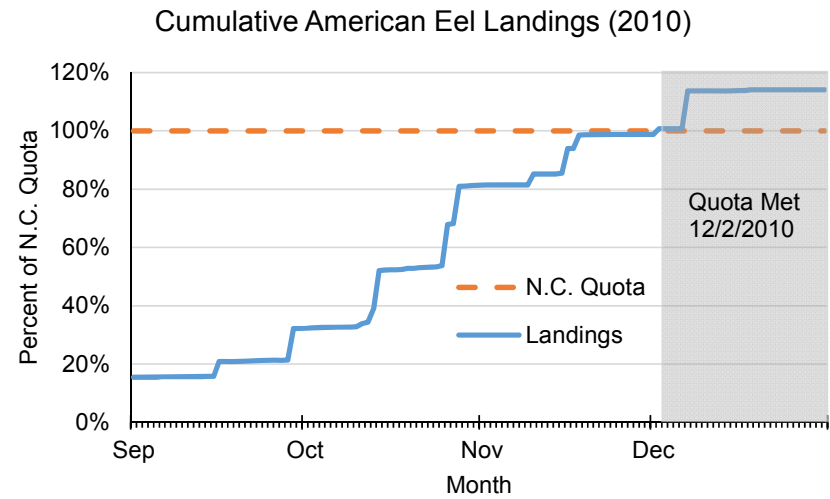
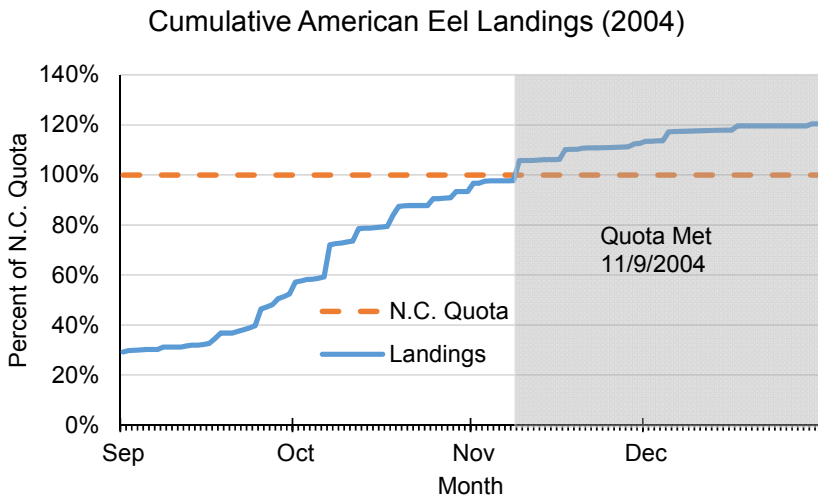
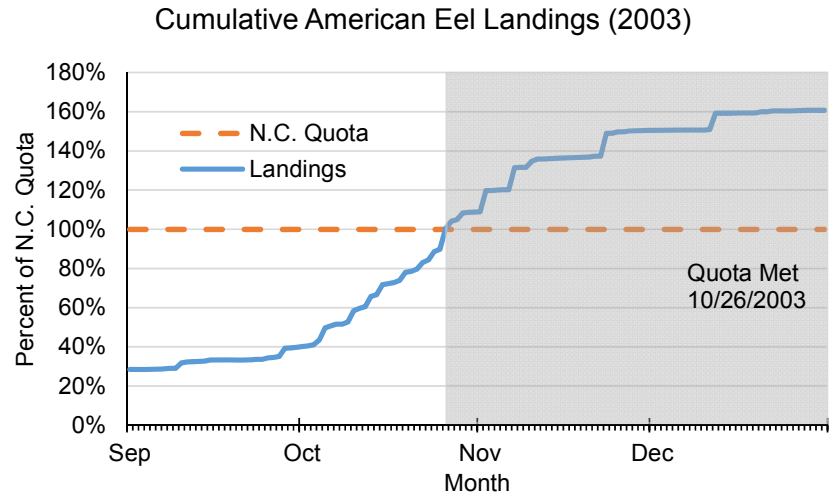
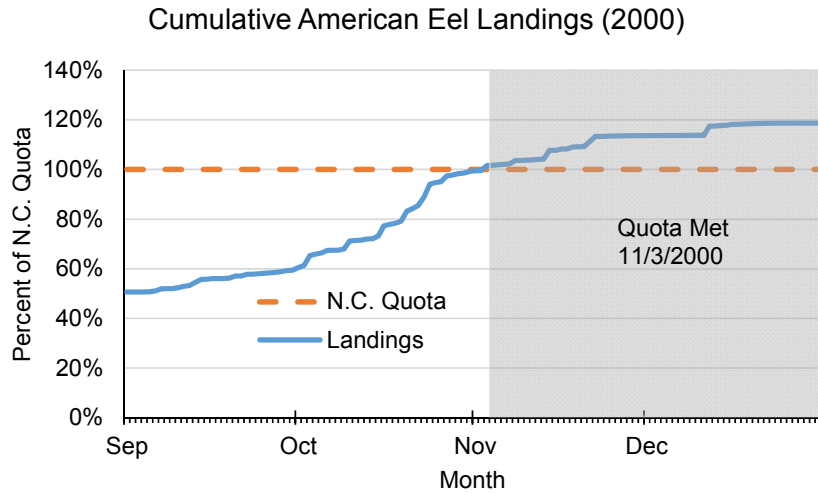


Figure 5. Cumulative daily American eel yellow eel landings for selected years (2000, 2003, 2004, and 2010) when North Carolina would have exceeded the quota (usually by the end of October/beginning of November).

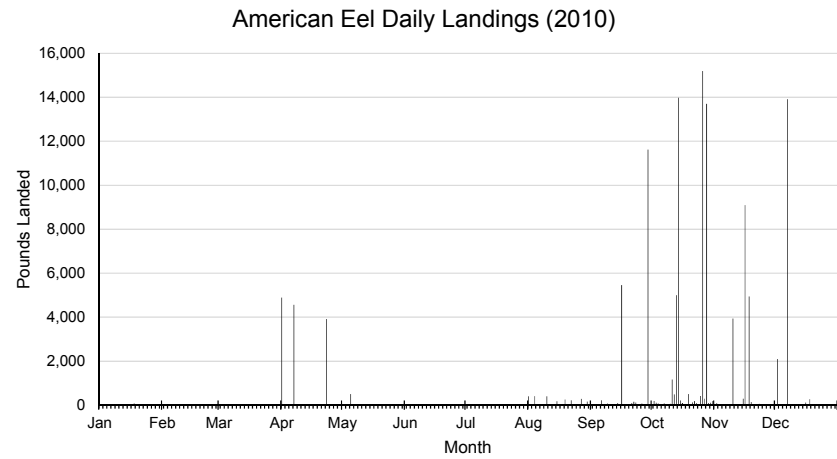
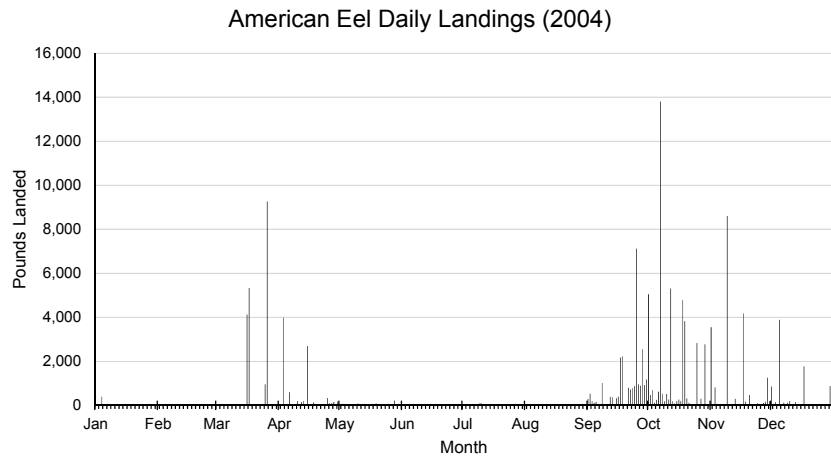
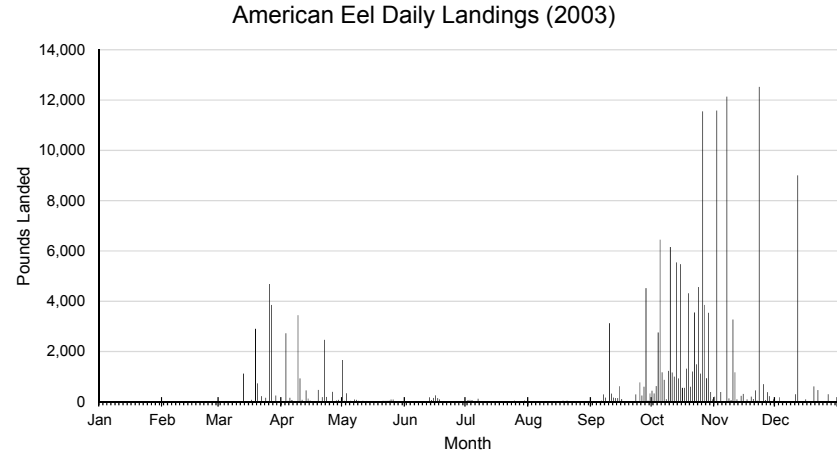
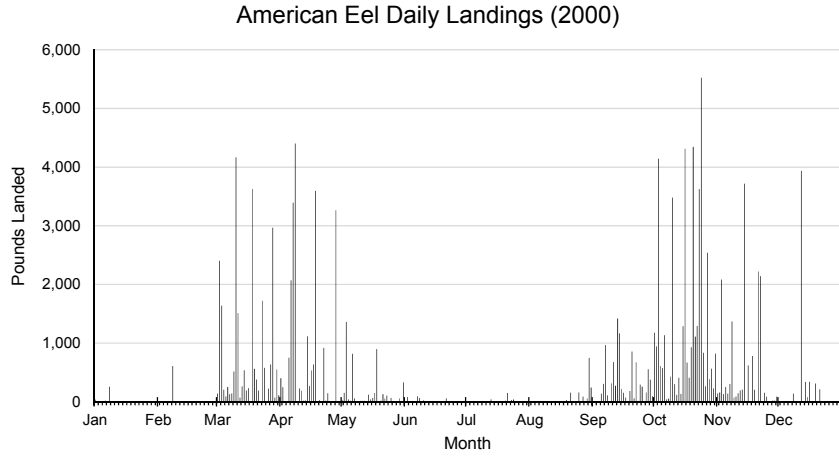


Figure 6. Daily landings for the North Carolina American eel yellow eel fishery for years the North Carolina quota would have been exceeded.

American Eel Addendum IV Implementation Plan for SC

In order to monitor annual harvest of American eel, South Carolina initiated a permit system in 1996. Permittees must purchase a proper freshwater or marine commercial fishing license, as well as a license for each gear type to be fished in order to take American eel in any State waters. Individuals may be permitted by water area, season and gear type. Permittees are also required to supply monthly reports of catch and effort by gear and water area which along with dealer reports is a mechanism to monitor quota limits. Additionally, South Carolina State Law (50-5-1556) allows SCDNR to manage fishing effort by water area and gear type. Permitted legal gear consist of pots or traps for adult eel and dip and fyke nets for glass eel and elvers. Specifications and restrictions for these gears may be included in individual permits. Currently, South Carolina Law does not allow the use of recreational eel pots in marine waters and beginning during the 2012 fishing season all individuals (recreational or commercial) using gear types deemed commercial must obtain a permit by gear type and water area.

Addendum IV of the Fishery Management Plan for American Eel establishes a 907,671 pound coastwide quota for yellow eel fisheries. Under this Addendum, South Carolina would be allocated a yellow eel quota of 2000 pounds. In South Carolina harvesting American eels has mainly been an elver/glass fishery using fyke nets, not pots and South Carolina historically had a very small yellow eel fishery. The combined catch of yellow eels in South Carolina for the last 17 years, has not exceeded the proposed yearly quota. Therefore, it is highly unlikely that South Carolina's yellow eel harvest will exceed 2000lbs. In the unlikely event that quota overages do occur we will require a pound-for-pound payback. Potential management actions to control harvest may include gear restrictions, season changes, catch limits, or closure, In South Carolina all changes in fisheries laws must go through the legislative process. If a quota is put into effect for yellow eels, South Carolina would implement that quota through the permitting process until new regulations could be passed through the General Assembly.

State of Georgia Catch Quota Implementation Plan As Required in Addendum IV of the American Eel Fishery Management Plan

Introduction

Addendum IV to the American Eel Fishery Management Plan requires that states must submit implementation plans (Plan) for the management board to review. Per this requirement, the Plan is to identify how each state intends to implement and monitor state specific catch quotas for yellow eels. State specific quotas will be implemented when the coastwide catch cap (presently set at 907,671 lbs) is: 1) exceeded by more than 10% in any given year (998,438 lbs); or 2) exceeded for two consecutive years, regardless of the percent. Georgia's state specific catch quota is presently 2,000 lbs.

Regulatory Process

The Georgia Department of Natural Resources (GADNR) regulates the fishing of American eels under Chapter 391-2-4-.01, Rules of Saltwater Fishing Regulations (Rule). Per this Rule, the Board of Natural Resources is authorized to promulgate rules and regulations for certain finfish, including American eels, based on sound principles of wildlife research and management. This authority includes establishing the seasons, methods of fishing and disposition, size, creel and possession limits, and gear and landing specifications.

Currently in 2015, there is no closed season on American eels in Georgia. Recreational fishermen are allowed a daily creel/possession limit of 25 fish and may take eels with any approved gear in all waters (fresh or salt) open to the harvest of finfish. All harvested fish must have a minimum size of 9 inches, total length, regardless if caught recreationally or commercially. Commercial fishing for eels is allowed in all state waters except those specifically identified in Rule 391-2-4-.01. No harvest limit exists for commercial eel fishermen. Commercial fishermen may use pots/traps as described in Rule 391-2-4-.01 to target eels, though no other fish other than eels may be retained during fishing efforts.

In the event that changes to the American eel fishery in Georgia were needed, all proposed changes would be presented to the Board of Natural Resources for their approval. Once approved, the changes would become effective by a prescribed date. Such changes would not require legislative approval and thus could occur at any time during the calendar year. The process can take up to 90 days.

Reporting

Presently in Georgia, dealers report harvest of eels monthly, while fishermen report daily trip tickets by the 10th day of each month. Over the past five years (2010 – 2014), no dealer has reported eel landings that were not directly associated with the commercial fisherman harvesting the catch (ie., harvester is the dealer). During that same period only four commercial fishermen reported eel landings.

Quota Monitoring and Management

Under Addendum IV, Georgia has been provided an annual state specific, catch quota of 2,000 lbs. That amount has not been exceeded since 2012 (2,043 lbs) and only three times since 1989 (1989, 1990, and 2012) (Table 1). The five-year harvest average (2010-2014) is just 735 lbs with the long-term average (1989-2014) only slightly higher (813 lbs) (Table 1). The number of reported trips averages just 3.6 per year (1989-2014) with no more than three fishermen reporting landings in any given year (Table 1). Given the low participation and irregular and minimal harvest, the Department believes it would be best to close the American eel commercial fishery in Georgia if state-specific catch quotas are implemented in accordance with Addendum IV.

This decision is based in part on the unreasonable financial and personnel resources burden necessary to manage and enforce such a small catch quota. Over the past five years, 86.1% of the harvest was reported over a five month period (August – December) while historically (1989-2014), 96.6% of the harvest was spread over eight months (August – April) (Figure 1). Managing such a small catch quota over such a protracted period is not practical.

The hardship to commercial fishers should be minimal since only four fishers have reported American eel landings since 2010, (only fisher for more than one year). Total reported harvest for this five-year period was 3,676 lbs, from 298 traps (pots) set during 16 trips (Table 1).

Quota Transfer

Georgia's allocated quota would be considered for transfer to another state should it be requested. Protocols established in Section 3.1.2 of Addendum IV will be followed if a transfer request is received: *[Requests for transfers must be made by individual or joint letters signed by the principal state official with marine fishery management authority for each state involved. The Chair will notify the requesting states within ten working days of the disposition of the request. In evaluating the request, the Chair will consider: if the transfer would preclude the overall annual quota from being harvested, the transfer addresses an unforeseen variation or contingency in the fishery, and if the transfer is consistent with the objects of the FMP. Transfer requests for the current fishing year must be submitted by December 31 of that fishing year.]*

Georgia presently does not have a glass or silver eel fishery, nor aquaculture facilities capable of rearing glass eels. As such, Georgia's implementation plan in accordance with Addendum IV will prohibit these activities in state waters.

Table 1. Georgia's reported annual American eel commercial catch and effort statistics, long-term (1989-2014) and 5-year (2010-2014) averages.

YEAR	Pounds	Value	Trips	Traps	Fishers	CPUE (lb/trip)
Avg(89-14)	813	3,306	3.4	59.6	1.1	237.6
Total(89-14)	21,148	85,959	89	298	7	
Min(89-14)	0	0	0	0	0	3.5
Max(89-14)	5,420	22,266	14	115	3	865.0
Avg(10-14)	735	8,466	3.2	59.6	1.2	229.8
Total(10-14)	3,676	42,330	16	298	4	
Min(10-14)	0	0	0	0	0	25.8
Max(10-14)	2,043	22,266	6	115	2	681.0

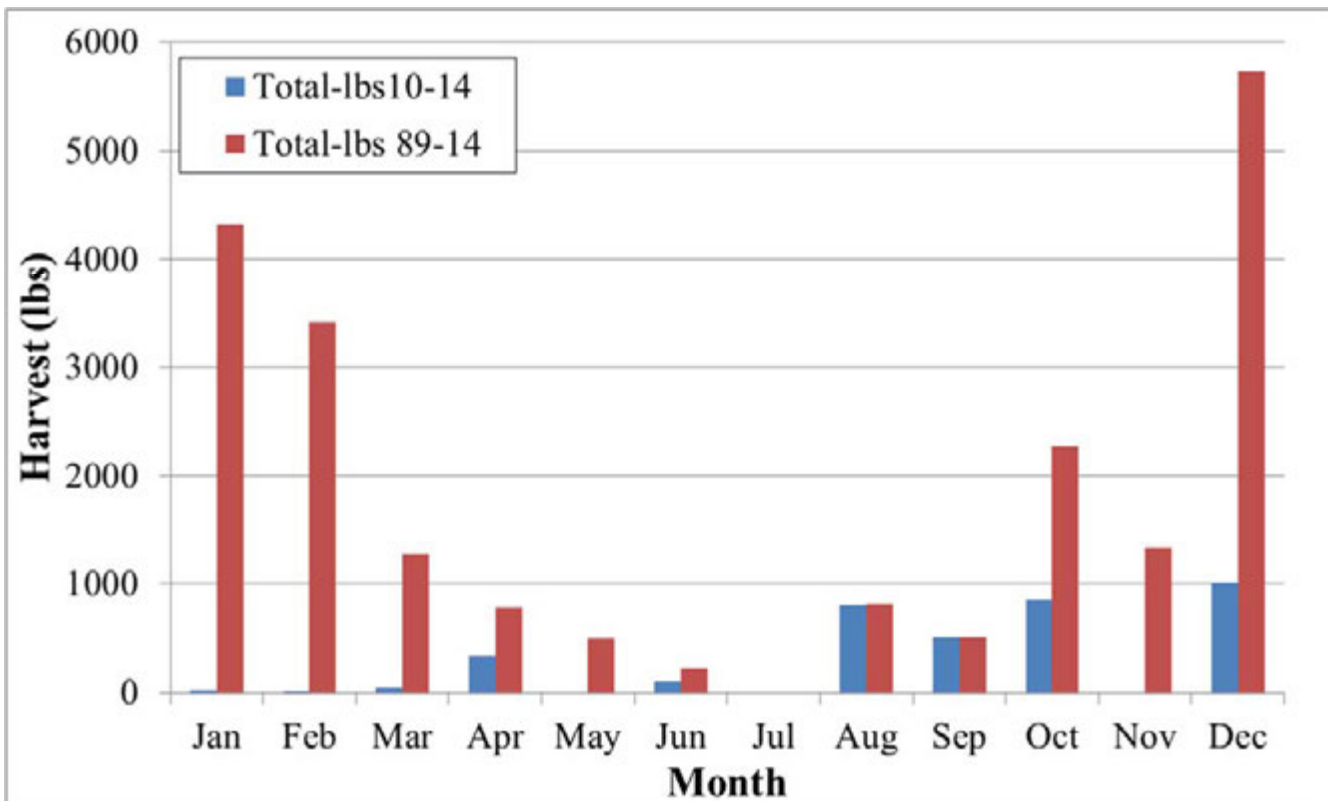


Figure 1. Georgia's total American eel harvest by month, 1989-2014, and 5-year (2010-2014)

MEMORANDUM

To: Michael Waine

From: Kimberly Bonvechio

Date: 9/28/2015

Re: Florida Implementation Plan for Amendment IV of the Interstate Fishery Management Plan for American Eel

1) Regulatory Process and Timeline

In Florida, fisheries are opened and closed by executive order for emergency measures and by rule as codified in the Florida Administrative Code (FAC). The Florida Fish and Wildlife Conservation Commission (FWC) abides by Ch. 120, Florida Statutes for due process procedures when making rules. The public is notified of rulemaking activity through the Florida Administrative Register. Rulemaking often includes direct contact with those who may be affected, extensive discussions with stakeholder groups, and public meetings to gather input from interested parties. Final rulemaking authority is held by the Governor-appointed Commission, which meets five times a year in locations throughout the State.

Should a management trigger be tripped and state quota implemented during the 2016 fishing season, the American eel commercial fishery will be closed by Executive Order when the commercial harvest is projected to reach Florida's 2016 quota allotment (13,287-lb). A copy of the Executive Order closing the fishery will be submitted as part of Florida's compliance report.

2) Reporting Timeframe

Per the American eel commercial harvest permit, submission of daily trip tickets with harvester information are required monthly.

Should the state by state quota be implemented, we will begin making weekly phone calls to permitted harvesters once 50% of the quota has been reached, until the quota is predicted to be filled. A rule change will eventually need to be made, as the current provisions of the commercial American eel harvest permit dictate monthly reporting.

3) Reporting Structure

Florida currently has harvester reporting only and does not plan to implement any other structure at the present time. Concerns about double reporting from out-of-state dealers that purchase commercially caught eels reported in Florida still need to be addressed. Furthermore, commercial eel harvesters in Florida typically keep fish live in holding tanks before selling them to dealers. There is some uncertainty as to whether eels should be considered landed and counted toward the quota once harvested or only after eels are sold to dealers.

4) Quota Overage Adjustment

If applicable, Florida's annual quota will be reduced by the same amount the previous year's quota was exceeded, pound for pound. In this case, the American eel commercial fishery will be

closed by Executive Order when the commercial harvest is projected to reach this adjusted quota allotment.

5) Transfer Quota

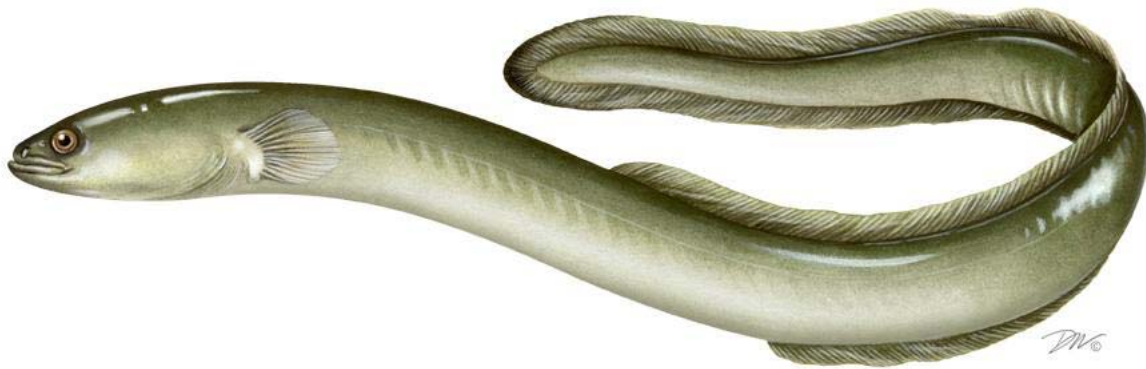
Transfers of American eel quota will be done pursuant to a letter signed by the Florida Director of Freshwater Fisheries Management and sent to the appropriate regulatory agency personnel.

Additional Management Measures

None

2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR
AMERICAN EEL
(Anguilla rostrata)

2014 FISHING YEAR



Prepared by the American Eel Plan Review Team
September 2015

**2015 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR
AMERICAN EEL
(*Anguilla rostrata*)**

I. Status of the Fishery Management Plan

<u>Date of FMP approval:</u>	November 1999
<u>Addenda:</u>	Addendum I (February 2006) Addendum II (October 2008) Addendum III (August 2013) Addendum IV (October 2014)
<u>Management unit:</u>	Migratory stocks of American Eel from Maine through Florida
<u>States with a declared interest:</u>	Maine through Florida, including the District of Columbia and the Potomac River Fisheries Commission
<u>Active committees:</u>	American Eel Management Board, Plan Review Team, Technical Committee, Stock Assessment Subcommittee, and Advisory Panel.

The ASMFC American Eel Management Board first convened in November 1995 and finalized the Fishery Management Plan (FMP) for American Eel in November 1999 (ASMFC 2000a). The goal of the FMP is to conserve and protect the American eel resource to ensure ecological stability while providing for sustainable fisheries. In support of this goal, the following objectives are included:

The FMP requires all states and jurisdictions to implement an annual young-of-year (YOY) abundance survey to monitor annual recruitment of each year's cohort. In addition, the FMP requires a minimum recreational size and possession limit and a state license for recreational fishermen to sell eels. The FMP requires that states and jurisdictions maintain existing or more conservative American eel commercial fishery regulations for all life stages, including minimum size limits. Each state is responsible for implementing management measures within its jurisdiction to ensure the sustainability of its American eel population.

In August 2005, the American Eel Management Board directed the American Eel Plan Development Team (PDT) to initiate an addendum to establish a mandatory catch and effort monitoring program for American eel. The Board approved Addendum I at the February 2006 Board meeting.

In January 2007, the Management Board initiated a draft addendum with the goal of increasing escapement of silver eels to the spawning grounds. In October 2008, the Management Board approved Addendum II, which placed increased emphasis on improving the upstream and downstream passage of American eel. The Management Board chose to delay action on management measures in order to incorporate the results of the 2012 stock assessment.

In August 2012, the Management Board initiated Draft Addendum III with the goal of reducing mortality on all life stages of American eel. The addendum was initiated in response to the findings of the 2012 Benchmark stock assessment, which declared American eel stock along the US East Coast as depleted. The Management Board approved Addendum III in August 2013.

Addendum III requires states to reduce the yellow eel recreational possession limit to 25 eel/person/day, with the option to allow an exception of 50 eel/person/day for party/charter employees for bait purposes. The recreational and commercial size limit increased to a minimum of 9". Eel pots are required to be ½" by ½" minimum mesh size or have at least a 4" by 4" escape panel of ½" by ½" mesh escape panel. The

glass eel fishery is required to implement a maximum tolerance of 25 pigmented eels per pound of glass eel catch. The silver eel fishery is prohibited to take eels from September 1st to December 31st from any gear type other than baited traps/pots or spears. The addendum also set minimum monitoring standards for states and required dealer and harvester reporting in the commercial fishery. The Board chose to act on glass eel management measures in Addendum IV, which comes into effect in the 2015 fishing year.

II. Status of the Stock

In 2009, the Management Board initiated the start of a new assessment. After reviewing over 100 surveys and studies, the American Eel Stock Assessment Subcommittee selected 19 young-of-year surveys and 15 yellow eel surveys along the East Coast for use as indices of abundance in the assessment. Despite the large number of surveys and studies available for use, the American eel stock is still considered data-poor because very few surveys target eels and collect information on length, age, and sex of the animals caught. Additionally, eels have an extremely complex life history that is difficult to describe using traditional stock assessment models. Therefore, several data-poor methods were used to assess the American eel resource.

The first set of analyses (trend analyses) aimed to determine if there was a statistically significant trend in the fishery-independent survey data and whether or not there was evidence for significant trends on the regional and coast-wide scales. The second approach involved a Depletion-Based Stock Reduction Analysis (DB-SRA) model, which uses trends in historical catch to estimate biomass trends and maximum sustainable yield. Both the trend analyses and DB-SRA results indicate that the American eel stock has declined in recent decades, and the prevalence of significant downward trends in multiple surveys across the coast is cause for concern. Therefore, the stock status for American eels is depleted. The Benchmark Stock Assessment was peer reviewed in March 2012 and was approved for management use in May 2012.

In 2003, declarations from the International Eel Symposium (AFS 2003, Quebec City, Quebec, Canada) and the Great Lakes Fisheries Commission (GLFC) highlighted concerns regarding the health of eel stocks worldwide. In 2010, Canada Department of Fisheries and Oceans (DFO) conducted a stock assessment on American eels in Canadian waters and found that region-specific status indices show that abundance is very low in comparison to levels in the 1980s for Lake Ontario and upper St. Lawrence River stock, and is either unchanged or increasing in the Atlantic Provinces. A joint stock assessment by both Canada DFO and the Commission was recommended by the American Eel Stock Assessment Subcommittee as an approach for the next assessment.

III. Status of the Fishery

American eel currently support commercial fisheries throughout their range in North America, with significant fisheries occurring in the US Mid-Atlantic region and Canada. These fisheries are executed in riverine, estuarine, and ocean waters. In the US, commercial fisheries for glass eel/elver exist in Maine and South Carolina, whereas yellow/silver eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia.

Although eel have been continuously harvested, consistent data on harvest are often not available. Harvest data from the Atlantic coastal states (Maine to Florida) indicate that the harvest fluctuated widely between 1970 and 1980, but showed an increasing trend that peaked in 1979 at 3,951,936 pounds. Harvest has declined since then, with the lowest harvest of 641,225 pounds occurring in 2002. Because fishing effort data are unavailable for the entire time series, finding a correlation between population numbers and landings data is difficult.

Commercial

Commercial landings have decreased from the high of 3.95 million pounds in 1979 to a low of 641,000 pounds in 2002, and have only recently begun to exceed one million pounds. State reported landings of yellow/silver eels in 2014 totaled 1,052,514.40 pounds¹ (Table 1), which represents a 4.4% increase in landings from 2013 (1,008,003 pounds). Yellow eel landings increased in Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, Maryland, PRFC, North Carolina, and South Carolina, and declined in New York, Delaware, and Florida. In 2014, state reported landings from Maryland and Virginia each totaled over 100,000 pounds of eel, and together accounted for 69% of the coastwide commercial total landings. Landings of glass eels were reported from Maine, South Carolina, and Florida and totaled 12,515 pounds.

Table 1. 2014 Commercial Landings by state and Life Stage¹

	State Reported	
	Glass	Yellow
Maine	9,690.19	7,368.4
New Hampshire	No Fishery	0
Massachusetts	No Fishery	3,903
Rhode Island	No Fishery	2,378
Connecticut	No Fishery	4,386
New York	No Fishery	34,142
New Jersey	No Fishery	91,225
Pennsylvania	No Fishery	No Fishery
Delaware	No Fishery	62,388
Maryland	No Fishery	610,585
D.C.	No Fishery	No Fishery
PRFC	No Fishery	49,293
Virginia	No Fishery	112,199
North Carolina	No Fishery	59,458
South Carolina	Glass: 245.43 Elver: 1,614.8	Confidential
Georgia	No Fishery	Confidential
Florida	Glass: 311 Elver: 654	15,057
Total	G: 10,246.62 E:2,268.8	1,052,514.40

¹ Harvest data for 2014 comes from the 2015 State Compliance Reports. All landings are preliminary and some are incomplete.

Table 2. State commercial regulations for the 2014 fishing year.*

State	Min Size Limit	License/Permit	Other
ME	Glass no min size	Daily dealer reports/swipe card program; monthly harvester report of daily landings. Tribal permit system in place for some Native American groups.	Harvester license lottery system.
	Yellow 9"	Harvester/dealer license and monthly reporting. Tribal permit system in place for some Native American groups.	Seasonal closures. Gear restrictions. Weekly closures.
NH	9"	Commercial saltwater license and wholesaler license. No dealer reports. Monthly harvester reporting includes dealer information.	Gear restrictions in freshwater.
MA	9"	Commercial permit with annual catch report requirement. Registration for dealers with purchase record requirement. Dealer/harvester reporting.	Traps, pots, spears, and angling only. Mesh restrictions.
RI	9"	Commercial fishing license. Dealer/harvester reporting.	Gear restrictions.
CT	9"	Commercial license (not required for personal use). Dealer/harvester reporting.	Gear restrictions.
NY	9"	Harvester/dealer license and reporting.	Gear restrictions. Maximum limit of 14" in some rivers.
NJ	9"	License required. No dealer reports. Monthly harvester reporting includes dealer information.	Gear restrictions.
PA	NO COMMERCIAL FISHERY		
DE	6"	Harvester reporting, no dealer reporting. License required.	Commercial fishing in tidal waters only. Gear restrictions.
MD	9"	Dealer/harvester license and monthly reporting.	Prohibited in non-tidal waters. Gear restrictions. Commercial crabbers may fish 50 pots per day, must submit catch reports.
DC	NO COMMERCIAL FISHERY		
PRFC	9"	Harvester license and reporting. No dealer reporting.	Gear restrictions.
VA	9"	Harvester license required. Dealer/harvester monthly reporting.	Mesh size restrictions on eel pots. Seasonal closures.
NC	9"	Standard Commercial Fishing License for all commercial fishing. Dealer/harvester monthly combined reports on trip ticket.	Mesh size restrictions on eel pots. Seasonal closures.
SC	Glass no min size	Fyke and dip net only permitted. Dealer/harvester monthly combined reports on trip ticket.	Max 10 individuals. gear and area restrictions.

	Yellow 9”	Pots only permitted. Dealer/harvester monthly combined reports on trip ticket.	Gear restrictions.
GA	9”	Personal commercial fishing license and commercial fishing boat license. Dealer/harvester monthly combined reports on trip ticket.	Gear restrictions on traps and pots. Area restrictions.
FL	9”	Permits and licenses. Harvester reporting. No dealer reporting.	Gear restrictions.

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

Recreational

Available information indicates that few recreational anglers directly target eel. For the most part, hook-and-line fishermen catch eel incidentally when fishing for other species. Eel are often purchased by recreational fishermen for use as bait for larger gamefish such as striped bass, and some recreational fishermen may catch their own eels to utilize as bait.

The National Marine Fisheries Service (NMFS) Marine Recreational Information Program (MRIP, formerly the Marine Recreational Fisheries Statistics Survey) shows a declining trend in the catch of eel during the latter part of the 1990s. As of 2009, recreational data are no longer provided for American eel, due to the unreliable design of MRIP that focuses on active fishing sites along coastal and estuarine areas.

Table 3. State recreational regulations for the 2014 fishing year.*

State	Size Limit	Possession Limit	Other
ME	9"	25 eels/person/day	Gear restrictions. License requirement and seasonal closures (inland waters only). Bait limit of 50 eels/day for party/charter boat captain and crew.
NH	9"	25 eels/person/day	Coastal harvest permit needed if taking eels other than by angling. Gear restrictions in freshwater.
MA	9"	25 eels/person/day	Nets, Pots, traps, spears, and angling only; mesh restrictions.
RI	9"	25 eels/person/day	
CT	9"	25 eels/person/day	
NY	9”	25/eels/person/day	Maximum limit of 14” in some rivers. Bait limit of 50 eels/day for party/charter boat captain and crew.
NJ	9"	25 eels/person/day	Bait limit of 50 eels/day for party/charter boat captain and crew.
PA	9"	25 eels/person/day	Gear restrictions. Bait limit of 50 eels/day for party/charter boat captain and crew.
DE	6"	50 eels/person/day	Two pot limit/person.
MD	9"	25 eels/person/day	Gear restrictions.

DC	9"	10 eels/person/day	
PRFC	9"	25 eels/person/day	
VA	9"	25 eels/person/day	Recreational license. Two pot limit. Mandatory annual catch report. Gear restrictions. Bait limit of 50 eels/day for party/charter boat captain and crew.
NC	9"	25 eels/person/day	Gear restrictions. Non-commercial special device license. Two eel pots allowed under Recreational Commercial Gear license. Bait limit of 50 eels/day for party/charter boat captain and crew.
SC	9"	25 eels/person/day	Gear restrictions. Permits and licenses. Two pot limit
GA	9"	25 eels/person/day	
FL	9"	25 eels/person/day	Gear restrictions. Wholesale/Retail purchase exemption applies to possession limit for bait.

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

IV. Status of Research and Monitoring

The FMP requires states and jurisdictions with a declared interest in the species to conduct an annual young-of-the-year (YOY) survey to monitor annual recruitment of each year's cohort. In 2014, the states of Maine, New Hampshire, Rhode Island, Connecticut, Delaware, Maryland, and South Carolina had above average YOY counts. Maine measured second highest in the time series. New Hampshire, Rhode Island, and Delaware show above average YOY counts, though counts are lower than those of 2013. Connecticut counted higher YOY than in 2013, but levels remain below a spike seen in 2012.

In 2014, Massachusetts, New York, New Jersey, PRFC, Virginia, and Florida had below average survey counts. Massachusetts showed the second lowest survey counts of the time series, and New York and Florida had the lowest survey counts in the time series. PRFC counted slightly average YOY at one location, but an all-time low at the other of its two locations. Pennsylvania, D.C., North Carolina, and Georgia do not have YOY surveys, but instead have yellow eel surveys.

The FMP does not require any other research initiatives in participating states and jurisdictions. Nonetheless, the American Eel TC has identified several research topics to further understanding of the species' life history, behavior, and biology. Research needs for American eel include:

High Priority

- Accurately document the commercial eel fishery to understand participation in the fishery and the amount of directed effort.
- Investigate, develop, and improve technologies for American eel passage upstream and downstream at various barriers for each life stage. In particular, investigate low-cost alternatives to traditional fishway designs for passage of eel.
- A coastwide sampling program for yellow and silver American eels should be formulated using standardized and statistically robust methodologies.
- Regular periodic stock assessments and the establishment of sustainable reference points for eel are required to develop a sustainable harvest rate and to determine whether the population is stable, decreasing, or increasing.
- Research the effects of the swim bladder parasite *Anguillacolla crassus* on the American eel's growth and maturation, migration to the Sargasso Sea, and the spawning potential.

- Evaluate the impact, both upstream and downstream, of barriers to eel movement with respect to population and distribution effects. Determine relative contribution of historic loss of habitat to potential eel population and reproductive capacity.

Medium Priority

- Investigate survival and mortality rates of different life stages (leptocephalus, glass eel, yellow eel, and silver eel) to assist in the assessment of annual recruitment. Continuing and initiating new tagging programs with individual states could aid such research.
- Tagging Programs: A number of issues could be addressed with a properly designed tagging program. These include:
 - Natural, fishing, and/or discard mortality; survival
 - Growth
 - Validation of aging method(s)
 - Reporting rates
 - Tag shedding or tag attrition rate
- Research contaminant effects on eel and the effects of bioaccumulation with respect to impacts on survival and growth (by age) and effect on maturation and reproductive success.
- Investigate fecundity, length, and weight relationships for females throughout their range; growth rates for males and females throughout their range; predator-prey relationships; behavior and movement of eel during their freshwater residency; oceanic-behavior, movement, and spawning location of adult mature eel; and all information on the leptocephalus stage of eel.
- Assess characteristics and distribution of eel habitat and the value of habitat with respect to growth and sex determination.
- Identify triggering mechanism for metamorphosis to mature adult, silver eel life stage, with specific emphasis on the size and age of the onset of maturity, by sex. A maturity schedule (proportion mature by size or age) would be extremely useful in combination with migration rates.

Low Priority

- Perform economics studies to determine the value of the fishery and the impact of regulatory management.
- Review the historic participation level of subsistence fishers in wildlife management planning and relevant issues brought forth with respect to those subsistence fishers involved with American eel.
- Examine the mechanisms for exit from the Sargasso Sea and transport across the continental shelf.
- Research mechanisms of recognition of the spawning area by silver eel, mate location in the Sargasso Sea, spawning behavior, and gonadal development in maturation.
- Examine age at entry of glass eel into estuaries and fresh waters.
- Examine migratory routes and guidance mechanisms for silver eel in the ocean.
- Investigate the degree of dependence on the American eel resource by subsistence harvesters (e.g., Native American Tribes, Asian and European ethnic groups).
- Examine the mode of nutrition for leptocephalus in the ocean.
- Provide analysis of food habits of glass eel while at sea.

V. Status of Management Measures and Issues

The FMP requires that all states and jurisdictions implement an annual young-of-the-year (YOY) abundance survey by 2001 in order to monitor annual recruitment of each year's cohort. Addendum III requires a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, as well

as the use of ½ by ½ mesh in the commercial yellow eel pot fishery. The recreational bag limit is 25 fish/angler/day, and the silver eel fishery is restricted, as is the development of pigmented eel fisheries.

Proposed Endangered Species Act Listing of American Eel

The USFWS reviewed the status of American eel in 2007 and found that, at that time, protection under the Endangered Species Act was not warranted. The issue rose once again when American eel were petitioned for listing as threatened under the Endangered Species Act (ESA) in April 2010 by the Center for Environmental Science, Accuracy, and Reliability (CESAR, formally the Council for Endangered Species Act Reliability). The USFWS published a positive 90 day finding on the petition in September 2011, acknowledging that the petition may be warranted and that a status review would be conducted. CESAR filed a lawsuit in August 2012 against the USFWS for failure to comply with the statutes of the ESA, which specifies a proposed rule based on the status review be published within one year of the receipt of the petition. A Settlement Agreement was approved by the court in April 2013, which required the USFWS to publish a 12-month finding by September 30, 2015. In the published finding, the USFWS determined that a listing under the ESA was not warranted.

VI. Current State-by-State Implementation of FMP Compliance Requirements

The PRT reviewed the state compliance reports for 2014. The PRT found the following issues with states implementing the required provisions of the American Eel Fishery Management Plan:

- Connecticut's implementation of escape panel gear requirement of Addendum III was delayed due to an oversight. Steps have been taken to bring gear into compliance by October 31, 2015.
- Massachusetts does not prohibit hook and line as a commercial gear from Sept 1 – Dec 31, but MA questions the need for restricting this gear because outmigrating silver eels do not feed.
- Delaware has not implemented the requirements of Addendum III. ASMFC found Delaware out of compliance with the American eel FMP at its [August 2015 meeting](#), and forwarded that finding to the Secretaries of Commerce and Interior. NOAA fisheries agreed with the Commission finding and announced a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date (Appendix 1).
- The District of Columbia still has a 6" minimum size, but is in the process of changing to a 9" minimum size for its recreational fishery.
- The Board exempted Florida from establishing size and bag limits until there is evidence that a fishery exists. In 2013 and 2014 glass eel harvest occurred, but FL imposed a 9" min size in both the recreational and commercial fisheries to end the emerging glass eel fishery in 2015.
- Florida does not have a regulation preventing harvest of eels from pound nets from September 1 through December 31, but the state is unaware of any active pound net fishery in the past 10-15 years.
- New Hampshire and New Jersey do not have dealer reporting, but harvesters report some information on dealers. Delaware, the Potomac River Fisheries Commission, and Florida do not have dealer reporting.

The following monitoring program changes occurred in 2014, in addition to those implemented with Addendum III:

- New Hampshire – An Irish elver trap was installed on the Lamprey river and a box trap was installed on the Oyster river in order to expand the YOY monitoring program.
- Pennsylvania – In lieu of the YOY survey, PA continues to conduct the small yellow eel survey.
- District of Columbia – A pre-existing backpack electrofishing survey served to replace the YOY survey in 2012, and continues to be conducted.

- Georgia – Due to changes in the American eel FMP, Georgia ceased to conduct the YOY survey in 2014. It was replaced with a pot survey designed to capture information on yellow-phase eels occurring in the Altamaha River. GA has decided to cease creel survey sampling on the Satilla River starting in 2015 and solely concentrate on sampling on the Altamaha River.

The following regulatory changes for 2014 were documented in the compliance reports, in addition to those implemented with Addendum III:

- Maine- Authority was established to suspend or revoke glass eel fishing licenses for violating glass eel fishing laws.
- Massachusetts increased the penalty for harvesting or possessing undersized eels from \$100 to \$10,000.

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

Qualification for *de minimis* is determined from state reported landings found in compliance reports. In 2014, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. All states that applied for *de minimis* of the yellow eel fishery meet the *de minimis* criteria. The state of South Carolina requested *de minimis* status for its glass eel fishery, but does not meet the 1% landings criteria for this life stage.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends the Board consider state compliance issues as detailed in Section VI.
2. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia for their yellow eel fisheries.
3. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.
4. The PRT requests that states collect biological data from both commercial and recreational landings.
5. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
6. The PRT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
7. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

Appendix 1: NOAA Fisheries non-compliance finding and announcement of a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 EAST-WEST HIGHWAY
SILVER SPRING, MARYLAND 20910
TELEPHONE

SEP 18 2015

Mr. Robert F. Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Dear Mr. Beal:

In accordance with the delegation of authority under the provisions of the Atlantic Coastal Fisheries Cooperative Management Act (Act), 16 U.S.C. §§ 5101 et seq., from the Secretary, NOAA's National Marine Fisheries Service (NMFS) completed its independent review of the Commission's determination, and concurs with the Commission that the State of Delaware is not in compliance with the Interstate Fishery Management Plan for American Eel (Plan). NMFS also finds that the management measures Delaware failed to implement are necessary for the conservation of American eel.

I have notified the State of Delaware of NMFS' finding by letter (enclosed). A moratorium on fishing for, possession of, and landing of American eel within Delaware waters will be imposed effective March 18, 2016.

We chose the March implementation date after consulting with the relevant staff from Delaware, and reviewing the facts of this situation, including the Commission deliberations from this past August. Based upon our analysis, we found that a March implementation date is appropriate for two principal reasons. First, a March 18 closure date will give Delaware the time necessary for its legislature to bring these regulations back into compliance. Second, although the involved measures are necessary for conservation, the immediacy of that need is less critical given that Delaware's fall eel fishery appears to not target eels that are the subject of Addendum III's protection.

Delaware indicated to us that they expect to have appropriate regulations protecting American eel in place by early next year. If the State of Delaware does enact such measures, and the Commission determines that the measures are compliant with the Plan, under the Act, the Commission would immediately notify the Secretary that the State is in compliance with the Plan. If NMFS concurs, the moratorium in the state waters of Delaware will be rescinded. If Delaware is unable to put in place appropriate regulations prior to March 18, 2016, then a federal moratorium on eel fishing in Delaware waters would be immediately implemented and continue until the Secretary concurs with a determination from the Commission that the State has come into compliance with the Plan. I encourage the Commission to continue to monitor Delaware's process to implement the Plan.

If you need additional information on this determination, please contact Alan Risenhoover, Director of the Office of Sustainable Fisheries, at 301-427-8500, or by mail/e-mail at 1315 East-West Highway, Silver Spring, Maryland 20910/alan.risenhoover@noaa.gov. I look forward to continuing to work with you on this matter.

Sincerely,

Eileen Soback

Enclosures



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THE ASSISTANT ADMINISTRATOR
OFFICE OF SUSTAINABLE FISHERIES



Appendix 1: NOAA Fisheries non-compliance finding and announcement of a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date

Plan Review Team Report

**Prepared for the American Eel Management Board by the American Eel Plan Review Team
October 2015**

Introduction

The Interstate Fishery Management Plan for American eel requires that states submit annual reports detailing each state's regulations, catch, harvest, bycatch, fishery-dependent and independent surveys, and characterization of other losses for American eel. These reports are utilized by the ASMFC Plan Review Team to determine compliance and must be submitted to the ASMFC by September 1 of each year.

2014 Compliance Review

The Plan Review Team (PRT) reviewed 2015 state annual compliance reports for the 2014 fishing year to determine compliance status. As described in Section 5.2 of the Fishery Management Plan, under Procedures for Determining Compliance, the PRT has summarized the compliance on a state-by-state basis below.

All states were required to make changes outlined in Addendum III. These changes include: a yellow eel recreational possession limit reduction to 25 eel/person/day, with an exception of 50 eel/person/day for party/charter employees for bait purposes. The recreational and commercial size limit increased to a minimum of 9 inches. Eel pots are now required to include at least a 4" x 4" escape panel of ½" by ½" mesh. The glass eel fishery was required to implement a maximum tolerance of 25 pigmented eels per pound of glass eel catch. The silver eel fishery is prohibited to take eels from September 1st to December 31st from any gear type other than baited traps/pots or spears. The addendum also set the minimum monitoring standards for states and required increased reporting in the commercial fishery.

State-By-State Evaluation

MAINE

Comments or trends highlighted in state report:

- In 2014, Maine implemented all necessary regulatory changes mandated by Addendum III.
- Glass eel dealers reported landings of 9,690.19 lbs; 3,525.85 lbs by dipnet; 5,753.34 lbs by fyke net; and 411 lbs by combined gear. Glass eel harvesters reported landings of 9,338.23 lbs of glass eels; 3,386.78 lbs by dip nets; and 5,951.45 lbs by fyke nets.
- Yellow eel dealers reported 228.8 lbs from the pot fishery (not identified as coastal or inland waters). Yellow eel harvesters reported a total of 7,368.4 lbs
- In the YOY survey a total of 140,706 YOY were caught in 2014 which represents the second highest catch on record. The catch in 2011 was the fourth smallest catch on record, while the highest catch occurred in 2012.
- Legislation was passed in 2012 to exempt tribal members from having to hold state licenses to fish for elvers; each group was allowed to issue a specific number of tribal permits for the fishery.
- Approximately 83 lbs of glass eels were seized by law enforcement.

Unreported information and areas of concern:

- No mention of any additional life stage surveys besides the YOY survey.
- No biological data were collected for any life stage of the commercial catch.
- No estimate of recreational harvest was provided.
- Estimate of exports by dealers not provided.
- No estimate was provided on yellow eel permitted catch for personal use.
- Marked differences between dealer and harvester reports make quota monitoring difficult.
- Besides a law enforcement report of glass eel seizure, no information on characterization of other losses (impingement, bycatch, poaching, etc.)

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW HAMPSHIRE

Comments or trends highlighted in state report:

- In 2014, New Hampshire implemented all necessary regulatory changes mandated by Addendum III.
- No individual sold commercially in 2013 or 2014.
- There were 20 individuals permitted to recreationally harvest; 6 individuals harvested a total of 35 lbs, all were used for bait.
- 8,449 YOY were caught in the required fisheries independent sampling in the Lamprey River. This is over a four-fold drop from last year's count, but remains above average since monitoring began in 2001.
- An improvement is seen in the characterization of other losses of American eel in New Hampshire.
- Two additional traps were added in the Lamprey and Oyster rivers to expand the fishery-independent monitoring program.

Unreported information and areas of concern:

- No biological data were collected from the recreational fishery.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should continue to be a high priority, as this information is helpful and informative.

Compliance issues:

- New Hampshire does not have dealer reporting, but NH does not have any known dealers for eel.

Recommendations for action by the American Eel Management Board:

- The State of New Hampshire requests *de minimis* for American eel. New Hampshire meets the requirements for *de minimis* for their eel fishery.

MASSACHUSETTS

Comments or trends highlighted in state report:

- From 2010-2012 the eel fishery has landed less than 500 lbs. In 2014, landings increased to 3,903 lbs. It is believed that underreporting is occurring as eels are kept for bait. 179 commercial eel permits were issued in 2014.
- The YOY survey reported the second lowest survey counts in the 14 year time series.

- The fine for illegal harvest, or possession of undersized eels was raised from \$100 to \$10,000

Unreported information and areas of concern:

- No biological data were collected from the commercial fishery.
- Percent of harvest to food v. bait and CPUE were not reported.
- Catch for personal use was not reported.
- It seems that that some fishermen are not reporting catches used personally for striped bass bait under the false interpretation that only eels sold must be reported.
- The sharp decline in landings during 2010-2012 appears to be most influenced by reduced fishing effort in response to low eel abundance.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should be a high priority as this information would be helpful and informative to have.

Compliance issues:

- MA's commercial fishery currently allows harvest using hook and line from Sept 1-Dec 31. Gears from Sept 1-Dec 31 are supposed to be restricted to baited pots and spears.

Recommendations for action by the American Eel Management Board:

- The Commonwealth of Massachusetts requests *de minimis*. Massachusetts meets the requirements for *de minimis*.

RHODE ISLAND

Comments or trends highlighted in state report:

- In 2014, Rhode Island implemented all necessary regulatory changes mandated by Addendum III.
- 2,378 lbs of yellow eels were landed in 2014 in pots or traps.
- It is estimated that all eels are shipped/sold for food.
- No recreational landings were reported.
- A total of 7,649 YOY American eel were observed in RI's 2014 recruitment survey. This is a decrease from 2013, but is above average since the current monitoring program was adopted in 2004.
- Rhode Island continues to place a high priority on fish passage. New eel ramps were recently placed and continue to be planned in various rivers for improved continuous passage.

Unreported information and areas of concern:

- Reporting requirements are not included in the compliance report.
- Harvest landed by life stage, gear type, and month are not available.
- No biological data were collected from the commercial fishery.
- Estimates of export, CPUE, and personal use data are not available.
- No information is provided on the characterization of other losses.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

CONNECTICUT

Comments or trends highlighted in state report:

- In 2014, Connecticut implemented all necessary regulatory changes mandated by Addendum III except for the escape panel requirement. Compliance with the escape panel requirement of Addendum III was delayed due to an oversight. Steps have been taken to bring gear into compliance by October 31, 2015.
- State reported commercial landings are 4,386 lbs.
- A total of 15,770 YOY were captured in 2014, almost double that of 2013, but still a significant decrease from 2012 levels.

Unreported information and areas of concern:

- Commercial harvest by gear type, month, or region is not included.
- Biological data is not taken from commercial or recreational fisheries.
- Percent harvest for food v. bait cannot be estimated and permitted catch for personal use information is not available.
- No mention of exports by season.
- Two pots are allowed to be fished without a license for personal use. There are no reporting requirements and therefore there are no estimates of catch and harvest. The PDT recommends CT be required to permit these pots in order to be able to provide an estimate of participation as well as require reporting to estimate catch.

Compliance issues:

- Connecticut has not implemented the ½” by ½” escape panel requirement of Addendum III, but this is currently being corrected.

Recommendations for action by the American Eel Management Board:

- None

NEW YORK

Comments or trends highlighted in state report:

- In 2014, New York implemented all necessary regulatory changes mandated by Addendum III. The mesh size required by New York is listed as 1” by ½”, a more conservative measure than the ½” by ½” mesh required by Addendum III.
- Reported commercial landings in 2014 were 34,142 lbs including the Delaware River weir fishery. 8 of 9 licensed weir fishers reported harvesting from the Delaware River.
- No recreational harvest is estimated to have taken place.
- 332 glass eels and 38 pigmented elvers were caught in the YOY survey. These numbers are at an all time low.

Unreported information and areas of concern:

- Biological data is not taken from recreational harvest.
- No information on percent of harvest going for food vs. bait or permitted catch for personal use is provided.
- No estimates on other losses were provided.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW JERSEY

Comments or trends highlighted in state report:

- In 2014, New Jersey implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings are 91,225 lbs of yellow eels from pots.
- The majority of eels (59%) were commercially harvested as food, followed by bait (13%) and personal use (3%).
- Biological samples were collected from the commercial fishery (n= 197 yellow eels).
- CPUE was lower than the time series average and has been declining since 2007.
- 8,359 glass eels were collected in the YOY survey. This catch is a sharp decline in comparison to the almost 300 thousand glass eels collected in 2012.

Unreported information and areas of concern:

- Directed harvest is not estimated by month or region.
- Recreational harvest is unknown.
- No information is provided on the characterization of other losses due to bycatch or mass mortalities.

Compliance issues:

- New Jersey does not have dealer reporting, but harvesters report some dealer information.

Recommendations for action by the American Eel Management Board:

- None

PENNSYLVANIA

Comments or trends highlighted in state report:

- In 2014, Pennsylvania implemented all necessary regulatory changes mandated by Addendum III.
- There is no commercial fishery.
- In lieu of the YOY survey, a small yellow eel survey continues to be conducted at four stations in the lower, non-tidal Delaware river. 334 small yellow eels were counted in 2014.

Unreported information and areas of concern:

- Recreational harvest data is not available; biological data was not taken.
- The compliance report does not characterize other losses.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- Pennsylvania requests *de minimis*. The state of Pennsylvania meets the requirements of *de minimis* status.

DELAWARE

Comments or trends highlighted in state report:

- The Delaware Legislature did not amend the Delaware Code in 2014 or 2015 to implement the management changes required by Addendum III of the Atlantic States Marine Fisheries Commission (ASMFC) Fishery Management Plan (FMP) for American eel.
- Commercial eelers in Delaware landed 62,388 lbs in 2014, a 23% increase from 2013 landings and 41% less than mean landings from 1999 through 2014 (104,863 lbs).

- Eels harvested for consumption comprised 71% of total landings, and bait eels comprised the remaining 29% of the total.
- Of the commercial subsample, 82% of eels sampled were between the ages of 3-5.
- MRIP reports a total of 2,932 eels were recreationally caught in 2014.
- YOY sampling captured 292,766 glass eels during 26 sampling days in 2014. The geometric mean was 1,819 glass eels per sample day (Table 3), sixth highest in the fifteen year time series, and a decrease from the past two years..

Unreported information and areas of concern:

- Reporting requirements are not included in the compliance report.
- Delaware did not require dealers to report the final destination of commercially caught eels.
- Permitted harvest for personal use information is not available.

Compliance issues:

- The State of Delaware has not implemented minimum pot mesh size, minimum length, and possession limits of the FMP. NOAA fisheries announced a moratorium on fishing, possession, and landing of American eel within Delaware waters effective March 18, 2016, unless the Commission determines DE comes back into compliance prior to that date.
- Delaware does not have dealer reporting for eels.

Recommendations for action by the American Eel Management Board:

- At its August 2015 meeting, the Board found DE out of compliance with the requirements of the American Eel FMP. No further action is necessary.

MARYLAND

Comments or trends highlighted in state report:

- In 2014, Maryland implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings are 610,585 lbs. Landings in 2014 were second highest since 1994, when eel harvest was required to be reported on crab forms.
- A total of 597 commercially harvested American eels were sampled from the eel pot fishery in Chesapeake Bay mainstem and a total of 798 commercially harvested American eels were sampled from the eel pot fishery in the Wye East River.
- Licensed commercial crabbers harvested 2,397 lbs of American eel for use as trotline bait (personal use). These landings are not reported to NMFS.
- A total of 117,327 glass eels and elvers were captured over the YOY sampling period with a CPUE of 146.8 elvers/hour. CPUE for 2014 was slightly above the time series average of 142.2 and higher than 9 of the last 12 years.
- In addition to Maryland's primary YOY site in Turville Creek, a site located at Bishopville Prong, a coastal bay tributary to the St. Martin River, was sampled in 2014. A total of 45,307 glass eels and elvers were captured over the entire sampling period. Bishopville Prong CPUE in 2014 was the lowest since sampling was reinstated in 2011, yet significantly above 2000 and 2001 averages.
- Prevalence rate of swimbladder parasite *Anquillicolla crassus* for males and females since 2006 was 56% and 79%, respectively.

Unreported information and areas of concern:

- Estimates of directed harvest are not reported by region.
- Data is not available to estimate percent going to food v. bait.
- Estimates of export by season are not provided by dealers.

- No information on characterization of other losses (impingement, bycatch, poaching, etc.) is provided.
- Eel harvest data from crabbers was not reported to NMFS and ACCSP, although this is what the PDT recommends.
- Weights are not taken from directed harvest samples.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- Report eel harvest data from crabbers to NMFS and ACCSP.

DISTRICT OF COLUMBIA

Comments or trends highlighted in state report:

- In 2014, the District of Columbia implemented all necessary regulatory changes mandated by Addendum III except for the increase in minimum size. Steps are being taken to bring the minimum size into compliance for their recreational fishery.
- Due to the lack of success achieved with the Irish elver traps set in Rock Creek, an electrofishing survey was again conducted. FI backpack electrofishing caught 546 eels (1 YOY and 511 elvers).
- In 2014 an assessment of adult American eels in the Potomac and Anacostia Rivers was conducted. A total of 41 yellow eels were caught.

Unreported information and areas of concern:

- The PDT requests that trends be highlighted in the report.

Compliance issues:

- The District of Columbia had not yet implemented a 9” minimum size requirement for its recreational fisher, but this is currently being corrected.

Recommendations for action by the American Eel Management Board:

- The District of Columbia requests *de minimis* for all life stages. The District of Columbia meets the requirements for *de minimis* for their yellow eel fishery.

POTOMAC RIVER FISHERY COMMISSION

Comments or trends highlighted in state report:

- In 2014, the PRFC implemented all necessary regulatory changes mandated by Addendum III.
- Reported commercial harvest is 49,293 lbs (a 35% increase from 2013).
- Based on data supplied by the harvesters, about 50% of the harvest went to consumption and 50% were sold or used as bait.
- Results for 2014 indicated above average recruitment of glass eels occurred at Gardy’s Millpond, but 2014 was the lowest recruitment value in the time series at Clark’s Millpond. These Potomac River sites are the furthest inland elver/young of-year survey sampling sites on the East Coast
- PRFC questions the need to continue YOY sampling because of the high variability and relatively low numbers of eels.

Unreported information and areas of concern:

- No biological data are collected from the commercial harvest.
- No estimates of export are available.

- No information on characterization of impingement, scientific losses, or mass mortalities is provided.

Compliance issues:

- PRFC does not have dealer reporting.

Recommendations for action by the American Eel Management Board:

- None

VIRGINIA

Comments or trends highlighted in state report:

- In 2014, Virginia implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings are 112,199 lbs.
- No biological samples in 2014.
- 0 lbs of live eels (*Anguilla* spp.) were exported from Virginia in 2014.
- The harvest rate for 2014 was estimated at 99 lbs per pot-trip. This value is higher than the 2013 estimate of 87 lbs per pot-trip and 53% lower than the 1994 through 2013 time series average harvest rate of 164 lbs per pot-trip (Table 5)
- In 2014, MRIP estimates that 38 eels were harvested and 19,334 eels were released alive in Virginia. However, PSE values are quite high for these estimates.
- YOY survey reports that recruitment of glass eels was below average at all monitoring sites in 2014.
- Significant inspections resulted in zero violations related to American eel reported by the VMRC Law Enforcement Division in 2014.

Unreported information and areas of concern:

- Harvest data by life stage is not available. All eels are assumed to be yellow.
- Percent of harvest going to food v. bait is not available.
- Amount of permitted catch for personal use is not available.
- No information is available for impingement/entrainment or commercial bycatch mortalities.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NORTH CAROLINA

Comments or trends highlighted in state report:

- In 2014, North Carolina implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings: 59,458 lbs from 151 commercial trips. Eel pots were the dominant commercial gear and the majority (98%) of the landings occurred in the Albemarle Sound.
- The YOY monitoring program was eliminated in 2009 due to state budget issues. For 2009 - 2013 YOY data has been requested from the NOAA bridge net survey for North Carolina. NMFS currently has a backlog of samples and funding sources are being sought to process them.

Unreported information and areas of concern:

- Biological data was not collected from the commercial fishery.
- Percent of harvest for food v. bait, export by season, and permitted catch for personal use are not provided.
- North Carolina relies solely on Beaufort Lab for YOY data, but samples are backlogged. The YOY program was terminated in 2009.
- Impingement/entrainment and bycatch mortality data is unavailable.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

SOUTH CAROLINA

Comments or trends highlighted in state report:

- In 2014, South Carolina implemented all necessary regulatory changes mandated by Addendum III.
- State reported commercial landings: 90.93 lbs of glass eels were caught from dip nets and 154.5 lbs of glass eels were caught with fyke nets.
- Confidential amount of yellow eels were landed in 2014.
- The YOY abundance survey is conducted at Goose Creek Reservoir. The total catch over the sampling period was 3,935 YOY.

Unreported information and areas of concern:

- No biological data is taken from the glass eel harvest.
- No estimate is provided of percent of harvest going to food v. bait, exports by season, catch for personal use, or characterization of other losses.
- Seems that much of the fishery-independent monitoring section has not been updated since the previous year.
- No estimate of the recreational harvest is provided, and no biological data was taken.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of South Carolina requests *de minimis* for its yellow eel fishery. South Carolina meets the requirements for *de minimis* of its yellow eel fishery.
- The State of South Carolina requests *de minimis* for its glass eel fishery. South Carolina does not meet the requirements for *de minimis* of its glass eel fishery.

GEORGIA

Comments or trends highlighted in state report:

- In 2014, Georgia implemented all necessary regulatory changes mandated by Addendum III.
- Landings are considered confidential due to the low number of dealers who report harvest.
- The 2014 sub-adult American eel survey caught a total of 399 elvers. This survey replaced the YOY sampling survey.

Unreported information and areas of concern:

- Commercial landings are not reported by month, gear, or region.

- No biological data was taken from either fishery.
- CPUE for the commercial fishery is not provided.
- No information is submitted on permitted catch for personal use.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of Georgia requests *de minimis* status. Georgia meets the requirements for *de minimis*.

FLORIDA

Comments or trends highlighted in state report:

- Florida was exempted from establishing size or bag limits until proof emerged that a fishery exists. Florida must now establish size and bag limits. Florida also lacks a regulation preventing harvest from pound nets from September 1 through December 31, but the state is unaware any active pound net fishery in the past 10-15 years.
- State reported commercial landings: 15,057 lbs.
- In 2014, 100% of all harvested eels went for food. Most of the eels stay in state.
- The YOY survey CPUE was the lowest on record in the 14-year time series.
- In 2014, 311 lbs of glass and 654 lbs of elver were reported.

Unreported information and areas of concern:

- Harvest is not quantified by month, gear type, or region.
- Permits are not issued for personal use; no data is available.
- Recreational regulations are not reported.
- The Board exempted Florida from establishing size and bag limits until there is evidence that a fishery exists. Considering that glass eel harvest occurred in 2013 and 2014, FWC imposed a 9” min size in both the recreational and commercial fisheries to end the emerging glass eel fishery.
- No information is reported on characterization of other losses (impingement, bycatch, poaching, etc.)

Compliance issues:

- Florida does not have a regulation preventing harvest of eels from pound nets from September 1 through December 31, but the state is unaware of any active pound net fishery in the past 10-15 years.
- Florida does not have dealer reporting.

Recommendations for action by the American Eel Management Board:

- Consider Florida’s lack of season closure for pound nets from September 1-December 31.

De minimis

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed

in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

Qualification for *de minimis* is determined from state reported landings found in compliance reports. In 2014, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. All states that applied for *de minimis* of the yellow eel fishery meet the *de minimis* standard. The state of South Carolina requested *de minimis* status for its glass eel fishery. South Carolina did not meet the *de minimis* standard; therefore, South Carolina is not eligible for *de minimis* for its glass eel fishery.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends the Board consider state compliance issues as detailed in Section VI.
2. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia for their yellow eel fisheries.
3. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.
4. The PRT requests that states collect biological data from both commercial and recreational landings.
5. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
6. The PRT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
7. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

2014 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR
AMERICAN EEL
(Anguilla rostrata)

2013 FISHING YEAR



Prepared by the American Eel Plan Review Team
September 2015

**2014 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR
AMERICAN EEL
(*Anguilla rostrata*)**

I. Status of the Fishery Management Plan

<u>Date of FMP approval:</u>	November 1999
<u>Addenda:</u>	Addendum I (February 2006) Addendum II (October 2008) Addendum III (August 2013)
<u>Management unit:</u>	Migratory stocks of American Eel from Maine through Florida
<u>States with a declared interest:</u>	Maine through Florida, including the District of Columbia and the Potomac River Fisheries Commission
<u>Active committees:</u>	American Eel Management Board, Plan Review Team, Technical Committee, Stock Assessment Subcommittee, and Advisory Panel.

The ASMFC American Eel Management Board first convened in November 1995 and finalized the Fishery Management Plan (FMP) for American Eel in November 1999 (ASMFC 2000a). The goal of the FMP is to conserve and protect the American eel resource to ensure ecological stability while providing for sustainable fisheries. In support of this goal, the following objectives are included:

The FMP requires that all states and jurisdictions implement an annual young-of-year (YOY) abundance survey to monitor annual recruitment of each year's cohort. In addition, the FMP requires a minimum recreational and commercial size limit of six inches and a recreational possession limit of no more than 50 eels per person, including crew members involved in party or charter (for-hire) employment for bait purposes during fishing. Recreational fishermen are not allowed to sell eels without a state license. Commercial fisheries management measures stipulate that states and jurisdictions shall maintain existing or more conservative American eel commercial fishery regulations for all life stages. Each state is responsible for implementing management measures within its jurisdiction to ensure the sustainability of the American eel population that resides within state boundaries.

In August 2005, the American Eel Management Board directed the American Eel Plan Development Team (PDT) to initiate an addendum to establish a mandatory catch and effort monitoring program for American eel. The Board approved Addendum I at the February 2006 Board meeting.

In January 2007, the Management Board initiated the development of a draft Addendum with the goal of increasing the escapement of silver eels to the spawning grounds. In October 2008, the Management Board approved Addendum II to the American Eel FMP, with some modification. The Addendum placed increased emphasis on improving the upstream and downstream passage of American eel and maintained the status quo on management measures. The Management Board chose to delay action on management measures in order to incorporate the results of the 2012 stock assessment.

In August 2012, the Management Board initiated the development of Draft Addendum III with the goal of reducing mortality on all life stages of American eel. The addendum was initiated in response to the findings of the 2012 Benchmark stock assessment which declared American eel stock along the US East Coast as depleted. The Management Board approved Addendum III in August 2013 and this addendum will come into effect on January 1, 2014. The addendum requires states to implement a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, requires the use of ½" by ½" mesh in the commercial yellow eel pot fishery, decreases the recreational bag limit to 25 fish/angler/day,

restricts the silver eel fishery, and restricts the development of pigmented eel fisheries. The addendum also sets the minimum monitoring standards for states and requires increased reporting in the commercial fishery. The Board chose to delay action on the glass eel management measures and will address this fishery through Draft Addendum IV.

II. Status of the Stock

In 2009, the Management Board initiated the start of a new assessment. After reviewing over 100 surveys and studies, the American Eel Stock Assessment Subcommittee selected 19 young-of-year surveys and 15 yellow eel surveys along the East Coast for use as indices of abundance in the assessment. Despite the large number of surveys and studies available for use, the American eel stock is still considered data-poor because very few surveys target eels and collect information on length, age, and sex of the animals caught. Additionally, eels have an extremely complex life history that is difficult to describe using traditional stock assessment models. Therefore, several data-poor methods were used to assess the American eel resource.

The first set of analyses (trend analyses) aimed to determine if there was a statistically significant trend in the fishery-independent survey data and whether or not there was evidence for significant trends on the regional and coast-wide scales. The second approach involved a Depletion-Based Stock Reduction Analysis (DB-SRA) model, which uses trends in historical catch to estimate biomass trends and maximum sustainable yield. Both the trend analyses and DB-SRA results indicate that the American eel stock has declined in recent decades, and the prevalence of significant downward trends in multiple surveys across the coast is cause for concern. Therefore, the stock status for American eels is depleted. The Benchmark Stock Assessment was peer reviewed in March 2012 and was approved for management use in May 2012.

In 2003, declarations from the International Eel Symposium (AFS 2003, Quebec City, Quebec, Canada) and the Great Lakes Fisheries Commission (GLFC) highlighted concerns regarding the health of eel stocks worldwide. In 2010, Canada Department of Fisheries and Oceans (DFO) conducted a stock assessment on American eels in Canadian waters and found that region-specific status indices show that abundance is very low in comparison to levels in the 1980s for Lake Ontario and upper St. Lawrence River stock, and is either unchanged or increasing in the Atlantic Provinces. A joint stock assessment by both Canada DFO and the Commission was recommended by the American Eel Stock Assessment Subcommittee as an approach for the next assessment.

III. Status of the Fishery

American eel currently support commercial fisheries throughout their range in North America, with significant fisheries occurring in the US Mid-Atlantic region and Canada. These fisheries are executed in riverine, estuarine, and ocean waters. In the US, commercial fisheries for glass eel/elver exist in Maine and South Carolina, whereas yellow/silver eel fisheries exist in all states and jurisdictions with the exception of Pennsylvania and the District of Columbia.

Although eel have been continuously harvested, consistent data on harvest are often not available. Harvest data from the Atlantic coastal states (Maine to Florida) indicate that the harvest fluctuated widely between 1970 and 1980, but showed an increasing trend that peaked in 1979 at 3,951,936 pounds. Harvest has declined since then, with the lowest harvest occurring at 641,225 pounds in 2002. Because fishing effort

data is unavailable for the entire time series, finding a correlation between population numbers and landings data is difficult.

Commercial

Commercial landings have decreased from the high of 3.95 million pounds in 1979 to a low of 641,000 pounds in 2002, and have only recently begun to exceed one million pounds. State reported landings of yellow/silver eels in 2013 totaled 1,008,003 pounds¹ (Table 1), which represents a 6% decrease (~67,000) in landings from 2012 (1,074,724 pounds). Landings increased in Massachusetts, Rhode Island, New York, Delaware, Maryland, and Florida, and declined in Maine, Connecticut, New Jersey, PRFC, Virginia, and North Carolina. In 2013, state reported landings from Maryland and Virginia each totaled over 100,000 pounds of eel, and together accounted for 67% of the coastwide commercial total landings. Landings of glass eels were reported from Maine, South Carolina, and Florida and totaled 20,663 pounds. Combined yellow and glass eel landings reported by NMFS totaled 931,562 pounds.

Table 1. 2013 Commercial Landings by state and Life Stage¹

	State Reported		NMFS
	Glass	Yellow	
Maine	18,075.78	6,406.75	19,470*
New Hampshire		0	107
Massachusetts		2,499	1,845
Rhode Island		2,244	2,248
Connecticut		2,638	655
New York		61,580	34,697
New Jersey		89,300	100,865
Pennsylvania		No Fishery	
Delaware		80,811	82,991
Maryland		568,199	551,890
D.C.		No Fishery	
PRFC		32,290	
Virginia		110,809	100,298
North Carolina		33,980	33,980
South Carolina	2,243.9	0	2,516*
Georgia[^]		Confidential	
Florida	Glass: 154 Elver: 189	17,246	
Total	20,663	1,008,003	931,562

[^]Landings are confidential

* Glass and yellow eel landings not differentiated.

Table 2. State commercial regulations for the 2013 fishing year.*

State	Size Limit	License/Permit	Other
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¹ Harvest data for 2013 comes from the 2014 State Compliance Reports. All landings are preliminary and some are incomplete.

ME		Harvester license. Dealer license and reporting. Tribal permit system in place for some Native American groups.	Seasonal closures. Gear restrictions. Weekly closures.
NH	6"	Commercial saltwater license and wholesaler license. Monthly reporting.	50/day for bait. Gear restrictions in freshwater.
MA	6"	Commercial permit with annual catch report requirement. Registration for dealers with purchase record requirement.	Nets, pots, spears, and angling only. Mesh restrictions. Each of 52 coastal towns has its own regulations.
RI	6"	Commercial fishing license.	
CT	6"	Commercial license (not required for personal use). Dealer reporting.	Gear restrictions
NY	6"	Commercial harvester license and reporting. Dealer license and reporting.	Gear restrictions.
NJ	6"	License required. Monthly pot harvester reporting.	Gear restrictions.
PA	NO COMMERCIAL FISHERY		
DE	6"	License required.	Commercial fishing in tidal waters only. Gear restrictions.
MD	6"	Licensed required with monthly reporting.	Prohibited in non-tidal waters. Gear restrictions.
DC	NO COMMERCIAL FISHERY		
PRFC	6"	Harvester license and reporting.	Gear restrictions.
VA	6"	Harvester license required. Monthly reporting.	Mesh size restrictions on eel pots. Bait limit of 50 eels/day. Seasonal closures.
NC	6"	Standard Commercial Fishing License for all commercial fishing	Mesh size restrictions on eel pots. Bait limit of 50 eels/day. Seasonal closures.
SC		License for commercial fishing and sale. Permits by gear and area fished. Monthly reporting.	Gear restrictions.
GA	6"	Personal commercial fishing license and commercial fishing boat license. Harvester/dealer reporting.	Gear restrictions on traps and pots. Area restrictions.
FL		Permits and licenses.	Gear restrictions.

* For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

Recreational

Available information indicates that few recreational anglers directly target eel. For the most part, hook-and-line fishermen catch eel incidentally when fishing for other species. Eel are often purchased by recreational fishermen for use as bait for larger gamefish such as striped bass, and some recreational fishermen may catch their own eels to utilize as bait.

The National Marine Fisheries Service (NMFS) Marine Recreational Information Program (MRIP, formerly the Marine Recreational Fisheries Statistics Survey) shows a declining trend in the catch of eel

during the latter part of the 1990s. As of 2009, recreational data are no longer provided for American eel, due to the unreliable design of MRIP that focuses on active fishing sites along coastal and estuarine areas.

Table 3. State recreational regulations for the 2013 fishing year.**

State	Size Limit	Possession Limit	Other
ME	6"	50 eels/person/day	Gear restrictions. License requirement and seasonal closures (inland waters only).
NH	6"	50 eels/person/day	Coastal harvest permit needed if taking eels other than by angling. Gear restrictions in freshwater.
MA	6"	50 eels/person/day	Nets, pots, spears, and angling only; mesh restrictions. Each of 52 coastal towns has its own regulations.
RI	6"	50 eels/person/day	
CT	6"	50 eels/person/day	
NY	6"	50 eels/person/day	Additional length restrictions in specific inland waters.
NJ	6"	50 eels/person/day	
PA	6"	50 eels/person/day	Gear restrictions.
DE	6"	50 eels/person/day	Two pot limit/person.
MD	6"	25 eels/person/day	Gear restrictions.
DC	6"	10 eels/person/day	
PRFC	6"	50 eels/person/day	
VA	6"	50 eels/person/day	Recreational license. Two pot limit. Mandatory annual catch report. Mesh size restrictions on eel pots.
NC	6"	50 eels/person/day	Gear restrictions. Non-commercial special device license. Two eel pots allowed under Recreational Commercial Gear license.
SC	None	None	Gear restrictions. Permits and licenses.
GA	9"	25 eels/person/day	
FL	None	None	Gear restrictions.

** For specifics on licenses, gear restrictions, and area restrictions, please contact the individual state.

IV. Status of Research and Monitoring

The FMP requires states and jurisdictions with a declared interest in the species to conduct an annual young-of-the-year (YOY) survey for the purpose of monitoring annual recruitment of each year's cohort. In 2013, the states of Maine, New Hampshire, Rhode Island, New York, Delaware, and Georgia, as well as D.C. and the PRFC, had above average YOY counts. New Hampshire, Delaware, and Rhode Island measured an all-time high YOY level in at least one sampling site. New York and the PRFC measured second highest in the time series in at least one sampling site. Maine and Georgia's counts were above previous years but below a spike in 2012 levels.

The states of Connecticut, New Jersey, Maryland, Virginia, South Carolina, and Florida had below average survey counts. South Carolina and Maryland showed a particularly drastic decline. Pennsylvania is exempt from the YOY survey. North Carolina eliminated the survey due to budgeting issues. Georgia will cease to conduct the survey in 2014.

The FMP does not require any other research initiatives in participating states and jurisdictions. Nonetheless, the American Eel TC has identified several research topics that could further understanding of the species' life history, behavior, and biology. Research needs for American eel include:

High Priority

- Accurately document the commercial eel fishery to understand participation in the fishery and the amount of directed effort.
- Investigate, develop, and improve technologies for American eel passage upstream and downstream at various barriers for each life stage. In particular, investigate low-cost alternatives to traditional fishway designs for passage of eel.
- A coastwide sampling program for yellow and silver American eels should be formulated using standardized and statistically robust methodologies.
- Regular periodic stock assessments and the establishment of sustainable reference points for eel are required to develop a sustainable harvest rate and to determine whether the population is stable, decreasing, or increasing.
- Research the effects of the swim bladder parasite *Anguillacolla crassus* on the American eel's growth and maturation, migration to the Sargasso Sea, and the spawning potential.
- Evaluate the impact, both upstream and downstream, of barriers to eel movement with respect to population and distribution effects. Determine relative contribution of historic loss of habitat to potential eel population and reproductive capacity.

Medium Priority

- Investigate survival and mortality rates of different life stages (leptocephalus, glass eel, yellow eel, and silver eel) to assist in the assessment of annual recruitment. Continuing and initiating new tagging programs with individual states could aid such research.
- Tagging Programs: A number of issues could be addressed with a properly designed tagging program. These include:
 - Natural, fishing, and/or discard mortality; survival
 - Growth
 - Validation of aging method(s)
 - Reporting rates
 - Tag shedding or tag attrition rate
- Research contaminant effects on eel and the effects of bioaccumulation with respect to impacts on

survival and growth (by age) and effect on maturation and reproductive success.

- Investigate fecundity, length, and weight relationships for females throughout their range; growth rates for males and females throughout their range; predator-prey relationships; behavior and movement of eel during their freshwater residency; oceanic-behavior, movement, and spawning location of adult mature eel; and all information on the leptocephalus stage of eel.
- Assess characteristics and distribution of eel habitat and the value of habitat with respect to growth and sex determination.
- Identify triggering mechanism for metamorphosis to mature adult, silver eel life stage, with specific emphasis on the size and age of the onset of maturity, by sex. A maturity schedule (proportion mature by size or age) would be extremely useful in combination with migration rates.

Low Priority

- Perform economics studies to determine the value of the fishery and the impact of regulatory management.
- Review the historic participation level of subsistence fishers in wildlife management planning and relevant issues brought forth with respect to those subsistence fishers involved with American eel.
- Examine the mechanisms for exit from the Sargasso Sea and transport across the continental shelf.
- Research mechanisms of recognition of the spawning area by silver eel, mate location in the Sargasso Sea, spawning behavior, and gonadal development in maturation.
- Examine age at entry of glass eel into estuaries and fresh waters.
- Examine migratory routes and guidance mechanisms for silver eel in the ocean.
- Investigate the degree of dependence on the American eel resource by subsistence harvesters (e.g., Native American Tribes, Asian and European ethnic groups).
- Examine the mode of nutrition for leptocephalus in the ocean.
- Provide analysis of food habits of glass eel while at sea.

V. Status of Management Measures and Issues

The FMP required that all states and jurisdictions implement an annual young-of-the-year (YOY) abundance survey by 2001 in order to monitor annual recruitment of each year's cohort. In addition, the FMP required all states and jurisdictions to establish a minimum recreational size limit of six inches and a recreational possession limit of no more than 50 eels per person, including crew members involved in party or charter (for-hire) employment, for bait purposes during fishing. Under the FMP, commercial fisheries management measures stipulate that states and jurisdictions shall maintain existing or more conservative American eel commercial fishery regulations for all life stages. Through Addendum III, as of January 1, 2014, states and jurisdictions must implement a 9 inch minimum size restriction in the commercial and recreational yellow eel fisheries, require the use of ½ by ½ mesh in the commercial yellow eel pot fishery, decrease the recreational bag limit to 25 fish/angler/day, restrict their silver eel fishery, and restrict the development of pigmented eel fisheries.

Proposed Endangered Species Act Listing of American Eel

American eel were petitioned for listing as threatened under the Endangered Species Act (ESA) in April 2010 by the Center for Environmental Science, Accuracy, and Reliability (CESAR, formally the Council for Endangered Species Act Reliability). USFWS published a positive 90 day finding on the petition in September 2011, stating that the petition may be warranted and a status review will be conducted. CESAR filed a lawsuit in August 2012 against USFWS for failure to comply with the statutes of the ESA, which specifies a proposed rule based on the status review be published within one year of the receipt of the petition. A Settlement Agreement was approved by the court in April 2013. The settlement requires

USFWS to publish a 12-month finding by September 30, 2015. The USFWS previously reviewed the status of the American eel in 2007 and found that, at that time, protection under the Endangered Species Act was not warranted.

VI. Current State-by-State Implementation of FMP Compliance Requirements

The following monitoring program changes occurred in 2013:

- Pennsylvania – Due to continued lack of success in the YOY survey, ASMFC gave PA the option to sample small yellow eels (pencil eels). A brief pencil eel survey was conducted with some success.
- Maryland – In addition to the primary YOY site, a second site was sampled in 2013.
- District of Columbia – Due to continued lack of success in the YOY survey, an electrofishing survey was again conducted.
- Georgia – Due to changes in the American eel FMP, fishery managers with the GADNR have opted to cease conducting the YOY survey as of January 1, 2014. The YOY survey will be replaced with a pot survey designed to capture information on yellow-phase eels occurring in the Altamaha River.

The following regulatory changes for 2013 were documented in the compliance reports:

- Maine - Legislation was passed in 2012 to exempt tribal members from having to hold state licenses to fish for elvers; each group was allowed to issue a specific number of tribal permits for the fishery.
- Maine – Implementation authority to suspend or revoke glass eel fishing licenses for violating glass eel fishing laws.
- Georgia – A 25 fish/person creel limit and 9 inch minimum size was implemented for the recreational fishery

The PRT reviewed the state compliance reports for 2013. The PRT finds that all states are currently implementing the required provisions of the American Eel Fishery Management Plan.

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

In 2013, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. Qualification for *de minimis* was determined from state reported landings found in compliance reports. All states that applied for *de minimis* for their yellow eel fishery meet the *de minimis* standard.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia.
2. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as

required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.

3. The PRT requests that states collect biological data from both commercial and recreational landings.
4. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
5. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.

Plan Review Team Report

**Prepared for the American Eel Management Board by the American Eel Plan Review Team
October 2015**

Introduction

The Interstate Fishery Management Plan for American eel requires that states submit annual reports detailing each state's regulations, catch, harvest, bycatch, fishery-dependent and independent surveys, and characterization of other losses for American eel. These reports are utilized by the ASMFC Plan Review Team to determine compliance and must be submitted to the ASMFC by September 1 of each year.

2013 Compliance Review

The Plan Review Team (PRT) reviewed 2014 state annual compliance reports for the 2013 fishing year to determine compliance status. As described in Section 5.2 of the Fishery Management Plan, under Procedures for Determining Compliance, the PRT has summarized the compliance on a state-by-state basis below.

State-By-State Evaluation

MAINE

Comments or trends highlighted in state report:

- Dealers reported landings of 18,075.78 lbs of glass eels; 4,924.27 lbs by dipnet; 12,566.51 lbs by fyke net; and 585 lbs did not have an associated gear type. Harvesters reported landing 15,562.21 lbs of glass eels; 4,382.46 lbs by dip net; 11,179.75 lbs by fyke net; and 16.48 lbs by dip or fyke net listed as unsized.
- All glass eels were harvested for food. Elvers are exported very soon after purchase.
- Dealers reported 1,398 lbs of yellow eels were taken in the pot fishery (not identified as coastal or inland waters). Harvesters reported a total of 6,406.75 lbs of yellow eels; 4,555.75 lbs by the coastal pot fishery; 284.0 lbs by the inland pot fishery; and 1,567 lbs by the inland weir fishery.
- In the YOY survey a total of 84,506 YOY were caught in 2013 which represents the second highest catch on record. The catch in 2011 was the fourth smallest catch on record.
- Fines and penalties for violations in the elver fishery increased in 2013.
- Legislation was passed in 2012 to exempt tribal members from having to hold state licenses to fish for elvers; each group was allowed to issue a specific number of tribal permits for the fishery.

Unreported information and areas of concern:

- Only changes in management measures were reported.
- No biological data were collected for any life stage.
- No estimate is provided of recreational harvest.
- No estimate is provided of exports by dealers.

- No estimate is provided on yellow eel permitted catch for personal use.
- CPUE could not be calculated for the inland pot and weir fisheries for yellow eel, because effort was not reported.
- Dealer reported glass eel landings continue to be higher than harvester reported landings, although the difference between the two reporting methods has decreased. Dealer and harvester reporting of yellow eels have very different values.
- No information was included on characterization of other losses.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW HAMPSHIRE

Comments or trends highlighted in state report:

- No individual sold commercially in 2013.
- There were 31 individuals permitted to recreationally harvest American eels in state waters. 8 harvested a total of 106 lbs, all were used for bait.
- 35,036 YOY were caught in the required fisheries independent sampling in the Lamprey River. This was by far the highest on record since monitoring began in 2001.
- NH Law Enforcement Officers arrested 22 individuals illegally harvesting elvers. Approximately 5,000 elvers were confiscated from illegal or undocumented fisheries in 2013.

Unreported information and areas of concern:

- Other losses are not characterized.
- No biological data were collected from the recreational fishery.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should continue to be a high priority, as this information is helpful and informative.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of New Hampshire requests *de minimis* for American eel. New Hampshire meets the requirements for *de minimis* for their eel fishery.

MASSACHUSETTS

Comments or trends highlighted in state report:

- From 2010-2012 the eel fishery has landed less than 500 lbs. In 2013, landings have increased to 2,499 lbs. It is believed that under reporting is occurring as eels are kept for bait.
- No recreational landings were reported in 2013.
- No inland harvests were reported by the Division of Fish and Wildlife.

- YOY monitoring in the Jones River – the 13 year data series is showing a fairly flat trend that may be declining slightly. YOY monitoring in the Parker River – catch was the highest in the data series in terms of geometric mean.
- Since 2007, DMF has attempted to install at least one eel pass per year in cooperation with property owners and project partners. Two eel ramps were designed and partially constructed in 2012, one became operational in the spring of 2013, and one is still awaiting completion.

Unreported information and areas of concern:

- No biological data were collected from the commercial fishery.
- Percent of harvest to food v. bait and CPUE were not reported.
- Catch for personal use was not reported.
- It seems that that some fishermen are not reporting catches used personally for striped bass bait under the false interpretation that only eels sold must be reported.
- The sharp decline in landings during 2010-2012 appears to be most influenced by reduced fishing effort in response to low eel abundance.
- Given the proximity to Maine, the PDT believes that inclusion of any confiscated poundage from illegal or undocumented fisheries, if known, should continue to be a high priority, as this information is helpful and informative.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The Commonwealth of Massachusetts requests *de minimis*. Massachusetts meets the requirements for *de minimis*.

RHODE ISLAND

Comments or trends highlighted in state report:

- 2,244 lbs of yellow eels were landed in 2013 in pots or traps.
- It is estimated that all eels are shipped/sold for food.
- No recreational landings were reported.
- A total of 12,336 YOY American eel were observed in RI's 2013 recruitment survey. All collection locations showed significant increases from 2012 numbers.
- Rhode Island continues to place a high priority on fish passage. New eel ramps were recently placed and continue to be planned in various rivers for improved continuous passage.

Unreported information and areas of concern:

- Harvest is not broken down by life stage, gear type, and month.
- No biological data were collected from the commercial fishery.
- Estimates of export, CPUE, and personal use data are not available.
- No information is provided on characterization of other

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

CONNECTICUT

Comments or trends highlighted in state report:

- State reported landings: 2,638 lbs. This was about a 900 pound decrease from landings in 2012. Anecdotal information from eel potters implies that the majority of harvest is going to bait.
- A total of 6,826 YOY were captured in 2013, a significant decrease. Eels were captured beginning April 8 which was the earliest date that YOY have been captured at the monitoring site.
- In other monitoring projects in the state – There are 10 other monitored eel passes in the state. The eel pass at the Kinneytown Dam was replaced in 2013 but high flows damaged the climbing substrate. The Lower Millpond Dam eel pass did not operate in 2012 due to a malfunctioning water supply system but a local non-profit held a “bucket brigade” to pass 6,137 glass eels over the dam.

Unreported information and areas of concern:

- A concise summary of eel regulations should be included.
- Commercial harvest by gear type is not included.
- Biological data was not taken from commercial or recreational fisheries
- Percent harvest for food v. bait cannot be estimated.
- There was no mention of exports by season.
- Permitted catch for personal use information is not available.
- No information is provided on losses to bycatch
- Two pots are allowed to be fished without a license for personal use. There are no reporting requirements and therefore there are no estimates of catch and harvest. The PDT recommends CT be required to permit these pots in order to be able to provide an estimate of participation as well as require reporting to estimate catch.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW YORK

Comments or trends highlighted in state report:

- Reported commercial landings in 2013 were 54,289 lbs, plus an additional 7,291 lbs from the Delaware River weir fishery.
- Recreational harvest estimate (MRFSS): 7,969 eels were caught in July and August.
- 1,222 glass eels and 43 pigmented elvers were caught in the YOY survey. Glass eel numbers decreased this year, but glass eel counts are still above average since 2004. Pigmented eel abundance has been declining since 2009.

Unreported information and areas of concern:

- Commercial harvest is not defined by gear type for 2013.
- Biological data was not taken from the commercial or recreational harvest.
- No information exists from commercial reporting mechanisms to provide information on CPUE, percent of harvest going for food vs. bait, or permitted catch for personal use.
- No estimates on other losses are provided.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NEW JERSEY

Comments or trends highlighted in state report:

- State reported commercial landings: 89,300 lbs of yellow eels from pots. This was estimated to be the lowest harvest since 2003
- The majority of eels (82%) were commercially harvested as food, followed by bait (16%) and personal use (0.2%).
- Biological samples were collected from the commercial fishery (n= 175 yellow eels).
- CPUE was lower than the time series average and has been declining since 2007.
- Sampling for glass eels is conducted in Patcong Creek in Linwood, New Jersey. 21,238 glass eels were collected in the YOY survey. This catch is in comparison to the almost 300 thousand glass eels collected in 2012.

Unreported information and areas of concern:

- Directed harvest is not estimated by month or region.
- Recreational harvest is unknown.
- No information is provided on characterization of other losses due to bycatch or mass mortalities.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

PENNSYLVANIA

Comments or trends highlighted in state report:

- There is no commercial fishery for American Eel.
- In previous years, the YOY survey had been unsuccessful. In 2013, the ASMFC gave PA the option to sample small yellow eels. It lasted seven days at four stations. 325 small yellow eels were collected.

Unreported information and areas of concern:

- Recreational harvest data is not available; biological data was not taken.
- The compliance report does not characterize other losses.
- The report does not identify the projects planned for the next five years.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- Pennsylvania meets *de minimis*. The state of Pennsylvania meets the requirements of *de minimis* status.

DELAWARE

Comments or trends highlighted in state report:

- Commercial eelers in Delaware landed 80,811 lbs of American eel in 2013, a 49% increase from the 54,304 lbs landed in 2012 and 25% less than mean annual landings from 1999 through 2013.
- Delaware Bay and River ports accounted for 89% of 2013 landings with the Inland Bays and other Sussex County ports accounting for the remaining 11% of landings. 62 licenses were issued in 2013 with only 13 licensees reported landing eels, 40 reported they did not fish for eels, and 9 did not submit any report. This was the eighth year in a row in which fewer than 70 eel licenses were issued.
- Effort, measured in eel pot days, decreased by 16% from 2012 to 2013. Catch per pot per day fished increased 28% from 2012 to 2013.
- Yellow eels harvested for food consumption comprised 67,234 lbs or 83% of total reported landings, and bait eels comprised the remaining 13,577 lbs or 17% of the total.
- A sub-sample of 146 commercially caught eels were weighed and measured. American eels aged 6, 7 and 8 constituted only 8.5% of the catch which suggested that eels older than 5 were not common among eels caught with commercial gear in Delaware tidal waters in 2013.
- MRIP reports a total of 9,767 eels were recreationally caught in 2013. The 2013 estimated recreational catch was 61% lower than 2012.
- YOY sampling captured 796,815 glass eels during 27 sampling days in 2013. The geometric mean was 6,733 glass eels per sample day, the second highest in the 14 year time series.

Unreported information and areas of concern:

- Directed harvest is not broken down by month or region.
- Delaware did not require dealers to report the final destination of commercially caught eels.
- Information on permitted harvest for personal use is not available.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

MARYLAND

Comments or trends highlighted in state report:

- State reported commercial landings: 568,199 lbs. Since reporting was first required on crab forms in 1994, the three highest years of total eel harvest occurred from 2011-2013. Landings have exceeded the time series mean for eight consecutive years. Since 1992, both American eel landings and CPUE have shown an overall positive trend.
- A total of 133 commercially harvested American eels were sampled from the eel pot fishery in the Susquehanna River and a total of 459 commercially harvested American eels were sampled from the eel pot fishery in the Chester River.
- Licensed commercial crabbers harvested 29,783 lbs of American eel for use as trotline bait (personal use). These landings are not reported to NMFS.

- A total of 90,732 glass eels and elvers were captured over the sampling period with a CPUE of 92.2 elvers/hour. After record-breaking catches in 2012 (450.9 elvers/hour), the CPUE in 2013 was the lowest since 2008 and approximately 35% below the time series average
- In addition to Maryland's primary YOY site in Turville Creek, a site located at Bishopville prong, a coastal bay tributary to the St. Martin River, was sampled in 2013. A total of 46,577 glass eels and elvers were captured over the entire sampling period. The total catch in 2013 represented approximately 12% of the record catch (390,768) observed at Bishopville in 2012.
- Prevalence rate of swimbladder parasite *Anquillicolla crassus* for combined sexes was 65% in a silver eel survey on the Corsica River, down from 92% in 2011. Sampling methodology at this site will need to be modified as a result of the removal of the dam planned for 2014.
- In the silver eel survey at Gravel Run, a first order tributary to the Corsica River, prevalence rate of swimbladder parasite *A. crassus* for males and females since 2006 has been 56% and 76%, respectively.

Unreported information and areas of concern:

- Estimates of directed harvest are not reported by region.
- Data is not available to estimate percent going to food v. bait.
- Estimates of export by season are not provided by dealers.
- No information on characterization of other losses is provided.
- Eel harvest data from crabbers was not reported to NMFS and ACCSP, though this is what the PDT recommends.
- Weights are not taken from directed harvest samples.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

DISTRICT OF COLUMBIA

Comments or trends highlighted in state report:

- Due to the lack of success achieved with the Irish elver traps set in Rock Creek, an electrofishing survey was again conducted. FI backpack electrofishing caught 1,117 eels (11 YOY and 1,054 elvers).
- In 2013 an assessment of adult American eels in the Potomac and Anacostia Rivers was conducted. Sampling for adult eels on the main rivers started on May 8, 2013 and ended September 27, 2013, alternating each month for a total of twelve weeks. A total of 39 yellow eels were caught.

Unreported information and areas of concern:

- The PDT requests that trends be highlighted in the report

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The District of Columbia requests *de minimis* for all life stages. The District of Columbia meets the requirements for *de minimis* for their yellow eel fishery.

POTOMAC RIVER FISHERY COMMISSION

Comments or trends highlighted in state report:

- Reported commercial harvest: 32,290 lbs (a 10% increase from 2011 which was the lowest value since reports began in 1964).
- Based on data supplied by the harvesters, about 50% of the harvest went to live markets (food) and 50% were sold or used as bait.
- Results for 2013 indicated above average recruitment of glass eels occurred at Gardy's Millpond and the average recruitment index was observed at Clark's Millpond. These Potomac River sites are the furthest inland elver/young of-year survey sampling sites on the East Coast

Unreported information and areas of concern:

- Directed harvest estimates are not broken down by month.
- No biological data are collected from the commercial harvest.
- No estimates of export are available.
- No information on characterization of impingement, scientific losses, or mass mortalities is provided.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

VIRGINIA

Comments or trends highlighted in state report:

- State reported commercial landings: 110,809 lbs. The majority of Virginia's in-state harvest was from the Chesapeake Bay (28%).
- 0 lbs of live eels (*Anguilla* spp.) were exported from Virginia in 2013.
- The harvest rate for American eels harvested by commercial eel pots in Virginia over the past 20 years (1994 through 2013) has been variable, with evidence of an overall decline since 2003. The harvest rate for 2013 (88 lbs per pot-trip) was slightly lower than 2012 (116 lbs per pot-trip) and 40% lower than the 1994 through 2012 time series average harvest rate.
- In 2013, MRIP estimates that 2,784 eels were harvested and 47,736 eels were released alive in Virginia.
- A total of 2,470 eels were observed passing through the ladder at Millville Dam, lower than last year.
- Additional studies of yellow and silver eel migration in the Shenandoah River are planned for 2014.
- Significant inspections resulted in zero violations related to American eel reported by the VMRC Law Enforcement Division in 2013.

Unreported information and areas of concern:

- Harvest data by life stage is not available. Yellow eels assumed.
- Percent of harvest going to food v. bait is not available.
- Amount of permitted catch for personal use is not available.
- No information is available for impingement/entrainment or commercial bycatch mortalities.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

NORTH CAROLINA

Comments or trends highlighted in state report:

- State reported commercial landings: 33,980 lbs from 82 commercial trips. Eel pots were the dominant commercial gear and the majority (97.2%) of the landings occurred in the Albemarle Sound.
- The YOY monitoring program was eliminated in 2009 due to state budget issues. For 2009 - 2013 YOY data has been requested from the NOAA bridge net survey for North Carolina. NMFS currently has a backlog of samples and funding sources are being sought to process them.

Unreported information and areas of concern:

- Biological data were not collected from the commercial fishery.
- Percent of harvest for food v. bait, export by season, and permitted catch for personal use are not provided.
- North Carolina relies solely on Beaufort Lab for YOY data, but samples are backlogged. The YOY program was terminated in 2009.
- Impingement/entrainment and bycatch mortality data is unavailable.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- None

SOUTH CAROLINA

Comments or trends highlighted in state report:

- State reported commercial landings: 362.6 lbs of glass eels were caught from dip nets and 1,881.3 lbs of glass eels were caught with fyke nets.
- No yellow eels were landed in 2013.
- The YOY abundance survey is conducted at Goose Creek Reservoir. The total catch over the sampling period was 273 YOY.

Unreported information and areas of concern:

- No biological data taken from a subsample of the glass eel harvest.
- No estimate of percent of harvest going to food v. bait, exports by season, catch for personal use, characterization of other losses.
- Seems that much of the fishery-independent monitoring section has not been updated since the previous year.
- No estimate or biological data of recreational harvest.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of South Carolina requests *de minimis* for its yellow eel fishery. South Carolina meets the requirements for *de minimis*.

GEORGIA

Comments or trends highlighted in state report:

- Landings are considered confidential due to the low number of dealers who report harvest.
- The recreational harvest of eels in Georgia is minimal at most. During 2013 MRIP reported 2 anglers on six trips catching 2 eels. The Inland Wildlife Resources Division reported 71 eels harvested and 542 released alive in the Altamaha River. In the Satilla River, 91 eels were harvested while 192 were released.
- The 2013 YOY American eel survey caught a total of 92 elvers, a decrease from 2012.
- It should be noted that, due to changes in the American eel FMP, fishery managers with the GADNR have opted to cease conducting the YOY survey as of January 1, 2014. The YOY survey will be replaced with a pot survey designed to capture information on yellow-phase eels occurring in the Altamaha River.

Unreported information and areas of concern:

- Commercial landings are not reported by month, gear, or region.
- No biological data was taken from either fishery.
- CPUE for the commercial fishery is not provided.
- No information is provided on permitted catch for personal use.

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The State of Georgia requests *de minimis* status. Georgia meets the requirements for *de minimis*.

FLORIDA

Comments or trends highlighted in state report:

- State reported commercial landings: 17,246 lbs, which was ~33% increase from 2012, but still about 7,000 less lbs than 2011.
- In 2013, all harvested eels went for food. Most of the eels stay in state.
- The YOY survey CPUE was slightly higher than 2012, which was the lowest on record since 2001.
- In 2013, the harvest of glass and elver were reported (but not yet verified) for the first time since the inception of the trip ticket system. 154 lbs of glass and 189 lbs of elver were reported.

Unreported information and areas of concern:

- Harvest is not specifically quantified by month, gear type, or region.
- Permits are not issued for personal use. Therefore, no data is available.
- Recreational regulations are not specifically reported. The Board exempted Florida from establishing size and bag limits until there is evidence that a fishery exists. The

- FWC requests that this exemption remain in place during 2013-2014.
- Biological data is not collected for recreational catch.
 - No information on characterization of other losses (impingement, bycatch, poaching, etc.)

Compliance issues:

- None

Recommendations for action by the American Eel Management Board:

- The report should not be written in paragraph format. A concise reporting method is preferred.

De minimis

Section 4.4.2 of the FMP stipulates that states may apply for *de minimis* status for each life stage if (given the availability of data), for the preceding two years, their average commercial landings (by weight) of that life stage constitute less than 1% of the coastwide commercial landings for that life stage for the same two-year period. States meeting this criterion are exempted from having to adopt commercial and recreational fishery regulations for a particular life stage listed in Section 4 and any fishery dependent monitoring elements for that life-stage listed in Section 3.4.1.

In 2013, New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia requested *de minimis* status for their yellow eel fisheries. Qualification for *de minimis* was determined from state reported landings found in compliance reports. All states that applied for *de minimis* meet the *de minimis* standard.

VII. Recommendations/Findings of the Plan Review Team

1. The PRT recommends *de minimis* be granted to New Hampshire, Massachusetts, Pennsylvania, the District of Columbia, South Carolina, and Georgia.
2. The PRT requests that state personnel highlight notable trends in annual reports. The PRT also requests that state personnel describe any circumstances that prevented sampling from occurring as required in the FMP and Addendum I, or reasoning for sampling not occurring in a manner consistent with previous years.
3. The PRT requests that states collect biological data from both commercial and recreational landings.
4. The PRT requests that states provide estimates of the percent of harvest going to food versus bait, and of exports by season. The PDT requests that states work with the law enforcement agencies to include information on any confiscated poundage from illegal or undocumented fisheries.
5. The PRT requests that states that do not regulate their personal use fishery be required, at a minimum, to permit participants in this fishery and collect harvest data in order to provide an estimate of effort and catch.



Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200 A-N
Arlington, VA 22201

Re: The 2015 Maine Elver Fishing Season

Attention: Toni Kerns,

The following letter is intended to highlight the difficulties experienced by Maine Elver Fishermen this past elver season. These extraordinary conditions beyond our control need to be outlined so you may understand why the State of Maine Elver fishermen did not catch their quota. Maine Experience a brutal winter that lasted for weeks beyond what is normal for Maine causing the water temperatures to remain cold far into spring. And as everyone knows elvers will not enter extremely cold water as they cannot survive in it.

On opening day of elver season our rivers and lakes remained frozen.



Coast Guard Cutters Tackle and Thunder Bay pass each other while breaking ice on the **Kennebec River, Maine, April 1, 2015**. The cutters worked in concert to reduce the risk of flooding by breaking up large sections of ice into manageable sections that can more easily flow through choke points and out to sea. (U.S. Coast Guard photo by Petty Officer 2nd Class LaNola Stone)

<https://www.dvidshub.net/news/159130/maine-based-coast-guard-cutters-broke-ice-mitigate-flood-danger#.VfJPHtwwIX>

The above photo of the Kennebec River is just an example of what all of our rivers looked like in April 2015. It took many weeks for the ice to finally melt and the weather to warm up.

Many of us did not catch our first eel until May 3rd. This left us with three weeks before the season ended to catch our quota. Of the three weeks remaining to fish we had one full week of daylight tides.

Maine also experience very little precipitation during our 2015 elver season. Elvers follow the current and when you have no rain there is no current along the shoreline where we fish. When there is no current elvers tend to stay in the middle third of the rivers as they enter the waterway. Under Maine State Law we are not allowed to fish the middle third of the waterway. This lack of precipitation combined with the extremely cold spring made it impossible to catch



all of our quota in the time (season) we are allocated. (In 2012 and 2013 we experienced a very warm spring and normal precipitation which gave us a full ten week season to fish)

In prior years this has happened before see Table 1 below. (very low elver catches) which does not mean there is a problem in recruitment.

Table 1.

Year	Harvest (pounds)	Number of licenses	Number of fyke nets	Number of dip nets
2012	18,857	557	340	172
2011	8,585	407	350	175
2010	3,158	429	366	185
2009	5,199	451	382	195
2008	6,952	468	393	199
2007	3,571	510	428	211
2006	6,967	653	510	279
2005	5,533	284	320	103
2004	1,284	267	228	93
2003	3,325	462	506	190
2002	9,654	443	496	231
2001	1,687	459	521	251
2000	2,625	665	754	378
1999	3,587	744	804	438
1998	14,360	2,314	3,806	2,111
1997	7,360	1,399	1,844	1,283
1996	10,193	2,207	2,632	2,075

Below is a report from the National Weather Service's Climate Data for the Month of March 2015. <http://www.weather.gov/car/March2015>

 ...NORTHERN AND EASTERN MAINE MONTHLY AREA CLIMATE NARRATIVE...

MARCH 2015 FEATURED WELL BELOW NORMAL TEMPERATURES AND BELOW NORMAL LIQUID PRECIPITATION. TEMPERATURES RANGED FROM 4 TO 6 DEGREES BELOW NORMAL. SNOWFALL WAS MORE VARIABLE ACROSS THE REGION WITH THE LARGEST DEPARTURES FROM NORMAL ACROSS FAR EASTERN MAINE. AT CARIBOU...THE AVERAGE TEMPERATURE OF 19.5 DEGREES WAS 5 DEGREES BELOW THE 1981-2010 NORMALS. IT TIED WITH 1989 AS THE 11TH COLDEST MARCH ON RECORD. THERE WERE A TOTAL OF 18 DAYS WHEN THE HIGH TEMPERATURE DID NOT RISE ABOVE



FREEZING...WHICH COMPARES TO AN AVERAGE OF 12. ON THE MORNING OF THE 6TH THE LOW TEMPERATURE OF 20 BELOW TIED THE RECORD LOW FOR THE DATE WHICH WAS FIRST ESTABLISHED IN 1948. AT BANGOR...THE AVERAGE TEMPERATURE OF 24.3 DEGREES WAS 5.9 DEGREES BELOW NORMAL. IT RANKED AS THE 4TH COLDEST MARCH BEHIND ONLY 2014...1967...AND 1939. THERE WERE A TOTAL OF 10 DAYS WHEN THE HIGH TEMPERATURE FAILED TO RISE ABOVE FREEZING...WHICH COMPARES TO AN AVERAGE OF 6. THREE RECORD LOWS WERE SET DURING THE MONTH. ON THE MORNING OF THE 1ST...THE LOW OF 14 BELOW ESTABLISHED A NEW DAILY TEMPERATURE RECORD. THE OLD RECORD OF 11 BELOW WAS ESTABLISHED IN 2001. ON THE 6TH...THE LOW OF 14 BELOW BROKE THE PREVIOUS RECORD OF 12 BELOW SET IN 1948. FINALLY...ON THE 24TH THE LOW OF 4 DEGREES TIED THE PREVIOUS RECORD LOW WHICH WAS ESTABLISHED JUST LAST YEAR.

MARCH 2015 FEATURED BELOW NORMAL LIQUID PRECIPITATION ACROSS NORTHERN AND EASTERN MAINE THAT AVERAGED BETWEEN 40 AND 75 PERCENT OF NORMAL. SNOWFALL WAS MORE VARIABLE AND RANGED FROM ABOVE NORMAL ACROSS EASTERN AROOSTOOK...WASHINGTON...AND PARTS OF WESTERN PISCATAQUIS COUNTIES TO BELOW NORMAL ACROSS THE REMAINDER OF THE REGION.

THE BIG STORY THIS PAST MARCH WAS THE COLD. THE PERSISTENCE OF THE COLD WEATHER DURING THE MONTH WAS REMARKABLE. THERE WERE ONLY 5 DAYS IN MOST AREAS WITH ABOVE AVERAGE TEMPERATURES DURING THE ENTIRE MONTH. THE MONTH BEGAN WITH A SNOWPACK OF ONLY AROUND A FOOT IN PARTS OF THE Saint John VALLEY WITH 15 TO 25 INCHES ACROSS MUCH OF THE REMAINDER OF FAR NORTHERN MAINE. DOWN EAST AMOUNTS RANGED FROM 30 TO 50 INCHES...WITH UNOFFICIAL AMOUNTS AS MUCH AS HIGH AS 60 INCHES IN PARTS OF COASTAL HANCOCK AND COASTAL WASHINGTON COUNTIES. BY THE END OF THE MONTH...THE SNOWPACK WAS STILL AROUND A FOOT FROM CARIBOU NORTH THROUGH THE ST JOHN VALLEY AND FROM 1 TO 2 FEET ACROSS MOST OF CENTRAL AND DOWN EAST MAINE...WITH LOCALLY HIGHER AMOUNTS IN PARTS OF WASHINGTON COUNTY.

Sincerely,

The Maine Elver Fisherman's Association
PO Box 35
Ellsworth, ME 04606

Atlantic States Marine Fisheries Commission

Weakfish Management Board

*November 3, 2015
11:30 a.m. – 12:00 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change;
other items may be added as necessary.

- | | |
|--|------------|
| 1. Welcome/Call to Order (<i>R. Allen</i>) | 11:30 a.m. |
| 2. Board Consent | 11:30 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from February 2014 | |
| 3. Public Comment | 11:35 a.m. |
| 4. Update on 2016 Benchmark Stock Assessment (<i>K. Drew</i>) | 11:45 a.m. |
| 5. Consider Approval of 2015 FMP Review and State Compliance
(<i>M. Ware</i>) Action | 11:55 a.m. |
| 6. Other Business/Adjourn | 12:00 p.m. |

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

Weakfish Species Management Board Meeting
Tuesday, November 3, 2015
11:30 a.m. – 12:00 p.m.
St. Augustine, Florida

Chair: Russ Allen (NJ) Assumed Chairmanship: 11/14	Technical Committee Chair: Joe Cimino (VA)	Law Enforcement Committee Representative: Steve Anthony (NC)
Vice Chair: Rob O'Reilly (VA)	Advisory Panel Chair: Billy Farmer	Previous Board Meeting: Feb. 5, 2014
Voting Members: MA, RI, CT, NY, NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (15 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February, 2014

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Update on 2016 Benchmark Stock Assessment (11:45-11:55 a.m.)
Background <ul style="list-style-type: none"> • The benchmark weakfish stock assessment was initiated in June 2014 • The data workshop was held in October 2014 and the assessment workshop followed in July 2015 • A peer review is expected in early 2016
Presentations <ul style="list-style-type: none"> • Stock assessment update by K. Drew

5. Fishery Management Plan Review (11:55 a.m. -12:00.m.) Action
Background <ul style="list-style-type: none"> • State Compliance Reports are due on August 1, 2015 • The Plan Review Team reviewed each state report and compiled the annual FMP Review. • Massachusetts, Georgia, and Florida have requested and meet the requirements for <i>de minimis</i>. Connecticut requested <i>de minimis</i> but did not meet the requirements.
Presentations <ul style="list-style-type: none"> • Overview of the FMP Review Report by M. Ware. (Briefing Materials)
Board actions for consideration at this meeting <ul style="list-style-type: none"> • Accept 2015 FMP Review and State Compliance Report. • Approve <i>de minimis</i> requests

6. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
WEAKFISH MANAGEMENT BOARD**

**Crowne Plaza - Old Town
Alexandria, Virginia
February 5, 2014**

For Board Approval

**These minutes are draft and subject to approval by the Weakfish Management Board.
The Board will review the minutes during its next meeting.**

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Adjournment 8

INDEX OF MOTIONS

1. **Motion to approve agenda by Consent** (Page 1).
2. **Motion to approve proceedings of October, 2012 by Consent** (Page 1).
3. **Move to approve Delaware's request for conservation equivalency** (Page 7). Motion by Louis Daniel; second by Pat Augustine. Motion carried (Page 8).
4. **Motion to adjourn by Consent** (Page 8).

ATTENDANCE

Board Members

David Pierce, MA, proxy for P. Diodati (AA)	Tom O'Connell, MD (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Rick Bellavance, RI, proxy for Sen. Sosnowski (LA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
David Borden, RI, proxy for B. McElroy (GA)	Louis Daniel, NC (AA)
Mark Gibson, RI, proxy for R. Ballou (AA)	Bill Cole, NC (GA)
Dave Simpson, CT (AA)	Robert Boyles, SC (LA)
Pat Augustine, NY (GA)	Ross Self, SC, proxy for Sen. Cromer (LA)
James Gilmore, NY (AA)	Spud Woodward, GA (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Pat Geer, GA, proxy for Rep. Burns (LA)
Roy Miller, DE (GA)	Jim Estes, FL, proxy for J. McCawley (AA)
John Clark, DE, proxy for D. Saveikis (AA)	Wilson Laney, USFWS
Bernie Pankowski, DE, proxy for Sen. Venables (LA)	Martin Gary, PRFC

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Staff

Bob Beal
Toni Kerns

Marin Hawk

Guests

Stew Michels, DE DFW

Derek Orner, NMFS

The Weakfish Management Board of the Atlantic States Marine Fisheries Commission convened in the Presidential Ballroom of the Crown Plaza Hotel Old Town, Alexandria, Virginia, February 5, 2014, and was called to order at 1:25 o'clock p.m. by Chairman Russ Allen.

CALL TO ORDER

CHAIRMAN RUSS ALLEN: You all have an agenda in front of you. Are there any changes to that agenda, additions or anything of that nature? Seeing none; we will consider that approved.

APPROVAL OF PROCEEDINGS

The last meeting was in October 2012 of this board. The proceedings were sent to you. Are there any changes or comments to those? Seeing none; we will consider the minutes approve.

PUBLIC COMMENT

This is where we open it up to public comment for anything that is not on the agenda. We have no one signed up; but if there is anyone in audience that wishes to speak. Seeing none; we will move on.

2013 STOCK STATUS UPDATE

I will now turn it over to the technical committee chair, Joe Cimino, and we will talk about the stock status indicators for 2013.

MR. JOE CIMINO: The technical committee has been tasked with providing these updates on an annual basis. I believe the last time I was before you, we were considering these potential stock indicators and now we've moved on to these are ones that we feel that are both hopefully tracking the abundance of fishery but also ones that are easy enough to update on an annual basis.

We have three adult indices that have been around and been through peer review now. These were included in the last peer-reviewed assessment; the recreational catch-per-unit effort from the private/rental mode; the Delaware Trawl Survey; and the New Jersey Trawl Survey. I wish I had some good news for you guys.

This is a standardized index based on the two fisheries-independent surveys and the recreational catch-per-unit effort. You can see in recent years that both the Delaware Survey and the recreational catch-per-unit effort have kind of flatlined, although it does seem that the New Jersey Trawl Survey has been

tracking some small increase in abundance, in biomass.

One other thing that we have been updating annually and that has also been around since the last peer-reviewed assessment is the proportional stock density. This is something that is fairly easy to calculate. It is based on our two fisheries-independent indices that we use. It quantifies the length frequency, meaning it is using actual sampled fish and giving a proportion of those fish that are eight inches and above to those fish that are a little over thirteen inches and above.

I think the real take-home message for the PSD isn't necessarily a good one. It is that even though we still have a biomass out there, albeit low, for the past years it has been stable at about 3 to 4 percent of an unfished biomass. You see since about 2006/2007 that the proportion of those fish that are seen in the trawl surveys is very small; that none of the fish being sampled are over that 13-inch size limit are recruiting into the fishery.

Relative F was the primary determinant that was accepted by the Peer Review Committee to give at least some trends in this non-equilibrium fishery. Relative F is calculated based on our total removals and the recreational CPUE. As far as the total removals are concerned, you can see that they have also tanked even prior to Addendum IV to Amendment 4 when the hundred pound commercial trip limit and one fish recreational bag limit was put in place.

You could see that even in the years prior to that the landings were extremely low. I have that as a breakdown of the commercial and recreational fisheries going through the time series. Where recreational estimates are available, these landings are in pounds and in millions of pounds. You can see that in more recent years, well, the scale is very low, but also that the magnitude of the commercial and recreational fisheries have sort of come in line.

And just shortening that time series to when MRIP estimates existed, it allows us to look at a finer scale, and these landings are in thousands of pounds. You can see that over a few years the commercial and recreational fisheries have actually flip-flopped; but overall very low. We really started coming down right after 2002.

Coastwide we were coming in under 5 million pounds for the first time; and now we're around a

half million pounds contributing between the two. There should be a big asterisk next to 2013 here. That is just a big weakfish there. These data, of course, are preliminary but in all honesty I kind of cobbled this together at the last minute, calling states to get commercial landings.

As you know, MRIP estimates are preliminary. The reason I did it was because there was an uptick in 2012, and this was a 2012 summary for you. However, I was very curious whether to see if that was just blip on the radar or maybe we're going somewhere with this. It looks like the MRIP estimates have come back down some in 2013; but overall coast-wide commercial landings are up again.

We're back around where we were in 2009; and again that is prior to the hundred pound trip limit. In that same MRIP time period I just included releases as well as harvest; and you can see that releases have bounced around a little bit. I'm not sure what the one-fish bag limit has meant to the harvest-to-release ratio. You can see that it has even bounced around some there.

With that presentation on removals and on the biomass, we can look at relative F, which what we've been doing is using a two-year mean of the recreational CPUE. Our relative F estimate only goes back as far as 2011. However, just using the straight mean, relative exploitation was calculated; and as you can see and as you would expect with that uptick in harvest in 2012, relative exploitation is also increasing somewhat, but still well below the time series average.

Most of you have seen this plot before. This is just an attempt to look at the response of the stock both, I guess, to fishing pressure and possibly to the regulations. Starting off in '81 with the time series, you can see relative fishing mortality and relative F was an extreme increase through the late eighties. The stock's response was a massive decline. At that low abundance, however, as fishing mortality decreased, the biomass did not have much of a response.

At that time Amendments 2 and 3 were put in place; and in that period prior to 2002 we did see some rebuilding of the stock. That is the green triangles there. However, since that time and since Amendment 4, despite ever decreasing fishing mortality, we really haven't seen any response from the stock.

At the time of the last peer-reviewed assessment, the juvenile indices still looked pretty good. There was a lot of inter-annual variability. We are fortunate to have quite a few states that are able to generate indices through sampling. They don't necessarily all tell the same story; but you can see there that on that standard format, that the grand mean did show some nice consistent pattern.

However, as were moving into the stock assessment, we noted concern at that time that since 2006 through I believe data through '08 or '09 that things looked a little more troubling. That trend continues. As you can see there, that grand mean has not moved much; and it is a low point in the series.

In summary, like I said, since Addendum IV the estimated biomass has not moved much. It was at 3 percent of an unfished biomass at that time; well below the 20 percent threshold that was set. We're looking at the latest 2012 estimate at about 4 percent of an unfished biomass. I think that chart with the proportional stock density shows a real concern that what biomass is there is one-year-old fish. There really is a concern over what the productivity is for the stock that exists.

One target that has been discussed is attaining levels back in the mid-nineties. One other thing that I did want report on was compliance with the 100-pound commercial trip limit. I believe at the time that the addendum was put in place, this was also looked at as a possible indicator of where the stock was.

It was mentioned several times that if there were a lot of trips and it were able to max out this hundred pound trip limit, then in a way that would be a good thing as far as the stock response. At that time with no baseline on what this would mean, we really didn't know where to go with it. We have a few years under our belt now.

States were required to have this put in place by May 2010. You can see here that on the 2012 harvest we do have some states combining either over a hundred pounds or right at the hundred pound trip limit, that around 10 percent of their overall harvest is at or above the hundred pound trip limit.

Like I said, we have never really set any sort of high mark for what would be a consideration to move forward with this. One note here is that North Carolina put in place the 100-pound trip limit for November, so this is November and December only for North Carolina. I think that's it.

CHAIRMAN ALLEN: Thank you very much for that uplifting report, Joe. Are there questions for Joe? John.

MR. JOHN CLARK: Joe, I was just curious whether the technical committee – if there has been any progress made. The last assessment found that it was an increase in natural mortality that was preventing weakfish from recovering. I haven't heard of anything coming out that would indicate what the cause of that is. Do you have any clues?

MR. CIMINO: No, John, there really hasn't been much exploration into that. We have continued to update some of the predator/prey models that we have. There is an element of best fit in one of the models that has a striped bass to menhaden ratio in it. Going forward, that is as far as we've gone with it.

MR. ROB O'REILLY: Joe, I've got two questions. One is with relative F, it used to be just the Mid-Atlantic component of MRFSS; and your slide suggested that probably at some point that changed to the full geographical range. I'm not sure.

MR. CIMINO: Actually you're right in that the slide did suggest that, but it is still the Mid-Atlantic component. That does bring an interesting question, I suppose, because some of the southern states have had a higher catch.

MR. O'REILLY: Yes; I was going to say that, that a few years ago it was the more southerly states which were showing a sort of different pattern with the CPUE. I also noticed it looked like from here, anyway, that it was 1981 forward on one of the relative F slides. I am wondering not so much whether that is correct, but I'm wondering with the MRFSS switch to MRIP what are we really looking at there?

MR. CIMINO: Yes; it was '81 and that was on the stock response slide. Looking at weakfish MRFSS to MRIP estimates, I don't think we saw any strong biases at the state level or coastwide.

MR. O'REILLY: One more and I'm out, Mr. Chairman. I also protest so I'm going to continue to protest about this juvenile abundance indices graph that you showed us. My concern is we have a weighted or an unweighted mean and all the state-specific indices are standardized. Many years ago with one of the assessments – I don't remember the exact number of the assessment – it was pointed out that it would be better to look during the period

where there was truncated stock, which there definitely is now, to look at the core area.

This is something that Jack Musick brought forward in one of the previous assessments. When I see this slide, I don't really know what is going on as far as the trend; because if it is unweighted does that mean every state from Georgia to Rhode Island has – it is just unweighted and lumped together; and is that informative as much as the typical producer areas being shown? What I would suggest in the future is at least let's have a table or a graph for the states to see how things are going so we can discern maybe some importance here.

The reason is that John Clark just mentioned the natural mortality; and if it is a situation where there is this proverbial bottleneck where recruitment has been fairly stable, although it shows a little bit of a downturn recently, then we need to know exactly how recruitment is doing since we're not going to be able to find out, apparently, about the bottleneck, which we assume is predation but we really haven't had anything more definitive.

Again I would make a suggestion that this be developed a little bit more. Anyone who sees this figure now, this Figure 5, just is left with none really being informed about the stock and about the past distribution and everything else. Thank you.

MR. CIMINO: I fully agree, yes, and it is something that the technical committee is going to look at. I agree that I wouldn't know – I certainly have concerns on how to interpret that as well; and looking at that would certainly help.

MR. ROY MILLER: Joe, just to explore those ideas that Rob mentioned just a little more; in looking at Figure 5 – I don't want to put too much faith in, I guess, but our dealings with utilities over the years, which are sources of potentially large entrainment and impingement mortality that can affect weakfish stocks, they always pointed to, yes, entrainment and impingement is going on, but look at your juvenile indices for weakfish.

They bounce up and down a little bit, but there is no long-term discernible trend. When you look at Figure 5, if you go back to the 1980's, there doesn't appear to be a discernible trend other than, as Joe pointed out, maybe in the most recent years. Yet when you look at the natural mortality from Figure 7, there is a great elevation of M in the most recent years.

Under the assumption that the juveniles are being produced at a fairly steady rate each year, it begs the obvious question of what is happening to them, you know, what is preying on them or what is the source of that mortality, that high natural mortality. I just wish we had – maybe Joe can help. Do you have any additional insights on that? Thanks.

MR. CIMINO: I would have had a better slide for you. I think that is a challenge that the technical committee and the stock assessment subcommittee do need to look at. For better or worse, I mentioned that we were fortunate to have this much information on juvenile indices. Even though this is a coast-wide stock, you get very different answers from each of these individual surveys.

Even within the Chesapeake Bay, I've had that discussion with Uphoff, who updates this every year, on how different Maryland and Virginia could be. What the variability coastwide means has been difficult. What we're coming down to now is also – I think it is hard to say, but going back to what I said earlier, at least addressing this current trend, if all we're looking at is spawning one year olds and two year olds, the stock is somewhat unique to others that you deal with in that we're considering age one-plus to be part of the spawning stock biomass; but if they're the only part of the spawning stock biomass, I think that suggests we're in trouble.

DR. LOUIS B. DANIEL, III: Just a couple of comments, observations and then a question. Last year I received tremendous numbers of phone calls on the discards that were occurring in the commercial fishery in North Carolina; some folks saying as high as a thousand to 2,000 pounds a trip with the numbers of fish that we're seeing at home; and legal fish, so nice-sized fish.

We had a pretty epic recreational fishery this year with tremendous numbers of discards and releases in that fishery. I'm not sure that we're picking all that up. I think we're having an extraordinary amount of unquantified discard mortality in our fishery; and it seems to be right at that Cape Hatteras Line, which continues to suggest that there is something going on different north and south of Hatteras.

We don't have the genetic integrity to prove they're separate stocks; but from what we're seeing from the recruitment event that occurred this year, the six- to eight-month-old weakfish that we were seeing were off the charts in terms of the numbers. With that said, I'm just curious because what doesn't make

sense to me about the relative F graph is with the catches being constrained at a hundred pounds, how do removals really mean anything in terms of trying to track the status of the stock?

MR. CIMINO: I agree again personally; and not to be unfair to the technical committee or the report, but discards have been somewhat glossed over. Going to the one fish and 100-pound trip limit, we've completely changed the nature of this fishery. I don't know what has happened with discards. It has always been difficult to estimate discards.

Jeff Brust spent a lot of time doing that for the last assessment; and since then, we had started with just the step-wise approach; and then once we got to the most recent restrictions, we've just kind of been in a holding pattern and leaving discards at one flat-level estimate. It is not the best way to do things, but it is something we need to explore.

DR. DANIEL: Just a real quick followup; because after many calls from the Outer Banks predominantly, I asked my technical committee member to talk to other technical committee members. It doesn't sound like anybody north of us is seeing the numbers of fish and the amount of discards and bycatch that we're seeing in North Carolina. It just makes it even more difficult because, well, if everybody else is seeing this, maybe we can start looking at allowing a little more harvest to at least account for these discards, but it sounds like it is pretty unique to us.

CHAIRMAN ALLEN: We are in the process of initiating the next stock assessment; so maybe we can get to the bottom of some of that stuff. Pat.

MR. PATRICK AUGUSTINE: You mentioned predator/prey; and is that an ongoing study or is that just something that has been looked at in the past? We really need to address that one. It sounds like – talking to John Clark and the folks over there; it looks like Delaware is having a great increase in I guess black drum; and the Chesapeake is having a great increase in black drum, also.

If they're moving up along the coast, we're back to predator/prey. It used to be striped bass and now it is something else. I'm not sure how you can address that or can you help me with that to give us some clarification as to what you think we should do with predator/prey and should we ask you folks to start looking at that a little more closer? Use your opinion, Joe, and forget the technical committee.

MR. CIMINO: That just in part and if it is something that we could get through a peer review, which I think the predator/prey modeling that was done really as early as the 2004 assessment and then presented in the 2009 peer review assessment, the peer review didn't feel that comfortable with drawing the connections made from something as simple as having another species there as a function of the decline of weakfish. That is how we ended up with relative F being the one truly endorsed situation. I don't know that any information exists for us to move forward with making that attempt again on a strong enough connections as far as the stock declines.

MR. AUGUSTINE: Thank you for that. Well, it is just like when we started talking about winter flounder and it ends up as natural mortality. No matter what we've done, the stock doesn't seem to be coming back; and that is forgetting what is happening up in the Gulf of Maine, but the rest of it seems to be consistent. It is there for a month or two, they spawn out and the bottom is covered – the bays are covered with little winter flounder; and within a month of six weeks they're gone.

Yet you look at the predator/prey relationship and you say to yourself something is eating them or they're just dying. If we keep kicking the can down the road on this one, I think we're going to have another one of those species that is going to be we don't know. I'm not sure how we can make management decisions based on not knowing. Mr. Chairman, I don't know if you want to put some pressure on or suggest that we start looking at a predator/prey situation or not. I'll leave to you and the technical committee to come up with a recommendation.

CHAIRMAN ALLEN: Well, since I was part of that last stock assessment for weakfish with the technical committee, I know what they've gone through trying to come up with something for that. That is about as good as it is going to get. Maybe they can do some more on this one. I will put some pressure on Joe. We will take him in the back room and take care of that and see what we can do. Tom, did you have a comment?

MR. THOMAS FOTE: Yes; if I remember right, black drum eat mollusk and clams. That is why they used to blow them in the 1900's in Barnegat Bay because they were eating all the clams in the clam beds. I never heard of them eating weakfish. It has always been disappointing to me that we did

everything right and weakfish should be a lot different than it is right now.

It should be a success story because we did all the right things and it is not. I think the more you look at it, the more you're going to have to look at what is going on in the bays and estuaries where they spawn. When some of the studies they did in New York on winter flounder when it was 17 to 1 and 16 to 1, 15 to 1 female-to-male relationship because of all the, as we say, the endocrine disrupters that are in the bays coming out of the sewers, I think that could be a problem.

I'm not sure where to place the blame but it is some place and I think we just spin our heads and we've been spinning our heads on it for the last ten years and we still haven't come up with an answer. We have just got to stay the path and see what happens unless we're going to do like stop the power plants and the nuclear power plant in Delaware Bay from killing 50 percent of the bay anchovies; maybe that is a problem.

They used to suck the weakfish into their intake valve, that is a problem; or we change the ecology of the bays and Barnegat Bay and the hot water from Oyster Creek, and they still have impingement and water being sucked at an unusual rate. That is not just nuclear power plants; it is all the other ones, coal-fired plants and everything else. Until we start changing the system we put in the seventies and the eighties and started using the bays and estuaries as our sewers and a hot water intake or a cold water cool-down systems; there are going to be a lot of problems with the resource.

CONSIDER DELAWARE'S CONSERVATION EQUIVALENCY

CHAIRMAN ALLEN: Okay, if there are no other questions for Joe, we're going to move on to the next agenda item, considering Delaware's Conservation Equivalency Proposal. I will turn that over to John and then we will have the technical committee report on that, also.

PROPOSAL REVIEW

MR. CLARK: Mr. Chair, I will try to make this fast because I know we've doing a lot sitting around here. Thank you to the board. I would just like to briefly go over our proposal again that I think you've all seen already. Just looking at our logo there reminds me that we were talking yesterday during the summer

flounder deliberations about each state having a signature fish; and for us in Delaware it is weakfish.

That is one of the reasons that we chose net closure days that I will go into here next. We had huge recreational and commercial weakfish fisheries in Delaware Bay in the seventies and eighties. Delaware Bay was probably the epicenter of weakfish abundance at that time. When the weakfish population declines in the late eighties and into the nineties and management actions were taken, we went to net closure days as the way to meet our reduction in fishing mortality for weakfish because this way we'll keep nets out of the water on the weekends during the peak recreational weakfish fishing period and still allow netters to catch a lot of weakfish and thereby preventing gear interactions between gill netters and recreational fishermen.

In addition, Delaware already had a law on the books banning gill netting on weekends during the peak weakfish season, which I'll get to. Our FMP compliance that we used, since '97 we have required nets to be out of the water for a week a May, a week in June and all weekends in May and June to meet the Amendment 3 compliance requirements.

In our regulations we have defined weekend as Friday through Sunday. We have done this once again at the time to reduce those interactions as Friday through Sunday were our biggest days for recreational fishing for weakfish. Those are the 34 closure days had in 2013. There is our code that requires us to have all nets out of the water from Saturday through Sunday starting on May 10th and going through September 30th. As I said, we already had that in the code.

The weakfish plan added 17 closure days in 2013 to the state-mandated closure days that we already had due to this law. As the weakfish catches, as Joe has just pointed out, have declined precipitously, our commercial landings between '98 and 2008 declined by 99 percent, our netters have started looking to other species that they can try to make a living off of.

Black drum are in Delaware Bay in May and June; and the closure days limited the ability of netters to pursue black drum because our closure days have netting closed for 34 days. Atlantic menhaden is in high demand in May in Delaware as bait for striped bass, particularly on weekends; but with our weekend defined as Friday through Sunday, the netters can't net.

Menhaden caught on Thursday can't be sold as fresh bait on Sunday; so our netters are missing out on that lucrative market of selling fresh bait. The netters have come to us and to the Tidal Finfish Council and asked us to see if we could modify our closure day system. They asked us to look into asking ASMFC to allow us to use the alternative state management regime as per Amendment 3 and switch from closure days to a closed season.

We would estimate the length of a closed weakfish season that would give us the equivalent of the current closure days in terms of reduction in fishing mortality. To follow the ASMFC Guidelines in estimating the necessary closed season, the closed season must occur during the months of maximum weakfish landings during 1989 to 1991. I know we have been talking about ancient data, but that is what the amendment says we have to do.

Most weakfish were landed during April through June in Delaware. Our peak landings' month was May. We've estimated that a closed season from May 1st to June 2nd would give us the required 32 percent reduction in fishing mortality. I just would also like to point out that we still have 17 net closure days as mandated by the state law during that time that was not factored into the closed season that we're asking for. I would be glad to take any questions and we hope the board can endorse Delaware changing to a closed season from closure days. Thank you.

CHAIRMAN ALLEN: Before I take any questions, I would really like to get to the technical committee's report, also, and take care of that. That way we can handle it all in one shot, I hope.

TECHNICAL COMMITTEE REPORT

MR. CIMINO: This was actually a joint conference call between the technical committee and the stock assessment subcommittee. I started off that call kind of reiterating what John said, that we're looking at ancient data. This isn't the stock that we were dealing with in the late eighties. If Delaware had a whole bunch of nets in the water, I'd still be very surprised if they didn't meet their percent reduction in harvest just because the fish aren't there. We're dealing with two different amendments that are still holding to this review; and that is the original requirements of Amendment 3 but also importantly Addendum IV to Amendment 3. I think we all recognize that a lot of stuff had been done to protect this stock and state had creative ways of doing that.

Instead of trying to go back and remove some of those other restrictions that have been put in place, the 100-pound trip limit and the one-fish recreational bag limit were put in place on top of all remaining requirements. With that, the technical committee and stock assessment subcommittee simply reviewed this as kind of an alternate management scheme to that original Amendment 3 requirement.

What they presented there on paper, this certainly does meet that reduction and that requirement. Aside from that, there was some concern that you're going from nets out of the water to nets in the water. In the case of black drum, we didn't have a great deal of concern that black drum nets were going to be taking a lot of weakfish, but there would certainly be a potential for interactions between gill nets fishing for menhaden and weakfish.

I think what is still in place for Delaware especially regarding the fact that this is mostly a drift gill net fishery; that alleviated a lot of our concerns. Looking at this in comparison to what every other state has been held to, we certainly didn't see anything out of the ordinary.

**CONSIDER DELAWARE'S
ALTERNATIVE MANAGEMENT
PROPOSAL**

CHAIRMAN ALLEN: I will open it up to the board now if they have any questions of John or Joe. David Pierce.

DR. DAVID PIERCE: John, a question about your drift gill net fishery; how does that operate? Gill nets are set for some short period of time, left to drift; how would you describe that fishery in the context of the potential for bycatch of weakfish?

MR. CLARK: Yes; anchor netting is ended as of May 1st; so we only allow drift netting at that time. Typically, the guys go out and set the nets for maybe an hour or so, maybe longer, but there is clearly the potential for weakfish bycatch. A lot times they're targeting – they're using a mesh that is small enough to catch weakfish as they're targeting menhaden or bluefish, croaker, spot, those types of things; anything pretty much they can catch in Delaware Bay at that time.

DR. DANIEL: Are you ready for a motion?

CHAIRMAN ALLEN: Yes, sir.

DR. DANIEL: I would like to move we approve Delaware's request for conservation equivalency.

CHAIRMAN ALLEN: Second by Pat Augustine. Is there any discussion on the motion? We will be doing a roll call vote on this; so when we're ready, I will hand it over to Marin. The motion is move to approve Delaware's request for conservation equivalency. Motion by Dr. Daniel; seconded by Mr. Augustine. Is there any discussion? Seeing none; I will hand it over to Marin.

MS. MARIN HAWK: Massachusetts.

MASSACHUSETTS: Yes.

MS. HAWK: Rhode Island.

RHODE ISLAND: Yes.

MS. HAWK: Connecticut.

CONNECTICUT: Yes.

MS. HAWK: New York.

NEW YORK: Yes.

MS. HAWK: New Jersey.

NEW JERSEY: Yes.

MS. HAWK: Delaware.

DELAWARE: Yes.

MS. HAWK: Maryland.

MARYLAND: Yes.

MS. HAWK: Potomac River Fisheries Commission.

POTOMAC RIVER FISHERIES COMMISSION: Yes.

MS. HAWK: Virginia.

VIRGINIA: Yes.

MS. HAWK: North Carolina.

NORTH CAROLINA: Yes.

MS. HAWK: South Carolina.

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SOUTH CAROLINA: Yes.

MS. HAWK: Georgia.

GEORGIA: Yes.

MS. HAWK: Florida.

FLORIDA: Yes.

MS. HAWK: U.S. Fish and Wildlife.

U.S. FISH AND WILDLIFE SERVICE: Yes.

MS. HAWK: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE: Yes.

CHAIRMAN ALLEN: **It sounded unanimous there;** very good. Okay, we're just about done.

ELECTION OF VICE-CHAIR

CHAIRMAN ALLEN: I am going to have someone make a recommendation for vice-chair. Mr. Miller.

MR. MILLER: Mr. Chair, it is my honor to nominate Rob O'Reilly as vice-chair for the Weakfish Board.

CHAIRMAN ALLEN: Seconded by Pat.

MR. AUGUSTINE: Mr. Chairman, I move to close nominations and cast one vote.

CHAIRMAN ALLEN: So done!

MR. O'REILLY: Since I won't have anything to say for a little while; I do want to say that since we spend a lot of time looking back at what has been done and whether it is relevant – and I saw a comment in the report the technical committee wondering on the relevance of the timeframe when these measures were done back in the late eighties and early nineties.

I would suggest that we should pay attention to that particular time period because it was meant to have a 32 percent reduction so that it would signal the start of rebuilding. If we get those levels of abundance that we were hoping for then, then at least we have something to start from. I think it should be relevant.

ADJOURNMENT

CHAIRMAN ALLEN: Let's hope that is under your watch, Rob. If there is nothing else to come before

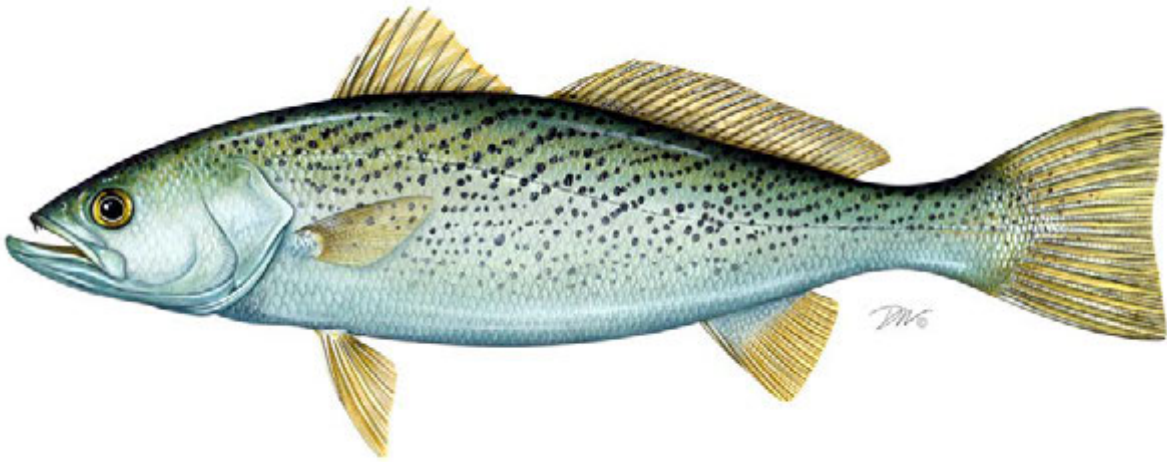
this board, a motion to adjourn is accepted. Let's move it.

(Whereupon, the meeting was adjourned at 2:10 o'clock p.m., February 5, 2014.)

**2015 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR**

**WEAKFISH
(*Cynoscion regalis*)**

2014 FISHING YEAR



Weakfish Plan Review Team

Joe Cimino, Virginia Marine Resources Commission
Wilson Laney, United States Fish and Wildlife Service
Erin Levesque, South Carolina Department of Natural Resources
Megan Ware, Atlantic States Marine Fisheries Commission, Chair

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I. Status of the Fishery Management Plan

The Atlantic States Marine Fisheries Commission (Commission) adopted its first Fishery Management Plan (FMP) for Weakfish in 1985. Amendment 1 to the FMP (1992) unsuccessfully aimed to improve the status of Weakfish. Amendment 2 (1995) resulted in some improvement to the stock, but several signs indicated that further improvement was necessary. Thus, Amendment 3 (1996) was implemented to increase the sustainability of the fishery. Addendum I to Amendment 3 was approved in 2000 in order to extend the management program until the next amendment was implemented.

Amendment 4, approved in 2002, strives to establish two goals. One is the utilization of interstate management so that Atlantic coastal weakfish recover to healthy levels that will maintain commercial and recreational harvest consistent with a self-sustaining spawning stock. The second goal is to provide for restoration and maintenance of essential habitat (ASMFC 2002). The management objectives are to:

- 1) establish and maintain an overfishing definition which includes target and threshold fishing mortality rates and a threshold spawning stock biomass in order to prevent overfishing and to maintain a sustainable weakfish population;
- 2) restore the weakfish age and size structure to that necessary for the restoration of the fishery;
- 3) return weakfish to their previous geographic range;
- 4) achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit, including states' waters and the federal EEZ;
- 5) promote cooperative interstate research, monitoring, and law enforcement necessary to support management of weakfish;
- 6) promote identification and conservation of habitat essential for the long term stability in the weakfish population; and
- 7) establish standards and procedures for both the implementation of Amendment 4 and for determination of states' compliance with provisions of the management plan.

Amendment 4 established target and threshold fishing mortality rates and a threshold spawning stock biomass level to determine overfishing and overfished stock status. The amendment requires states to implement recreational and commercial management measures to achieve annual fishing mortality targets. Some management measures are specified (e.g., minimum size limit, minimum mesh size, bycatch limit), while the Amendment provides the states flexibility in implementing other regulations (e.g., trip limits, area or season closures). States may request implementation of alternative management plans with conservationally equivalent measures. States deemed to have insignificant landings were exempt from the recreational and commercial requirements, with the exception of the bycatch reduction device requirements.

The Commission adopted Addendum I to Amendment 4 (2005) to replace the biological sampling program in Section 3.0 of Amendment 4. In response to a significant decline in stock abundance and increasing total mortality since 1999, the Commission approved Addendum II to Amendment 4 (2007) to reduce the recreational creel limit and commercial bycatch limit, and set landings levels that when met will trigger a re-evaluation of management measures. Addendum III to Amendment 4 (2007) altered the bycatch reduction device certification requirements in Section 4.2.8 of Amendment 4 for consistency with the South Atlantic Fishery Management Council's Shrimp FMP. The Commission approved Addendum IV to Amendment 4 in 2009 to respond to the results

of the 2009 benchmark stock assessment (additional information is provided in Section VI. Status of Management Measures and Issues).

Weakfish are managed under this plan as a single stock throughout their coastal range. All Atlantic coast states from Massachusetts through Florida and the Potomac River Fisheries Commission have a declared interest in weakfish, as do FWS and NMFS; Maine, New Hampshire, Pennsylvania, and the District of Columbia do not. See Table 1 for a summary of state-by-state regulations in 2014.

II. Status of the Stock

According to the last stock assessment, completed in 2009, the weakfish stock is depleted and overfishing is not occurring (NEFSC 2009a, NEFSC 2009b). While overfishing has not occurred in recent years, harvest was reduced by an estimated 60% in Addendum IV to reduce additional mortality from fishing and poise the stock for a quicker recovery should natural mortality decline.

Between 1982 and 1990, age 1+ weakfish biomass¹ declined drastically from 113.1 million pounds to 17.6 million pounds (Figure 1). Overfishing was the main cause of this decline, with fishing mortality (F) accounting for about 60-90% of total mortality (fishing plus natural mortality) during the period. Fishing mortality² peaked at 1.01 in 1989 but, with the implementation of management measures in the early to mid-1990s, F declined to 0.24 in 1995 and biomass responded favorably by increasing to a peak of 62.1 million pounds in 1996 (Figure 1). While F remained relatively stable (between 0.26 and 0.58) after that time, the stock began another drastic decline in 2001 to the time-series low of 10.8 million pounds in 2008. However, the contribution of fishing mortality to total mortality was substantially reduced during this period; from 2004-2007 only 10-20% of total mortality is attributed to fishing mortality.

Conversely, natural mortality has risen substantially since 1995 (Figure 1), and factors such as predation, competition, and changes in the environment are thus believed to be having a stronger influence on recent weakfish stock dynamics than fishing mortality. Bycatch and under-reported catches would have to be much greater than those estimated, growing from about 3-4 times the estimates in 1996 to 15-20 times in the most recent years, to account for the biomass decline. Thus far, there is no evidence available of an Atlantic coast fishery capable of generating additional unreported weakfish discards of this magnitude.

The 2009 stock assessment determined that the stock's spawning potential is at only 4% of an unfished stock, well below the 20% spawning potential threshold and 30% spawning potential target adopted in Addendum IV. Trends in F indicate a stable and modest fishing mortality. Thus, while the stock biomass is depleted, overfishing is not occurring. The results of the 2016 benchmark stock assessment will be peer reviewed in the beginning of the year and will be presented to the Board at the following meeting.

III. Status of the Fishery

At 273,660 pounds, the total coastwide landings of weakfish in 2014 show a noticeable decrease from total landings in 2013 and 2012, which were 519,031 pounds and 529,318 pounds,

¹ Biomass estimates are for January 1 stock size. All mortality rates are also based on January 1 stock size.

² F estimates are based on age 1+ biomass and are therefore affected by partial recruitment and can not be comparable to the F target and threshold in Amendment 4 which are for fully recruited ages only.

respectively. Total landings are below the most recent ten-year (2005-2014) average of 997,518 pounds. The commercial fishery (196,489 lbs) accounted for 72% of the total 2014 landings, and the recreational fishery (77,171 lbs) for 28% (Table 2).

Commercial Fishery

Commercial data are cooperatively collected and compiled by the National Marine Fisheries Service (NMFS) and state fishery agencies from state mandated trip-tickets, landing weigh-out reports from seafood dealers, federal logbooks, shipboard and portside interviews, and biological sampling of catches. Landings from the NMFS Fisheries Statistics Division are used within this report unless a state reports alternative values in its compliance report to the Commission, in which case those values are used preferentially (see notes for Table 3).

Between 1982 and 2014, coastwide commercial weakfish landings have ranged from the high of 21.1 million pounds in 1986 to the low of 133,085 pounds in 2011 (Table 3). Since 1988, the overall trend is declining except between 1990-1998 when landings hovered between 6.1 and 9.1 million pounds (Figure 2). Landings in 2014 were 196,489 pounds.

North Carolina (53%) and New York (17%) landed the largest shares of the 2014 coastwide commercial weakfish landings (Figure 3). All states' commercial landings in 2014 were below those reported in 2013 (Table 3).

The dominant commercial gears were gill nets (about 55% of the total commercial landings, respectively). There has been a shift in the dominant source of landings from trawls in the 1950s-1980s to gill nets in the 1990s-present. The majority of commercial landings tend to occur in the fall and winter months, presumably as the fish congregate to migrate to over-wintering grounds in the South Atlantic (Hogarth et al. 1995).

Recreational Fishery

Recreational catch statistics are collected by the NMFS. Effort data are collected through telephone interviews. Catch expansions are based on angler interviews and biological sampling conducted by trained interviewers stationed at fishing access sites. All recreational data in this report are from the NMFS Fisheries Statistics Division queried from the Marine Recreational Information Program (MRIP; 2014), except as noted in Section VI of this report for Florida's estimates.

Since 1982, coastwide recreational landings have ranged from the high of 11.4 million pounds in 1983 to the low of 27,081 pounds in 2011 (Table 4). Landings averaged 7.8 million pounds from 1982-1988, before falling to between one and four million pounds from 1990-2002. In 2003, recreational landings dropped below one million pounds (Figure 2). Landings have averaged 140 thousand pounds from 2009-2013 (Table 5), and are estimated at 77,171 pounds (62,260 fish) in 2014. The number of fish released alive by anglers remained above 1 million fish from 1992 to 2008, peaked at over 5 million in 1996, and decreased to 351,993 fish in 2013 (Table 6, Figure 4). In 2014, the number of fish released alive is estimated at 553,766 pounds. In 2010, all states implemented a one fish bag limit, which impacted landings and discards from that point on.

New Jersey anglers consistently harvested the most weakfish by pounds along the coast until 2009. In the 1980s and 1990s, anglers in Delaware, Maryland, and Virginia often took the next largest shares of the recreational total amount. In the 2000s, New Jersey anglers led in the harvest, whereas anglers in Virginia and North Carolina tended to take the second and third largest amounts (Tables

4 and 5). However, from 2009-2011, North Carolina anglers landed the largest share while South Carolina and Virginia had the next largest shares of the recreational harvest. Between 2012 and 2013, New Jersey again recreationally harvest the most weakfish, in pounds; however, in 2014 North Carolina was the largest harvester with almost 26,000 pounds (33.6%). New Jersey accounted for 22.4% of the catch.

The size class of the fish sampled to provide the MRIP weight estimates was considerably different between New York and New Jersey compared to North Carolina, and all states from Virginia south, where the annual mean weight of fish sampled were 1 pound or less. In 2012 the mean weight for fish sampled in New Jersey and New York were 1.4 and 3 pounds respectively. In 2013 although the mean weights sampled for states from Virginia south remained at 1 pound or lower for New Jersey the annual mean weights was 2.6 pounds and for New York it was 4.1 pounds. In 2014, the mean weight sampled in New Jersey was 2.7 pounds.

The recreational fishery catches weakfish using live or cut bait, jigging, trolling, and chumming. The majority of recreationally harvested weakfish are caught in state waters (99.2% in 2013 by pounds). In 2014, nearly all recreationally harvested fish were caught from private or rental boats (69%) or from shore (14%).

IV. Status of Assessment Advice

The 2009 assessment was completed by the Weakfish Stock Assessment Subcommittee (NEFSC 2009a, NEFSC 2009b) and peer reviewed by the 48th Stock Assessment Review Committee (Sullivan et al. 2009) at the 48th Northeast Regional Stock Assessment Workshop (SAW). The assessment includes fishery data and survey indices through 2007. A benchmark stock assessment is currently underway and is expected to be completed in 2016.

V. Status of Research and Monitoring

Fishery-Independent Data

Young-of-year indices of relative abundance are provided by Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, and Florida. Connecticut, New Jersey, Delaware, North Carolina, Georgia, and Florida provide age- 0+ or 1+ indices of relative abundance. The Northeast Fisheries Science Center Groundfish Trawl Survey also produces an age-structured index for the Mid-Atlantic coast, while the Southeast Area Monitoring and Assessment Program (SEAMAP) survey produces another index for the South Atlantic Coast. The Northeast Area Monitoring and Assessment Program (NEAMAP) began spring and fall surveys between Martha's Vineyard and Cape Hatteras in the fall of 2007, and will provide an index in the future. The Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP), which began in 2002, collects data on relative abundance, length, weight, age, sex, and trophic interactions in the Bay. See Table 9 for the indices provided in the 2014 compliance reports.

Fishery-Dependent Data

The coastal states and the NMFS collect data on commercial and recreational landings. Addendum I to Amendment 4 requires the collection of otoliths and lengths to characterize the catch; the number of samples required is based on the magnitude of each state's fisheries. Each spring, the states are required to submit biological sampling plans, and each fall, through the compliance

reports, the states are required to provide the actual sampling levels completed. See Section VII for more information.

VI. Status of Management Measures and Issues

Fishery Management Plan

Addendum IV to Amendment 4 was approved in November 2009, and was implemented in May 2010. In response to the 2009 stock assessment results, the addendum implements more appropriate biological reference points in response to recent stock dynamics and reduces harvest while attempting to minimize unnecessary bycatch waste. Addendum IV requires all states in the management unit (including those that are *de minimis*) to implement a recreational creel limit no greater than 1 fish, commercial trip and bycatch limits no greater than 100 pounds, and a finfish trawl fishery allowance for up to 100 undersized fish. The addendum adopted percentage based biological reference points with an overfished/depleted threshold of 20% SSB and a target of 30% SSB. The biological sampling requirements under Addendum I are unchanged, and all regulations previously enacted to protect weakfish and reduce bycatch are to remain effective.

No additional amendments or addenda are under development.

Florida Management Area and Landings Data

In November 2009, the Management Board approved a proposal from Florida to reduce the state's weakfish management area to a small area in northeast Florida where pure weakfish are known to occur based on genetics data. The revision is intended to address the misidentification of weakfish, sand seatrout, silver seatrout, and their hybrids, and the consequential law enforcement issue. Inside the newly established weakfish management area (St. Mary's River only), any fish that resembles weakfish will be considered weakfish for enforcement purposes, both for commercial and recreational limits. Outside the weakfish management area, all fish that resemble weakfish will be considered sand seatrout.

As a result of the approved proposal, the commercial and recreational landings data provided in Florida's 2014 compliance report represent the best estimate of pure weakfish landings in the state. Commercial landings data from Florida's trip ticket program and recreational landings from the NMFS's Marine Recreational Fisheries Statistics Survey include only weakfish landed in Nassau and Duval counties, as revised on the basis of the genome proportions within the *Cynoscion*-complex found in the counties (48% weakfish in Nassau County and 17% in Duval County). The landings, tables, and figures in this report use the landings as reported by Florida.

De Minimis Status

Amendment 4 permits states to request *de minimis* status if, for the last two years, their combined average commercial and recreational landings (by weight) constitute less than 1% of the coastwide commercial and recreational landings for the same two year period. The *de minimis* threshold for 2014, calculated with 2013 and 2014 harvest data, is 3,963 pounds.

Four states requested *de minimis* status in their 2014 compliance reports: Florida, Georgia, Connecticut, and Massachusetts. Three of these states qualify for *de minimis* status (Florida 0.42%, Georgia 0.58%, and Massachusetts 0.54%). Connecticut was just above the *de minimis* qualification with 1.17% of total landings. If a *de minimis* state loses its designation, the state is

required to implement the regulatory and monitoring requirements from which it was previously exempt.

Addendum II Management Triggers

In 2010, the recreational and commercial management measures in Addendum IV replaced those in Addendum II. However, the Plan Review Team will continue to include an evaluation of the two management triggers as they provide perspective on the magnitude of fishery landings (but hitting a trigger will not require Board reconsideration of the management measures).

Addendum II established two management triggers that would require the Board to consider modifying management measures if reached. First, commercial management measures are to be re-evaluated if coastwide commercial landings exceed 80% of the mean commercial landings from 2000-2004, or 2.99 million pounds. Second, commercial and recreational management measures are to be re-evaluated if any single state's landings exceed its five-year mean by more than 25% in any single year.

The 2014 coastwide commercial landings are 196,489 pounds, thus the first trigger has not been exceeded. The second trigger was met in two states because their landings increased by more than 25% in any single year (SC, GA), however, this increase is due to extremely low landings in previous years and is not cause for concern (Table 7).

VII. Implementation of FMP Compliance Requirements for 2014

Mandatory compliance elements for 2014 were provided by Amendment 4 and its four addenda.

Regulatory Requirements

The management program includes regulatory requirements for non *de minimis* states as follows:

- Recreational management measures including minimum size limits and a maximum creel limit of one fish (see Addenda II and IV to Amendment 4)
- Commercial management measures including minimum size limits, minimum mesh size limits, landings limits, trip limits, bycatch limits, closed seasons and areas, and bycatch reduction device requirements (see Section 4.2 of Amendment 4, and Addendum IV)

The PRT finds all states to have implemented the plan's compliance requirements.

See Table 1 for a summary of state commercial and recreational regulations in 2014.

Monitoring Requirements

Addendum I implemented monitoring requirements for non *de minimis* states as follows:

- Maintenance of at least the 2005 level of recreational sampling of individual lengths through the Marine Recreational Fisheries Statistics Survey;
- Collection of six individual fish lengths for each metric ton of weakfish landed commercially;
- Collection of three individual fish ages for each metric ton of total weakfish landed, with a maximum of 1000 ages annually per state.

Table 8 provides the otolith and length collection requirements for 2014. These are based on the best available 2014 landings data provided to the Commission by the NMFS and the states. Table 8 also provides the number of otoliths and lengths collected by the states in 2014. All states met the biological sampling requirements in 2014.

VIII. Recommendations of the Plan Review Team

Management Recommendations

- That the Board consider the *de minimis* requests from Massachusetts, Georgia, and Florida.

Research Recommendations

Fishery-Dependent Priorities

High

- Increase observer coverage to identify the magnitude of discards for all commercial gear types from both directed and non-directed fisheries.³

Moderate

- Continue studies on temperature, size, and depth specific recreational hook and release mortality rates, particularly catches from warm, deep waters. Investigate methods to increase survival of released fish.
- Continue studies on mesh size selectivity, particularly trawl fisheries.⁴

Low

- Determine the onshore versus offshore components of the weakfish fishery.
- Collect catch and effort data including size and age composition of the catch, determine stock mortality throughout the range, and define gear characteristics. In particular, increase length frequency sampling in fisheries from Maryland and further north.
- Develop latitudinal, seasonal, and gear specific age length keys coast wide. Increase sample sizes for gear specific keys.

Modeling / Quantitative Priorities

High

- Evaluate predation of weakfish with a more advanced multispecies model (e.g., the ASMFC MSVPA or Ecopath with Ecosim) to validate estimates calculated by production models with predation-competition extensions.
- Develop a bioenergetics model that encompasses a broader range of ages than Hartman and Brandt (1995) and use it to evaluate diet and growth data.
- Analyze the spawner-recruit relationship and examine the effects of the relationship between adult stock size and environmental factors on year class strength.
- Quantify trawl bycatch. Refine estimates of discard mortality based on factors such as distance from shore and other geographical differences for all sizes including below minimum size.

Life History, Biological, and Habitat Priorities

High

³ Some Mid-Atlantic trawl fleet observer coverage has been implemented under ACCSP funding.

⁴ Gillnet selectivity has been investigated by Swihart et al (2000). Some gear selectivity information in Amendment 3 to the ASMFC Weakfish FMP. Information can also be obtained from the North Carolina Pamlico Sound Independent Gill Net Survey.

- Develop a coastwide tagging program to identify stocks and determine migration, stock mixing, and characteristics of stocks in over wintering grounds. Determine the relationship between migratory aspects and the observed trend in weight at age.⁵
- Monitor weakfish diets over a broad regional and spatial scale.

Moderate

- Identify and delineate weakfish spawning habitat locations and environmental preferences to quantify spawning habitat.
- Compile data on larval and juvenile distribution from existing databases to obtain preliminary indications of spawning and nursery habitat location and extant.
- Examine geographical and temporal differences in growth rate (length and weight at age).

Low

- Determine the impact of power plants and other water intakes on larval, post larval, and juvenile weakfish mortality in spawning and nursery areas. Calculate the resulting impact on adult stock size.⁶

Management, Law Enforcement, and Socioeconomic Priorities

Moderate

- Assemble socioeconomic data as it becomes available from ACCSP.

Low

- Define restrictions necessary for implementation of projects in spawning and over wintering areas and develop policies on limiting development projects seasonally or spatially.

⁵ Tagging work to evaluate mortality, movement, stock mixing, and weakfish predator information is scheduled to begin in North Carolina in 2013. Otolith samples have been obtained by Old Dominion University, but funding has not been available for processing.

⁶ Data are available for power plants in the Delaware Bay area and North Carolina. Also see Heimbuch et al. 2007. Assessing coastwide effects of power plant entrainment and impingement on fish populations: Atlantic menhaden example. *North American Journal of Fisheries Management*. 27: 569-577.

IX. References

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X. Tables

Table 1. Summary of state regulations for weakfish in 2014.

State	Commercial	Recreational	Implementation Date
MA	16", open 1/1-12/31, 100 lb possession limit.	16", 1 fish	June 2010
RI	16"; open 6/1-6/30 & 8/7-11/8, 100 lb possession limit. Other times of year: 100 pound bycatch limit with at least an equal poundage of other species as weakfish. Trawl codend mesh size ≥ 4.5 " diamond or 4.0" square.	16", 1 fish	April 28, 2010
CT	16"; open 1/1-12/31, 100 lb possession limit.	16", 1 fish	April 25, 2010
NY	16" (12" dressed & 10" filleted); Hook and line open 4/1-6/24 & 8/28-11/15; 0 lb bycatch limit. All other gears open 4/1-6/24 and 8/28-11/15; 100 lb bycatch limit.	16" (12" dressed, 10" fillet), 1 fish	By May 1, 2010
NJ	Gill net: 13"; open 1/1-5/20 & 9/3-10/19 & 10/27-12/31, 100 lb possession limit; mesh ≥ 3.25 " stretched except 2.75 - 3.25" allowed within 2nm for permitted fishermen doing monthly reporting. Otter trawl: 13"; open 1/1-7/31 & 10/13-12/31, 100 lb possession limit; mesh ≥ 3.75 " diamond or 3.375 square. Pound net: 13"; open 1/1-6/6 & 7/1-12/31, 100 lb possession limit. 100 lb bycatch limit & 50% rule. Hook & line: 13", 1 fish, open 1/1-12/31.	13", 1 fish	March 25, 2010
DE	Gill net: 12"; only nets with stretch mesh ≥ 3.125 " allowed in water 4/1-6/30, none permitted weekends and legal holidays 5/10-9/30, 100 lb possession limit. Drift gill net: open 1/1-12/31 except 34 specified days of gear out of water in May and June. Anchor gill net: open 1/1-5/9 and 10/1-12/31, otherwise gear out of water. Hook & line: 13"; 100 lb possession limit 4 days/week during 5/1-10/31, 1 fish creel limit all other times.	13", 1 fish	April 11, 2010
MD	12". Ocean all gears: 100 lb bycatch limit & 50% rule. Chesapeake Bay hook & line: open 8/1-9/30, 50 lb possession limit, 0 lb bycatch. Chesapeake Bay all other gears: 50 lb bycatch limit & 50% rule. Gillnet: mesh ≥ 3.0 " stretched. Trawl: mesh ≥ 3.375 " square or 3.75" diamond.	13", 1 fish	June 28, 2010
PRFC	12"; open 7/28-12/31, 50 lb possession limit; 50 lb bycatch limit & 50% rule for certified pound nets with approved cull panels, and 0 lb bycatch for all other gears. Pound net: limited entry.	12", 1 fish	January 1, 2010
VA	Gill net: 12"; open 3/16-5/13 & 10/21-12/30, 100 lb possession limit. Pound net: no minimum size; limited entry; open 4/1-4/30 & 5/23-9/12 unless exempted by license forfeit, 100 lb possession limit. Haul seine: no minimum size; open 4/16-6/10 & 8/21-9/24, 100 lb possession limit. Out of state trawl: 12" except 100 undersized fish allowed; open 4/1-9/25, 100 lb possession limit; codend mesh ≥ 3.0 ". Hook & line: 12"; open 1/1-12/31, 100 lb possession limit. 100 lb bycatch limit (per vessel), 50% rule for all gears during closed seasons.	12", 1 fish	May 1, 2010

NC	12", except 10" for long haul seines & pound nets in internal waters 4/1-11/15; open 1/1-12/31, 100 lbs trip limit. Gill net: mesh \geq 2.875" stretch. Gill nets and flynets that do not meet mesh requirements can only take weakfish as bycatch provided the weight of weakfish doesn't exceed 50% of catch up to 100lbs, 100lb limit in shrimp or crab trawl.	12", 1 fish	August 20, 2010
SC	12", 1 fish. BRDs in shrimp trawls.	12", 1 fish	July 1, 2010
GA	13", 1 fish. BRDs in shrimp trawls.	13", 1 fish	June 3, 2010
FL	12", 100 lb possession limit. BRDs in shrimp trawls.	12", 1 fish	July 27, 2010

Table 2. Comparison of commercial and recreational Atlantic coast weakfish landings from 1982 to 2014 (see Tables 3 and 4 for source information and state-specific landings).

Year	Recreational Landings (lbs)	Commercial Landings (lbs)	Total Landings (lbs)	% Comm
1982	8,285,323	19,493,321	27,778,644	70%
1983	11,391,635	17,485,501	28,877,136	61%
1984	6,655,261	19,652,279	26,307,540	75%
1985	5,467,698	16,833,896	22,301,594	75%
1986	10,043,641	21,097,068	31,140,709	68%
1987	6,705,462	16,947,925	23,653,387	72%
1988	6,244,994	20,431,283	26,676,277	77%
1989	2,069,062	14,018,067	16,087,129	87%
1990	1,293,187	9,087,481	10,380,668	88%
1991	2,051,533	8,381,774	10,433,307	80%
1992	1,349,200	7,332,282	8,681,482	84%
1993	995,410	6,689,118	7,684,528	87%
1994	1,650,411	6,120,441	7,770,852	79%
1995	1,813,279	7,060,567	8,873,846	80%
1996	2,908,627	7,216,860	10,125,487	71%
1997	3,628,760	7,237,666	10,866,426	67%
1998	4,026,244	8,400,173	12,426,417	68%
1999	3,047,216	6,863,765	9,910,981	69%
2000	4,046,525	5,345,618	9,392,143	57%
2001	2,684,146	5,007,329	7,691,475	65%
2002	2,135,034	4,770,229	6,905,263	69%
2003	843,357	1,983,239	2,826,596	70%
2004	891,399	1,540,456	2,431,855	63%
2005	1,490,205	1,250,239	2,740,444	46%
2006	848,282	1,104,031	1,952,313	57%
2007	562,613	897,531	1,460,144	61%
2008	665,943	470,630	1,136,573	41%
2009	171,675	364,553	536,228	68%
2010	71,991	199,780	271,771	74%
2011	27,436	133,085	160,521	83%
2012	265,712	273,606	539,318	51%
2013	164,240	353,665	518,386	68%
2014	196,489	77,171	273,660	72%

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Table 3. Commercial landings (pounds) of weakfish by state, 1982-2014 (Source: NMFS, except as noted below table). Starred values are confidential.

Year	FL	GA	SC	NC	VA	PRFC	MD	DE	NJ	NY	CT	RI	MA	Total
1982	176,203	596	443	12,052,232	1,856,920	307,230	249,297	1,294,500	2,073,500	1,257,100	25,600	176,800	22,900	19,493,321
1983	117,720	2,749		10,233,734	2,483,777	119,394	390,227	901,800	2,172,700	850,000	42,800	163,700	6,900	17,485,501
1984	923	862		12,990,726	2,022,123	90,166	325,279	782,400	2,751,600	484,500	31,300	167,600	4,800	19,652,279
1985	7,747	82		9,821,188	2,014,376	72,666	316,320	990,817	3,030,100	386,200	28,200	163,100	3,100	16,833,896
1986	9,162	75		14,309,372	1,886,254	116,197	337,064	723,444	3,208,600	359,900	13,700	127,600	5,700	21,097,068
1987	11,719	189		11,508,389	1,722,441	265,942	328,510	577,735	2,094,100	329,100	29,500	78,600	1,700	16,947,925
1988	13,283			15,091,878	1,383,218	96,765	832,636	530,603	2,332,800	124,500	2,400	19,400	3,800	20,431,283
1989	21,376		113	10,115,747	1,001,324	28,653	731,313	543,741	1,458,500	103,500	2,300	9,600	1,900	14,018,067
1990	17,433	33		5,802,159	1,192,321	18,510	416,130	625,006	968,318	19,924	1,281	24,646	1,720	9,087,481
1991	21,344			5,308,574	1,047,106	13,798	153,632	503,289	1,174,181	111,629	21,300	25,009	1,912	8,381,774
1992	24,655			4,862,551	532,482	19,961	384,999	362,042	940,695	168,087	3,500	30,277	3,033	7,332,282
1993	19,580			4,309,249	1,049,946	37,828	141,926	195,216	834,446	88,379	1,477	9,991	1,080	6,689,118
1994	27,835			3,489,929	1,264,263	28,958	223,288	262,263	695,280	99,470	11,000	18,155		6,120,441
1995	5,609			4,113,260	1,448,372	38,138	64,829	291,010	867,262	172,431	6,431	52,690	535	7,060,567
1996	387			3,977,633	1,487,069	99,493	97,068	317,317	822,041	365,307	6,937	43,522	86	7,216,860
1997	875			3,561,060	1,521,517	35,239	144,659	558,910	1,036,470	336,752	10,958	31,171	55	7,237,666
1998	952			3,354,008	1,796,487	81,744	221,048	552,947	1,804,618	496,403	14,482	77,074	410	8,400,173
1999	779			2,617,580	1,610,484	68,749	192,750	441,176	1,291,319	489,935	22,172	126,271	2,550	6,863,765
2000	448			1,869,042	1,311,298	68,574	145,918	328,269	1,071,428	352,832	7,920	189,362	527	5,345,618
2001	1,201			1,960,324	1,124,707	44,219	153,865	190,093	837,550	578,797	6,774	109,568	231	5,007,329
2002	394			1,828,150	1,129,158	57,818	79,734	164,064	863,088	513,977	10,223	122,781	842	4,770,229
2003	288			848,822	454,841	5,273	31,215	91,195	340,269	144,416	3,059	63,337	524	1,983,239
2004	192			685,463	325,832	1,986	50,519	48,905	197,108	178,414	6,206	38,284	68	1,532,977
2005	553			421,779	361,874	1,004	30,983	70,788	196,710	109,861	6,118	41,587		1,241,257
2006	337			363,078	261,619	689	32,417	34,429	206,659	152,867	7,012	45,133		1,104,240
2007	888			175,579	406,392	20	18,060	24,750	164,506	86,656	1,910	20,800		899,561
2008	996			170,469	171,153	74	5,815	11,185	56,884	44,275	1,012	9,702		471,565
2009	453			156,145	61,089	17	4,888	2,976	30,047	102,861	495	6,286		365,257

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2010	73			106,319	57,326	80	2,148	2,339	12,053	13,105	899	5,380	58	199,780
2011	608	*	*	65,897	26,014	*	223	1,100	13,324	17,143	2,105	5,766	636	132,906
2012	1,999	*	*	91,382	45,790	*	1,356	29,367	19,291	61,206	4,723	17,908	616	273,736
2013	1,065	*	*	120,198	55,524	*	3,159	9,357	14,913	108,693	5,960	31,826	3,400	354,157
2014	557	*	*	105,115	23,242	10	2,127	4,310	*	32,717	3,343	15,493	918	196,489

Notes: FL: state-reported landings 1984-present (NMFS-reported landings limited to Nassau and Duval Counties and adjusted on the basis of the genome proportions of weakfish within the Cynoscion-complex in those counties' waters). NC: state-reported landings 1994-present. VA: NMFS-reported landings minus the PRFC-reported harvest landed in VA 1982-1992; state reported landings 1993-present (exclude Potomac River harvest). PRFC: agency-reported landings 1982-present (fish caught in Potomac River and landed in MD and VA). MD: state-reported landings 1982-present (exclude Potomac River harvest). DE: state-reported landings 1985-present. NJ: state-reported landings 2005-present. CT: state-reported landings 1995-present. RI: SAFIS landings 2005-present.

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Table 4. Recreational landings (pounds) of weakfish by state, 1982-2014 (NMFS 2015, except as noted below table).

Year	FL	GA	SC	NC	VA	PRFC	MD	DE	NJ	NY	CT	RI	MA	Total
1982	48,137		14,786	276,047	2,994,879		2,127,679	1,330,769	613,223	725,194	0	154,609		8,285,323
1983	9,190	12,165	4,515	338,100	738,671		1,215,376	2,205,140	6,080,018	164,227	12,976	588,805	22,452	11,391,635
1984	9,719		5,150	189,031	850,169		254,962	1,279,594	3,987,542	51,464	11,358		16,272	6,655,261
1985	822	3,422	105,151	184,485	508,980		898,313	1,102,095	1,876,608	638,913	17,269	131,884		5,467,942
1986	3,785	12,621	44,185	417,470	2,032,394		2,406,643	1,598,932	3,184,095	242,217	61,281	41,142		10,044,765
1987	1,713	9,491	23,781	710,002	647,692		831,615	1,072,198	3,353,362	51,830	4,286			6,705,970
1988	2,241		1,841	359,606	1,677,694		1,679,702	1,664,477	833,197	26,127				6,244,885
1989	4,171	8,175	5,963	139,979	424,463		344,658	521,648	575,109	46,133				2,070,299
1990	2,085	961	11,186	63,420	256,690		388,662	207,131	358,456	4,317		897		1,293,805
1991	3,536	5,597	25,210	99,824	280,075		278,176	427,778	896,801	35,931	0			2,052,928
1992	2,738	1,014	40,459	27,363	206,710		121,403	232,204	677,811	19,824	909	20,154		1,350,589
1993	6,594	12,791	6,929	78,982	89,992		173,952	291,627	312,840	18,889	6,509			999,105
1994	7,276	783	25,163	149,159	142,265		300,831	319,491	706,207	2,579				1,653,754
1995	1,697	21,283	22,875	72,412	211,494		141,511	419,527	898,565	24,467		0		1,813,831
1996	759	5,060	4,980	79,317	194,485		185,074	690,121	1,730,057	19,081				2,908,934
1997	3,866	34,356	1,728	165,032	463,652		188,339	734,800	1,817,033	220,718	1,367			3,630,891
1998	698	690	11,288	192,210	839,245		377,820	616,422	1,910,868	63,298	9,808		4,087	4,026,434
1999	2,245	1,614	4,383	161,291	399,588		544,474	484,157	1,374,170	63,058	6,371	5,866		3,047,217
2000	2,943	3,503	6,312	87,926	496,205		696,662	635,339	1,916,092	164,525	35,095	1,922		4,046,524
2001	1,322	2,983		158,423	373,206		567,625	172,969	1,251,151	151,584	4,883	0		2,684,146
2002	1,577	683	50,141	82,747	295,397		174,064	243,156	1,213,558	58,627	11,285	3,801		2,135,036
2003	580	1,327	4,306	161,474	215,522		24,698	57,866	333,690	37,106	3,537	2,379	873	843,358
2004	937	11,153	118,352	273,683	218,745		43,576	6,726	284,420	19,231	0	0		976,823
2005	1,565	7,659	94,205	157,977	28,432		8,814	39,438	1,093,492	606		12,340		1,444,528
2006	1,520	3,305	8,014	139,392	36,653		575	19,292	789,330	13,766		69,501		1,081,348
2007	8,446	3,847	46,103	125,459	99,346		19,434	4,204	433,567	8,142		0		748,548
2008	1,197	5,853	21,296	139,368	29,474		2,194	4,054	365,125	114,011				682,572
2009	1,952	4,797	10,375	103,230	16,658		1,506	9,868	24,069	0				172,455
2010	455	2,829	10,379	49,903	1,579		1,810	46	3,541	1,294				71,836
2011	530	430	3,089	17,621	2,635		134	21	2,449	172		0	0	27,081
2012	668	3,625	12,244	46,081	20,952		6,192	4,442	156,495	15,125			0	265,824
2013	937	952	5,572	34,731	1,781		3,518	9,659	77,848	28,051		1,825		164,874
2014	762	3,638	12,905	25,961	5,903		2,144	3,531	17,311	5,016	0	0	0	77,171

Notes: FL: state-reported landings 1983-present (NMFS-reported estimates limited to Nassau and Duval Counties and adjusted on the basis of the genome proportions of weakfish within the Cynoscion-complex found in those counties' waters)

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Table 5. Recreational landings (numbers) of weakfish by state, from 1982 to 2014 (NMFS 2015, except as noted below table).

Year	FL	GA	SC	NC	VA	MD	DE	NJ	NY	CT	RI	MA	Total
1982			17,342	200,045	715,892	440,146	213,937	104,066	88,234	11,769	18,614		1,810,045
1983	11,012	17,209	6,807	387,871	354,846	595,286	996,589	2,857,093	36,934	6,363	74,608	2,732	5,347,350
1984	18,529		7,836	489,468	782,848	104,057	541,392	1,026,043	20,133	1,561	0	2,237	2,994,104
1985	1,364	4,811	61,788	217,671	505,223	305,799	330,854	812,839	89,538	2,874	17,092		2,349,853
1986	4,853	18,130	78,315	611,363	2,418,046	1,947,394	732,537	2,500,622	34,582	7,315	4,595		8,357,752
1987	2,412	10,802	18,841	624,160	1,015,413	824,883	534,597	1,666,619	7,447	777			4,705,951
1988	3,586	0	1,834	438,148	2,297,053	1,163,766	771,996	642,032	13,215	0			5,331,630
1989	5,327	8,245	6,810	190,193	357,864	226,505	215,454	303,289	6,436				1,320,123
1990	2,778	2,273	8,027	91,300	286,458	370,528	144,132	216,385	3,057		407		1,125,345
1991	5,018	4,954	19,616	140,826	351,947	221,242	314,620	545,665	28,072	18,695			1,650,655
1992	3,693	1,751	23,501	35,490	265,645	137,260	97,314	311,659	5,282	434	9,624		891,653
1993	8,944	14,752	7,360	106,737	108,392	238,768	216,213	203,915	12,610	2,460			920,151
1994	9,994	718	46,858	177,965	169,740	332,846	258,478	591,571	1,872	0			1,590,042
1995	2,167	22,437	29,897	62,475	226,682	88,695	375,548	671,850	22,310		1,568		1,503,629
1996	1,576	5,413	5,695	90,704	193,861	183,408	573,706	1,104,251	16,320		0		2,174,934
1997	4,295	44,202	2,039	184,954	557,809	162,900	603,618	1,028,334	112,986	517	1,415		2,703,069
1998	896	718	15,838	191,181	463,525	290,051	429,678	920,558	21,392	2,183	0	618	2,336,638
1999	2,714	1,679	3,941	127,163	229,209	340,096	211,161	583,883	18,347	1,606	2,296		1,522,095
2000	3,276	4,181	5,585	71,247	286,752	475,348	253,073	760,279	42,406	7,342	712		1,910,201
2001	1,542	3,316		158,605	175,872	302,719	64,086	736,069	28,126	715	2,301		1,473,351
2002	1,842	852	90,245	90,170	178,110	100,467	102,405	492,876	24,962	1,796	1,420		1,085,145
2003	774	1,573	4,162	153,753	86,112	41,048	13,998	151,101	9,234	443	109	109	462,416
2004	1,114	9,815	153,589	237,395	158,111	15,832	2,524	228,536	7,596	0	0		814,512
2005	1,539	5,764	129,575	163,265	44,088	32,243	14,488	1,008,393	359		1,473		1,401,187
2006	1,578	3,501	7,123	153,696	43,081	754	5,642	489,440	9,123		5,948		719,886
2007	961	4,712	71,230	114,332	87,470	6,980	3,072	229,755	7,120		0		525,632
2008	1,470	5,909	25,794	137,564	27,939	2,000	3,607	298,076	30,543				532,902
2009	2,028	8,664	10,952	81,643	15,523	4,169	5,995	11,928					140,902
2010	589	3,113	9,672	50,932	4,303	4,787	31	2,261	3,423		0		79,111
2011	471	973	4,107	13,464	4,374	237	27	3,003	111				26,767
2012	988	4,603	13,593	40,299	21,791	11,401	4,139	114,330	5,055			0	216,199
2013	2,086	1,080	13,314	142,857	2,246	1,834	5,662	30,697	7,003		331		207,110
2014	905	3,377	11,065	26,308	9,084	1,062	3,295	6,520	644	0	0	0	62,260

Notes: FL: state-reported landings 1983-present (NMFS-reported estimates limited to Nassau and Duval Counties and adjusted on the basis of the genome proportions of weakfish within the Cynoscion-complex found in those counties' waters).

2013 WEAKFISH FMP REVIEW

Table 6. Recreational releases (numbers) of weakfish by state, from 1982 to 2014 (NMFS 2015, except as noted below table).

Year	FL	GA	SC	NC	VA	MD	DE	NJ	NY	CT	RI	MA	Total
1982			0	44,134	126,514	2,139	16,595	1,695	0	0	0		191,077
1983	806	173	0	10,560	45,565	15,642	22,221	155,116	15,870	0	0	0	265,953
1984	252		1,561	17,381	202,791	8,934	52,879	4,464	0	0	5,214	0	293,476
1985	302	152	3,279	2,138	82,071	12,114	36,924	246,284	0	0	0		383,264
1986	862	0	2,873	354,095	692,462	327,841	191,590	895,044	4,556	0	0		2,469,323
1987	547	89	0	71,659	233,441	299,172	149,810	182,019	1,266	0			938,003
1988	24	4,196	0	109,489	484,782	155,255	262,696	5,144	0	634			1,022,220
1989	0	0	1,019	34,074	52,191	53,148	42,640	22,841	1,980				207,893
1990	101	0	0	20,669	198,948	142,055	77,470	32,863	570		0		472,676
1991	1,556	0	0	11,457	361,768	40,349	90,529	238,646	33,046	2,108			779,459
1992	2,121	362	4,598	27,052	244,817	71,040	65,133	249,846	8,362	0	98		673,429
1993	3,397	840	267	52,468	245,211	225,510	274,968	281,450	20,995	0			1,105,106
1994	1,863	21,588	0	147,616	652,571	583,059	602,732	1,051,931	45,537	1,013			3,107,910
1995	2,006	572	0	154,008	939,970	178,937	1,119,535	1,613,831	81,236		98		4,090,193
1996	1,303	307	0	188,263	814,573	492,402	1,627,260	1,859,049	84,990		780		5,068,927
1997	6,596	0	2,938	209,122	1,404,092	323,653	941,536	975,280	90,549	1,213	163		3,955,142
1998	1,721	1,468	329	131,537	1,244,949	461,518	639,468	778,180	29,836	360	1,921	0	3,291,287
1999	2,818	0	13,616	149,377	818,959	753,266	385,626	551,283	35,459	0	8,436		2,718,840
2000	5,551	12,895	15,869	346,212	935,594	1,209,290	523,976	1,605,024	68,531	1,285	931		4,725,158
2001	2,541	13,537		886,943	633,443	737,240	235,580	1,064,609	69,123	0	358		3,643,374
2002	2,113	9,540	1,019	336,709	888,337	286,182	120,671	350,810	62,803	0	1,932		2,060,116
2003	2,556	21,212	1,966	153,563	504,129	180,827	45,439	631,438	7,286	1,233	0	0	1,549,649
2004	3,395	12,249	107,177	240,298	544,776	132,087	74,531	607,393	40,254	12,331	187		1,774,678
2005	2,007	29,623	56,663	241,674	355,792	55,270	110,000	1,279,930	193,556		0		2,324,515
2006	5,132	6,149	21,917	295,415	556,763	57,394	1,000,616	1,231,102	11,732		0		3,186,220
2007	949	19,890	90,224	148,938	229,453	106,308	23,823	581,435	200,574		1,784		1,403,378
2008	711	13,229	105,401	127,333	427,616	30,260	61,895	1,254,625	26,851				2,047,921
2009	285	12,438	40,292	125,649	84,700	6,700	4,430	82,282	6,038				362,814
2010	38	11,483	25,559	250,369	177,395	104,421	17,740	78,053	3,107			931	669,096
2011	520	14,576	5,165	109,483	288,304	18,500	6,568	99,964	55,172				598,252
2012	0	37,247	50,026	165,891	102,245	24,898	84,963	731,563	11,454			0	1,208,287
2013	561	8,362	7,602	109,006	81,263	10,078	24,299	90,268	5,974		14,520	0	351,933
2014	614	1,772	54,139	281,226	108,166	4,809	22,730	79,756	239	315	0	0	553,766

Notes: FL: state-reported landings 1983-present (NMFS-reported estimates limited to Nassau and Duval Counties and adjusted on the basis of the genome proportions of weakfish within the Cynoscion-complex found in those counties' waters).

2013 WEAKFISH FMP REVIEW

Table 7. Evaluation of the Coastwide Management Trigger (Section 3.3.1 of Addendum II to Amendment 4): percent change of each state’s 2014 total landings to its five-year (2009-2013) mean total landings

	FL	GA	SC	NC	VA	PRFC	MD	DE	NJ	NY	CT	RI	MA
2009-2013	1,748	2,543	8,332	158,301	57,870	53	4,987	13,835	70,806	69,530	2,836	13,798	942
2014	1,319	3,638	12,905	131,076	29,145	10	4,271	7,841	25,968	37,733	3,343	15,493	918
% change	-25%	43%	55%	-17%	-50%	-81%	-14%	-43%	-63%	-46%	18%	12%	-3%

Table 8. Biological sampling of weakfish in 2014, Massachusetts-Florida (Sampling requirements are based on Addendum I to Amendment 4 and 2014 landings data; values highlighted with red bold font do not meet sampling requirements).

	Samples Required		Samples Completed		Fisheries Sampled
	Otoliths	Lengths	Otoliths	Lengths	
MA*	1	2	0	0	NA
RI	21	42	82	82	commercial, RIDFW Trawl Survey
CT*	5	9	0	2,377	CT DEEP fall trawl survey
NY	51	89	175	175	commercial (GN, TR, PN, H&L)
NJ	35	24	108	108	NJ Ocean Trawl Survey
DE	11	12	80	80	commercial
MD	6	6	6	6	commercial (PN, GN)
PRFC	0	0	0	0	NA
VA	40	63	295	1,512	commercial (GN, PN, HS)
NC	178	286	509	2,608	commercial (HS, GN, TR, PN), otolith count includes samples from rec also
SC	18	0	21	21	recreational
GA*	5	0	0	0	NA
FL*	2	2	0	0	NA

* *de minimis* in 2014; not required to conduct sampling; sample numbers provided to show from what states were exempt
 NA=not applicable, GN= gill net, TR=trawl, PN=pound net, H&L=hook and line, HS=haul seine, BS=beach seine

2013 WEAKFISH FMP REVIEW

Table 9. Indices of relative weakfish abundance from 1980 to 2014.

Yr	RI Tr	CT Tr	CT Tr	NY Tr	NJ Tr	NJ Tr	DE Tr	DE Tr	DE Tr	MD Tr	MD Tr	VA Tr	NC Tr	NC Gn	GA Tr	FL Tr	FL Tr
	Coast	LIS	LIS	Coast	DE Bay	Ocean	DE Bay	Inland	DE Bay	ChesBay	Coast	ChesBay	Pamlico	Pamlico	Coast	Jax	IR&Jax
	YOY	YOY	1+	YOY	YOY	1+	YOY	YOY	1+	YOY	YOY	YOY	YOY	1+	0+	YOY	1+
	#/tow	GM#/tow	GM#/tow	AM#/tow	GM#/tow	GM#/tow	GM#/tow	GM#/tow	#/nm	GM#/tow	GM#/ha	GM#/tow	#/tow	#/set	#/obs hr	med/tow	med/tow
1980	17.1633	*	*	*	*	*	4.15	*	*	*	*	*	*	*	*	*	*
1981	36.4416	*	*	*	*	*	5.98	*	*	*	*	*	*	*	*	*	*
1982	19.5507	*	*	*	*	*	11.49	*	*	*	*	*	*	*	*	*	*
1983	3.13235	*	*	*	*	*	4.47	*	*	*	*	*	*	*	*	*	*
1984	5.03226	1	0.55	*	*	*	6.67	*	*	*	*	*	*	*	*	*	*
1985	19.1774	6.19	0.24	*	*	*	9.25	*	*	*	*	*	*	*	*	*	*
1986	2	13.17	0.24	*	*	*	12.79	1.14	*	*	*	*	*	*	*	*	*
1987	1.31373	0.63	0.11	1.5	*	*	5.82	1.26	*	*	*	*	12.14	*	*	*	*
1988	10.8571	2.9	0.06	0.2	*	*	4.73	0.81	*	*	*	8.13	101.5	*	*	*	*
1989	1.16667	8.69	0.02	6.9	*	2.23	11.11	2.2	*	0.44262	0.87025	11.74	14.2	*	*	*	*
1990	25.5333	5.56	0.08	2.3	*	1.01	8.73	2.95	*	0.9505	1.72023	4.46	50.2	*	*	*	*
1991	25.4103	11.95	0.31	56.5	2.2	1.01	20.07	5.87	31.43	0.78479	1.89331	3.16	36.96	*	*	*	*
1992	14.5143	3.03	0.18	23.4	1.01	1.4	14.72	2.51	23.83	3.23863	1.81496	6.78	42.71	*	*	*	*
1993	7.5	4.08	0.12	4.4	1.01	0.89	14.79	0.63	80.1	1.59272	0.91273	5.81	8.7	*	*	*	*
1994	15.1667	11.19	0.06	70.9	1.4	5.43	11.47	1.47	206.5	2.33092	1.83884	2.51	68.06	*	*	*	*
1995	0.2619	5.21	0.7	4.7	0.89	6.2	13.49	4.24	150	5.95141	4.44469	5.95	38.21	*	*	*	*
1996	124.667	15.23	0.56	220.4	5.43	3.95	12.13	1.18	233.8	6.39549	3.18307	7.26	72.07	*	*	*	*
1997	88.8333	12.38	0.89	82.4	6.2	3.48	15.4	2.07	110.4	4.28432	3.05986	6.81	32.79	*	*	*	*
1998	13.5122	5.02	0.28	4.8	3.95	0.59	11.35	1.35	102.07	5.8682	2.79961	7.6	70.44	*	*	*	*
1999	3.68293	30.93	0.39	40.5	3.48	1.05	13.51	1.99	92.56	3.25744	2.76387	6.78	99.9	*	*	*	*
2000	9.375	63.31	0.3	167.1	0.59	2.36	14.14	1.64	179.12	6.53832	2.33775	8.35	62.99	*	*	*	*
2001	19.3333	40.09	0.52	113.7	15.03	0.68	7.56	1.53	80.7	8.10129	2.55858	5.09	30.3	1.42	*	0.79	0.23
2002	8.4	41.35	0.16	145.2	19.7	1.59	5.96	1.31	144.98	3.91977	0.61066	6.93	22	1.4	*	1.45	0.52
2003	198	49.41	0.07	69.8	3.11	0.08	10.44	2.44	65.78	4.89255	5.64104	9.23	23.93	1.22	105.44	4.35	0.34
2004	1.88095	58.98	0.21	43.9	8.48	1.79	8.39	3.32	48.88	1.62152	3.39291	6.66	28.75	1.32	94.42	4.04	0.19
2005	128.925	25.86	0.12	226.5	20.6	0.46	16.82	3.84	29	3.54587	4.98447	5.69	28.76	1.24	32.08	1.83	0.73
2006	0.35714	1.05	0.29	55.1	12.24	0.19	5.35	1.6	106.31	2.41125	1.50213	6.34	39.09	0.92	79.96	1.78	0.44
2007	36.0976	63.93	0.06	92.12	25.53	0.83	13.7	2.98	43.16	1.6	2.32	5.35	56.8	0.43	159.64	1.68	0.46
2008	0.54762	9.07	0.08	51.5	7.86	0.35	6.74	1.02	45.94	0.79	0.23	5.77	50.3	0.49	75.55	1.66	0.39
2009	7.29	6.48	0.3	13.3	7.29	0.33	8.56	5.91	35.83	1.42	1.33	6.18	58.89	0.31	104.76	2.12	1.17
2010	7.95	-	-	15.3	10.51	0.69	11.98	3.49	43.57	1.68	2.16	14.11	32.45	0.48	128.48	0.74	0.70
2011	70.63	11.64	0.68	34.5	15.8	22.32	7.89	3.3	89.22	2.04	1.9	5.23	33.69	0.36	104.2	0.74	0.52
2012	122.3	21.96	0.73	9.4	1.26	0.23	7.55	3.44	106.43	0.46	0.46	3.02	40.66	0.92	91.64	1.79	0.65
2013	13.2	7.01	0.52	22.6	15.55	0.39	13.49	4.47	71.78	2.15	1.02	9.41	58.53	0.69	131.52	0.69	0.12
2014	1.27	41.53	0.08	97.7	4.87	0.98	13.67	4.71	38.01	2.95	1.28	3.77	32.83	0.5	64.16	0.62	0.19

XI. Figures

Figure 1. Estimated weakfish age 1+ biomass, fishing mortality, and natural mortality from 1982 to 2008 (NMFS 2009a, NMFS 2009b).

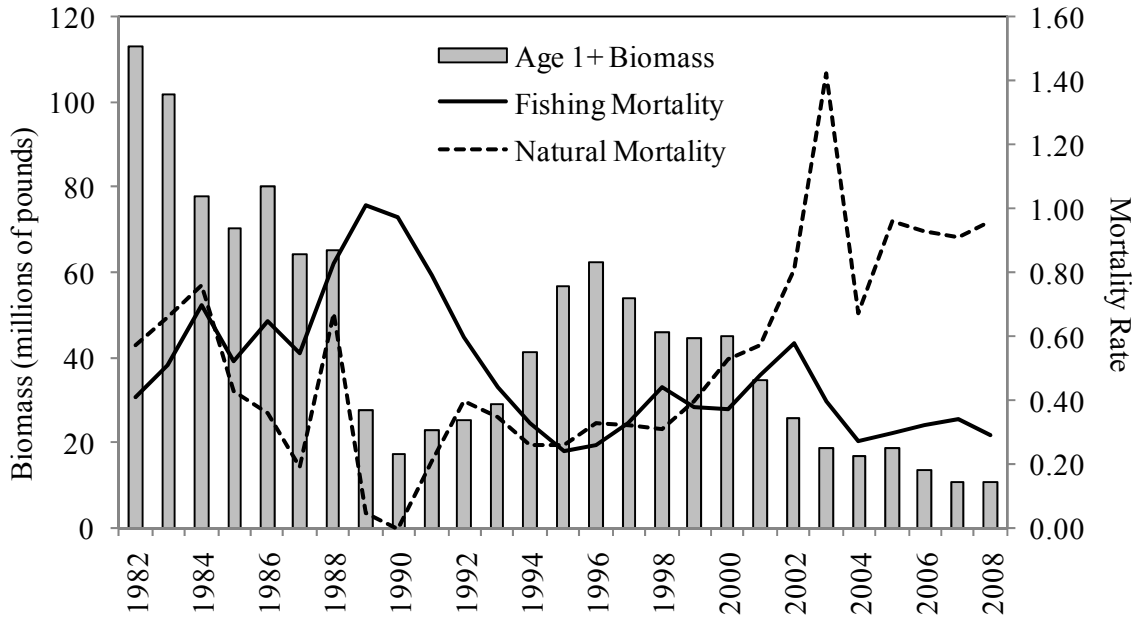


Figure 2. Commercial and recreational weakfish harvest (pounds), from 1982 to 2014 (see Tables 3 and 4 for source information and values).

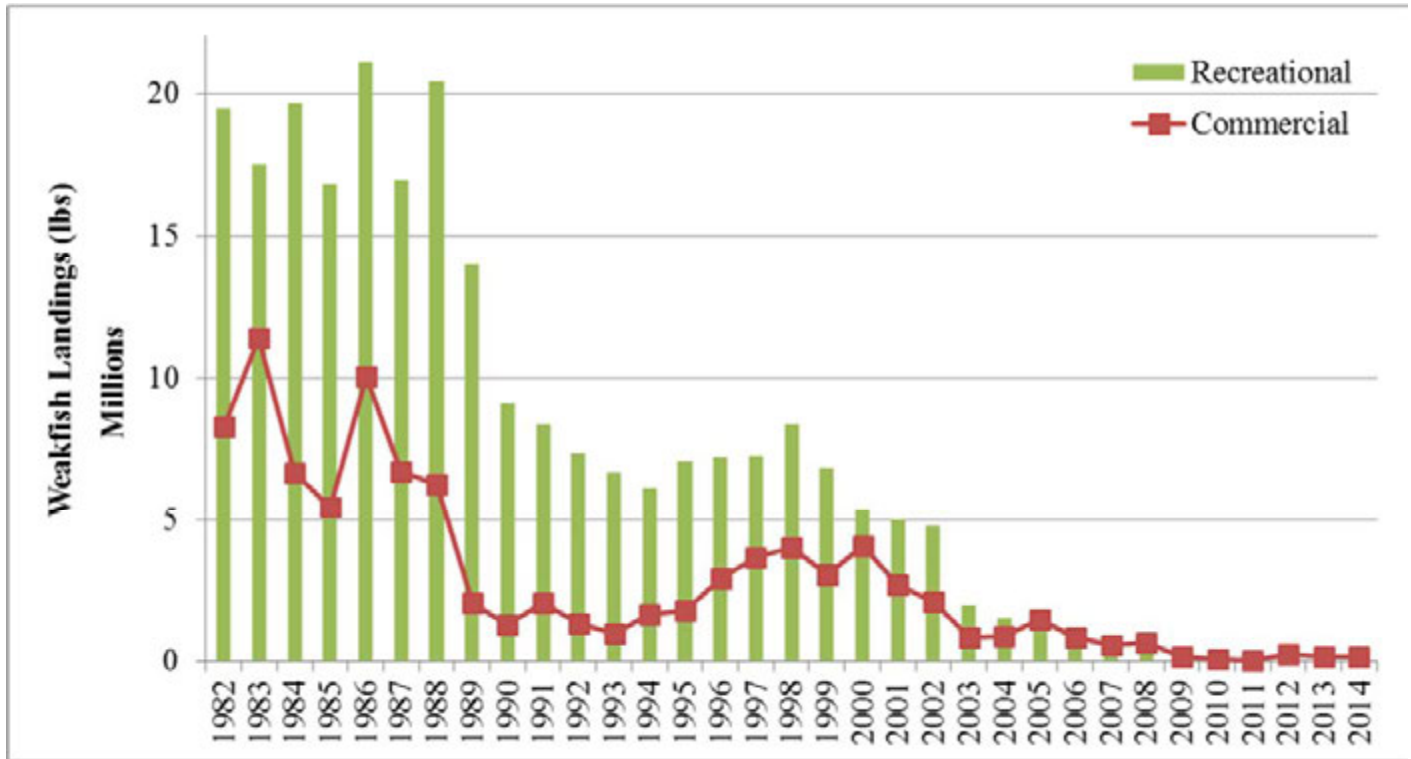


Figure 3. Percent total weakfish landings (pounds) by state, from 2010 to 2014.

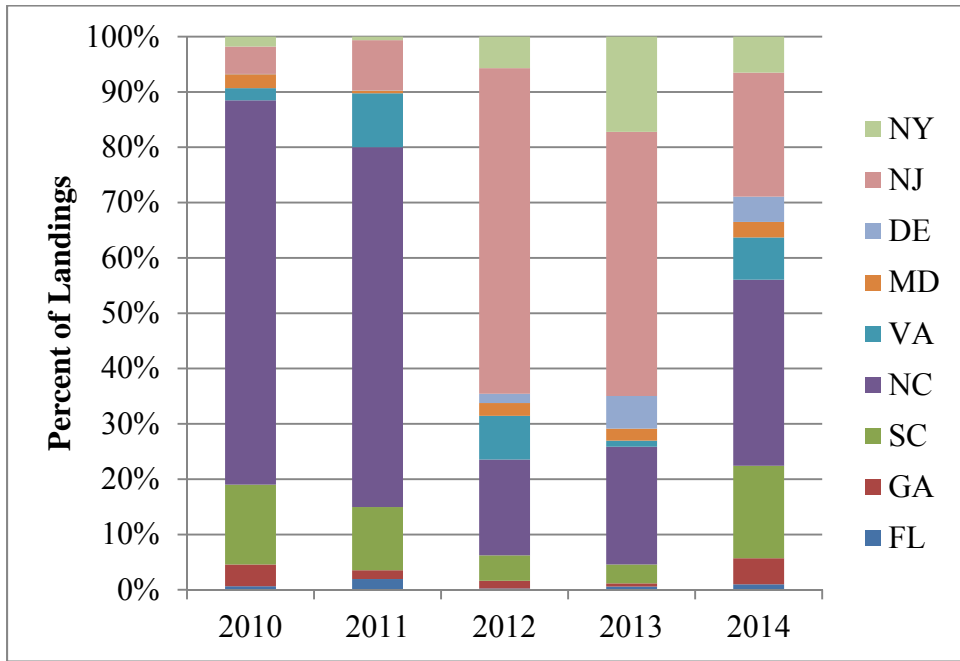
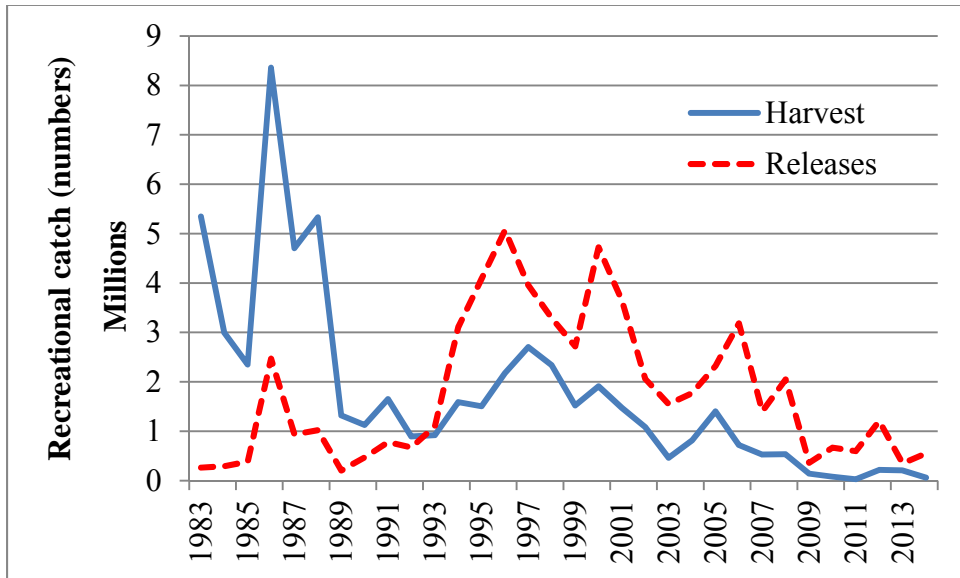


Figure 4. Recreational weakfish harvest and releases (number of fish), from 1983 to 2014 (see Tables 5 and 6 for source information and values).



Atlantic States Marine Fisheries Commission

Winter Flounder Management Board

*November 3, 2015
1:30 p.m. – 3:00 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

- | | |
|--|-----------|
| 1. Welcome/Call to Order (<i>M. Gibson</i>) | 1:30 p.m. |
| 2. Board Consent | 1:30 p.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from November 2014 | |
| 3. Public Comment | 1:35 p.m. |
| 4. Review the Groundfish Assessment for Gulf of Maine and Southern New England Stocks (<i>P. Nitschke</i>) | 1:45 p.m. |
| 5. Discuss Potential Management Response to the Operational Assessment (<i>M. Gibson</i>) | 2:20 p.m. |
| 6. Elect Vice Chair Action | 2:55 p.m. |
| 7. Other Business/Adjourn | 3:00 p.m. |

The meeting will be held at the World Golf Village Renaissance, 500 South Legacy Trail, St. Augustine, FL

Vision: Sustainably Managing Atlantic Coastal Fisheries

MEETING OVERVIEW

Winter Flounder Management Board

November 3, 2015

1:30 – 3:00 p.m.

St. Augustine, Florida

Chair: Mark Gibson	Technical Committee Chair: Paul Nitschke	Law Enforcement Committee Kurt Blanchard
Vice Chair: VACANT	Advisory Panel Chair: Bud Brown	Previous Board Meeting: October 27, 2014
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, NMFS, USFWS (10 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 27, 2014

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Section Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Section Chair may allow limited opportunity for comment. The Section Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Review the Groundfish Assessment for Gulf of Maine and Southern New England Stocks (1:45 – 2:20 p.m.)

Background

- The Northeast Fisheries Science Center conducted an operational stock assessment through 2014
- Gulf of Maine: Stock biomass is unknown, overfishing is not occurring
- Southern New England: Overfished, overfishing is not occurring
(Operational Assessment in Supplemental Materials)

Presentations

- Winter Flounder Operational Assessment by P. Nitschke.

5. Discuss Potential Management Response to the Operational Assessment (2:20 – 3:00 p.m.)

6. Elect Vice Chair

7. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
WINTER FLOUNDER MANAGEMENT BOARD**

The Westin Alexandria Hotel
Alexandria, Virginia
February 4, 2015

**These minutes are draft and subject to approval by the Winter Flounder Management Board.
The Board will review the minutes during its next meeting.**

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INDEX OF MOTIONS

1. **Approval of agenda by consent** (Page 1).
2. **Approval of proceedings of February, 2014 by consent** (Page 1).
3. **Motion to adjourn** by consent (Page 6).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	David Simpson, CT (AA)
Steve Train, ME (GA)	Lance Stewart, CT (GA)
Doug Grout, NH (AA)	James Gilmore, NY (AA)
G. Ritchie White, NH (GA)	Katherine Heinlein, NY, proxy for Sen. Boyle (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Emerson Hasbrouck, NY (GA)
Bill Adler, MA (GA)	Tom Baum, NJ, proxy for D. Chanda (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Tom Fote, NJ (GA)
David Pierce, MA, proxy for P. Diodati (AA)	Roy Miller, DE (GA)
Mark Gibson, RI, proxy for B. Ballou (AA)	John Clark, DE, proxy for D. Saveikis (AA)
Rick Bellavance, RI, proxy for Sen. Sosnowski (LA)	Peter Burns, NMFS
	Mike Millard, USFWS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Staff

Robert Beal
Toni Kerns

Melissa Yuen
Kirby Rootes-Murdy

Guests

Jason McNamee, RI DEM
Megan Lapp, Seafreeze, Ltd.

Arnold Leo, Town of E. Hampton, NY

Draft Proceedings of the Winter Flounder Management Board Meeting February 2015

The Winter Flounder Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, February 4, 2015, and was called to order at 10:45 o'clock a.m. by Chairman Mark Gibson.

CALL TO ORDER

CHAIRMAN MARK GIBSON: Welcome to the Winter Flounder Board. We have a pretty short agenda; in fact, a truncated agenda.

APPROVAL OF AGENDA

CHAIRMAN GIBSON: The first item is the approval of the agenda. You will note that a couple of items have been deleted from it for timeliness; the FMP Review and State Compliance Report.

The only thing on the agenda is actually to review and setting of the 2015 specifications. With that, are there any objections to the agenda as presented? Seeing none; the agenda stands approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN GIBSON: The next item is approval of proceedings from the October 2014 annual meeting. Are there any requests for edits? Yes.

MR. EMERSON C. HASBROUCK, JR.: Mr. Chairman, I'd just like the minutes to reflect that I did in fact attend that board meeting. I arrived a little bit late. I guess it was after the attendance went around.

CHAIRMAN GIBSON: Thank you, Emerson. Anything else on the proceedings? Is there any objection to approval of the proceedings? Seeing none; they stand approved.

PUBLIC COMMENT

The next agenda item is the opportunity for public comment. This would be on items not on the agenda and that is not related to the 2015 specifications. Is there anyone from the

audience wishing to comment or address this board? Seeing none; we will go right to Item 4, the 2015 specifications. Melissa.

WINTER FLOUNDER 2015 SPECIFICATIONS

MS. MELISSA YUEN: We will talk about the winter flounder specifications for the 2015 fishing year, which starts on May 1st. As a review, the specifications' process for the Gulf of Maine and Southern New England stocks were established by Addendum III to Amendment 1. The management board can adjust the following commercial and recreational management measures listed here.

This table shows the current management measures. There is a 12-inch size limit across the table. The commercial trip limit is 500 pounds for Gulf of Maine and 50 pounds or 38 fish for Southern New England/Mid-Atlantic Area. The recreational bag limits are eight fish in Gulf of Maine and two fish in Southern New England.

For the 2014 season the Southern New England recreational season was extended from March 1st through December 31st. At this time the federal specifications have not yet been finalized. This table shows the preferred options. As you can see, the state water sub-component; it is not a catch limit. Rather, it is based on recent catch landings.

Since we have not been catching as much as the sub-component in recent years, it has been reduced to 17 percent of the ABC, which is down from 25 percent in 2014. This equates to 87 metric tons. The annual catch limit for the Gulf of Maine has been reduced to 489 metric tons. This is down from 1,040 in 2014. This is based on the stock assessment update that was completed last year.

In Southern New England, the state waters sub-component is reduced to 7 percent of the ABC, which is down from 14 percent in

Draft Proceedings of the Winter Flounder Management Board Meeting February 2015

2014. This equates to 117 metric tons. The annual catch limit is only slightly down from last year's preferred option at 1,607 metric tons. A brief review of the advisory panel and technical committee reports that were given in October; the advisory panel has no additional comments.

They maintain that they wish to reduce the bag limit in Gulf of Maine proportionate to the federally specified ABC. For Southern New England they also stand by having a moratorium on fishing. The technical committee has no additional comments to their report from the last time. Thank you, Mr. Chairman.

CHAIRMAN GIBSON: Are there any questions for Melissa? Doug.

MR. DOUGLAS E. GROUT: This is about a question in the Gulf of Maine. The ABC and the ACL was cut by more than 50 percent. Our state sub-component; is that reflective of that kind of a change here? Was our landings reflective – was that 87 metric tons reflective of what we've have been landing in the past few years or reflective of what we've been landing in the past few years plus a cut of 50 percent?

MS. YUEN: I believe it is based solely on the past landings.

MR. DAVID SIMPSON: I'm not sure it is a question for Melissa or perhaps you; but I was wondering at our last board meeting we urged NOAA Fisheries and the New England Council to consider a more conservative approach on winter flounder harvest in Southern New England. I wondered if we could get a report back on progress on that front.

CHAIRMAN GIBSON: I don't know that it has been – I'm not aware that it has been done.

MS. TONI KERNS: A letter has been sent and we did discuss it at the last NRCC meeting that we do have these concerns for winter flounder and that we want to do a more collaborative management process with the New England

Council. Both Bob and I have sat down and talked with Tom Nies a little bit about it as well as with Terry.

We do have commissioners that are here at the table that also sit on the New England Council; and so I think it is going to be a collaborative effort between us and the board members to really get the New England Council to engage in this discussion in order to get this effort moving forward to really have these concerns addressed.

CHAIRMAN GIBSON: Dave, I guess the direct answer is, no, you and I have not collaborated with the commission on the letter to the council; so if the board still feels strongly that needs to be done, then we need to do that.

MR. SIMPSON: Okay, and I think it is beyond just the council. I think the expansion of the TAC was sort of my impression at the urging of NOAA trying to look for a way to mitigate effects of the groundfish disaster. I recall pretty stern urging from NOAA Fisheries and from the former regional administrator when they were looking to zero out harvest, and they did zero out harvest in federal waters, and they were urging the commission to stay with them on this conservation track.

And, you know, we continue to allow a 50-pound bycatch and now we've done this flip-flop where I'm concerned that the little bitty gains we've made on winter flounder, which is a coastal nearshore spawner, that we're losing those modest gains. I just think in terms of beyond the council, NOAA Fisheries needs to grab hold of this and be more aggressive at conserving this stock.

MR. HASBROUCK: My question is for the Southern New England and Mid-Atlantic and similar to the question for Gulf of Maine. The reduction for Southern New England and Mid-Atlantic from 14 percent to 7 percent;

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again is that based on a reduction in the TAC and/or the fact that landings in 2014 were at that 1,607 metric ton level? If so, what are the landings for Southern New England and Mid-Atlantic for 2014?

MS. YUEN: To answer the first part of your question, it is again based on recent catch landings. I don't have the numbers pulled up for me right now, but I can get back to you on that if you want the actual catch landings.

CHAIRMAN GIBSON: Yes; so it is the recent catch history. You can see on the slide what the catch limit was, 1,612 and 1,607, so it is very close. The 7 percent is based on the recent catch performance.

MR. HASBROUCK: Right, but the 1,612; those were the landings last year or that was the landing limit last year? That was 14 percent of the TAC or maybe I'm just not following this.

MS. YUEN: In Southern New England the annual catch limit has not been changed because the stock assessment update will be completed this year. The Gulf of Maine was reduced because the update was done last year. They base it on the stock assessment results.

MR. THOMAS FOTE: Yes; that 1,607 is really an interesting figure; because if we looked at the catch in state waters, it is not 1,607. That is basically the landings that were landed in the EEZ and landed in state waters, if I'm correct, so we should be able to pull out the two sectors of what is being caught in state waters.

There were none of those great numbers. Those are from the 5,000 pound trip limits that went out; also the recreational catch, because of the small bag limit, and the truncated season that they were forced into. We shouldn't be using any of those points over the years as we look at them because it is a whole different ballgame. I like to see what happened in federal waters and what happened in state waters being broken down.

MS. KERNS: Just to clarify and just to help refresh everybody's memory; the total annual catch limits are set based on assessment information for both stocks. As Melissa said, Gulf of Maine was updated so that's why there was a large adjustment between this year and last year. Then based on that, then the council makes recommendations to NOAA Fisheries for each of the sub-component fisheries in federal waters. They take what the average state landings have been in the past and have that number and subtract that from the ACL.

We are not held accountable to those landings because we do not have a quota. Those state waters sub-components go up and down as state water landings go up and down. The federal fisheries, so those federal sub-components are held accountable to their quotas. They have accountability measures that are attached to them; so that total annual catch limit is the total allowable catch for all of the fisheries; but knowing that our state waters landings are not accountable and can fluctuate, that's why our numbers go up and down.

MR. FOTE: That really doesn't get to the point of what I'm talking about is that the state landings, because 50-pound trip limits are so small because we constricted them; so I'd like to know what the catch was from last year from federal waters that came in to landing in the state waters. They were all done by draggers and were not done by the

—

MS. KERNS: The state water landings that they use to figure out what the state water sub-component is only for those landings that are occur from state permit holders. It doesn't account for the landings that occurred in federal waters and then were landed in the state. Obviously, all the federal water landings have to get landed in each of the states, but they associate the

Draft Proceedings of the Winter Flounder Management Board Meeting February 2015

landings with the appropriate permit that they have. Because it is a groundfish species, there are very strict reporting requirements for those and so you can distinguish those landings.

CHAIRMAN GIBSON: Melissa has some additional information for you.

MS. YUEN: For the commercial sector and common pool catch monitoring, I have some data for those sub-components. In the 2014 fishing season, in Gulf of Maine, again the sector and common pool only caught 23.7 percent of their sub-quota. In Southern New England they only caught 65.2 percent.

DR. DAVID PIERCE: Toni said much of what I was going to say, but I'll add a little bit. The state sub-component is not a specific state allocation. It is an amount the New England Council essentially says to us, ASMFC, to state permit holders, no federal permit, this is what we'd like you to catch and no more. That is pretty much what it is.

In a sense it is guidance; assumed take by fishermen in state waters who have state permits only. We always wonder every year what should the state sub-component be? Unfortunately it always comes down to what did the states take, state permit holders only; all right, then that will be your number for the next year.

The more restrictive ASMFC is to deal with our problems inside state waters, our need to conserve and to rebuild, to cut effort on winter flounder, we find ourselves consistently faced with less available as a sub-component that the council – of which I am a part – that the council expects ASMFC to live with as best we can.

We have done that consistently, but now we see that the state sub-component for 2015 is dropping from 25 to 17 in the Gulf of Maine; Southern New England/Mid-Atlantic from 14 to 17 percent. Certainly, those with state permits only in our different states can argue where is

the fairness of that; and it is a very legitimate question to ask. I think most states have said consistently relative to these particular state sub-components that most of our fishermen, commercial fishermen, anyways, are federal permit holders.

Therefore, when we have to discuss the state sub-component, we tend to favor the federal approach, the council approach, because most of our fishermen are federal permit holders. But when it comes time to address recreational fishermen, the state sub-component that pertains to them; well, it is a different story because it is pretty much all inside state waters certainly in the Gulf of Maine and I think primarily Southern New England/Mid-Atlantic.

I guess it comes down to this board making the call do we feel that we should stay at 25 percent in 2015 for the Gulf of Maine and should we stay at 14 percent in 2015 for Southern New England/Mid-Atlantic and then take necessary actions to restrain to catch to those amounts. To me that is the question.

I will also add and then end that with regard to Gulf of Maine codfish; in order to deal with the Gulf of Maine cod problem that we had a few years ago and it still exists, the collapse of the Gulf of Maine stock; the sub-component of the Gulf of Maine cod sub-component was reduced by the National Marine Fisheries Service.

The fish were in a sense given to federal permit holders in order to assist those federal permit holders; and I supported that because of the concern we had above Gulf of Maine cod and our federal permit holders. I'm not prepared to make a motion, but maybe I will. When it is time a motion, Mr. Chairman, I will make one with regard to the state sub-component for 2015.

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MR. RICK BELLAVANCE: Dr. Pierce pretty much hit the nail right on the head with what I was thinking. I feel like industry is concerned with what they see as a perceived shift of the resource from a state waters fishery to a federal fishery. We should be aware of that and I'm looking forward to Dr. Pierce's motion.

CHAIRMAN GIBSON: There is a point I forgot to make, and the staff can correct me if I'm wrong, but if the board takes no action, these specifications stay in place. They don't expire so no action would mean status quo and we would roll these over. If we want to change them, then, of course, we'd need a motion. Dave Simpson.

MR. SIMPSON: I guess there is a couple of parts. One, I'm thinking along the same lines as Dr. Pierce and Rick Bellavance. The other is I recall reading something about in the future a stock assessment – some revising of the assessment areas for winter flounder and that maybe – am I remembering this correctly that the entire coast would be assessed as one unit, Gulf of Maine and Southern New England along with Georges?

I'm getting puzzled looks so maybe I'm remembering the wrong species at the wrong time or something, but I seem to recall reading that was one of the considerations for the next assessment. Not seeing anything clear coming out of there: I'm torn because you know I would like to see winter flounder mortality reduced to very close to zero.

I think we're taking appropriate action in the states, at the commission. I think there has been a little bit of we're going to use a little bit of rebuilding to ease economic concerns for the groundfish industry. I maybe get that a little bit more in the Gulf of Maine but in Southern New England – I think the greatest impact economically has been in the Gulf of Maine and not in Southern New England; so a subsidy in the form of higher quotas in Southern New England I think is misplaced.

I will also observe that it is in the high 90 percent level that these landings go to one state; so this isn't broadly shared by even federal permit holders across multiple Southern New England states. It all gets landed in one state, generally speaking. There is probably 5 percent that gets landed elsewhere.

That leads to consider taking a more aggressive approach, as much as it is distasteful to me, to increase take in state waters. If we can't achieve conservation, why don't we just cash in on some of this biomass out there and increase trip limits for the commercial fishery to one or two thousand pounds and open up the recreational fishery for whatever fish they can find they can have, because we're not achieving any conservation by going it alone on winter flounder.

MR. FOTE: I disagree with Dave's last statement. I mean it is very difficult. A lot of my commercial fishermen in state waters don't have federal permits because they're pound net fishermen and they depend on that for their livelihood. They've taken a real economic hit, which we could point out if we had economic statistics on winter flounder by going to 50 pounds or 38 fish is what we do in New Jersey.

The recreational sector; it put a lot of tackle stores out of business because they're not catching that many to make it worthwhile to go out. We didn't complain about that. We were fine with doing that. They screamed a little and they yelled a little about the recreational and the commercial, but we were rebuilding the stock.

But what happened last year with 5,000 pound trip limits – and I did look at the state landings compared to the federal landings; and it would take I think the recreational community a thousand years to catch what one boat in ten trips; and the same with the

Draft Proceedings of the Winter Flounder Management Board Meeting February 2015

commercial pound net fishermen in our state; it would take them ten years to catch up to what they caught in ten trips. I think we need to basically address this because this is not fair and equitable. You're right, the landings are going to one state.

CHAIRMAN GIBSON: Dave Pierce, are you ready to make a motion?

DR. PIERCE: I was prepared to go with status quo so no motion is required.

CHAIRMAN GIBSON: Are there any other comments from the board on this matter; recognizing that we will be a status quo for fishing year 2015 absent an action otherwise? I think that's where we are; we will have status quo for 2015. Dave Pierce.

DR. PIERCE: I consider that to be an appropriate action. I need to highlight something that will be presented at the NEAMAP Board coming up later on this afternoon. A presentation is going to be given by Dr. Armstrong of our bottom trawl survey inside state waters; the Gulf of Maine and Southern New England in our waters, of course.

We're continuing to get nothing but bad news relative to winter flounder in those geographic locations. We continue to see abysmal levels of winter flounder in both regions. In the Southern New England we're now again at a historic low. It keeps getting lower and lower every year. We're seeing that in the Gulf of Maine as well for our spring survey. It still is a necessity for us to be conservative and restrictive in our waters to deal with this lack of fish, this low abundance, notwithstanding whatever percentage we are allocated as a sub-component.

ADJOURNMENT

CHAIRMAN GIBSON: Is there any other business to come before the Winter Flounder

Board? Seeing none; a motion to adjourn. Moved and seconded by everyone. Thank you very much; we stand adjourned.

(Whereupon, the meeting was adjourned at 11:10 o'clock a.m., February 4, 2015.)

Atlantic States Marine Fisheries Commission

Atlantic Menhaden Management Board

*November 3, 2015
3:15 – 5:45 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*R. Boyles Jr.*) 3:15 p.m.
2. Board Consent 3:15 p.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 3:20 p.m.
4. Update on Draft Amendment 3 Development 3:30 p.m.
 - Revisiting Fishery Allocation (*M. Waine*)
 - Ecosystem Management Objectives Workshop (*S. Madsen*)
5. Biological Ecological Reference Point Working Group Report (*M. Cieri*) **Action** 4:00 p.m.
 - Recommendations for Models Based on Ecosystem Management Objectives
 - Timeframes for Ecological Based Reference Points
6. Discuss Draft Amendment 3 Timeline and Direction (*M. Waine*) 4:30 p.m.
7. Discuss Allowance of Cast Nets under the Bycatch Provision of Amendment 2 (*R. Boyles Jr.*) **Possible Action** 5:15 p.m.
8. Other Business/Adjourn 5:45 p.m.

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

Atlantic Menhaden Management Board Meeting
November 3, 2015
3:15 – 5:45 p.m.
St. Augustine, Florida

Chair: Robert Boyles Jr. (SC) Assumed Chairmanship: 8/13	Technical Committee Chair: Jason McNamee (RI)	Law Enforcement Committee Representative: Kersey
Vice Chair: Robert Ballou (RI)	Advisory Panel Chair: Jeff Kaelin (NJ)	Previous Board Meeting: August 5, 2015
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (17 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Update on Draft Amendment 3 Development (3:30 – 4:00 p.m.)

Background: Revisiting Fishery Allocation

- At its May 2015 meeting, the Board initiated Draft Amendment 3 which will consider changes to the management program including ecological reference points and revisiting allocation.
- The Board established a Board Working Group (WG) to aid in the development of issues to be addressed in Draft Amendment 3.
- The WG met several times via conference call between the August and November Board meetings to continue discussing potential allocation options for inclusion in the Draft Amendment 3 development process (**Briefing Materials**).
- The Committee for Economic and Social Sciences (CESS) is working on a request for proposal to evaluate the current socioeconomic importance of the Atlantic menhaden fishery. It is expected that the socioeconomic analysis will help the board evaluate the trade offs of different allocation scenarios. The timeline for completing the socioeconomic work is 12-18 months.

Background: Ecosystem Management Objectives Workshop

- A facilitated workshop with participation from managers, industry, and technical advisers was held to develop ecosystem management objectives for the Atlantic menhaden fishery (**Briefing Materials**).
- Staff will provide a progress report on the development of Draft Amendment 3 as it relates to revisiting allocation, and exploring ecosystem management objectives

Presentations

- Revisiting Fishery Allocation by M. Waine
- Ecosystem Management Objectives Workshop by S. Madsen

5. Biological Ecological Reference Point Working Group Report (4:00 – 4:30 p.m.) Action**Background**

- The BERP WG has identified potential modeling approaches to develop ecosystem based reference points that address ecosystem based management objectives identified by the facilitated workshop conducted in August (**Supplemental Materials**).
- The BERP WG estimates that with the recommended modeling approaches the ecological reference point (ERP) development timeframe is estimated at 3-4 years.

Presentations

- Model Recommendations and Timeframes for ERP Development by M. Cieri

Board actions for consideration at this meeting

- Task BERP WG with ERP development

6. Discuss Draft Amendment 3 Timeline and Direction (4:30 – 5:15 p.m.)**Background**

- The CESS is working on a request for proposal to evaluate the current socioeconomic importance of the Atlantic menhaden fishery. It is expected that the socioeconomic analysis will help the board evaluate the tradeoffs of different allocation scenarios. The timeline for completing the socioeconomic work is 12-18 months.
- The BERP WG estimates that with the recommended modeling approaches the ERP development timeframe is estimated at 3-4 years.
- The Board will discuss a timeline and provide direction for moving forward with Draft Amendment 3 given the pending work schedules of the CESS as it applies to revisiting allocations and the BERP WG as it applies to developing ecosystem based reference points.

7. Discuss Allowance of Cast Nets under the Bycatch Provision of Amendment 2 (5:15 – 5:45 p.m.) Action**Background**

- At its February 2014 meeting, the Board approved a motion to manage cast net fisheries for menhaden under the bycatch allowance for 2014 and 2015, with the states bearing responsibility for reporting.
- From 2013-2014, cast nets landed an average of 750,823 pounds accounting for approximately 0.2% of the total landings (preliminary data, subject to change).

Presentations

- Background on Performance of Atlantic Menhaden Cast Net Fisheries by M. Waine

Board actions for consideration at this meeting

- Consider the expiring provision that manages cast net fisheries under the bycatch allowance.

8. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ATLANTIC MENHADEN MANAGEMENT BOARD**

**The Westin Alexandria
Alexandria, Virginia
August 5, 2015**

**These minutes are draft and subject to approval by the Atlantic Menhaden Management Board
The Board will review the minutes during its next meeting.**

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INDEX OF MOTIONS

1. **Approval of Agenda by Consent** (Page 1).
2. **Approval of Proceedings of May, 2015 by Consent** (Page 1).
3. **Motion: Move to defer action on quota rollover until the adoption of Amendment 3** (page 13).
Motion by Louis Daniel; second by Jim Gilmore. Motion carried (page 15).
4. **Motion to adjourn by Consent** (Page 15).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	Roy Miller, DE (GA)
Rep. Walter Kumiega, ME, proxy for B. Langley (LA)	Craig Pugh, DE, proxy for W. Carson (LA)
Doug Grout, NH (AA)	Lynn Fegley, MD, proxy for D. Goshorn (AA)
G. Ritchie White, NH (GA)	Bill Goldsborough, MD (GA)
Dennis Abbott, NH, proxy for D. Watters (LA)	Dave Sikorski, MD, Proxy for D. Stein (LA)
Jocelyn Cary, MA, proxy for S. Peake (LA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
David Pierce, MA (AA)	Kyle Schick, VA, proxy for R. Stuart (LA)
Bill Adler, MA (GA)	Catherine Davenport, VA (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Louis Daniel, NC (AA)
Robert Ballou, RI (AA)	Bob Steinburg, NC (LA)
David Simpson, CT (AA)	Robert Boyles, Jr., SC (AA)
James Gilmore, NY (AA)	Ross Self, SC, proxy for R. Cromer (LA)
Emerson Hasbrouck, NY (GA)	Tom Fote, GA (GA)
Katherine Heinlein, NY, proxy for P. Boyle (LA)	Patrick Geer, GA, proxy for Rep. Burns (LA)
Tom Fote, NJ (GA)	Jim Estes, FL, proxy for J. McCawley (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Thad Altman, FL (LA)
Adam Nowalsky, NJ, proxy for R. Andrzejczak (LA)	Martin Gary, PRFC
Loren Lustig, PA, (GA)	Derek Orner, NMFS
Tom Moore, proxy for M. Vereb (LA)	Wilson Laney, USFWS
John Clark, DE, proxy for D. Saveikis (AA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Lloyd Ingerson, Law Enforcement Representative
Jason McNamee, Technical Committee Chair
Jeff Kaelin, Advisory Panel Chair

Staff

Shanna Madsen
Bob Beal
Toni Kerns
Mike Waive

Draft Proceedings of the Atlantic Menhaden Management Board Meeting August 2015

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 5, 2015, and was called to order at 2:55 o'clock p.m. by Chairman Robert H. Boyles, Jr.

CALL TO ORDER

CHAIRMAN ROBERT H. BOYLES, JR.: Good afternoon, everybody. My name is Robert Boyles. I have the privilege as serving as the Chair of the Atlantic Menhaden Board. We'd like to call the Menhaden Board Meeting to order.

APPROVAL OF AGENDA

CHAIRMAN ROBERT H. BOYLES, JR.: The first item on the agenda I'm seeking is your consent for the approval of the agenda, which was submitted to as part of the briefing package. Are there any additions to the agenda; any changes to the agenda? I see none, so the agenda will stand adopted as presented.

APPROVAL OF PROCEEDINGS

CHAIRMAN ROBERT H. BOYLES, JR.: The next item is the approval of proceedings from our last meeting in May of 2015. Again, those proceedings were included in the briefing package. Any additions or edits to those proceedings? Seeing none, I'm seeking consent to approve those proceedings as presented. Those proceedings are approved as submitted.

PUBLIC COMMENT

CHAIRMAN ROBERT H. BOYLES, JR.: Next on the agenda is time for public comment. This is the time for members of the public who may wish to address the board for items that are not on the agenda. I've got no one who has requested time to make comments to the Menhaden Board; but I'll ask one more time just to make sure. I see no requests for public comments; so we will roll on right to the Update on Draft Amendment 3 and turn it over to Mike Waine.

UPDATE ON DRAFT AMENDMENT 3 DEVELOPMENT

MR. MIKE WAINE: I'm going to take a few moments here and walk everybody through sort of where we're at with Amendment 3 to the Fishery Management Plan for Atlantic Menhaden. A quick overview; in May – this was our last meeting – the board initiated Amendment 3. In this presentation I'll review the development and timeline.

That will include two major issues that have initially been scoped in this amendment, which are ecosystem-based reference points and a revisiting of allocation. I'll talk about a socioeconomic analysis. I will also talk about the process that is involved in the completion of Amendment 3. Starting with ecosystem reference points, the process that is currently occurring is the initial phase of scoping to draft the amendment.

As I talked about earlier at the Tautog Board, we've got two different rounds of public input that happens during an amendment process. The first is a public information document and the second is the actual amendment. All of the things that I'm about to talk to are things that are happening prior to us actually drafting the PID.

I'll get into that a little bit later, but I'm starting with ecosystem reference points. This is really the first step. We're going to establish a range of management objectives; and to do that the board established a working group, which has got representation from the management board, representation from the advisory panel and representation from our technical folks, including the Ecological Reference Point Working Group that has been essentially working on ecosystem reference points for quite some time.

**UPDATE ON ECOSYSTEM MANAGEMENT
OBJECTIVES WORKSHOP**

MR. MIKE WAINE: We've got this multi-representative panel that's going to have a workshop at the end of this month for two days. That workshop is going to be facilitated by Dr. Mike Jones. He was the SEDAR 40 Peer Review Chair that we just had for the benchmark stock assessment in 2015. Ultimately the intent of this workshop is to refine a consensus list of objectives for the board to review during their annual meeting.

What I mean when I say that is we anticipate that this panel of multiple different representatives will come up with up with a list of potential ecosystem management objectives that the full board can review in November. The workshop process is the step that we're going through to create that list. Ultimately from that the board would then task the development of ERPs that are based on that final list of potential objectives.

What ultimately we expect to happen is there is going to be a quantitative component to this as well; so matching up with whatever the management objectives end up being, there will be quantitative modeling that goes along with producing ERPs. There is some work that will need to be done after the board sort of reviews that initial cut of what potential management objectives there could be. That is essentially the process. It is slightly new for the commission so I spent a little more time on it.

Prior to that workshop we're going to have a webinar for this panel. On that webinar we're going to review the topics to be covered, expectations and anticipated outcomes of this workshop. Mike Jones, the facilitator, will be going through a case study that will be applicable to sort where we're at with menhaden management.

He is going to pull from the Great Lakes Region to give that panel some idea of how the workshop will occur and what we're looking to be the products coming out from that. Also this webinar that is going to occur in a couple of weeks will also allow that larger workgroup to provide feedback and ask questions on the process.

**REVIEW OF FISHERY ALLOCATION
DEVELOPMENT**

MR. MIKE WAINE: The next big topic that is being scoped through Amendment 3 is the revisiting of allocation. I just wanted to take a moment to remind the board of where we're at with this and how we got to this point. In Amendment 2, which is currently the amendment the fishery is operating under, there is a provision in there that the board will revisit allocation in 2016.

That was three years after the implementation date of Amendment 2, which was January 1, 2013. Right now we have a total allowable catch – for the coast it is allocated by states, and that allocation is based on the average landings from the years 2009 through 2011. State-by-state allocation; currently we have this revisit provision that has included this allocation topic to be scoped in Amendment 3.

Where are we at with this process? This same board sub-group that I mentioned for the Ecosystem Management Objective Workshop is also working on this revisiting allocation. Initially they're exploring a full range of allocation options. They're considering old and new concepts; so concepts that we had initially scoped through Amendment 2, when we first were considering allocation in this fishery.

Really, their intent here was to start broad and then focus on the specifics. This board sub-group came up with the draft goal of fair and equitable distribution of the coast-wide total

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allowable catch among states and jurisdictions, regions and fishery interests. Over the next couple of slide I'm going to walk through basically a comprehensive list that this board's working group put together.

It represents basically where we're at in the process of them developing the initial ideas about what revisiting allocation would look like. The allocation options to be considered in this – and this is essentially the list that came out of some working meetings from this group – are coast-wide quota, regional quotas, state-by-state quotas which we currently use, seasonal quotas, separate quotas for bait and reduction fisheries – those are the end users – the disposition of the catch, separate quotas for different fleets or small, medium and large-scale fisheries within the larger menhaden fishery.

That is a gear type/harvest capacity allocation idea. There is a couple of others that were a little bit different, which had more of the set-aside small capacity and allocation that would be used by a very small-capacity fleet; so that fluctuations in the fisheries can be monitored. Ultimately these are just ideas that this working group was putting in front of the board to give them a sense for what they were thinking about with allocation.

Another one that made the list was minimum fixed-quota levels. That is something that we've also seen in the eel plan. Some of the potential factors that coincided with that initial brainstorm of potential allocation options were on the list that you see here. Ultimately what I'm running through is the summary that we provided on the board materials; and so if you don't catch all of this, it is in that document as well.

Some of the potential factors were historical catch or landings; so considering the time frame and the data availability. As you remember, some of the discussions we've had from the performance on Amendment 2 is the data

availability over the time frame that we allocated and also making sure that the landings are up to date and which time frame to use; obviously a big factor to consider for allocation.

What the commercial capacity and interests are; so not just the harvester side of things but also the processing. We've heard some of that input along the way from our advisory panel as well. Availability and distribution of the resource; remember menhaden is not ubiquitous across it is range and so movement patterns and availability through time.

Biological and ecological principles; needs and interests of small-scale, fixed gear versus large-scale mobile gear; and, of course, the bycatch allowance topic that we've talking about through the review of the performance of Amendment 2; and also the transfer of quotas. Moving on to some other continued factors; we're talking about credit for biological monitoring that guides against local depletion.

The example that came up here was the biological monitoring program that the state of Rhode Island uses in Narragansett Bay. There was also credit for data collection programs and improved water quality, incentives for sound ecological and biological use of the resource, incentives for reduced discard mortality, management and operational efficiencies, consideration of a research set-aside and ongoing provisions for revisiting allocation.

This is basically supposed to put in front of the board an initial check-in on how the working group is proceeding on this topic. Remember the working group is not making any decisions on this. They're simply creating and brainstorming a list and then we'll start working on individual allocation scenarios to give more understanding and perspective for what those would look like for the menhaden fishery.

A couple of things to note before we move on from this topic; there is concern about the

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incomplete landings' data. I have mentioned that. Of course, we want to encourage states to identify data gaps to staff. I have been working with the states to pull together the most up-to-date landings' history records by state for the menhaden fishery; and so ensuring that I fully characterize any data gaps within that spreadsheet will be important moving forward so that we can include those caveats for anything that gets developed.

Then the Board Working Group will bring things back for November once they have an opportunity to work through the specifics of some of these options. Ultimately the full board will review where we're at with that at the November meeting. Moving into the socioeconomic analysis, basically through the amendment process we're looking to do a social and economic analysis. The goal of this is to analyze the Atlantic Menhaden Fishery socially and economically.

Some work has been done previously. Jim Kirkley, a professor from VIMS, had done some work on the reduction fishery. There also is some data gaps on exactly characterizing these components of the fishery and what it means across the coast. We have this Committee for Social and Economic Sciences that is going to define specific project objective and a request for proposal in which ultimately the way this would work is researchers would submit proposals to this and the CESS would act as the review panel for selecting a researcher to tackle this task.

A potential example of objectives that would come out of this would be identify and describe the participants, develop the importance of Atlantic menhaden to fishing communities and really get into the economic value of bait and reduction fisheries. The intent in doing this is to evaluate the tradeoff of basically the allocation scenarios that we've just talked about, which we're scoping through Amendment 3.

I did want to note that the analysis time frame for this will likely be through 2016; so noting that it will take some time to get this RFP out, get some people interested in going after this work and selecting somebody that can produce deliverable results on that time frame. At this point in the presentation, I'm going to move into how does all of this sort of fit into our development of Amendment 3.

REVIEW OF DRAFT AMENDMENT 3 TIMELINE

MR. MIKE WAINE: As I mentioned when we started, the amendment process has two rounds of public input. The first round is a public information document which will end up scoping the management issues. The examples that I laid out are the ecological reference points and the allocation, but this document is not limited to those two topics.

It just happens to be the ones we're currently focusing on in this precursor stage to the development of the public information document. The second part of that process will be actually drafting the amendment; so putting in specific options for management and developing what this plan will look like; in essence, the compliance and implementation of whatever measures come out of the process. I'm going to walk through basically the quickest timeline that this amendment could take from this point.

Pending review of the topics that we just reviewed at the November meeting, the board could task the development of options in the PID. The plan development team would then work between the November and the February meeting to develop a public information document that further scopes and prepares these issues and topics for public input.

Hypothetically bringing that back to board consideration in February, this board would decide whether to send that PID out for public comment. If that was the case, hearings would be held in the spring, and we would bring back

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public input on that public information document for the May 2016 board meeting.

After the board reviewed that level of input, they would then task the plan development team to develop specific options that came out of that scoping process into what will be Draft Amendment 3. Picking up from that May meeting, the PDT would then develop the specific options over the summer, bring back a document and draft amendment for board consideration at the August meeting. There the board would consider approving that document for public comment.

We would hold a second round of public hearings on this amendment and bring back the input there at the October meeting – that would be the annual meeting next year – where the board would ultimately select final options and compliance criteria for Amendment 3. With that timeline, the intent would be for implementation to occur for the 2017 fishing season if the board felt comfortable basically implementing the document on that timeline given that it would at our annual meeting next year before they finalized something.

Now, I wanted to take a moment to just talk about a few of the Amendment 3 timeline considerations that I've basically discussed through my presentation. I wanted to summarize a few things. Remember that we're working on developing ecological reference points; and that process is involving this Ecosystem Management Workshop.

It is involving the board essentially deciding on management objectives that incorporate the ecosystem; and then it also relies on technical analysis and modeling to produce ERPs that could be included in the amendment. I just wanted to mention that is going to take some time; and it would be important to consider the timeline in which those get developed and when you think about at what point is the board going

to be able to include some of this information into, for example, the public information document versus the actual draft amendment.

The other thing that I talked about pretty extensively today was the social and economic analysis. Because of that process and the way we're working with the CESS as more of a review panel than them actually doing the work and the amount of time that it will take to conduct that, that will likely occur through 2016; and so the board should consider at what point that would be available for inclusion into a document that actually makes it out to comment for the public. There is the possibility that the Amendment 3 timeline that I just walked everybody through would need to be adjusted if the board wants to include these components at the various stages of the development of this document. I just have this caveat in there that if the timeline gets adjusted, implementation is more likely suited for 2018 than it is for 2017. With that, Mr. Chairman, I'll take some questions and definitely some topics to consider moving forward.

CHAIRMAN BOYLES: Mike, thank you for that very comprehensive and thorough review. Before we ask for questions, I'd like to beg your indulgence. Clearly, there is a lot of interest around the table; clearly, there is a lot of interest in this fishery and in this resource; and, clearly, there are a lot of us, both at the table as well as in the room, who are very, very interested and want to participate in these deliberations.

A number of you I know are disappointed that you're not a formal member of the working group; but I think what you see in terms of what Mike has just presented in terms of what came up just from the allocation deliberations so far; these were things that came from six individuals who we've asked to be kind of spearheading this on behalf of the board.

I'll again ask your indulgence and bear with us as we work through these complicated and multi-

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variate issues. The other thing that I'd like to say to the members of the working group; there is a lot of work yet to be done. Mike has presented to you what is the best possible time frame and any hiccup in our deliberations, any hiccups in our discussions, any additional analyses or things that we need to think about will certainly add to that.

We'd ask Mike to just make sure that we're all on the same page with respect to potential timing. There is a lot to consider. I certainly appreciate the support and the interest that we receive not only from the board but from the members of the public, from our advisors, from our technical advisors, et cetera. This is a set of big issues and I appreciate your forbearance with us. Mike, thank you for the excellent summary of where we are right now. With that, are there questions for Mike on what he has presented? Wilson.

DR. WILSON LANEY: Mike, with regard to the allocation options to be considered – it may be the question I'm going to ask is being considered more under the ecological reference points; but I know that other prey-based fisheries or fisheries that are promulgated on species that are mostly serving a prey function include allocations for species other than those that are targeted by commercial or recreational fisheries like marine mammals and certainly a lot of different bird species in this case for menhaden.

Is that something that the workgroup is thinking about? Does that fall under the ecological reference point's discussion or is that something that should be included under the allocation options, which I guess in other fisheries has been called a forage allocation for lack of a better term?

MR. WAINE: Yes; it is a good question, Wilson. I anticipate that is going to be addressed in the more ecosystem component of this work. The board subgroup that is working on the allocation scenarios is specifically focusing on the fishery.

In terms of allocation to the ecosystem, that process is basically going to be addressed in the Ecosystem Management Workshop and then whatever ERPs are developed from that process.

Remember that involves technical committee input, the modeling, the datasets that we've been working with, the ERP Report that was included in the 2015 benchmark assessment that broke all the different models that the BERP Working Group considered when trying to think about how many different approaches could be used for the ERPs; and then the next step of that being defining specific objectives so we can start matching up what the objectives are with the modeling approaches that will get us ERPs from that process.

DR. WILSON: I'll follow up on the socioeconomic aspects of it. It seems to me that given that ASMFC is managing the menhaden stock in a healthy and sustainable manner and given that it is such an important prey item for a lot of other species that are targeted by ecotourism in particular – I'm thinking pelagic sea birding trips here and whale watching trips.

It seems to me that somehow ASMFC's management ought to get some consideration for the socioeconomic benefits of those other types of activities that are not directly related to menhaden but are certainly indirectly subsidized by ASMFC's management, if you will. Maybe that is something we could do as the CESS about and see if they could at least put that in their thinking for some consideration for some kind of assessment.

MR. WAINE: Wilson, it is a great suggestion. It is something that came up on our CESS call when we had this discussion about essentially what could we do the funding that is allocated for this process and within the timeline that we're operating on. In its simplest form we thought about this as two separate steps; the first being understanding the social and economic analysis

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of the fishery; and then the second step being understanding how that relates the ecosystem and the importance of menhaden's role as a forage.

It is something that definitely got considered, but at this stage it would be extremely challenging to accomplish both if those within the scope of the budget and the time that we have, but it was brought up by the CESS.

MR. DAVID SIMPSON: Pretty comprehensive list all around. One that occurred to me especially over the last couple of years, since quota management, that may be on there but I didn't see it on the list is some consideration in the allocation and even ecological reference point development is the change in spatial distribution of menhaden with the changes broadening of the age structure.

It has been apparent to me in the last two years that I have just not in my life seen as many large menhaden or menhaden, period, up our way since quota management. It is kind of an interesting thing. It has come up for other species and so I think it is worth thinking about here.

The other under economic evaluation would be to make sure that we think about alternatives for the bait versus reduction fishery alternative species sort of source raw material that is out there and has important economic implications. Those are my two thoughts of the long list.

MS. LYNN FEGLEY: Mr. Chairman, I was wondering if we could get some clarity on the timeline for the results of the Ecosystem Workgroup. It looked, Mike, like what you said was that this workgroup is going to meet and come up with objectives and then was it at the fall meeting the full board will decide on a list of objectives and task the BERP Group to develop reference points at the fall meeting. I guess my question is when does that pairing of ecosystem

objectives and model development actually occur? Are we going at that as early as November; is that what we're aiming for?

MR. WAINE: The short answer would be yes. The long answer involves a laundry list of models and management objectives that we haven't developed yet or the board has to sign on. I think that ideally the hypothetical situation would be that the full board reviews management objectives that come out of the workshop at the annual meeting.

If the board can decide on some objectives that make sense to move forward with; they would be paired up with the ERPs that would basically be a part of that objective. Then that would bring us into the technical phase of that process. At the same time I think we would start developing the public information document.

To be completely honest with the board, I'm thinking out loud right now. We would develop some of those objectives to be included into a public information document. They may not have ERPs at that point. The board may want to try to wait for some ERPs. I think that is my best shot at giving you where I think this is headed and that obviously has some unknowns.

MS. FEGLEY: Thank you for that clarification. I think that is fair enough and that was really my ultimate question was whether it was the intent ultimately to have that pairing of objectives and associated ERPs in the PID. It sounds that's what we want to aim for, but it we would have to take it as it comes.

MR. WAINE: Yes, correct, but remember that it will take quite a bit of work. If we go that route, yes, it is going to take quite a bit of work to get to that point to have ERPs match with objectives all in a PID ready to go in February. I would be impressed if we were at that point; but like I said, there are some unknowns here because we're so early in the process.

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MR. WILLIAM J. GOLDSBOROUGH: Mr. Chairman, just an observation to piggyback on Dave Simpson's first comment, which essentially noted that we've had range constriction in this stock and that at least in Southern New England by observations they're starting to see some relief there; and that is certainly good news.

Noting that from some colleagues further north, maybe we're not there yet; that we still have a lack of menhaden farther northern parts of its former range; and so we have a ways to go yet to regrow the stock to fill out that range perhaps even before we are able afford to provide them to the ecosystem. That's worth keeping in mind.

MR. ROB O'REILLY: Mr. Chairman, this isn't exactly a question about the information or what has occurred so far; but I don't mind saying that on the first working group conference call I had reservations that I expressed that we have to be very cautious that the management board itself approves of the type of direction that the working group takes up. I still feel that way and I think that our second call there was more of a direction towards something that the board would approve moving forward.

Mike Waine has presented some of that outcome. I do have sort of a perplexed thought about this process going forward, because I know I think it was 2011 the board was determined that really what should happen – when MSP was the biological reference points, what the board wanted to know was, well, how about these ecological referent points or ecosystem-based reference points; how long would that take to develop? I think Dr. Latour at the time as chair of the technical committee said, well, it may be about three years.

We've surpassed that so we know it is a pretty difficult challenge; but I keep thinking that if one of the big situations we're facing is forage; that it just seems incongruous to work on allocation as more than a guideline of template for what

happens in the future once we know what is available forage, what is available for fisheries.

I that is something I tried to express on the first call, and several others did as well; that, if anything, we should have something that can be enacted once we know more and once we have these reference points. I don't think there is any harm in moving forward with the working group and refining the elements that we're ready to bring to the board; but is certainly going to take the board's input because Amendment 2 was a process that was very detailed and discussed to the enth degree it ended up in an allocation system.

You have to ask what has really changed in the minds of the board since no one has said clearly what that is since 2012 as to what this revisiting is all about. It is in Amendment 2 to revisit; but I just want to make sure that the working group gets enough feedback to know what other states have in mind in terms of allocation. I guess it is early in the process based on the timeline that Mike Waine proposed; and so I think there will be an opportunity for the board to provide that guidance to the working group; but I thought it was important to stress that today.

DR. LOUIS B. DANIEL, III: To go back a little further in history, when we did Amendment 2 we had a stock assessment that said we were in a scrape. Then we got a stock assessment that said we weren't; and now we're going to be moving forward with a pretty massive effort in Amendment 3 and our assessment is going to be how old?

The uncertainty that still weighs over this whole process and the quick action that we took to go ahead and harvest more fish at the last meeting has me very concerned. I think you're going to run into numerous problems with the ecological reference points. I think that it is going to delay it further than '18 personally because I don't

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think you're going to come up with a suitable management approach using that.

The thing that confounds me about the whole issue is that we're looking at a stock that we're right now managing at about 60 percent SPR, which is right in line with the various Lenfest Reports for forage fish; but yet we're going to go through all these gyrations and try to come up with something better than 60 percent. That seems like a monumental waste of our efforts with the uncertainty associated with that.

I want to bring that up as a point. I'm not on the workgroup; but I'm very concerned about the product that we will end with. I think if you look at your timeline you indicate that 2016 would be definitely included in the CESS analysis. That automatically makes a 2017 implementation date impossible or at least right after the annual meeting.

I think we've got to have that socioeconomic information incorporated into this amendment; and so I think we need to go ahead and set our sights on '18; but I think that would only be if the ecological reference points are toned down significantly from the direction that I think we're headed.

CHAIRMAN BOYLES: Further comments from the board? Seeing none; the board has heard where we are and where we intend to go. We have a lot of work to do. To reiterate both what Louis has just said in terms of the complexity as well as Rob's admonition that we stay closely engaged with this; the Allocation Workgroup is six board members. The board members who are members of the Ecological Reference Points are the same six.

Clearly, there are a lot more than six ideas and six interests represented around this table; so please, please, please stay engaged through this process. We will report back to you we hope with a lot of fruit at the annual meeting and

certainly look forward to seeing a number of you at the end of the month in Baltimore. We will move on from that. The next item on the agenda is to discuss quota rollover provisions of Amendment 2. I think Mike is going to set this up.

BOARD DISCUSSION OF QUOTA ROLLOVER PROVISION OF AMENDMENT 2

MR. WAINE: A little bit of background to remind the board about the provision in Amendment 2 on quota rollovers; it specifies that the board may annually define a percent of unused quota to be rolled over for use in the subsequent fishing year if the stock status is not overfished and overfishing is not occurring.

Up to this point because we were operating with the stock status from the 2012 assessment, we did not have quota rollovers in this fishery. Based on the new stock status that came out of the 2015 benchmark assessment, the menhaden resource is not overfished and overfishing is not occurring; and so the board at this point can consider through board action quota rollovers for unused quota.

Note that would not be for the 2014 fishing year, but it would be for the current fishing year that we're in, which is 2015, and so any decision made by this board on this topic would apply to any unused quota at the end of this calendar year. I also just threw in this slide that shows what the states' total 2014 quota was, what their 2014 landings were and the underage.

If you see a minus sign, that is an underage; and the positive numbers indicate an overage. I didn't include the transfers that occurred in 2014. I just wanted to throw up this table to give the board a sense for the magnitude of underages that occurred in 2014 even though any quota rollover decisions would not be for this data that you're seeing. It would be for '15. Just to summarize, the board has the ability to

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consider quota rollovers through board action at this point. Thank you, Mr. Chairman.

CHAIRMAN BOYLES: Mike, thanks. John.

MR. JOHN CLARK: Mr. Chairman, I just had a question. Mike, this is just what was reported as landings; this doesn't include bycatch? How would bycatch play into the quota rollover; because I know just in our state we had quite a bit of – considering how low our quota was, we did have quite a bit of bycatch also.

MR. WAINE: Yes; because of the way we're treating bycatch landings in Amendment 2, those are not counting towards the quota as specified in Amendment 2. At this point the table that is shown on the screen does not include the bycatch landings because they're not being considered part of the quota. I will say that at the time – you know, this is something that the board could consider during this discussion, but that's currently how the bycatch landings are being treated in Amendment 2.

MR. ROY MILLER: Mike, if I may, I think it would be good to show the bycatch landings along with the quota and the landings. It gives us a better perspective on the actual picture. Thank you.

CHAIRMAN BOYLES: Roy, we can tell you; we can't show you. It is a technological issue we've got. Hang on a minute. We will see if we can get that information for you. Further questions on rollover? Bob.

MR. ROBERT BALLOU: So if I'm no mistaken, Mike, what you're teeing up here is a teaser, indeed, but the rubber really wouldn't hit the road until after the calendar year changes and we're into 2016 at which time we could look back on our 2015 landings and our 2015 bycatch and potentially at our – I'm just throwing out a suggestion – at our winter meeting make a decision as to whether or not the board wanted to consider enacting the rollover provision for

2016. There would no way of doing anything earlier; am I correct in that characterization?

MR. WAINE: If I heard you correctly, we wouldn't get a vision of what 2015 landings are until after '15 ends. At our annual meeting – I think that's the one you were referencing, the next meeting or the fall?

MR. BALLOU: Winter.

MR. WAINE: February, yes, so at the February meeting – usually we do FMP review at the April meeting – excuse me, at the May meeting because compliance reports are due in April. At that point you would have the 2016 FMP Review which detailed the performance in 2015 and would show you what the overages and underages were for the '15 fishing year. It wouldn't be until May that you would actually see those numbers and they would be preliminary at that point. I can try to pull '14 right now so that you can see the performance of '14 for this topic; but, yes, you'd have to wait until May of '16 to see performance in '15.

DR. DAVID PIERCE: I haven't got it in front of me, but I suspect that our discussion and then our decision about what to roll over in terms of a percentage might be impacted by where we are right now relative to the degree to which we are not overfished and the degree to which we are not overfishing. I can't recall where we stand. I

s there a figure that could show how close we are to being overfished and overfishing; because if we're close to that boundary, then that would argue for a very small amount of percent rollover? If it is different, if there is a big gap between where we are and where we thought we need to be, then maybe a higher percentage could be considered.

MS. FEGLEY: Mike, while you're looking, I have a question. A rollover mechanically; I'm just curious how do we think something like that would work? Would it be a state that didn't

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achieve its quota would get a rollover for that state or would it be the coast as a whole doesn't achieve the quota so the coast gets a rollover that is allocated? Do we know how that would work?

MR. WAINE: Ultimately it would be up to the board to decide that. I believe, though, that the language as written in Amendment 2 it is state-specific because we had state-specific allocation. I can double-check the wording, but I believe it is rollover of unused quota within a state to the subsequent fishing year; but let me just double-check that, Lynn.

MR. GOLDSBOROUGH: Mr. Chairman, one comment. I think we need to keep in mind when considering rollovers at this time and for the near future when we are still lacking ecological reference points and we're considering these underages in a scenario where we are dealing with single-species references and have yet to actually figure out how we're going to account for ecosystem needs.

Under that scenario I think we have to keep in mind the flipside and not just this current year but what the year receiving a rollover would look like; and that would be perhaps a significant increase in the total catch at a time when we're attempting to come to grips with dealing with multiple management objectives, allocating to both the fishery and to the ecosystem.

We don't know yet how much the ecosystem needs. We do know that both sectors have needs now. We know the ecosystem is suffering as well as, of course, the fishery could always use more catch. But at time like that when we don't yet have guidelines for much we want to allocate to the ecosystem, it seems to me to be unwise to be thinking about a rollover and what implications that might have.

CHAIRMAN BOYLES: Further comments or discussion? Let's see if we can get some

information to help better inform the deliberations.

MR. WAINE: I think what the board is looking for is a table that totals both directed and bycatch landings together. I don't have that readily available. We could try to match up the underage from the table that I've showed with the bycatch landings that are currently being shown here.

I think the point that was being made is that even though some states are underperforming on their quotas, they are harvesting fish under the bycatch allowance, which is making up that difference basically. We just weren't including it in that table because Amendment 2 doesn't treat it as part of the quota. I will put together a table that we're looking for, but I don't have it readily available.

CHAIRMAN BOYLES: Okay, what is the pleasure of the board? I think the question of where we are is the amendment allows for the conditions to allow for a quota rollover appear to be having been met. We're not overfished and overfishing is not occurring. However, we don't have, of course, complete landings for 2015; and so deliberating what to do with unused quota at the end of this fishing year, the board could choose to do nothing. The board I suppose could revisit this at a later meeting once we've got more complete information.

MR. DENNIS ABBOTT: If we could go back to the graph that shows the catch and underages, I'll start off by saying I think everyone saw that New Hampshire had a quota of 113 pounds, which we didn't utilize. My comments are a bit tongue in cheek but also very serious. We didn't catch our 113 pounds; was it because we didn't have enough capacity in the state? Was there no market? Was it a lack of fish or was it weather-related?

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I'm very much concerned about rolling over because the more likely thing in the state of New Hampshire was actually the fact that we don't see any menhaden. They're just not extending into the range. I think that throughout the range everybody has had opportunities to catch the fish. If you looked at Virginia, they were 409,000 pounds under; but I think in my quick math, that is like 0.001 percent of their quota, so it is a very significant number.

My final comment is I don't think we should do anything because it was just stated the bycatch is probably a greater number than the addition of all the underages that we see at this point in time. Thank you, Mr. Chairman.

REPRESENTATIVE CRAIG A. MINER: Mr. Chairman, if we scroll that up, at the bottom is there a total on the underage? No, okay. I think to Representative Abbott's point, just a quick math, it just seems to me that this number, when you add up all the negatives, will be eclipsed by the other numbers quite easily.

CHAIRMAN BOYLES: I think where we are is the amendment allows for this; and I just wanted to make sure the board was aware that we had a discussion about this. Given the fact that we don't have complete information on 2015, this is certainly something that a member can bring back up at the annual meeting. Mike, let me ask you could it be brought forward as late as the spring meeting after compliance for 2015 or is this a decision that has to be made before the end of the calendar year?

MR. WAINE: In Amendment 2 it doesn't specify a specific time that the board has to make this decision. I also checked on Lynn's question about whether it specifies by state; and that is not specific in the rollover provision in the plan. I almost feel like it might be a good idea – well, if the board chose to address this at another meeting, I could be more prepared for the discussion, but it is up to them.

REPRESENTATIVE WALTER KUMIEGA, III: Mr. Chair, this isn't the only species that we do a rollover for. How is it handled? Would we be rolling 2014 overage into 2016 or trying to roll it over into 2015?

MR. WAINE: It is really up to the board, because once again it is not explicit in the plan about how this supposed to occur. Because we've already completed the 2014 fishing year and we already did an FMP review of that fishing year back in May, it was staff's interpretation that this quota rollover provision would apply to 2015 if the board decided to move forward with it.

That is also backed by the fact that the 2015 benchmark assessment is what allowed us to meet the conditions of the plan which requires that we have not overfished and overfishing is not occurring stock status. That came out of the '15 assessment, which was approved for management use in February of '15.

Based on those things, my interpretation was that any board decision would be for 2015 unused quota that is on the table at the end of the 2015 season. That leaves meetings up until the annual meeting to review this topic again if the board would like to. Like I said, the plan doesn't specify that you have to do it this year. You could do it next year and have it apply to 2015, because we'll still have satisfied that stock status.

CHAIRMAN BOYLES: Let me suggest this to the board because I sense there is a lot of confusion; and, Mike, check me on this. Compliance reports are due April 1st the following year; so our 2015 compliance reports will be due April 1, 2016.

May I suggest that if there is interest in the board on allowing a quota rollover on a state-by-state basis; that this be brought to the board for their consideration by May 2016, at the time that we complete the 2015 FMP review. In other words, we will have more complete information at the

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spring 2016 meeting on any underages and the board can have a discussion at that time on how to deal with them, if at all. Is that reasonable? Toni.

MS. TONI KERNS: Bob and I were just talking and what if a state were to make a request to utilize their underage in their compliance reports. They're turning in their compliance report; they are telling us what their landings are; and then that way they can let the board know their indication of that.

One of the measures or options that the board to decide on within Amendment 2 is the percentage of the quota that can be rolled over; and it is zero to a hundred percent. That may be something that the board would want to decide prior to the compliance reports being turned in, so sometime between and the February meeting, so that then states could make that request.

CHAIRMAN BOYLES: That makes sense to me. Dr. Pierce had a question.

DR. PIERCE: I wanted to make a point; and that point is that I'm not prepared to take any action right now, especially since the 2014 data are misleading for Massachusetts. At the end of July we actually had to announce to the industry that we were reducing our trip limit down to 25,000 pounds.

We took 75 percent of our overall allocation. I have every reason to believe that by the time we're through we'll have very little overage, in part underage, because of the nature in which we are managing and regulating this fishery. It is rather tightly controlled with stepwise reductions in the limit. I'm not prepared today to take any action.

DR. DANIEL: Correct me if I'm wrong and stop me quick if I am; but Amendment 2, when we had passed Amendment 2 the concept of this was very foreign to this board. We thought we

were in a deep hole; and now we find ourselves in a rollover situation, which none of us expected or anticipated.

It just seems to me that we need to move carefully based on this drastic change in the stock assessment. I'm not saying it is not overfished and overfishing is not occurring; but I'd like to feel a little more comfortable. After the increased the quota at the last meeting and we're moving along here and we're talking about adding fish on the next year's catch and we don't know what the percentage is, there are so many inconsistencies in how we handle this as a commission.

With 10 percent of dogfish; why not a hundred percent of dogfish? They probably eat menhaden if you go into the ecosystem approach. There is such an inconsistency there; I would just suggest that we defer taking any action on this issue and deal with it and clarify these points in Amendment 3.

CHAIRMAN BOYLES: Louis, is that motion?

DR. DANIEL: Yes.

CHAIRMAN BOYLES: **Motion to defer action on quota rollover and consider it as part of Amendment 3 by Dr. Daniel; second by Jim Gilmore.** Discussion on the motion? Dr. Pierce.

DR. PIERCE: Just a question of timing; does this mean therefore if we incorporate into the amendment; that there would not be any potential for a rollover until 2018 or so? It is not going to be next year or the year after; it could be way down the road. It is not that I'm against the rollover or in favor of the rollover. I also suggested a cautionary approach on this. It is just that by including it in the amendment it seems to push quite deep into the future, especially since your suggestions or your words of caution, Mr. Chairman – or maybe it was Mike – that this could take a lot longer than we think.

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CHAIRMAN BOYLES: Dr. Pierce, what I heard in the motion was defer action until Amendment 3; so that was until time certain. The way I interpret that – and I'll look to Dr. Daniel and Mr. Gilmore for affirmation – is that this would in essence put the rollover provision to bed until we adopt Amendment 3. Louis, is that how you –

DR. DANIEL: That was my intent. That way my belief would be with the development of Amendment 3 we would know what ecosystems' approaches we're going to take. We're going to know what the absolute quota amounts are; and we're not going to find ourselves in a situation where we're rolling over fish and causing harm to the stock while we're trying to come up with a long-term management strategy. Waiting until then, recognizing then we can set the percentages and then everybody will know; and so if you're tracking your quota appropriately and you know you've got a rollover provision, then you can utilize that like we do with other fisheries.

MR. WILLIAM A. ADLER: Until Amendment 3; until Amendment 3 is proposed or finished or what? I don't think I want until 2018 or whatever before we say, oh, maybe we could have rolled over. I'm okay with not taking action on it now; but I want to leave the door open here that if things settle out by next year, even, that we could do a rollover. Does this motion kill that idea?

CHAIRMAN BOYLES: As the way the maker of the motion just explained it; yes, it does.

MR. ADLER: It does kill it until Amendment 3?

CHAIRMAN BOYLES: Until the adoption of Amendment 3.

MR. ADLER: Adoption of Amendment 3; I can't support this.

MR. THOMAS FOTE: I'm trying to think of what species we allow rollovers. Dogfish might be the only one if it is true on dogfish; and I am not sure it is true. Over the years when we had great striped bass stocks and way over, when we tried to do rollovers, we got creamed from left and right to not do rollovers.

It has been the policy over the years not to do rollovers. I'm just asking what species we do rollovers with – besides if we do it on dogfish, which I'm not sure, what species do we actually do rollovers with right now according to a commission plan. We haven't done them on all the species I know.

MS. KERNS: The other species that we do rollovers is spiny dogfish and it is up to 5 percent.

MR. ERIC REID: There is a rollover in the scallop fishery as well, but that's a whole 'nother thing. If I did the math right, I think if you add bycatch, we're over by 2 million pounds, a thousand tons. I think there is a tremendous amount of work ahead of this group to worry about rollover. I could believe at our May meeting we said we're going to set specifications for two years, which means at our May meeting in 2017 we're going to have to relook at specifications; is that correct?

If this motion would say we would revisit this issue at our spring meeting in 2017, it would be a little shorter timeline than this, and I think that would be a better time to address this; but right now I think we're wasting a lot of energy for nothing.

CHAIRMAN BOYLES: Further discussion? Okay, seeing none, let me remind us where we are. Amendment 2 allows for, when certain conditions are met, when overfishing is not occurring and the stock is not overfished, the board may consider quota rollover. If I remember the timing, this board did not formally

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adopt the stock assessment until the May meeting, just this past meeting.

This is the first time these conditions have presented themselves; and so the discussion for the board has been is this something that we want to consider; certainly dealing with imperfect information on the basis of where we are in 2015. I hear some concern about we don't have good information. We've got some concerns about bycatch. We've got some concerns about the net total on where we stand.

Now we have a motion on the floor that we defer the rollover until the adoption of Amendment 3. Now, Louis and Jim, maybe I have misunderstood and maybe I have misinterpreted. From my seat I see what that means is the motion intends that we don't deal with this given the uncertainty, given the amount of work that we have got to do; and so it is why I responded to Mr. Adler that what I interpret this to be is the board won't discuss this beyond today if this motion carries, until we adopt Amendment 3. Dr. Daniel.

DR. DANIEL: I'm sorry if that was the confusion. I was saying that we deal with it in Amendment 3; so we would address these issues of percentages and rollover so that by the time we adopt Amendment 3 we'll have the provisions for rollover or no rollover in adopting that with Amendment 3.

Tom is right; in terms of the quota rollovers, we've talked about this many, many times for striped bass, for flounder, for species where sometimes we'll say, well, if the stock is not overfished and overfishing is not occurring, we're going to allow some rollovers or we're going to wait until we're no longer overfished or fishing and then we'll allow rollovers; and we never do. That is what I intended to interpret as far as having that inconsistency there; but my hope was to have the rollover issue in Amendment 3 and address it there.

CHAIRMAN BOYLES: Thank you, Louis; I apologize for my misinterpretation. Mr. Adler, you've got my misunderstanding. This would be dealt with in Amendment 3. I'll remind the board this is not a final action and won't require a two-thirds vote to reverse should a state wish to deal with quota rollover at some point in the future. The question on the floor then is to defer rollover until the adoption of Amendment 3.

That motion is by Dr. Daniel and seconded by Mr. Gilmore. Is there a need to caucus? All those in favor of the motion signify by raising your right hand; all those opposed please raise your right hand; abstentions; null votes. That motion carries by a vote of seventeen in favor, zero opposed; no nulls and no abstentions. Thank you for correcting me and your forbearance with me in my understanding of this.

ADJOURNMENT

CHAIRMAN BOYLES: At this time is there any other business to come before the Menhaden Board? Seeing none; we will stand adjourned.

(Whereupon, the meeting was adjourned at 4:10 o'clock p.m., August 5, 2015.)



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

October 21, 2015

To: Atlantic Menhaden Management Board
From: Atlantic Menhaden Board Working Group
RE: Potential Allocation Options for Draft Amendment 3 Development

At the May 2015 meeting of the Atlantic Menhaden Management Board, the Board established a Working Group (WG) to initiate the process of revisiting quota allocation as required by Amendment 2 to the Fishery Management Plan for Atlantic Menhaden (and to initiate the process of considering the development of ecological reference points, addressed in Memo 15-85). The members of the WG are Robert Boyles (SC, Chair), Bob Ballou (RI, Vice Chair), Jim Gilmore (NY), Russ Allen (NJ), Lynn Fegley (MD) and Rob O'Reilly (VA).

The WG met via conference call on several occasions during June and July, and provided an initial report to the Board at its August 2015 meeting. Thereafter, the WG continued to meet, via six conference calls from late August through early October, to continue their discussion on the allocation options and issues previously outlined and reviewed by the Board at its August 2015 meeting. All of the meetings were publicly noticed; and those members of the public who were on the calls were afforded the opportunity to comment on the WG's discussion at the end of every call. This memo serves as a follow-up report from the WG to the Board detailing its discussion on allocation options.

The WG discussions on allocation are part of the preliminary steps in the Amendment 3 process. Potential allocation options developed by the working group are intended for review by the full Board prior to inclusion in a Public Information Document, which will serve as the scoping phase of Draft Amendment 3. There will be two separate rounds of public comment during the Amendment process -- a Public Information Document (PID) that will scope the management issues being considered, and then a Draft Amendment which will further develop specific management options.

The WG started by creating a broad characterization of the full range of allocation options that could potentially be considered by the Board for inclusion in Amendment 3. They suggested that some options would be the same as ones previously considered in Amendment 2, and others would be completely new concepts. Generally, the intent of the WG was to start broad with a complete list of allocation options and then, as time allowed, focus in on the specifics of each potential option to discuss its applicability and usefulness to Atlantic menhaden management. The WG proposed the following goal statement, list of potential allocation options, range of potential allocation timeframes, and identification of issues to be further considered as the PID process ensues.

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Draft Goal:

Fair and equitable distribution of coastwide total allowable catch among states/jurisdictions, regions, and fishery interests.

Allocation Options:

When discussing allocation options, the WG considered landings history, the performance of state fisheries, and the challenges associated with the current management program. Those challenges include: minimizing discard mortality; accommodating small-capacity fisheries; accommodating true bycatch fisheries, small-scale targeted fisheries, and fixed-gear fisheries; aligning harvest opportunities with the distribution and size composition of the resource; ensuring equitable access to quota among gear types and management units; and striking a fair and equitable balance between current needs/interests/capacity and future growth opportunities. Below is a summary of the allocation options considered by the WG that address the listed challenges to varying degrees.

A. Coastwide Quota

One coastwide quota for the entire Atlantic menhaden fishery.

B. State by State Quotas

Quota is allocated to each state/jurisdiction in the management unit. This is the status quo option from Amendment 2.

C. Regional Quotas

Quota is allocated to designated regions. Specific regional options discussed were:

1. Two region split: (1) North (2) South matching regions used for stock assessment purposes in the 2015 Benchmark Stock assessment. Machipongo Inlet, VA is the dividing line
2. Two region split: (1) Chesapeake Bay (2) Coastwide
3. Three region split: (1) New England (2) Mid-Atlantic (3) Chesapeake Bay South
4. Four region split: (1) New England (2) Mid-Atlantic (3) Chesapeake Bay (4) South Atlantic

Notes: The WG included option 1 because it matches the assessment regions used in the 2015 Benchmark Stock Assessment. There was no specific justification for including options 2-4 other than the WG thought these options represented possible geographic delineations intended to capture the spatial dynamics of the fishery.

D. Disposition Quotas

Quota is allocated to bait and reduction fisheries separately.

Notes: The WG included allocation by disposition because of the different dynamics that exist between the bait and reduction fisheries.

E. Fleet Capacity Quotas

Quota is allocated to gear type or harvest capacity fleets.

Notes: The WG spent a majority of time discussing the fleet capacity allocation option. The WG reviewed gear specific landings history (Appendix 1) and evaluated state specific information on how gear types were permitted and managed within a state. After reviewing this information, the WG developed examples of a three fleet and two fleet capacity allocation shown below.

1. Three Fleet Capacity Allocation

Small-Capacity Fleet:

- Types of gears include, but not limited to, cast net, trawl, trap/pot, haul seine, fyke net, hook and line, other.
- Total coastwide landings for these small capacity gears are approximately 3.14 million pounds annually or 0.7% of coastwide total allowable catch (TAC) from 2009-2012.
- Given the small capacity of these gear types, this fleet would be managed with a soft quota (e.g., 1% of coastwide TAC, or 3.5 – 5.0 million pounds).

Medium-Capacity Fleet:

- Types of gears include, but not limited to, pound nets, gill nets
- Total coastwide landings are approximately 18.92 million pounds annually or approximately 5% of the coastwide TAC.
- Given the medium capacity of these gear types, this fleet would be managed with a soft or hard quota (e.g., 6-8% of the coastwide TAC).
- Note: the Board may wish to consider further allocation (e.g., regional, state by state) of the capacity-specific quotas to provide equitable access to the quota.

Large-Capacity Fleet:

- Types of gears include, but not limited to, purse seines and pair trawls
- Total coastwide landings are approximately 408.7 million pounds annually or approximately 95% of the coastwide TAC.
- Given the large capacity of these gear types, this fleet would be managed with a hard quota (e.g., 93-96% of the coastwide TAC).
- Note: the Board may wish to consider further allocation (e.g., regional, state by state) of the capacity-specific quotas to provide equitable access to the quota.

2. Two Fleet Capacity Allocation

Small Capacity Fleets:

- Types of gears include, but not limited to, cast net, trawl, trap/pot, haul seine, fyke net, hook and line, pound nets and gill nets.

- Small capacity fleet could be defined by a trip limit. Must have a daily vessel limit of less than X to fish in small capacity fleet – otherwise move to large capacity. Alternatively, trip limits could be implemented if small capacity harvest fires established triggers (see below).
- Total coastwide landings for these small capacity gears are approximately 22 million pounds annually or 6% of coastwide landings from 2009-2012.
- Given the small capacity of these gear types, this fleet would be managed with a soft quota (e.g., 6% of coastwide TAC), but this harvest would be allowed to fluctuate above the quota in year when fish are available (Figure 1).
- Annual review of small scale catches relative to coastal catch – these fisheries operate in aggregate on a small portion of the coastal TAC.
- Set triggers if small scale fleet harvest grows to an unacceptable level.(e.g. implement trip limits, return to state by state quotas for small scale fleets).
- States could implement management to prevent substantial growth in their small scale fisheries

Notes: The majority of non-purse seine menhaden harvest is taken by fixed, multi-species gears. Harvest from these gear fluctuates with the availability of fish in the area. These gears cannot move to find schools of menhaden. These are also multi-species gears so discards become an issue in managing menhaden.

Large-Capacity Fleet:

- Types of gears include, but not limited to, purse seines and pair trawls
- Total coastwide landings are approximately 408.7 million pounds annually or approximately 95% of the coastwide TAC.
- Given the large capacity of these gear types, this fleet would be managed with a hard quota (e.g., 93-96% of the coastwide TAC).
- Note: the Board may wish to consider further allocation (e.g., regional, state by state) of the capacity-specific quotas to provide equitable access to the quota.

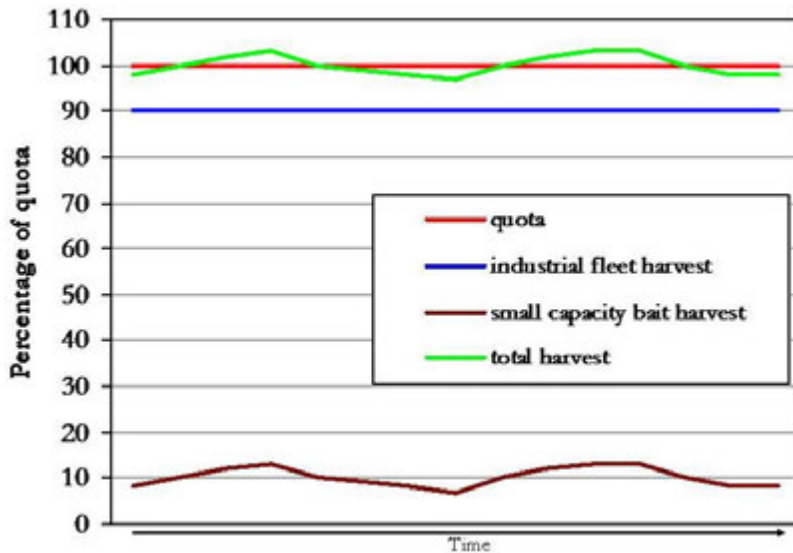


Figure 1. A graphical representation of the two fleet capacity allocation showing the fluctuating small capacity bait harvest and its impact on total harvest relative to the quota.

F. Minimum Fixed Quotas

Each state would receive a minimum fixed percent quota (e.g., 1% of the coastwide TAC). If a state's quota was not used it could be transferred.

Notes: The WG discussed having a minimum fixed quota allocation because it provides growth opportunity for states that have small quotas and has been used in other ASMFC management plans (e.g., American eel).

G. Seasonal Quotas

Quotas would be divided into designated seasons.

Notes: The WG discussed that seasonal quotas would be a better management option implemented under a regional or state by state quota allocation.

Potential Allocation Timeframes

Several of the allocation options discussed above require a landings history timeframe to base allocation and therefore the WG discussed the following potential timeframes.

1. 2009-2011: Status quo, timeframe used for state by state allocation in Amendment 2
2. 2009-2012: Similar timeframe to Amendment 2, but includes 2012 which was the last year prior to the implementation of Amendment 2 in 2013.
3. Weighted allocation with half weight for a long period, and half weight for more recent short period.

Example: half weight for 2009-2012, and half weight for 2013-2015

Issues for further consideration

As stated, the allocation options explored above address the challenges to varying degrees and more work would be needed to provide workable allocation options that more fully consider the WG's list of challenges associated with allocation in the Atlantic menhaden fishery.

Additionally, the WG notes that the *bycatch allowance* and *episodic events set aside* provisions need to be considered by the full Board when moving forward with allocation option development for Amendment 3. The WG views these management provisions as conditional upon the specifics of any chosen allocation program, but emphasize that the dynamics currently captured by these two provisions are an important part of the current management program for Atlantic menhaden. Appendix 2 is a summary of bycatch allowance landings in 2014.

Additional issues that the WG recommend for further consideration include: quota rollovers; quota paybacks; transfers; location of harvest; accommodation for ecosystem-based management programs that establish harvest controls at local/regional levels.

Appendix 1

Table 1. Atlantic menhaden coastwide landing averages by gear type for 2009-2012 and 2013-2014. Bycatch allowance landings are included in 2013-2014 average. Data are preliminary and subject to change.

Landings in Pounds	2009-2012 Average	% by Gear	2013-2014 Average	% by Gear
Purse Seine	436,211,312	95.188%	353,766,645	94.207%
Pound Net	16,129,566	3.520%	13,990,507	3.726%
Trawl	2,639,414	0.576%	1,444,210	0.385%
Gill Net	2,784,530	0.608%	5,052,734	1.346%
Cast Net	213,494	0.047%	750,823	0.200%
Trap/Pots	104,775	0.023%	156,790	0.042%
Fyke Net	51,994	0.011%	3,865	0.001%
Haul Seine	64,215	0.014%	118,651	0.032%
Other	65,608	0.014%	237,735	0.063%
Total	458,264,908	100%	375,521,959	100%

Appendix 2

Bycatch landings in 2014, harvested under the 6,000 pound bycatch allowance, totaled 3,102 mt (~6.84 million pounds) which represents a 60% increase from 2013 bycatch landings. For reference, bycatch landings accounted for approximately 1.8% of the coastwide landings, but do not count towards the coastwide TAC. The Chesapeake Bay jurisdictions of Maryland (33%), Virginia (30%), and PRFC (16%) comprised 79% of the total bycatch with the states of New Jersey, New York, Delaware, Florida, and Rhode Island accounting for the remaining 21% (Table 2). The predominant gears used were pound nets (58%) and gill nets (33%), which accounted for over 90% of the landings and were used by New York, New Jersey, Delaware, Maryland, PRFC, and Virginia. Cast nets (6%), otter trawls (3%), and fish traps (0.2%) were used for the remaining landings.

Table 2. Bycatch landings summary by state in 2014. Data are preliminary and subject to change.

State	Bycatch (lbs)	% of Bycatch total	Gears
RI	9,723	0.1%	fish trap
NY	366,999	5.4%	cast net, gill net
NJ	723,517	10.6%	gill net, pound net, otter trawl
DE	111,944	1.6%	gill net
MD	2,239,937	32.8%	pound net, gill net
PRFC	1,112,343	16.3%	pound net
VA	2,054,898	30.0%	gill net, pound net
FL	219,000	3.2%	cast net, fish trap
Total	6,838,361		

A total of 5,442 trips landed bycatch of Atlantic menhaden in 2014. A majority of the bycatch trips (72%) landed less than 1,000 pounds (Table 3). However, Maryland reported occurrences of pound net bycatch trips that were over the 6,000 pound limit because some license holders were using two vessels to legally land more than 6,000 pounds a day.

Table 3. Bycatch trip summary by thousand pound bins for 2014. Data are preliminary and subject to change.

Bins (LBS)	# of trips	% of total trips
1-1000	3,930	72%
1001-2000	470	9%
2001-3000	299	5%
3001-4000	185	3%
4001-5000	193	4%
5001-6000	251	5%
6000+	103	2%
Unknown	11	0%
Total	5,442	



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

October 20th 2015

To: Atlantic Menhaden Management Board
From: Shanna Madsen and Mike Waine, Staff ASMFC
RE: Ecosystem Management Objectives Workshop Report

Background: The Atlantic States Marine Fisheries Commission's Biological Ecological Reference Points Workgroup (BERP WG) has been tasked to develop ecological reference points (ERPs) that incorporate the predatory demands on Atlantic menhaden. In the *Ecological Reference Points for Atlantic Menhaden* report, the BERP WG presented suite of preliminary ERP models and ecosystem monitoring approaches for feedback as part of the 2015 Benchmark Stock Assessment for Atlantic Menhaden (Appendix E, SEDAR 40 Stock Assessment Report). In this report, the BERP WG recommended the use of facilitated workshops to develop specific ecosystem and fisheries objectives to drive further development of ERPs for Atlantic menhaden.

In May 2015, the Atlantic Menhaden Management Board initiated Draft Amendment 3 to the Fishery Management Plan. Draft Amendment 3 will consider changes to the management program including the development of ecological reference points that reflect Atlantic menhaden's role as a forage species. To aid in the development of these reference points, the Commission established the recommended multi-disciplinary working group to identify potential ecosystem goals and objectives for Board review and consideration. This Ecosystem Management Objectives Workgroup (EMOW) contained a broad range of representation including Commissioners, stakeholder representatives, and technical representatives to provide various perspectives on Atlantic menhaden management (*Appendix 1*).

Introduction: The intent of this report is to describe the process and products of the Ecosystem Management Objectives Workshop held on August 31st - September 1st, 2015. Prior to the Workshop, the EMOW met via webinar on August 14th, 2015 to review topics to be covered, expectations, and workshop goals, as well as provide participants an opportunity to ask questions and make suggestions to the workshop process. The webinar also featured a case-study from the Great Lakes region to provide an example structured decision-making framework. Agendas from both the webinar and workshop can be found in *Appendix 2*.

In the structured decision-making process, the EMOW defined management objectives and associated measures of performance. Workshop participants identified two types of objectives: fundamental and means. Fundamental objectives are the final product a group would like to achieve and serve as statements about what a group values. Means objectives define steps necessary to achieve fundamental objectives and can therefore be considered the "means to the ends" defined by the fundamental objectives. A comprehensive list of fundamental and means

M15-85

objectives were constructed by the Workgroup (*Appendix 3 and 4*). Both lists were then distilled and refined by Workgroup members into a more concise set of objectives that best represented the extensive list. Once a refined list of fundamental objectives was identified, participants specified performance metrics that, if measured, would enable a determination of whether the fundamental objectives were met. BERP WG representatives provided a summary review of the ERP and ecosystem monitoring approaches presented in the *Ecological Reference Points for Atlantic Menhaden* report (Appendix E, SEDAR 40 Stock Assessment Report). The EMOW then identified the intersection between objective performance measures and available modeling approaches.

The refined fundamental objectives list is presented here, with no order of importance. These objectives were ones that the EMOW identified as essential to Atlantic menhaden management. This list was the result of EMOW deliberation and discussion. To provide context, the original brainstormed list can be found in *Appendix 3*.

Refined Fundamental Objectives

- **Achieve broad public support for management**
- **Sustain menhaden to provide:**
 - **For fisheries**
 - **For predators**
 - **Historical and cultural values**
 - **Other ecosystem services**
 - *→All to provide both social and economic benefits*
- **Minimize risks to sustainability due to a changing environment**
- **Provide stability for all types of fisheries (for both menhaden and species that depend on menhaden)**
- **Sustain ecosystem resiliency or stability**

Condensed means objectives are also presented here, again with no implied order of importance. This list of refined means objectives is linked to the refined fundamental objectives, but a particular means objective may contribute to multiple fundamental objectives. The EMOW approved the refined lists of fundamental and means objectives, but for background the complete list of means objectives identified at the workshop is found in *Appendix 4*.

Refined Means Objectives

- **Science**
 - **Increase knowledge base**
 - **Better communication of science**
 - **Account for variation**
- **Management**
 - **Define clear objectives**
 - **Provide timely advice**
- **Ecosystem**
 - **Ensure adequate supply of menhaden for:**
 - **individual predator groups**
 - **food web as a whole**

- **Account for spatial/temporal variation when managing trade-offs**
- **Minimize the risks of collapse for:**
 - **Menhaden**
 - **Fishery**
 - **Irreversible ecosystem change**

The EMOW brainstormed performance measures based on the refined list of fundamental objectives. Performance measures associated with fundamental objectives are presented below.

The EMOW discussed the definition or metric of collapse for the Atlantic menhaden population, fishery, and ecosystem. For the Atlantic menhaden population, the metric of collapse would be associated with some level of biomass or fecundity relative to unfished spawning stock biomass or fecundity. Collapse in the fishery would be dependent on the type of fishery and would mean it is no longer economically viable to fish. Irreversible ecosystem damage would mean the food web would be altered in a manner that would not recover to a previous state with the relaxation of fishing pressure.

Performance Measures for Refined Fundamental Objectives

- **Achieve broad public support for management**
 - **Unanimous vote of the Atlantic Menhaden Management Board**
 - **Positive press releases from all stakeholders**
 - **“Informed consent” or acknowledgement that the decisions made were “fair and reasonable”**
 - **Participation in the fishery benefits**
 - **Absence of legal action**
 - **Strong compliance with management measures**
- **Sustain menhaden to provide for fisheries**
 - **Meeting or exceeding (positively) reference points**
 - **Non-truncated age distribution**
 - **Historical distribution maintained**
 - **Avoid unintended economic consequences of management**
 - **Employment in fishery**
 - **Achieving yield objectives for all fisheries**
 - **Achieving abundances that exceed “depleted” status**
 - **Reduce regulatory discards**
- **Sustain menhaden to provide for predators**
 - **Same as for fishery, assuming reference points are ecological reference points**
 - **Predators in a healthy nutritional state**
 - **Distribution of menhaden related to predator requirements (prey availability)**
- **Sustain menhaden to provide for historical and cultural values**
 - **Maintaining “historical” (meaning existing and recent past infrastructure rather than distant past) patterns of employment (spatial, demographic, gear use etc.)**
- **Sustain menhaden to provide for ecosystem services**
 - **Same as above; represented in the other menhaden “services”**

- **Minimize risk to sustainability due to changing environment**
 - **Analysis would explicitly consider uncertainty about future environmental conditions**
- **Provide stability for all types of fisheries (both direct and indirect)**
 - **Variability in employment and yield**
 - **Frequency of substantive management action**
- **Sustain ecosystem resiliency or stability**
 - **Covered by metrics above; if successful in providing for a viable fishery and other food web components that are related to menhaden**

A preliminary pairing of performance measures related to fundamental objectives to BERP WG-suggested modeling approaches are listed below. It is important to note that performance metrics should not only be measurable, but predictable. That is, models should be able to predict the effects of management action (e.g., a harvest control rule) on the performance measure in order to determine whether management action will achieve a desired objective. The full BERP WG will meet to review this preliminary pairing in October and provide the Board with the intersection between fundamental objectives and ecosystem models in November during the Commission’s annual meeting.

Performance Metrics and Model Matches

- **Abundance/biomass of menhaden (meets reference points, “non-depleted” abundance/biomass)**
 - **Single species model (time invariant)**
 - **does not account for predator dynamics explicitly**
 - **accounts for predators as an average**
 - **Single species model with dynamic parameters (e.g. time-varying r or M)**
 - **Multispecies models**
 - **Steele-Henderson**
 - **Multispecies virtual population analysis (MSVPA)**
 - **Multispecies statistical catch-at-age (MSSCAA)**
 - **Ecopath with Ecosim (EwE)**
- **Age composition**
 - **Catch-at-age models (SCA, VPA)**
 - **Single and multi –species models**
- **Historical distribution**
 - **Age-composition may serve as a surrogate**
- **Variability in yield**
 - **Single and multi-species models**
- **Employment: levels of and variability in employment, “historical” patterns of employment (related to sustaining existing and recent past infrastructure rather than returning to the distant past)**
 - **Ecological models do not directly address this**
 - **Addressing measures like abundance/biomass, yield, and age composition could be a proxy for economic and employment effects**
 - **Other socioeconomic analysis may contribute**
- **Yield objectives (for species dependent on menhaden)**

- **Analysis must be informative of influence of menhaden on other predator species**
- **Multispecies models**
 - **Steele-Henderson (but only with adjustments)**
 - **MSSCAA**
- **Regulatory discards (pound nets, gill nets, multispecies gears)**
 - **Ecological models cannot predict levels of regulatory discards associated with harvest control rules**
- **Frequency of substantial management action**
 - **Not addressed by ecological models**
- **Measures of public support**
 - **Not addressed by ecological models**

Workshop Outcomes: The EMOW established potential goals and objectives for ecosystem management that the Atlantic Menhaden Management Board will consider through the development of Draft Amendment 3.

The BERP WG will meet in October to assess the ability of each ERP model to address EMOW-identified management objectives and performance measures as well as revisit the timelines for ERP model development. The recommendations and outcomes from this BERP WG meeting will be presented to the Board during the Commission's 2015 Annual Meeting.

Appendix 1: Ecosystem Management Objectives Workgroup

Menhaden Management Board Subgroup

Robert Boyles (SC, Menhaden Board Chair)
Bob Ballou (RI, Menhaden Board Vice-Chair)
Jim Gilmore (NY)
Russ Allen (NJ)
Lynn Fegley (MD)
Rob O'Reilly (VA)

Advisory Panel Subgroup

David Sikorski (recreational sector)
Ken Hinman (ecosystem sector)
Ron Lukens (reduction fishery)
Jeff Kaelin (bait fishery, AP Chair)

Technical Representatives

Amy Schueller (NMFS, SAS Chair)
Jason McNamee (RI, TC Chair)
Matt Cieri (ME, BERP Chair)

Facilitator

Michael Jones (SEDAR 40 Review Panel Chair)

ASMFC Staff

Mike Waine (Atlantic Menhaden FMP Coordinator)
Katie Drew (BERP WG Assessment Scientist)
Shanna Madsen (BERP WG Coordinator)



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

Appendix 2: Ecosystem Management Objectives Workgroup Webinar

August 14th 2015
9:00 am-12:00 pm

Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome and introductions (*M. Jones*) 9:00 am
2. Approval of agenda

3. Workshop relevance to technical process (*S. Madsen*)
4. Workshop relevance to management process and timeline (*M. Waine*)
5. Structured decision-making process case-study with salmon/alewife (*M. Jones*)
 - a. Discuss expectations for setting management objectives
 - b. Review example management objectives
6. Review draft EMO Workshop agenda
 - a. Provide feedback

7. Public comment
8. Adjourn 12:00 pm



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Appendix 2: Ecosystem Management Objectives Workshop for Atlantic Menhaden

August 31st 2015 8:30 am-5:00 pm

September 1st 8:30 am-4:00 pm

Hanover, Maryland

Agenda

The times listed are approximate; the order in which these items will be taken is subject to change;
other items may be added as necessary.

Monday, August 31st

1. Welcome and introductions (*M. Jones*) 8:30 am
2. Approval of agenda
3. Overview of process and workshop goals (*M. Jones*)
4. Management objectives generation and discussion
 - a. Brainstorm range of management objectives
 - b. Discuss nuances of each objective in regards to areas or species influenced
5. Public comment
6. Adjourn 5:00 pm

Tuesday, September 1st

7. Biological Ecological Reference Points Presentation (*J. McNamee*) 8:30 am
 - a. Comprehensive review of BERP WG models developed in the Ecological Reference Points Report
 - b. SEDAR 40 Peer Review Recommendations
8. Identify intersection between management objectives and available BERP WG models
 - a. Pair analytical tools to address management objectives
 - b. Discuss model development timeframe
9. Refine consensus management objectives list which will be:
 - a. Considered by the Atlantic Menhaden Management Board
 - b. Focus of ongoing technical work by BERP WG
10. Public comment
11. Adjourn 4:00 pm

Appendix 3: Comprehensive Fundamental Objectives

- Serve broad public interest:
 - Fisheries dependent on menhaden, indirectly
 - Desire for healthy and stable ecosystems
- Contribute to economic benefits for commercial and recreational fisheries dependent on menhaden
- Maximize “utilization” of menhaden by fisheries and predators
- “Menhaden for the system, the public, and tomorrow”
- Provide ecosystem services as important food source across spatial and temporal scales
- Recognize the historical and cultural importance of menhaden
- Facilitate broad support from menhaden management and ensure confidence in management
- Recognize “non-fishery” economic aspects of menhaden in the ecosystem (e.g. whale watching, fish kills)
- “Take what we can take, leave what we need to leave”
- Note importance of social as well as economic benefits of menhaden
- Maintain the resource in a way that minimizes risks to long-term menhaden sustainability/resiliency in the face of environmental change
- Maintain stability for both the ecosystem and the fishery

Appendix 4: Comprehensive Means Objectives

- Translate technical analysis into forms effective for communication to stakeholders (and gain a realistic appreciation of the limits of science)
- Better fishery independent surveys to inform the status of menhaden
- Articulate a clear set of management objectives for menhaden
- Maintain an adequate supply of biomass and abundance menhaden for: striped bass, bluefish, weakfish, seabirds, marine mammals, sharks OR the food web more generally
- Better understanding of recruitment and environmental factors driving it
- Better understanding of the trade-offs among ecosystem services
- Articulate broader ecosystem objectives to inform menhaden analysis
- Better understanding of the socioeconomic value of menhaden across various ecosystem services as well as the fishery
- Understand foraging requirements of predators on menhaden (diet data)
- Manage harvest spatially and temporally across age structure to reduce conflicts with other ecosystem services
- Provide useful management advice in the short term (~2-5 years) and long term
- Determine the role of other forage species relative to menhaden
- Avoid a collapse of menhaden population
- Avoid a collapse of menhaden fishery
- Avoid irreversible changes in the ecosystem due to menhaden decline
- Account for likely future environmental conditions (including both the climate oscillations and the change) in trade-off analyses
- Acknowledge the importance/role of variation and its effect of perceptions of “baselines”
- Maintain water quality at levels that do not imperil the menhaden ecosystem

Public comment

From: William Bartlett [<mailto:wbartlett@md.metrocast.net>]

Sent: Tuesday, September 01, 2015 9:09 AM

To: Comments <comments@asmfc.org>

Subject: Re: Menhaden

Menhaden

All living things need nutrients to grow and thrive. For many animals it is grass and only grass; a green plant produced by photosynthesis. There is always plenty of grass as long as conditions are right; more than the grass eaters can eat. Nature abhors a vacuum and will grow grass. Many animals get all the nutrients they need from eating these animals that eat grass. Mother nature in her “infinite wisdom” provides many of the animals that are needed to feed the carnivores. They are prolific animals like rabbits, mice, deer, wildebeests, etc. And it is the same in the waters that surround us all.

With available nutrients, we have plants in the water called phytoplankton; plants just like grass that require the sun to produce photosynthesis. And we have the animals that eat the phytoplankton. They are called zooplankton (copepods, dinoflagellates). The phytoplankton and zooplankton are microscopic, but it is what makes the water cloudy in places around the world like the Chesapeake Bay where it finds the most nutrients (nitrogen and phosphorous washed off the land).

There are fish that eat the tiny plants and animals. They can filter out the planktons. These fish provide the same niche as the grass eaters on land. They are called forage fish. Without them we would have no fish that we like to eat.

Because so many forage fish are needed to provide food for many other fish, birds and mammals Mother nature has provided several species of very prolific fish. One of the most well known in our area is the menhaden. We need them in great abundance, but what is happening is that one company is taking over 300 million pounds of them every year from the mid-Atlantic area to be used as feed for some farm animals and farm raised fish. There was a time when the water in this area was a lot clearer. We do not need 300 million pounds of this fish to be removed from this area. We need even more to eat the planktons and clear the water.

Mother nature provided this fish in great numbers because they are needed in great numbers. The removal of so many menhaden upsets the balance of nature and should be stopped completely immediately.

The Chesapeake Bay will not return to any resemblance of its former self until the menhaden are brought back in sufficient numbers as nature intended.

William Bartlett

19124 Lake Drive

Leonardtown, MD 20650

wbartlett@md.metrocast.net

301 994 0671

Mr Waive,

This is the letter I sent to the Virginian Pilot

Beth Ricks

-----Original Message-----

From: Gary Ricks <grricks@aol.com>

To: letters <letters@pilotonline.com>

Cc: Lee.Toliver <Lee.Toliver@pilotonline.com>

Sent: Sun, Oct 4, 2015 11:48 am

Subject: Stop menhaden fishing in the bay

My letter is in response to the recent discontent of local charter boat captain's, concerning the harvesting of menhaden off the coast of Virginia Beach.

I feel compelled to express my view's on the menhaden fishing within the Chesapeake Bay.

I have deep roots and many years spent on the Eastern Shore. During the late 60's my family acquired property on the Chesapeake Bay. The location is almost directly across from where boats operate daily out of Reedville, Virginia.

There was a time when my father could catch "spot" off the beach. He would clean them and my mom would cook them for breakfast. I recall when "the blues are running" echoed up and down the beach. People came rushing, rods in hand to join in the fun. My husband and son spent many a summer day casting off from the beach.

Over the past several years my family has witnessed a steady decline in fishing. We have watched the menhaden boats operate 24/7 to harvest these fish. Whether they be for bait or Omega Protein matters not, this bay has been robbed of a necessary and vital element to an extremely delicate ecosystem.

I am aware this is not the only contributing factor, but a major one. Along with the many restrictions placed upon the farmers, individuals being more conscientious, we can all do our part to save this bay.

The time has come for the State of Virginia to recognize the true value of this bay, an estuary unlike anything else in our country. I implore all voters to call or e-mail their state representative and demand they end menhaden fishing within the boundaries of the Chesapeake Bay in Virginia. In order to restore this natural treasure, we must all share the responsibility, from our General Assembly, to all those who enjoy the recreational advantages the bay has to offer.

My own vested interest is to have the joy of seeing my twin grandsons plant their feet firmly in the sand, cast a rod, and know the excitement of catching a fish just as their great-grandfather once did.

I have had the pleasure of speaking with many people who graciously gave me their time and input. I am but one voice hoping to become many. I realize this shall be an uphill battle, yet history shows all things are possible.

Elizabeth Ricks

Dear Mr. Waine

I am quite upset about the continued complaints by so many with regards to the menhaden fishing in the Chesapeake Bay. I would sincerely appreciate your confirming something of great importance to me. Below is a list I compiled, in hoping to have a better understanding.

- (1) Omega Protein has an annual yield of 315,000,000 lbs. from I presume the entire Atlantic Coast.
- (2) 85% of the above is 267,750,000 lbs. which comes from the Virginia waters.
- (3) 25% of the above is derived from the Chesapeake Bay, totaling 66,937,500.

I have recently read where contributions from Omega Protein have gone to Virginia campaigns, and their \$88 Million contribution to the economy of Virginia was highly praised by our governor. Unless someone in our state legislature starts to listen to the people and begins a process by which this reckless handling of the bay is changed, then the continued demise will never end..

I understand the ASMFC calls the shots on the amount of menhaden allowed to be caught, and this figure is based on scientific studies. My question to you as, the coordinator, is how this figure is comprised? Do the studies cover an overall catch or each state's individual percentage. It certainly wouldn't take a rocket scientist to realize our state is taking the bigger piece of the pie, leaving little doubt to a novice person as to why this bay can't recover. We have heard for years of clean-up attempts in the bay. I can clean my home and yet, if I don't put food in the fridge, who's gonna live here?

I do realize the ASMFC has little interest or involvement in our politics. Yet, all of you involved in making these decisions, which inadvertently affect a natural treasure, must surely feel it is wrong. Someone needs to take a stand and maybe the place to start, is looking at the state of Virginia alone.

I truly don't get why Omega Protein and any other menhaden industry cannot take their quotas from 3 miles offshore of the coast. I guess the Chesapeake Bay provides all their needs on a daily basis. If the ASMFC has the authority to establish yearly quotas, then you should have the same authority in stating where, as well as how much. I hope you will share this message with your board and they will begin to make the necessary changes.

I look forward to hearing from you and please, know I appreciate your time. I shall be sending the enclosed to our senator, as well as the one for the Eastern Shore.

Thanking you in advance,

Beth Ricks

cc



CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

October 20, 2015

Robert Boyles
Chair
Menhaden Management Board
Atlantic States Marine Fisheries Commission

Dear Chairman Boyles:

We are writing to urge the Atlantic Menhaden Management Board to stay on track at your November meeting to develop and release a Public Information Document (PID) for Amendment 3 by February 2016 and include what we refer to as the “75% solution” among the options put forward. This approach is 1) well represented in the scientific literature as a means for setting ecological reference points for important forage species; 2) it best meets objectives for menhaden identified by the Ecosystem Management Objectives (EMO) Workshop; and 3) it is the only approach that can be immediately applied to the most recent menhaden stock assessment to develop catch limits for implementation by the 2017 fishing season.

The 75% solution, leaving three-quarters of unfished biomass in the ocean for ecosystem services, is a generic descriptor for the Lenfest¹ and numerous comparable approaches endorsed by literally dozens of well-regarded fishery scientists, from the U.S. and around the world, over years of researching ecosystem-based conservation of forage fish. For example, Lenfest’s default recommendation of setting biomass targets at $0.75B_0$ and thresholds at $0.40B_0$ is remarkably consistent with recommendations made in scientific papers published since 2000 and adopted as policy by a number of

¹ Described as *Pikitch et al (2012)* in recent Biological Ecological Reference Point Working Group documents.

fishery management bodies. (For a summary of the emergent consensus around a 75% solution, see *Resource Sharing: The Berkeley Criterion*.²)

There is very good reason to believe that this approach, accepted as best management practices globally, is appropriate for menhaden in the U.S. Atlantic. Dr. Ellen Pikitch and Dr. Edward Houde, the chair and vice chair of the Lenfest Forage Fish Task Force respectively, were invited by ASMFC to present their recommendations in a webinar held August 25, 2015. The audience included members of the Biological Ecological Reference Point Working Group, participants in the EMO Workshop held a week later, and the interested public. In the webinar, they explained that the Lenfest approach is applicable to menhaden; in fact, it was highlighted as a case study in the Forage Fish Task Force report³. (We've appended the presentation prepared by Drs. Pikitch and Houde for the webinar.)

The EMO Workshop, convened at the behest of the Board and held August 31-September 1, agreed that a fundamental menhaden management objective is to sustain an adequate supply for individual predators and the food web as a whole, while maintaining ecosystem resiliency and stability. The 75% solution is specifically designed to achieve this objective, accounting for all predators in the ecosystem with a precautionary balance of ecosystem and fishery needs.

As the BERP Working Group has affirmed, ecological reference points based on the 75% solution are the only type ready to be applied now, using the 2015 peer-reviewed BAM stock assessment. While other, more complex multi-species models are being developed - and we do not discourage this research at all - their usefulness for management purposes is unknown and in any case not likely for years into the future.

It is 15 years now that the Board has been considering changes to menhaden management to protect its role as forage in the ecosystem. Throughout this prolonged discussion, the ASMFC's scientific advisors have emphasized the need for clearly defined ecosystem objectives. Those objectives are not produced by models, no matter how sophisticated. They are instead policy decisions made by fishery managers with input from stakeholders on how best to allocate prey between fisheries and the ecosystem. What is perhaps most valuable about the 75% solution is that the objective - providing a specific forage set-aside for other species in the ecosystem - is inherent and includes a specific means to achieving that objective.

² Hinman, K. (2015) [*Resource Sharing: The Berkeley Criterion*](#). Wild Oceans. Waterford, VA. 34 pp.

³ Pikitch, E. *et al.* (2012) [*Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs*](#). Lenfest Ocean Program. Washington, DC. 108 pp.

By including the 75% solution approach in the PID for Amendment 3, the Board will be ensuring that the public will have an opportunity to consider and comment on a comprehensive and ready path forward alongside alternative approaches. This is particularly important given the public's longstanding, overwhelming and unprecedented support for developing ERPs for menhaden in order to protect predators and the fisheries that depend on them.

Thank you for considering our request.

Sincerely,



Ken Hinman
President
Wild Oceans



Kim Coble
Vice President
Chesapeake Bay Foundation



Peter Baker
Director, U.S. Oceans, Northeast
The Pew Charitable Trusts

Applying the LFFTF Recommendations

A presentation to the ASMFC

Ellen Pikitch, Edward Houde and Laura
Koehn

August 25, 2015

A REPORT FROM THE LENFEST FORAGE FISH TASK FORCE



little fish
BIG IMPACT

Managing a crucial link in ocean food webs

LENFEST FORAGE FISH TASK FORCE



Objective: Develop consensus recommendations on sustainable management of forage fish which accounts for their vital role in ocean ecosystems.

+ Dr. Ellen K. Pikitch, Chair

+ Dr. Tim Essington

+ Dr. Éva Plagányi

+ Dr. P. Dee Boersma

+ Dr. Selina S. Heppell

+ Dr. Keith Sainsbury

+ Dr. Ian L. Boyd

+ Dr. Edward D. Houde

+ Dr. Robert S. Steneck

+ Dr. David O. Conover

+ Dr. Marc Mangel

+ Dr. Philippe Cury

+ Dr. Daniel Pauly

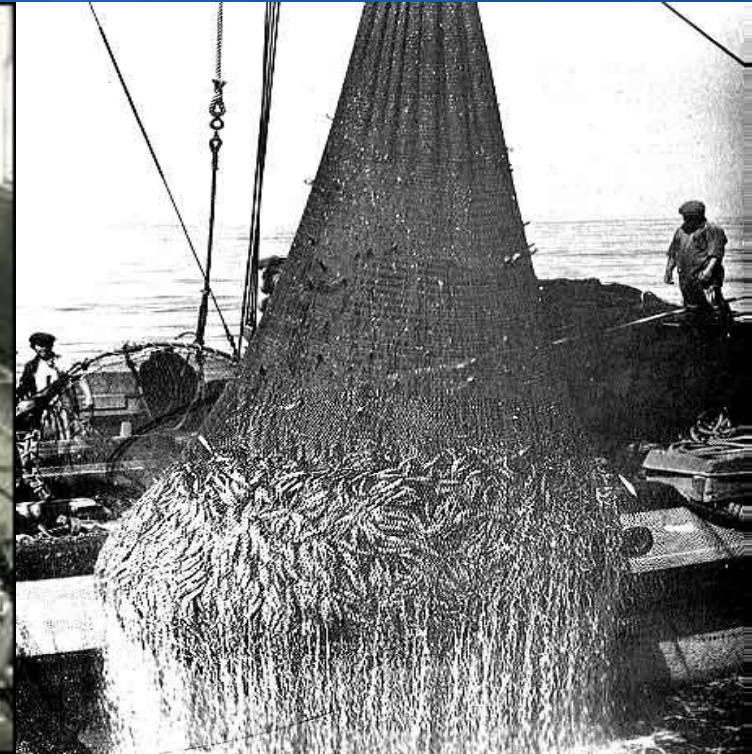
Forage fish collapses

California sardine- 1950s

Namibian sardine-1970s

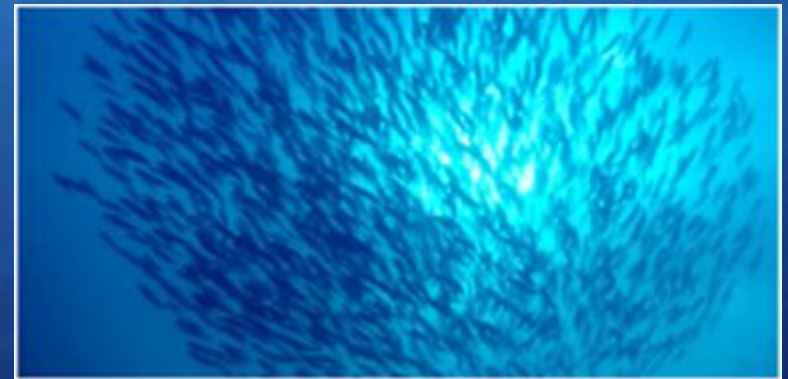
Peruvian anchoveta- 1970s

Japanese sardine- 1990s



Task Force Approach

- Workshops and site visits
- Review of theory and practice
- Case studies - ecosystems
- Data – forage fish and predators
- New science
 - Ecopath models
 - Ecosim models
 - Predator Response to Exploitation of Prey (PREP) equation



General Results

from “Little Fish, Big Impact”

Approximate locations of the 72 Ecopath models used in this analysis

✦ Ecosystem
model



Economic Value of Forage Fish

Direct value of commercial catch = \$5.6 billion

Supportive commercial value = \$11.3 billion

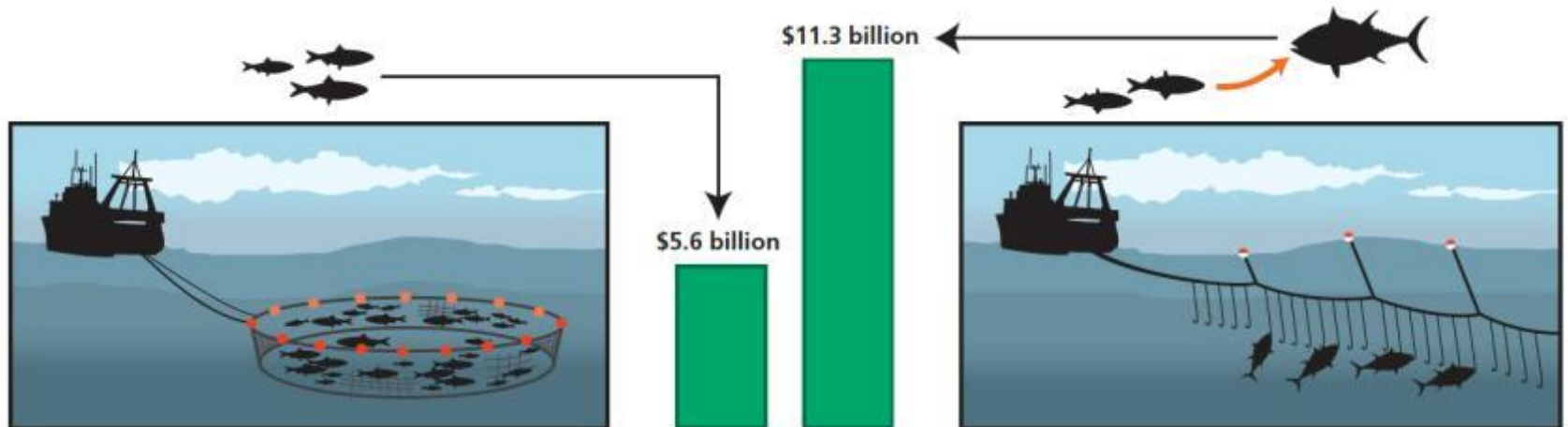
Total global commercial value = \$16.9 billion

Value in 2006 dollars

First ever estimate of total value of forage fish to all fisheries

FORAGE FISH DIRECT VALUE

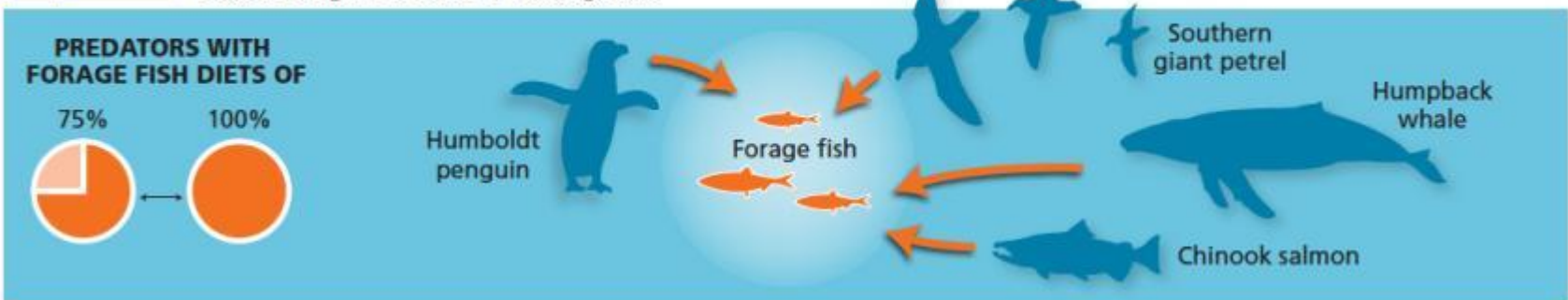
FORAGE FISH SUPPORTIVE VALUE



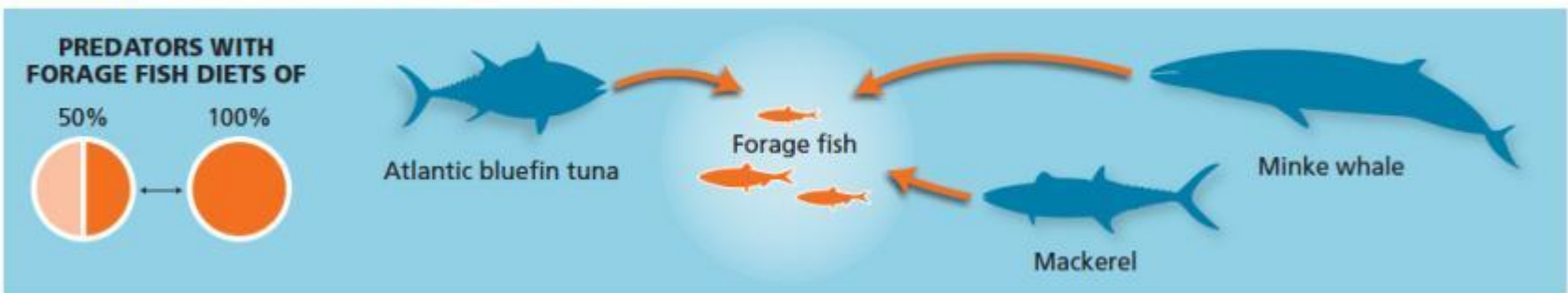
Ecological Importance of Forage Species

The Task Force found that 75% of the ecosystems studied have at least one highly or extremely dependent predator.

29% of ecosystems have at least one predator with a forage fish diet of 75% or greater



75% of ecosystems have at least one predator with a forage fish diet of 50% or greater



Applying the PREP Equation

from “Little Fish, Big Impact”

Ecosim modeling approach

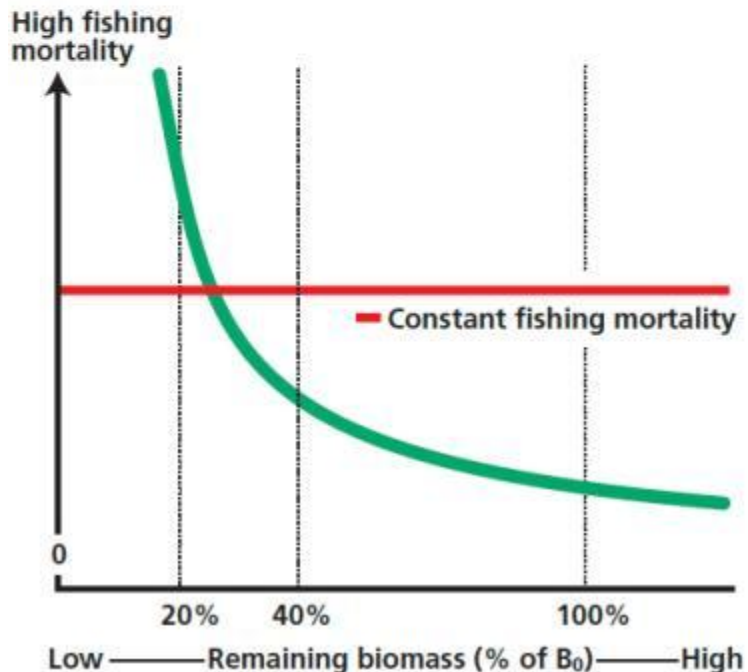
- **Ecosystem Modeling Setup**
 - **Ecosim with MSE Batch Module:** Allows for examination of implementation error and a wide variety of harvest strategies
- **10 Ecosystem models**
 - 2 upwelling (N. Humboldt & Northern California)
 - 1 Semi Enclosed Sea (Baltic Sea)
 - 3 Non-Upwelling Coastal (Gulf of Mexico, North Sea, Western English Channel)
 - 3 Arctic-High Latitude (Aleutian Islands, GoA, Barents)
 - 1 Estuaries/ Bay (Chesapeake Bay)

Least sustainable strategies

Constant yield or constant fishing mortality rules

— **Constant yield:** A constant tonnage of catch is taken each year, resulting in higher fishing mortality at lower population levels.

— **Constant fishing mortality:** The same fraction of the population is harvested each year.



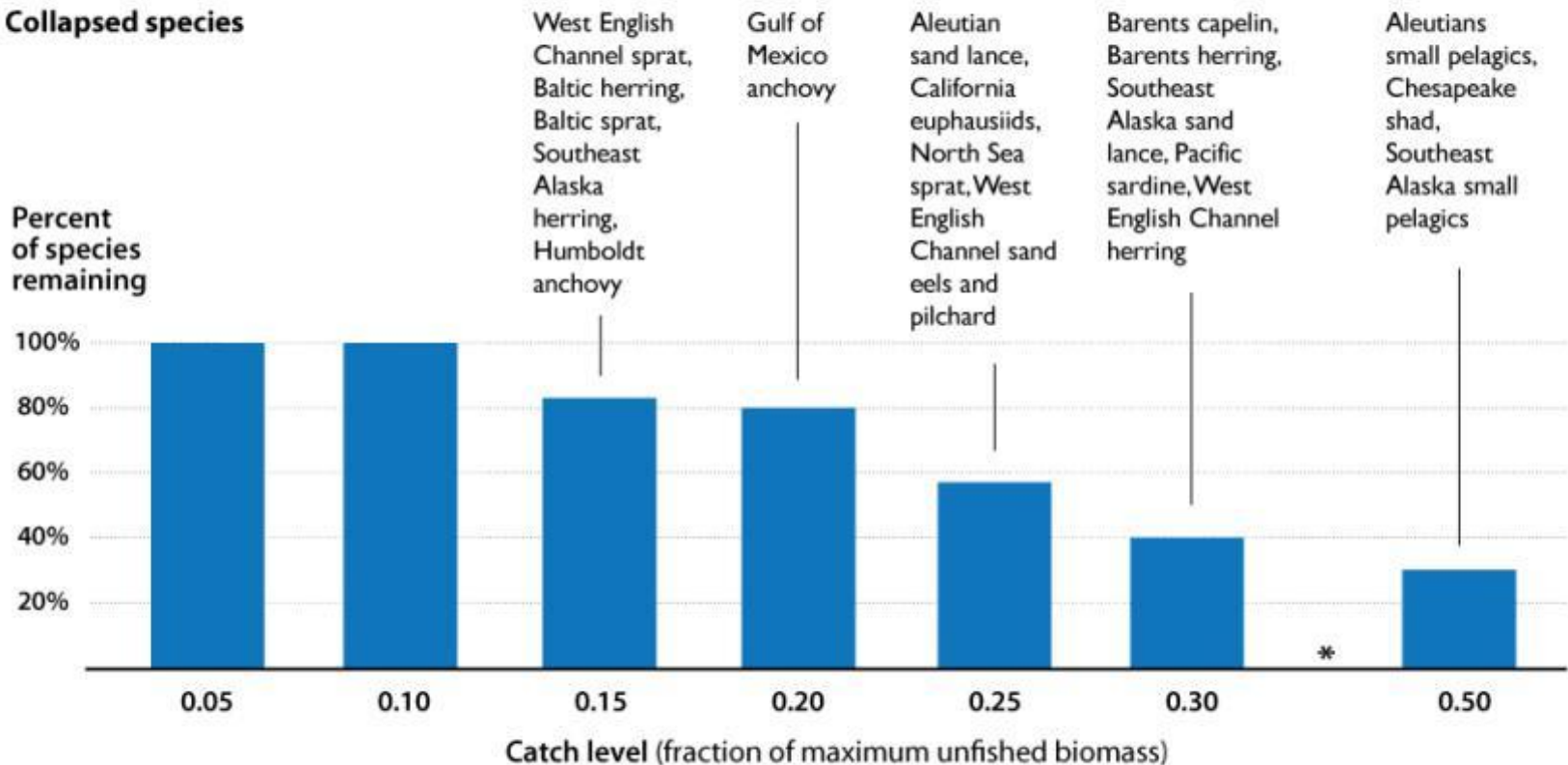
Comparison of harvest control rules

Constant yield and constant fishing (CF) mortality rules.

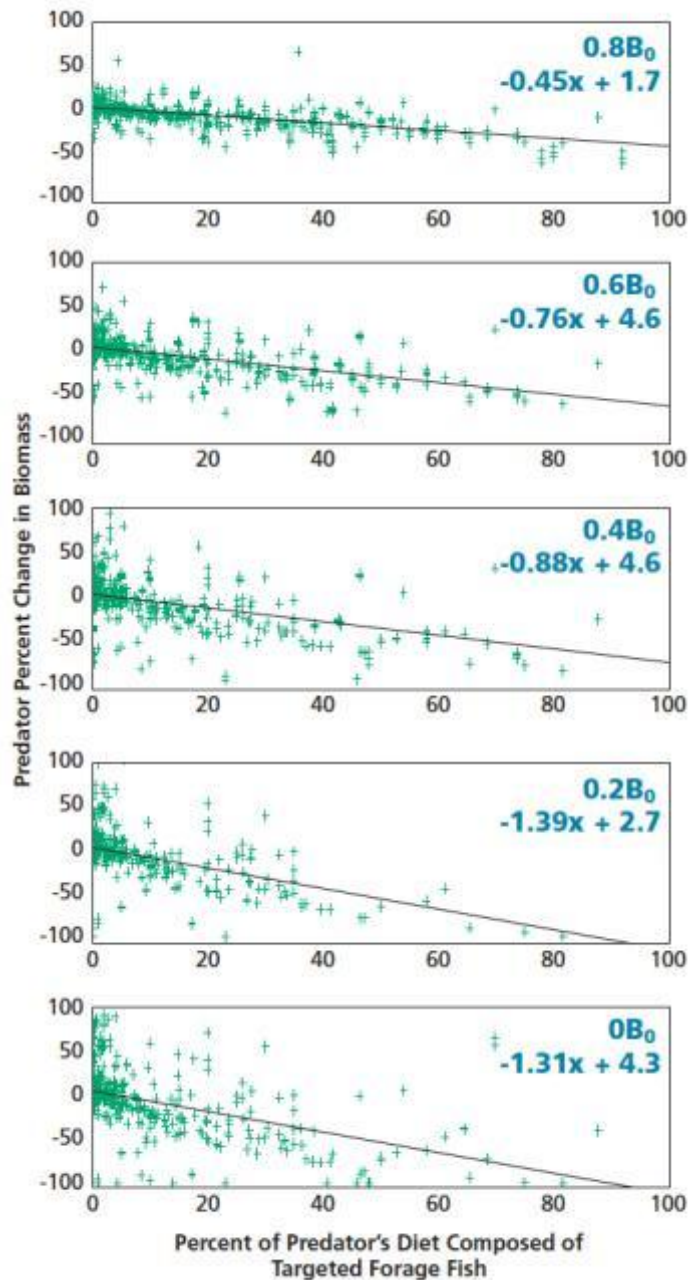
Forage species population collapses from constant yield strategies

Results of deterministic model simulations of the effect of a strategy of constant yield on the 30 forage fish species.

Collapsed species



Note: Seven species did not collapse in any simulation. *Model simulations were not run for levels 0.35, 0.40 and 0.45.



Predator responses to forage fish depletions

Results from deterministic modeling of the constant fishing mortality rule. Each point represents a predator species within one of the models. Each panel represents a different level of forage fish depletion, noted in the upper right corner as a proportion of B_0 . Fishing level increases as one moves downwards.

PREP Equation (Predator Response to Exploitation of Prey)

$$R = \rho D^{\alpha} \left(1 - \frac{B}{B_0} \right)^{\beta}$$

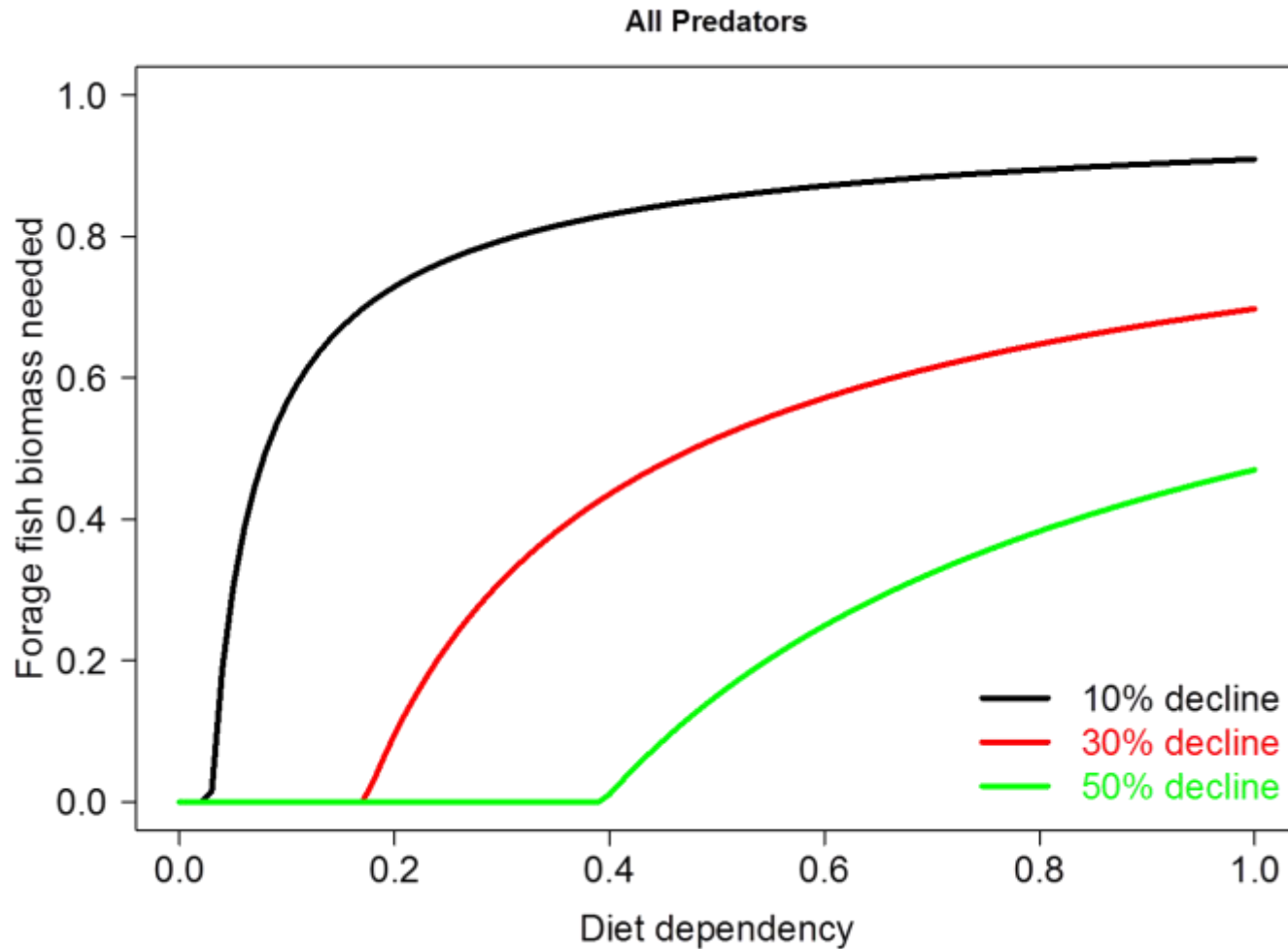
R = Predator Decline (as %)

D = Diet Dependency (as a fraction of the total diet)

B = Forage Fish Biomass

Parameters were fit to all predator data, and to data for all taxonomic groups

Forage biomass to prevent predator decline



Critical forage fish biomass levels

Critical forage fish biomasses needed (as percentages of B_0) to avoid a 50% decline in predators, from PREP equation.

Diet %	95% Confidence of success		75% Confidence of success	
	All groups	Seabirds	All groups	Seabirds
25%	0.79	0.74	0.42	0.45
50%	0.85	0.88	0.57	0.74
75%	0.88	0.90	0.66	0.78
Max	0.90	0.91	0.73	0.81

Applying the PREP Equation

Example from the
California Current

Analyzing Trade-offs in the California Current



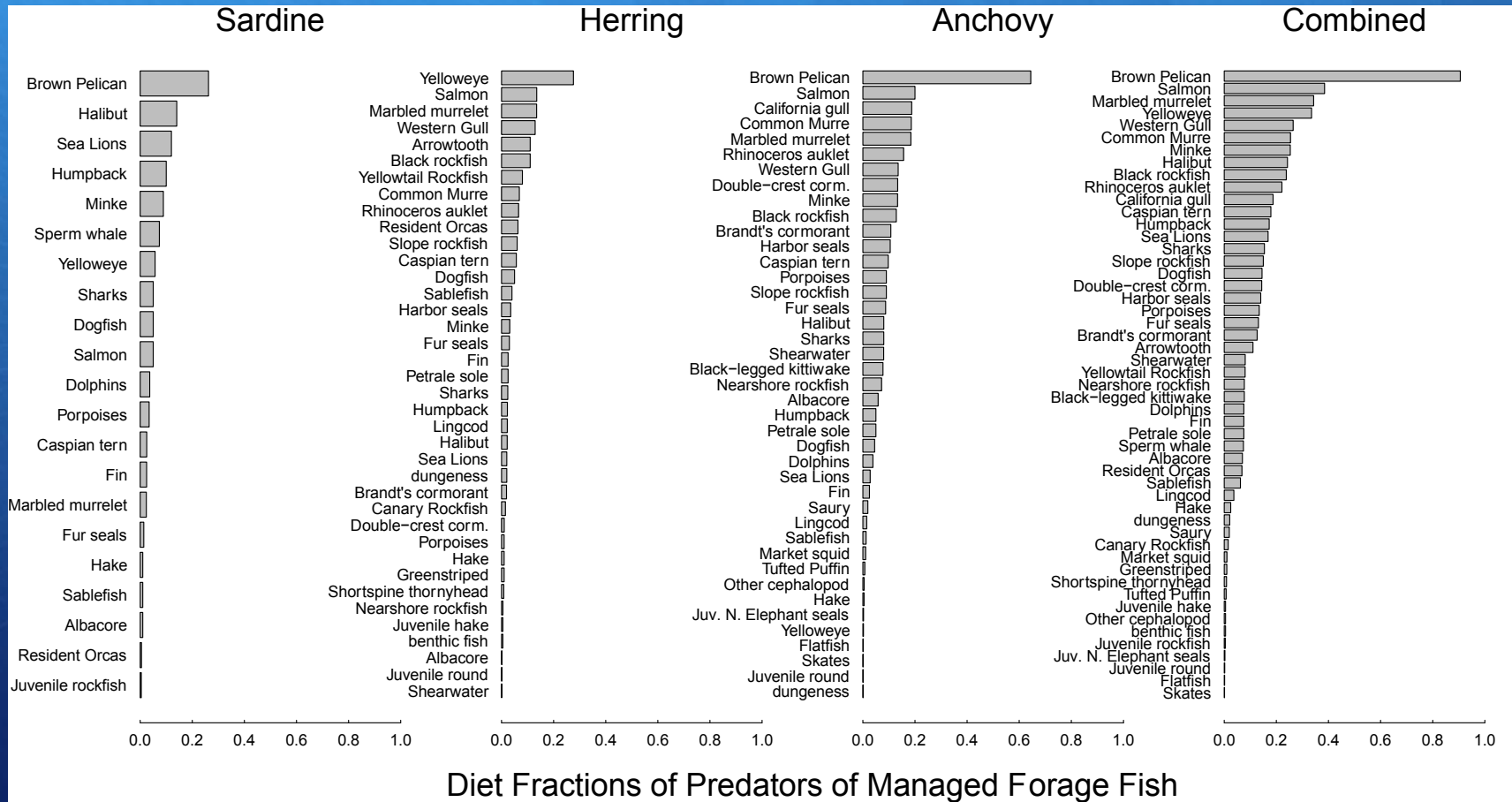
Laura E. Koehn, Tim E. Essington, Isaac C. Kaplan, Kristin N. Marshall, William Sydeman, Amber Szoboszlai, and Julie Thayer

California Current Ecopath

- Ecopath
 - Determines energetic linkages between functional groups (biomass pool)
 - Not dynamic; no spatial component
- New Cal. Cur. Model
 - Forage fish centric model
 - High taxonomic resolution of forage fish and their predators (92 groups)
 - Forage: sardine, anchovy, herring, sandlance, whitebait smelt, other smelt, market squid
 - Designed to look at trade-offs between forage fish ecosystem services and fisheries

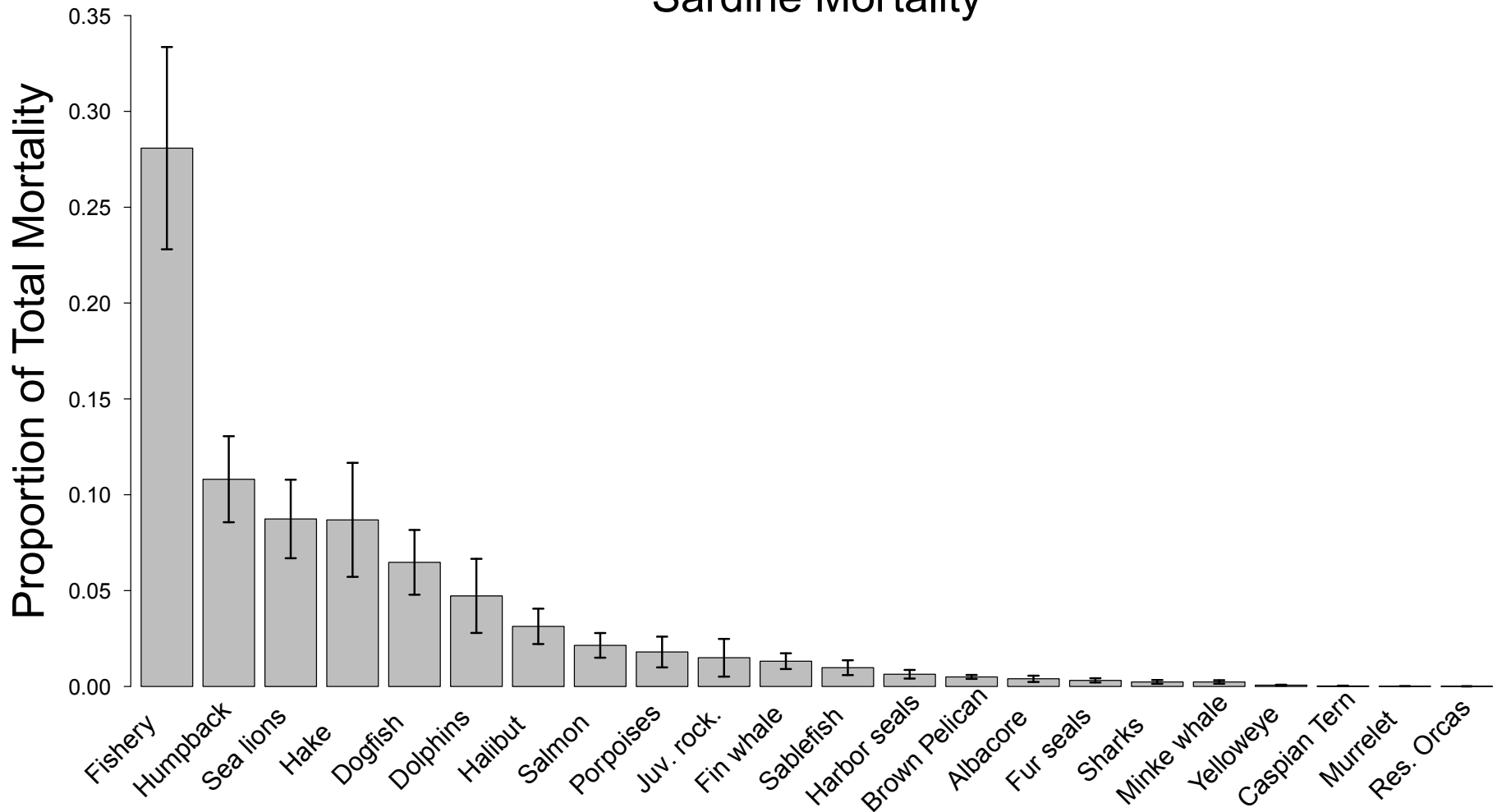


Forage Fish in Predator Diets (original Ecopath model)



Sardine Mortality Across Monte Carlo Draws (ave. mortality proportions \pm SD)

Sardine Mortality



What amount of predators do you lose with depleted forage fish?

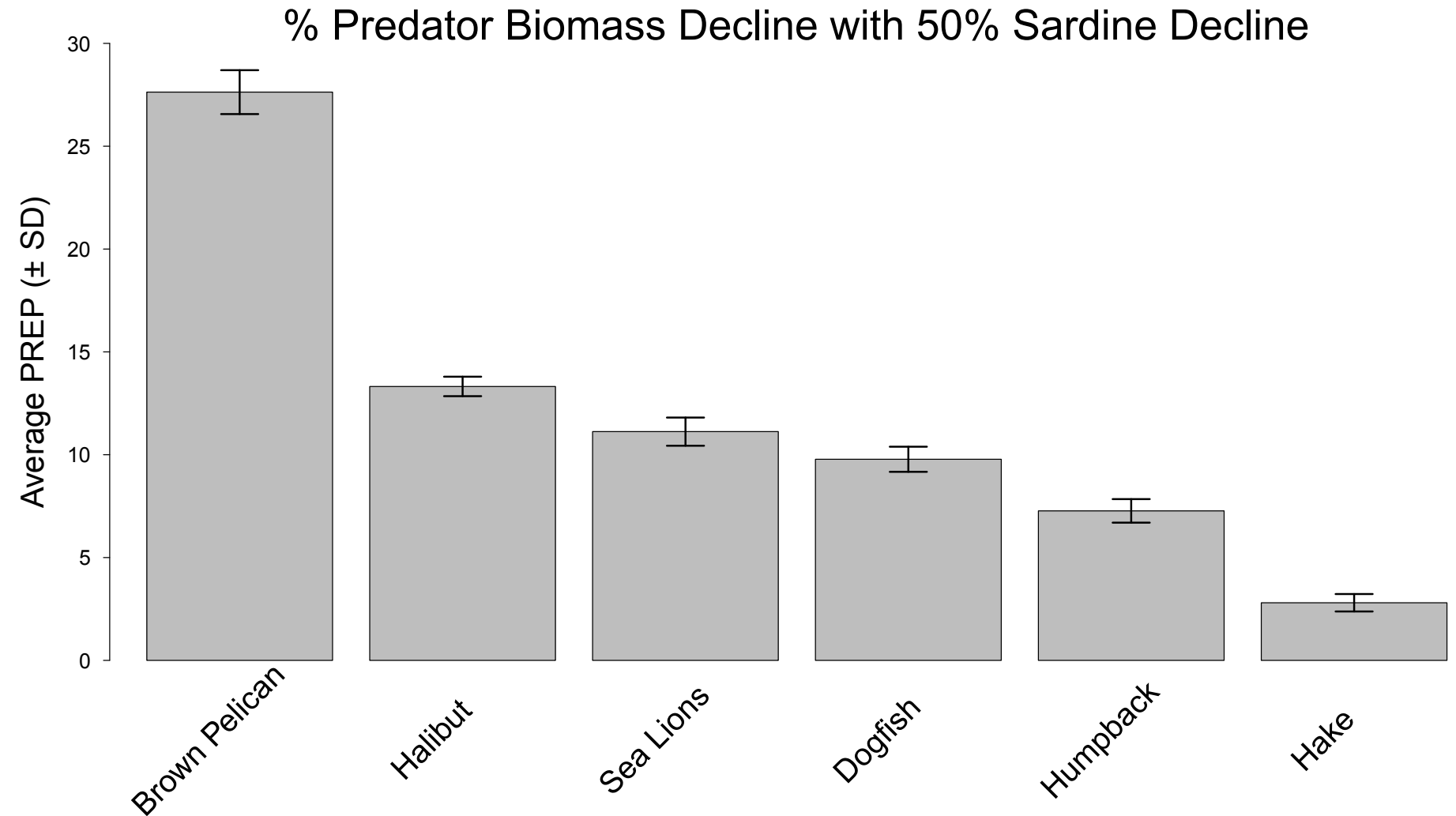
- PREP equation (Predator Response to Exploitation of Prey)
 - Tells you what the average Ecosim result would be
 - Output is the expected decline in predators as forage fish are depleted by some level
 - Based on predator diet dependency (diet fraction) and predator type

PREP – Predators with >15% decline given 50% depletion in forage fish

Sardine	Anchovy	Herring	Combined group
Brown Pelican	Brown Pelican	Yelloweye	Brown Pelican
	California Gull	Rockfish	Marbled Murrelet
	Common Murre	Marbled Murrelet	California Gull
	Marbled Murrelet	Western Gull	Western Gull
	Rhinoceros Auklet		Common Murre
	Western Gull		Sharks
	Double-crested cormorant		Rhino Auklet
	Salmon		Salmon
	Sharks		Yelloweye
			Caspian tern
			Minke
			Halibut
			Black rockfish
			Double-crested
			Brandt's corm.

* Ordered from greatest to least decline

Magnitude of PREP Predictions (sardine)



Effects of various harvest control rules on predators, target species, and catches

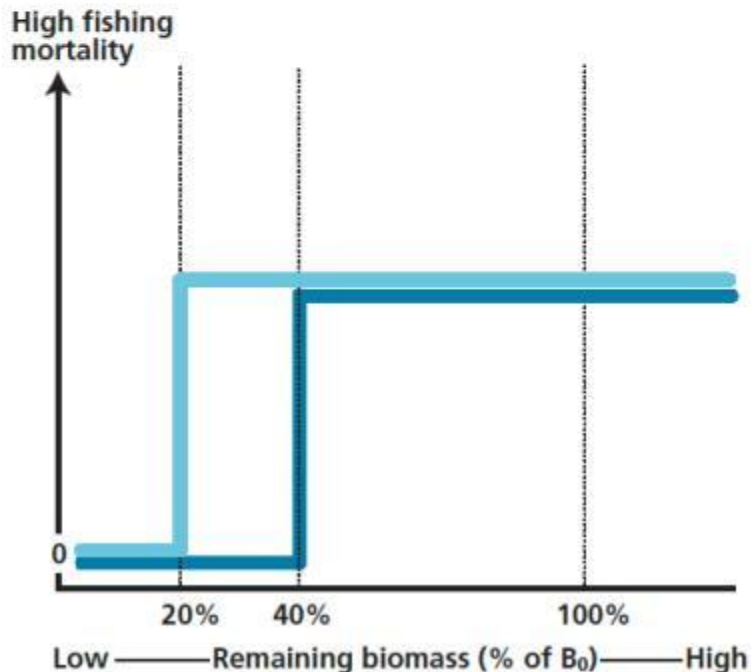
Based on 10 EwE models

More sustainable

Step function rule

The same as the constant fishing mortality rule, except that fishing ceases when the fish biomass decreases to a minimum threshold (biomass limit).

- 20% minimum biomass limit
- 40% minimum biomass limit



Comparison of harvest control rules

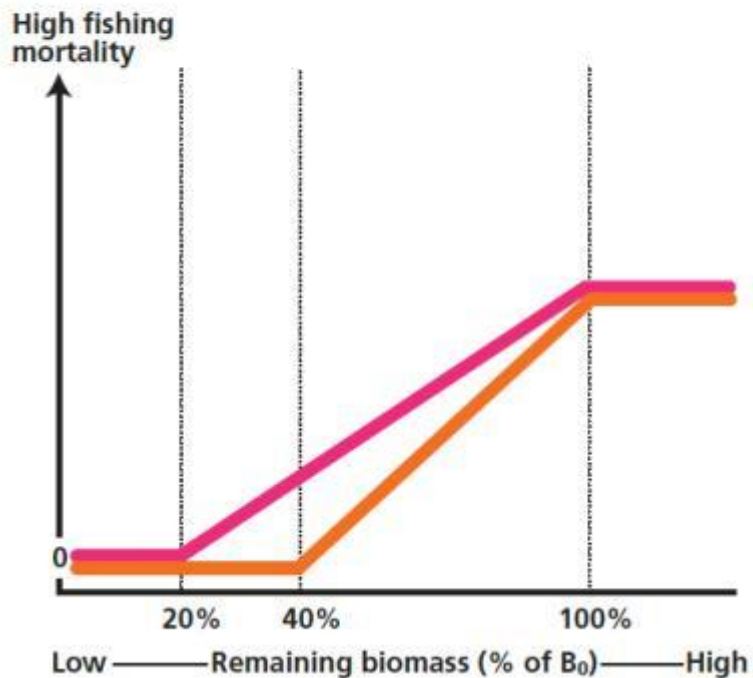
Biomass limit rules.

Best strategies

Hockey stick rule

The same minimum biomass limits as the step function rules apply, but fishing mortality is decreased gradually instead of all at once as fish biomass decreases.

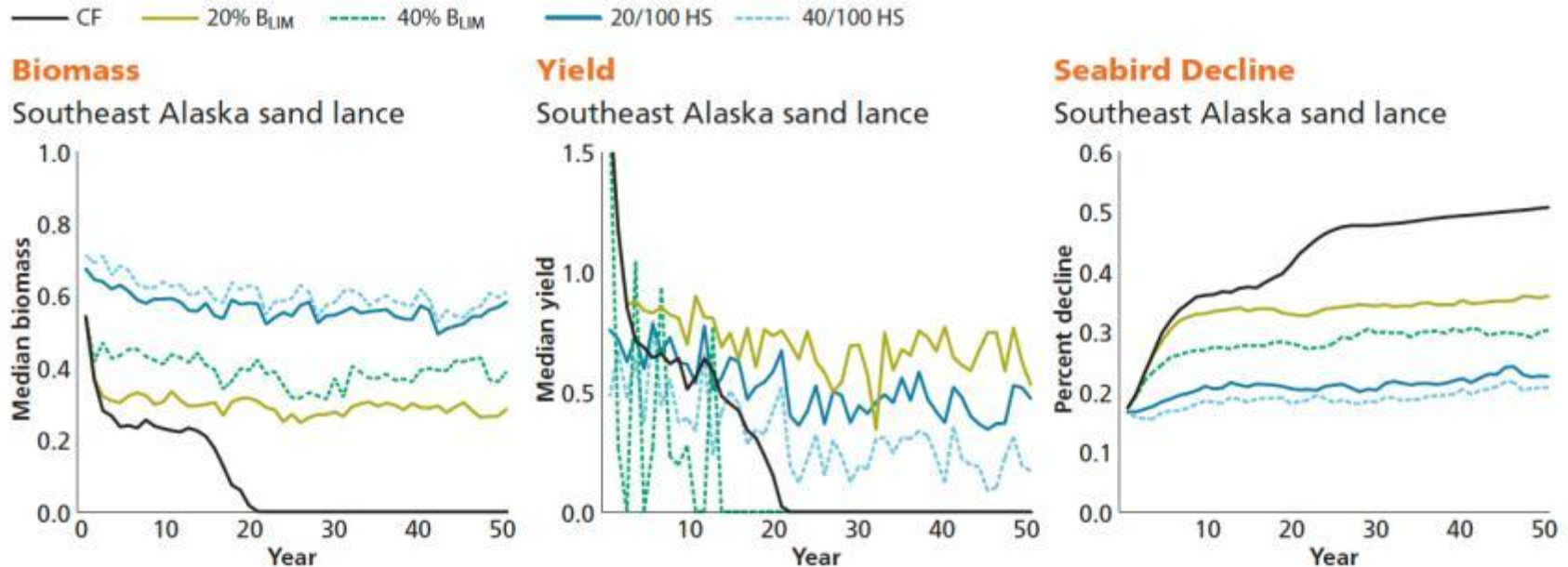
- 20% minimum biomass limit to 100%
- 40% minimum biomass limit to 100%



Comparison of harvest control rules

Hockey stick rules.

Stochastic model runs – southeast Alaska

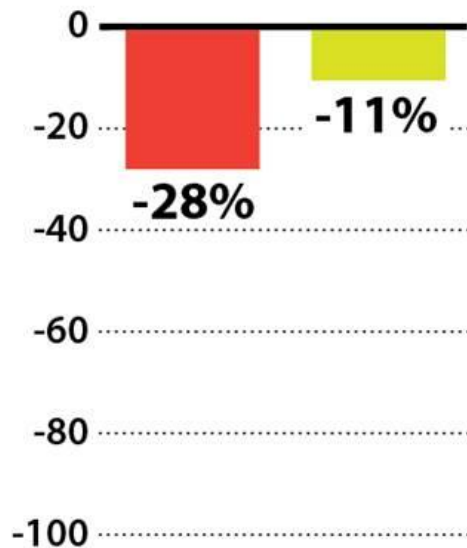


Examples of stochastic model results to compare the impacts of the five stochastic harvest control rules. All lines represent the median responses (medians taken across 100 simulations) for the specified forage fish.

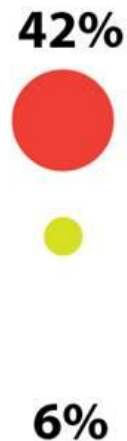
Only Precautionary Management Protects Predators and Fisheries

Key ■ Conventional ■ Precautionary

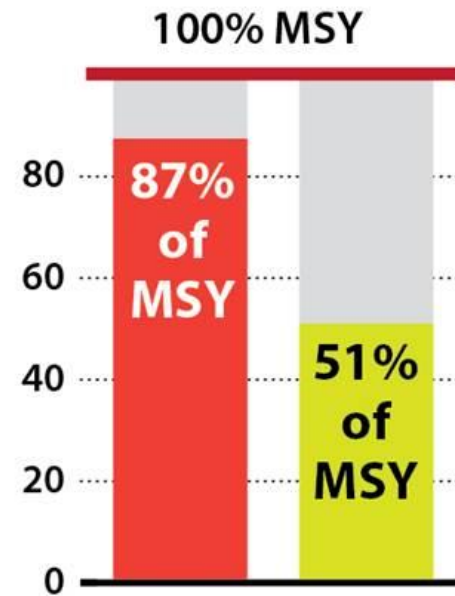
Predator declines
(compared to no forage fishing)



Probability of forage collapse



Forage yield
(% of MSY)



Empirical (model-independent) evidence

Example from Cury et al. 2011.
Science.

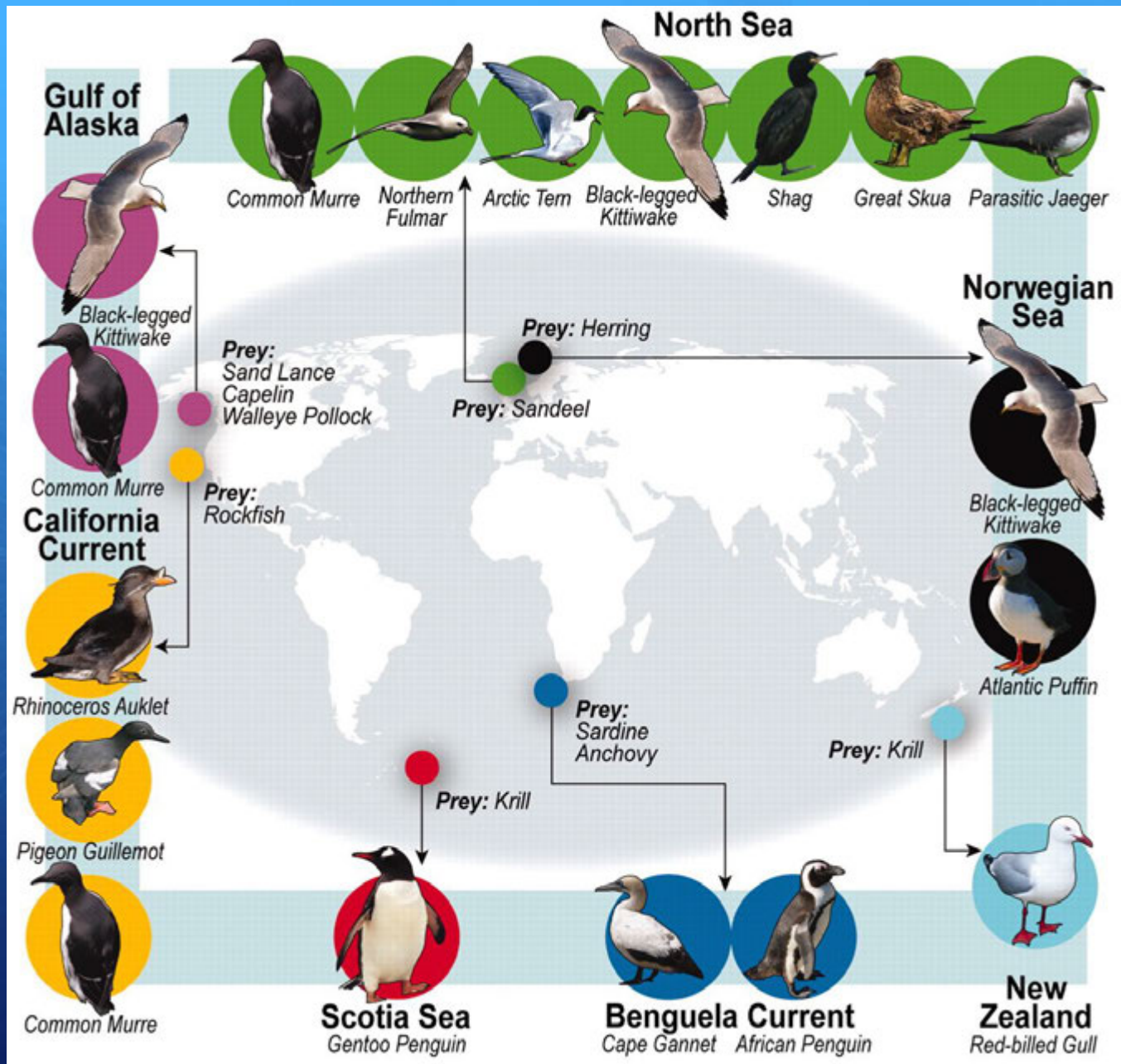
Global Seabird Response to Forage Fish Depletion—One-Third for the Birds

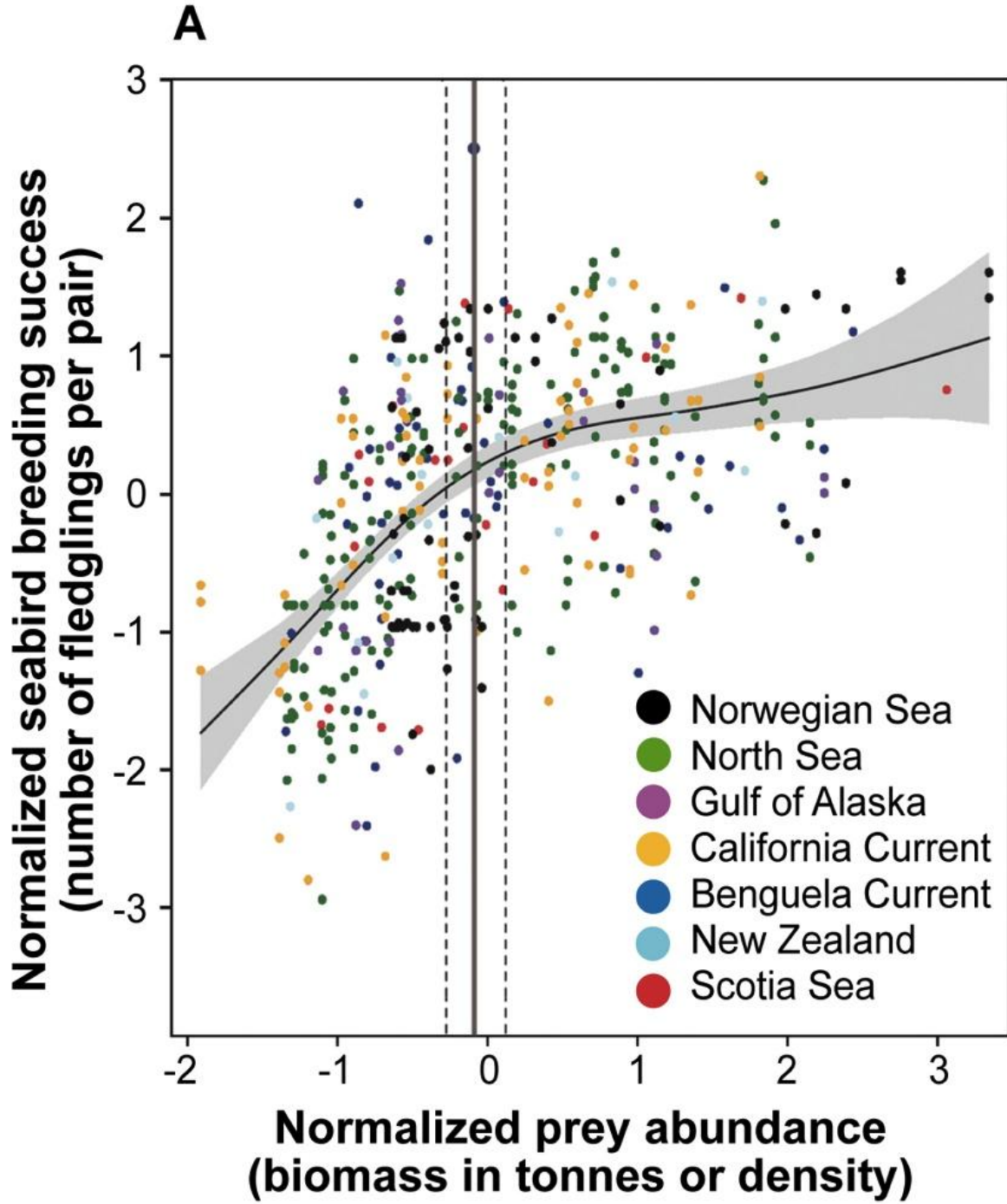
Philippe M. Cury,^{1*} Ian L. Boyd,^{2*} Sylvain Bonhommeau,³ Tycho Anker-Nilssen,⁴ Robert J. M. Crawford,⁵ Robert W. Furness,⁶ James A. Mills,⁷ Eugene J. Murphy,⁸ Henrik Österblom,⁹ Michelle Paleczny,¹⁰ John F. Piatt,¹¹ Jean-Paul Roux,^{12,13} Lynne Shannon,¹⁴ William J. Sydeman¹⁵

Determining the form of key predator-prey relationships is critical for understanding marine ecosystem dynamics. Using a comprehensive global database, we quantified the effect of fluctuations in food abundance on seabird breeding success. We identified a threshold in prey (fish and krill, termed “forage fish”) abundance below which seabirds experience consistently reduced and more variable productivity. This response was common to all seven ecosystems and 14 bird species examined within the Atlantic, Pacific, and Southern Oceans. The threshold approximated one-third of the maximum prey biomass observed in long-term studies. This provides an indicator of the minimal forage fish biomass needed to sustain seabird productivity over the long term.



Cury, Boyd et al 2011, *Science*





Meta-analysis:
one third for
the birds

7 marine
ecosystems

14 seabird
species

438 years of
observation

Recommendations

Based on model results AND
empirical (model free) evidence

Minimum Biomass Threshold

A decline in forage fish abundance causes a decline in predator abundance, therefore

FORAGE FISH THRESHOLD

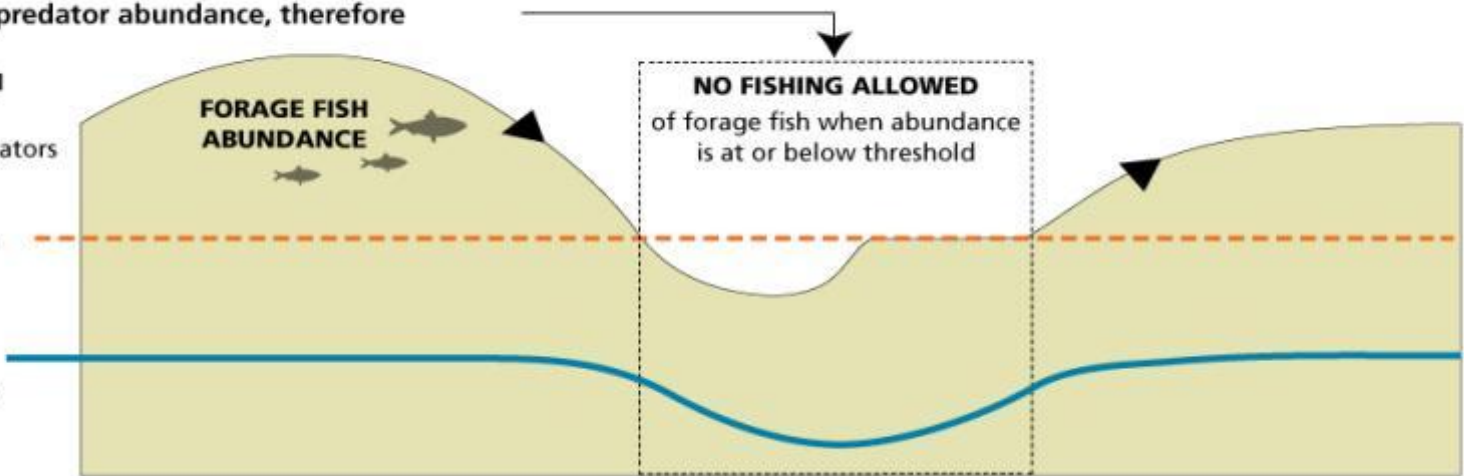
to which predators show great reduction in population

FORAGE FISH ABUNDANCE





















NO FISHING ALLOWED
of forage fish when abundance is at or below threshold

PREDATOR POPULATION

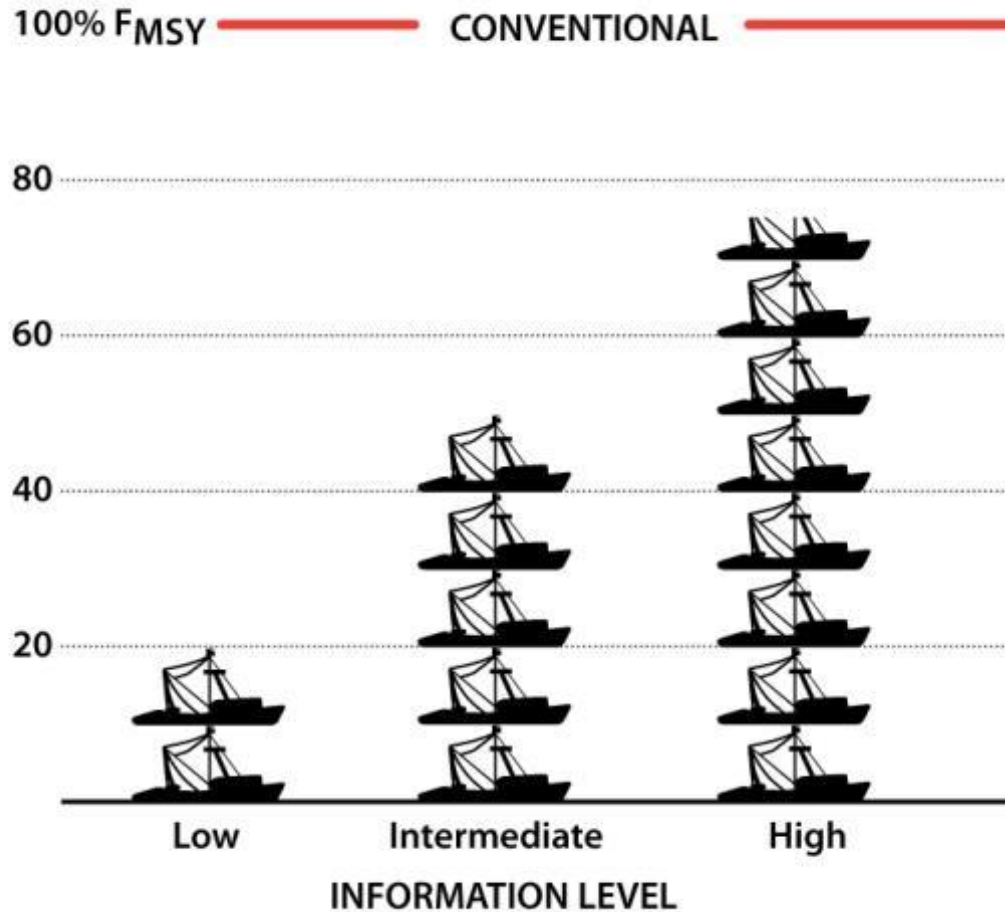


A three-tiered precautionary approach to the management of forage fish developed by the Lenfest Forage Fish Task Force

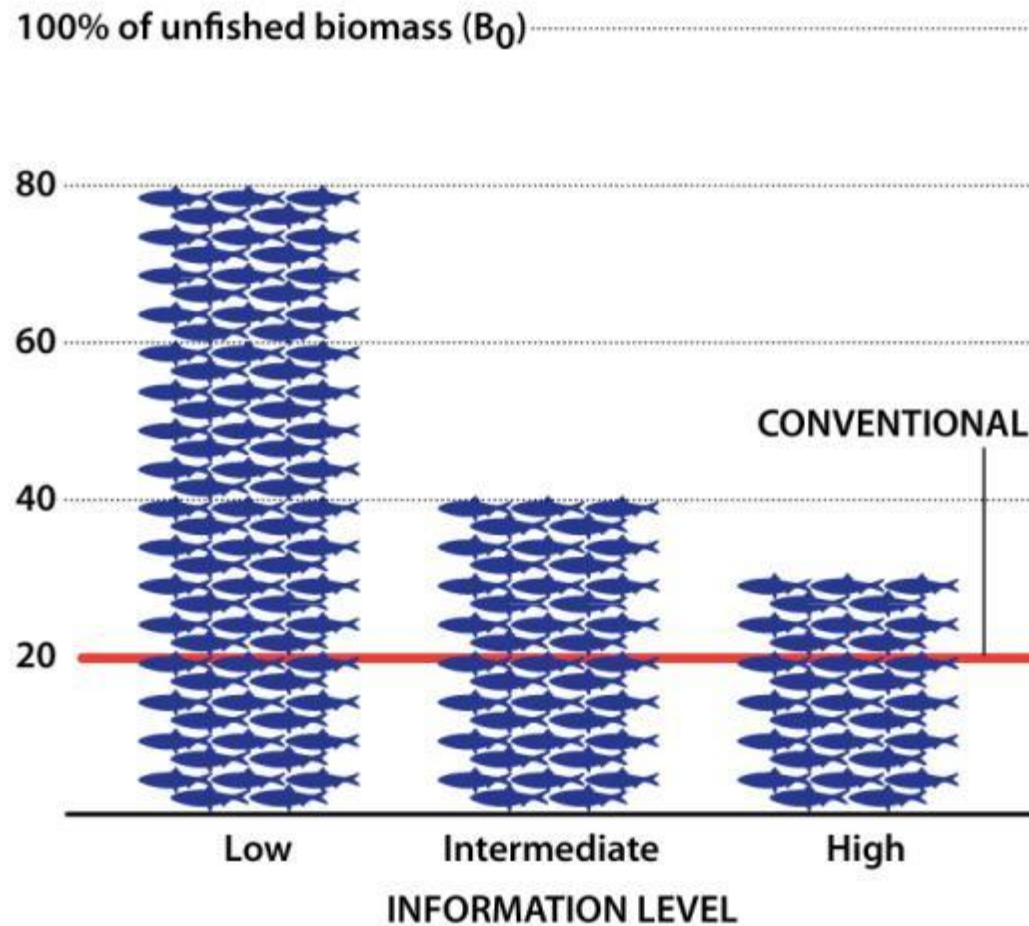
(See Chapters 6 and 7 in the report for additional details)

INFORMATION TIER <i>Based on information needed to project fisheries impacts on forage fish and on the predators that feed on them.</i>	KNOWLEDGE OF . . . Forage fish stock dynamics and fisheries			Status, trends, dependencies of predators			RECOMMENDED MANAGEMENT ACTION
	Population status, trends	Environmental drivers	Monitoring, enforcement	Identification of dependent predators	Status of predators	Foraging patterns	RECOMMENDED MANAGEMENT ACTION
LOW	 <p>Limited information on abundance, status, and trends such that there is little certainty about stock status, in particular as to whether the stock is above minimum biomass levels.</p>	 <p>Environmental drivers have not been examined sufficiently to enable precise predictions of forage fish production dynamics.</p>	 <p>Fishery monitoring and enforcement is not sufficient to ascertain whether catches are within specified limits.</p>	 <p>Dependent predators have not been identified on the basis of empirical evidence from the relevant ecosystem.</p>	 <p>Insufficient evidence to judge the status and trends of predators either known or likely to be dependent upon forage fish.</p>	 <p>Spatial patterns of foraging are not known.</p>	<p>RECOMMENDED MANAGEMENT ACTION</p> <ul style="list-style-type: none"> No new fisheries should be allowed to operate. Severely restrict existing forage fisheries so that depletion from fisheries is no more than 20% of unfished population (B_0). Implement precautionary spatial closures to protect against localized depletion of forage fish, and to protect potential foraging areas of land-based predators. Initiate data gathering to reach intermediate tier.
INTER-MEDIATE	 <p>Population abundance, status, and trends are monitored, so that catch control rules are likely to result in population levels within specified biological limits.</p>	 <p>Putative environmental drivers of forage fish productivity are identified, providing some ability to predict production dynamics and account for them in the harvest control rule.</p>	 <p>There is some monitoring and enforcement of fisheries so that catches are likely to be within specified limits.</p>	 <p>Dependent predators have been identified so that effects of forage fish on their abundance can be predicted on the basis of food web models or the PREP equation.</p>	 <p>Population status and trends of dependent predators are monitored but with considerable uncertainty.</p>	 <p>Spatial patterns of foraging are known and sufficient to support predictions about the effects of localized depletion.</p>	<p>RECOMMENDED MANAGEMENT ACTION</p> <ul style="list-style-type: none"> Apply the "Predator Response to Exploitation of Prey" (PREP) equation, or use data or models specific to the ecosystem, to assess the impacts of forage fish depletion on dependent species (using 95% confidence interval). Apply a "hockey stick" harvest control rule with minimum biomass (B_{lim}) $\geq 40\% B_0$ and fishing (F) not to exceed 50% of the natural mortality rate or 50% of the level that achieves MSY (F_{MSY}). Increase B_{lim} and decrease F when the ecosystem contains highly dependent predators or when precision of diet dependencies is low. Use spatial management to protect predators likely to be adversely affected by localized depletion.
HIGH	 <p>Population abundance, status, and trends are known sufficiently precisely and with sufficient lead time to adjust fishing levels according to a harvest control rule, resulting in a high likelihood of achieving management goals.</p>	 <p>Environmental drivers of forage fish productivity are well known and are accounted for in the harvest control rule.</p>	 <p>High ability to monitor and enforce fisheries regulations at-sea and/or dockside so that catches are highly likely to be within specified limits.</p>	 <p>The functional responses of dependent predators to forage fish abundance are well defined based on empirical evidence so that effects of fishing can be determined with a high degree of certainty. Models reflect what is known from the field and are tested and modified with new information.</p>	 <p>The population status and trends of dependent predators are measured with high certainty and at frequent intervals.</p>	 <p>Localized forage fish requirements of dependent predators can be estimated with high precision, so that effects of localized depletion on dependent predators are well described.</p>	<p>RECOMMENDED MANAGEMENT ACTION</p> <ul style="list-style-type: none"> The harvest strategy must include an upper limit to F and a lower limit below which targeted fishing ceases (B_{lim}), and F should be reduced as B_{lim} approached. The harvest strategy must include precautionary buffers that account for limits on the ability to predict fisheries and food web dynamics. The harvest strategy must—by independent, realistic, quantitative testing—be shown to achieve the Dependent Predator Performance Criterion, protect the forage fish stock from impaired reproduction, and allow it to recover through periods of natural fluctuation in productivity. In any case, lower biomass limits should not be less than 30% B_0 and the maximum fishing rate should not exceed 75% F_{MSY} or 75% of natural mortality. Apply spatial management to account for localized depletion effects on spatially constrained predators.

A Lower Ceiling on Forage Fishing



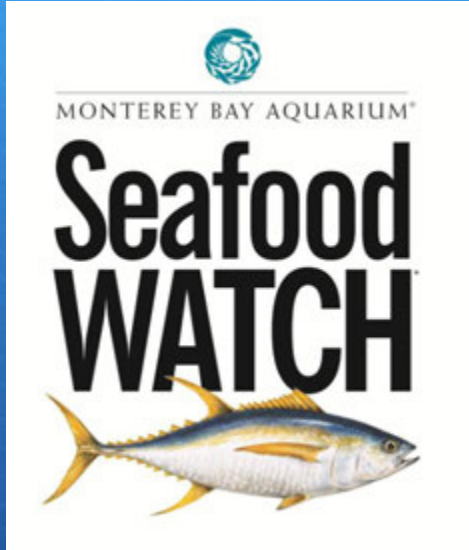
A Higher Floor on Forage Fish Biomass



Key Recommendations

- + Focus on predators
- + Consider spatial & temporal management
- + For intermediate tier, use a hockey stick control rule with F target set to half of F_{MSY} , and B_{MIN} set at $0.4 B_0$
- + Tailor management to available information

Seafood Watch Proposal



- + Seafood Watch is proposing to incorporate the LFFTF recommendations
- + Forage fish would have to meet reference points recommended by the LFFTF
- + Forage fish would be scored as "Moderate Concern" or higher if **abundance** is not above the LFFTF recommended reference points, even if it is above standard biomass reference points
- + Forage fish will be scored as "High Concern" if **fishing mortality** is not below LFFTF recommended F_r , even if it is below FMSY.

Seafood Watch Proposal



- + **Criterion 1: Impacts on the Species Under Assessment**
- + **Criterion 2: Impacts on Other Capture Species**

Conservation Concern	Description of Abundance Criteria	Score
Very Low	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. Recent Stock Assessment (<5 years) and biomass is above or fluctuating around a target reference point that is appropriate given the species ecological role 2. Stock is at or very near its historic high or virgin biomass 3. Species is non-native 	5
Low	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. Recent Stock Assessment (<10 years), and biomass is above a limit reference point that is appropriate given the species' ecological role; at least 75% of the target reference point; or above a target reference point but short of requirements for very low concern 2. Quantitative stock assessment is lacking, but the species is not highly vulnerable and there are at least two appropriate data-limited assessments that suggest a healthy stock 	3.67
Moderate	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. Species is above a limit reference point but below 75% of the target reference point 2. Species is not highly vulnerable AND either there is no evidence to suggest that stock is above or below reference points, or there is conflicting information about stock status 3. Species is highly vulnerable and there is no quantitative stock assessment, but there are data indicating status is not of concern 	2.33
High	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. Probable that stock is below the limit reference point, depleted/overfished, or determined by a state, national, or international scientific body to be of concern, vulnerable, endangered, or threatened 2. Species is highly vulnerable and no evidence suggests that the stock is either above or below reference points, or data-limited assessment methods have conflicting outcomes 	1

Conservation Concern	Description of Fishing Mortality Criteria	Score
Low	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. Probable (>50% chance) that fishing mortality from all sources is at or below a sustainable level that will allow population to maintain current level or rebuild if depleted and to fulfill its role in the ecosystem 2. Population trends are increasing in short and long term due to management 3. Species is non-native 4. For C2 species the fishery is not a substantial contributor to fishing mortality or its contribution to mortality is expected to be low enough to not adversely affect population 	5
Moderate	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. Fishing mortality is fluctuating around FMSY or for a species with an exceptional role in the ecosystem, a reference point that is appropriate given the species ecological role 2. Fishing mortality is Unknown 3. Fishing mortality is below the reference point but the reference point is less conservative than FMSY 	3
High	<p>One or more of these conditions must apply:</p> <ol style="list-style-type: none"> 1. For Criteria 1 species, overfishing is occurring or fishing mortality is unknown but suspected or probably (>50% chance) that it is above a sustainable level or reference point that is appropriate given the species ecological role 2. For Criteria 2 species, cumulative fishing pressure may be too high to allow species to maintain abundance or recover and the individual fishery's contribution is unknown or the fishery is a substantial contributor 	1

Atlantic States Marine Fisheries Commission

Atlantic Striped Bass Management Board

*November 4, 2015
8:00 – 10:00 a.m.
St. Augustine, Florida*

Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*D. Grout*) 8:00 a.m.
2. Board Consent 8:00 a.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 8:05 a.m.
4. 2015 Atlantic Striped Bass Stock Assessment Update **Action** 8:15 a.m.
 - Presentation of Stock Assessment Update (*C. Godwin*)
 - Consider Acceptance of Stock Assessment Update for Management Use
5. Technical Committee Report (*C. Godwin*) 9:15 a.m.
 - Comparing Atlantic Striped Bass Fishing Mortality Reference Points Using Two Different Time Periods for Selectivity
6. Other Business/Adjourn 10:00 a.m.

MEETING OVERVIEW

Atlantic Striped Bass Management Board Meeting
Wednesday, November 4, 2015
8:00 – 10:00 a.m.
Saint Augustine, Florida

Chair: Doug Grout (NH) Assumed Chairmanship: 02/14	Technical Committee Chair: Charlton Godwin (NC)	Law Enforcement Committee Rep: Kurt Blanchard (RI)
Vice Chair: Jim Gilmore (NY)	Advisory Panel Chair: Kelly Place (VA)	Previous Board Meeting: August 5, 2015
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, NMFS, USFWS (16 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2015

3. Public Comment – At the beginning of the meeting, public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance, the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. 2015 Atlantic Striped Bass Stock Assessment Update (8:15 – 9:15 a.m.) ACTION

Background

- The 2015 Atlantic Striped Bass Stock Assessment Update was completed in October (**Briefing Materials**).

Presentations

- 2015 Atlantic Striped Bass Stock Assessment Update by C. Godwin

Board Actions for Consideration

- Accept the 2015 Atlantic Striped Bass Stock Assessment Update for management use

5. Technical Committee Report (9:15 – 10:00 a.m.)

Background

- In May 2015, the Board tasked the Technical Committee to develop fishing mortality (F) reference points for the ocean and discard fleet consistent with those developed for the Chesapeake Bay. At their August meeting, the Board reviewed a Technical Committee Report detailing F reference points for each of the three fleets.
- Upon review, the Board tasked the Technical Committee to redevelop the fleet-specific F reference points using an average selectivity over a longer time series (1996-2012, as opposed to 2008-2012 which is the time series used to develop the coastwide F reference points adopted through Addendum IV). The thought being that a longer time series would reflect the regulatory history of the fishery more adequately than the shorter time series.
- The Technical Committee compiled a report that compares the results of both methods and outlines the pros and cons associated with each method (**Briefing Materials**).

Presentations

- Technical Committee Report by C. Godwin

6. Other Business/Adjourn

DRAFT

DRAFT

DRAFT

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ATLANTIC STRIPED BASS MANAGEMENT BOARD**

**The Westin Alexandria
Alexandria, Virginia
August 5, 2015**

**These minutes are draft and subject to approval by the Atlantic Striped Bass Management Board. 1
The Board will review the minutes during its next meeting.**

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting May 2015

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2015 harvest reduction Estimate..... 3

Fleet-specific fishing mortality reference points 4

2015 Fishery management plan review..... 11

Adjournment..... 16

INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).
2. **Approval of proceedings of August 2015** by consent (Page 1).
3. **Motion to accept the FMP Review for striped bass**, (Page 15). Motion made by Mr. Abbott and seconded by Mr. Emerson. Motion passes unanimously (Page 15).
4. **Move to adjourn** by consent (Page 16).

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting May 2015

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	Adam Nowalsky, NJ, proxy for Assy. Andrzejczak (LA)
Rep. Walter Kumiega, ME, proxy for Sen. B. Langley (LA)	Leroy Young, PA, proxy for J. Arway (AA)
Sen. Brian Langley, ME (LA)	Tom Moore, PA, proxy for Rep. Mike Vereb (LA)
G. Ritchie White, NH (GA)	Loren Lustig, PA (GA)
Doug Grout, NH (AA)	Roy Miller, DE (GA)
Dennis Abbott, NH, proxy for Sen. David H. Watters (LA)	John Clark, DE, proxy for David Saveikis (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Bill Adler, MA (GA)	David Sikorski, MD, proxy for Sel. Dana Stein (LA)
Daniel McKiernan, MA, proxy for David Pierce (AA)	Mike Luisi, MD (AA)
Mark Gibson, RI, proxy for Robert Ballou (AA)	Bill Goldsborough, MD (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Kyle Schick, VA, proxy for Sen. Richard Stuart (LA)
Rep. Craig Miner, CT (LA)	Cathy Davenport, VA (GA)
David Simpson, CT (AA)	Rob O'Reilly, VA, proxy for John Bull (AA)
Lance Stewart, CT (GA)	Michelle Duval, NC, proxy for Dr. Daniel, Chair (AA)
James Gilmore, NY (AA)	Martin Gary, PRFC
Emerson Hasbrouck, NY (GA)	Derek Orner, NMFS
Katherine Heinlein, NY, proxy for Sen. Boyle (LA)	Sherry White, USFWS
Russ Allen, NJ, proxy for D. Chanda (AA)	Dan Ryan, DC
Tom Fote, NJ (GA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Charlton Godwin, Technical Committee Chair	Kelly Place, Advisory Panel Chair
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Staff

Robert Beal	Katie Drew
Toni Kerns	Max Appelman
Mike Waiane	

Guests

Robert T. Brown, MDWA	Tom O'Connell, MD CBA
Rep. Bob Steinburg, NC	Phil Langley, MD CBA
Pat Geer, GA	Frank Abner, MD CBA
Wilson Laney, USFWS	Bob Baker, MD CBA
George O'Donnell, MD DNR	Arnold Leo, NY
Aaron Kornbluth, PEW	Curtis Johns, MD CBA
Kevin Chew, GARFO	Meghan Lapp, Seafreeze LTD.
Brandon Muffley, NJ DFW	John Carmichael, SAFMC
Jack Travelstead, CCA	Greg Drury, MD CBA
Ketih Auston, Jr., MCBA/SCCA	Tom Ireland, MD CBA
John Bello, VSSA	Harry Neld, MD CBA
Doug Ochsenknecht, VSSA	Christopher Diehl, MD CBA

**These minutes are draft and subject to approval by the Atlantic Striped Bass Management Board. iv
The Board will review the minutes during its next meeting.**

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting May 2015

Russell Green, MD CBA

Eddie Green, MD CBA

Ken Hastings, Mason Springs Conserv.

John Bullard, NMFS

Mark Belton, MD DNR

Alexei Sharov, MD DNR

Marin Hawk, MS

These minutes are draft and subject to approval by the Atlantic Striped Bass Management Board. v
The Board will review the minutes during its next meeting.

The Atlantic Striped Bass Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 5, 2015, and was called to order at 1:15 o'clock p.m. by Chairman Douglas E. Grout.

CALL TO ORDER

CHAIRMAN DOUGLAS E. GROUT: Good afternoon, everybody. This is a meeting of the Striped Bass Board. My name is Doug Grout; I'm the Chair. We have an agenda today which involved getting a couple of technical committee reports; one on estimated harvest reductions in 2015 and then a report of fleet-specific fishing mortality reference points.

APPROVAL OF AGENDA

CHAIRMAN GROUT: Also we will be doing the FMP Review and state compliance reports. I just want to make one change to the agenda. I'm going to flip the order of the technical committee reports. We've decided that it would make for more of a smooth transition if we have the estimated harvest reduction report first. Are there any other changes to the agenda that anybody would like to have? Seeing none; any objections to approving the agenda? Seeing none; the agenda is approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN GROUT: Also in your documents we our proceedings from our May meeting. Are there any comments or changes on the meeting minutes that were provided to us for that meeting? Seeing none; is there any objection to us approving the May 2015 proceedings? Seeing none; they'll stand approved. Before we go into the third item, I'd like to take a little liberty to recognize the former chair of the Striped Bass Board, my predecessor Tom O'Connell.

It is good to see you back here at the commission process. We really appreciate all the work that you've done here with the commission over the years and we're glad to see you back. (Applause)

PUBLIC COMMENT

Item 3 here is for public comment. I have two people signed up for the public comment period. I want to emphasize that this is for public comment on things that are not on the agenda. Obviously, we don't want to take any public comment on the technical reports or the FMP review. The first person I have is Robert T. Brown.

MR. ROBERT T. BROWN: Mr. Chairman, Robert T. Brown, President of the Maryland Watermen's Association. I have two graphs here. Hopefully each state got a copy of it. They are from the Atlantic States Marine Fisheries Commission. When I was going through it for my testimony today, I looked at it and looked where you were back in 1982 to where one goes to 2010 and another one goes to 2013. It looks like we've got a success here.

Just look where we were at then and where we are now. We didn't get there very easily. Back before 1985, before the moratorium, in Maryland we fished on rockfish minimum size of 12 inches and maximum size of 32; 24 hours a day; 365 days a year; no quotas; and fished on the spawning grounds. Today we've got a minimum size of an 18-inch fish, maximum of 36. We don't fish during the spawning seasons. We've got quotas that we meet and we keep.

Back in the early eighties and late seventies I caught more fish in one night than what I'm allowed in an entire season now. As you look at these graphs, I've heard the northern states say before we got this 25 percent reduction last fall and 20.5 on the Chesapeake Bay that they

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting August 2015

weren't catching any – couldn't see the rockfish up and down the coast.

Well, according to these charts, which are produced by the Atlantic States Marine Fisheries Commission and the technical committee, they are out there somewhere. Well, about three or four weeks when Massachusetts opened its season, within three days our large rockfish, eight pounds and better, went from \$5.50 a pound down to three dollars a pound in a matter of three or four days. That is the volume of fish that are out there.

They are out there; the market showed they're there; the charts show they're there. Fish change their patterns in where they stay at. Maybe during the summer when they're fishing, they go out past that three miles where you can't catch them. Who knows why fish go where they go? They have a head, they have a tail, they go where the feed is.

One of the things we have was when they raised this – on these charts, as you can see in both of the graphs, the level of the biomass is higher now than when the stock declared recovered back in 1995. Addendum IV came in the graph, a closer value, but still the biomass is greater than it was in 1995. We're fishing on a recovered fishery. The cut that we had last year, that 20.5 percent has really crippled the state of Maryland and the Chesapeake Bay.

I don't believe that it was correct that it was done but nevertheless that's what we have to live with. In the state of Maryland, according to the biologists in Maryland, anywhere from 70 to 90 percent of the fish that are caught are male fish. That has nothing to do with your female spawning stock. During the seasons, we have a maximum of 36 inches except for during the trophy season, which the charterboats have.

Well, this year they had to be sealed at a 36-inch maximum size or have a slot limit. A lot of them are – the people who had the party said they

wouldn't be back if they had to deal with a slot limit again. Well, they've got a three-week season and they're allowed one fish per person within the slot limit or 36 or more.

However, they say, you know, to do that because those fish are getting ready to spawn, to save them. Well, on the ocean you've got a 36-inch minimum size on most of the coastal states. Well, if you catch them tomorrow or you caught him today or you catch him next week, that's before he spawns the next season. Our charterboats took a big hit last year on it and our sports fishermen.

Hopefully that won't happen again next year. Fishery management is a hard science. It is also a guesstimate. I just would like to say I think we've come a long way since 1982, and we are successful in what we did. We did bite the bullet and we have had to sacrifice. We need to get back on track and get our quotas back where we are.

If you look at the young-of-the-year index over the years, just because the young-of-the-year index or you have a bio-stock or spawning fish, it doesn't mean you're going to have a high index. If you look on some of your lower years, that's when you had your highest young-of-the-year class. I want to thank you for the opportunity of speaking to you today.

CHAIRMAN GROUT: Thank you, Mr. Brown. I also have Phil Langley here.

MR. PHIL LANGLEY: My name is Phil Langley. I'm actually President of the Maryland Charterboat Association. I also sit on Maryland's Sportfish Advisory; and I'm also one of the commissioners on the Potomac River Fisheries Commission. Clearly, everybody here today has a great concern and passion for our fishery; but before I start saying what I have to say, I would like to address everybody at this table and thank everybody sitting here for the extra time and commitment that you exhibit for our fishery.

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TECHNICAL COMMITTEE REPORT 2015 HARVEST REDUCTION ESTIMATE

Representing the Maryland Charterboat Association, our association is fully committed to conserving our resources. However, we are asking this commission to please give additional consideration to the economic impacts to our businesses as discussions are moving forward. In a downturned economy in recent years, combined with 2015 reductions absorbed in one year, many captains are struggling to stay in business.

The economic impacts to the charter industry this year will be felt in future years for either cost of advertising and marketing expenses to replace lost business from this year. In the bay we have a limited number of species to target, which makes striped bass critical to the livelihood of the charter fleet in the bay.

The latest statistics do indicate that the stock is not overfished and overfishing is not occurring. As stated earlier, we are fully committed to protecting the resource. However, we have a hard time understanding how the reductions we are taking in our summer/fall fishery is protecting the spawning stock biomass when it is heavily skewed towards the male fishery, approximately 80 percent.

In closing, I would like to recognize a group of charterboat captains from Maryland against the back wall, who have taken time out of their day today to come and show up at this meeting as far as to exhibit the importance of this meeting and what it has on their livelihoods. These guys are ambassadors of the Chesapeake Bay. They introduce thousands and thousands of kids to the bay and to first-time fishing, as well as responsible for introducing a lot of recreational anglers to buying their first boat and to continue into the fishery as a sport. That's all I have to say. Thank you and I do appreciate your time.

CHAIRMAN GROUT: Thank you, Mr. Langley; and that's the last person I have on the list. We will be moving on to Agenda Item 4, which are technical committee reports. These are both responses to charges that we made to the technical committee. I will turn it over to Charlton.

MR. CHARLTON GODWIN: The first report we're going to have from the technical committee is the 2015 harvest reduction estimate. We will go over this one first and have some time for questions after this. As we know, the board approved Addendum IV in 2014, which established new coast-wide reference points and also required states to reduce removals in order to reduce F to a level at or below the new target.

This was a total of a 25 percent reduction for the coastal states and a 20.5 percent reduction for the Chesapeake Bay states. Of course, the commercial fisheries reduced their removals through the quota reductions. The recreational fisheries reduced their removals through bag limit and size limit restrictions.

Once again, Addendum IV required – you can see the percent reductions for the coastal states and for the Chesapeake Bay states' jurisdictions. We've just got this broken out by each region and each sector just to give you an idea of the reference harvest estimate and then the harvest estimate in 2015 after the reductions.

In each sector you see the percent reduction from the reference harvest; and then the total reduction at the bottom is 25.6 percent. Through the reductions from the various sectors, the states implementing their management measures for recreational fisheries, we were able to reduce to the target level.

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The board members also wanted to look at the issue of non-compliance. The technical committee had originally looked at a hundred percent compliance rate for the 25 harvest reductions. This is due to different state-by-state regulations. The really unpredictable angler behavior and weather can have such a big impact on fisheries. The MRIP Survey is not really set up to estimate compliance.

For those reasons, the technical committee used the hundred percent compliance rate. At the board's request, we looked at the non-compliance harvest in years 2011, '12 and '13. This is looking at the MRFSS data, looking at the numbers of fish, some catch frequency of three fish or greater.

You can see that it varies from year to year, from 4 percent to 15 percent in 2013, for a total of 7 percent. These calculations are based on the historical MRFSS weighting and did not include the new MRIP Re-estimation Methodology. Really, for the first part, that's it for the first three slides. We can take any questions on the reductions on the non-compliance.

FLEET-SPECIFIC FISHING MORTALITY

REFERENCE POINTS

CHAIRMAN GROUT: Any questions from the board? Okay, seeing none, thank you very much, Charlton. You can on to the fleet-specific reference points.

MR. GODWIN: The next presentation will be about the fleet-specific reference points. Just to add some background, in the 2013 benchmark stock assessment we used three fleets in the model; the Chesapeake Bay fleet, the ocean fleet and the commercial discard fleet. Just as a reminder, we have this separate commercial discard fleet because the way the commercial discards are estimated based on return rate of tag returns from the various sectors, these commercial discards cannot be separated into

bay and ocean removals; so all of those discards from those sectors are modeled as a single fleet.

The 2013 stock assessment recommended and developed new coast-wide reference points for fishing mortality and spawning stock biomass. These biological reference points were developed using a composite selectivity that represented the selectivity of all the three fleets weighted on how much they contributed to the total F over the last five years. Those are the new SSB and F reference points from that 2013 assessment.

Just to give an idea of once again how the total Fs are calculated; we have the discard fleet is the gray bars at the top of each bar. The ocean fleet is the orange in the middle and the Chesapeake Bay fleet is represented by the blue in the bottom. This is just an at-age – the bottom axis is age. This is how the total F at age by fleet is derived.

Once again from the 2013 assessment, the assessment found F was below the threshold so overfishing was not occurring; but it was indeed over the target in the terminal year of 2012. You can see that in the previous ten years it had actually been over the threshold for several of those years. The Striped Bass Board asked the technical committee to develop reference points for the Chesapeake Bay, Delaware Bay and Hudson River.

At our previous meeting we brought back to the board that it was a viable option and within the scope of an assessment update to look at developing a Chesapeake Bay fishing mortality reference point. It was a viable option but not within the scope of the assessment update to try to develop a Delaware Bay reference point.

At this time with the data we have, it is not possible to derive a fishing mortality reference point for the Hudson River using this modeling methodology. Since the last meeting, the technical committee did develop these fleet-

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specific reference points intended to ensure the impact of each fleet on the total coast-wide population to remain sustainable.

When each fleet fishes at its target reference point, the total F at age on the population will be equal to the coast-wide F target. This is just how each fleet's target and threshold is set. It is the proportion of its full F at age over the last five years multiplied by the coast-wide target and the threshold F at that age. That is just for each one of the fleets, the bay, the ocean, and the commercial discards.

For the reference points that came out of that, looking at the ocean fleet you can see the F target of 0.141; the threshold of 0.172; and then the portion of the F in 2012 attributed to the ocean fleet's of 0.14. That was actually right at the target where that last column is just a percent difference from the target in 2012.

Once again for the Chesapeake Bay, a much smaller F target, 0.052; 0.064; and the fishing mortality attributed to the bay in 2012 is 0.059. That was actually a little bit over the target but still below the threshold. Then for the last fleet of commercial discards; the F target of 0.019, 0.024, 0.041; and that was over the target in 2012 by 50 percent.

I think it is important again to note, though, that the commercial discards, the way that these are calculated using the tag-return information, is one of the most imprecise estimates we have that go into the model of these three fleets of the harvest. Once again, looking at this graphically for the Chesapeake Bay fleet and the ocean fleet, F in the ocean has declined faster than the F in the bay over the last five years.

A lot of that has to do with the fact that the Chesapeake Bay has an annual quota and their harvest levels remain more constant and the harvest in the ocean can increase substantially based on the year class abundance and just

availability of the fish and different economic pressures from year to year.

Some potential management issues and just some things to remind the board to be thinking about; once again, there is a lot of uncertainty in those discard estimates. Discards are primarily regulatory. It has to do with the size limits, closed seasons, quotas and gear restrictions. It is difficult to control that F that is attributed to the discard fleet as strong year classes move through. It is the same as with the discards in other sectors; strong year classes are going to lead to high discards. Looser regulations may shift F to the directed fleet; the restrictions implemented for biological reasons.

The target and threshold for the commercial discard fleet may not really be meaningful for management. It is not really biologically reference point based. The population could still experience overfishing even with the bay and ocean fleets fishing at the targets if the discard F is not controlled.

Just to go over some more management issues; remember the management triggers that we currently have in Amendment 6, board action is required when the fishing mortality reference points are exceeded. If the fishing mortality threshold is exceeded in any year, the board must reduce F to the target within a year.

If the fishing mortality target is exceeded two consecutive years and the female SSB is below the target in any of those years, the board must reduce the target within one year. This is basically what initiated Addendum IV that was approved last year. Just once again potential management issues to have to consider if we were to use these three F targets for the different fleets; consider changes to reflect the fleet-specific reference point management triggers; and now you have four sets of potential reference points and management triggers to consider if you were to move in that direction. I think with that we'll take any questions.

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MR. JOHN CLARK: My first question, Charlton, would be about the discard reference points. Would you just give a little more detail as to how that was calculated and which fisheries you're seeing most of this discarding from?

MR. GODWIN: Once again, I guess maybe this may be the best slide to look at; but that reference point is still calculated as the proportion of its F at age over the last five years and its contribution to the coast-wide target and threshold at age. It is the same methodology for both the bay fleet and the coastal fleet.

MR. CLARK: I think I was just more concerned of which data from which fisheries; if you have any idea of where most of that is coming from. Just based on our experience in Delaware with discarding, it seems like a –

MR. GODWIN: The discards I guess, if I'm understanding your question, the way we calculate commercial discards themselves; that is a function of the number of tag returns from the recreational sector and the number of tag returns from each of the various commercial sectors and the gears.

That ratio of those tag returns to each other is how these commercial discards are estimated. To my knowledge there are no specific observer programs in any commercial fishery to where we're using empirical observer data or anything like that. Nothing from the independent surveys as a proxy for discards; it is just that tag-return-ratio model; the same way those discards have been calculated through the years.

MR. MIKE LUISI: Charlton, thanks for the presentation. I read the description and I've seen your presentation about the methodologies used to calculate the fleet reference points. I understand that it was decided by the technical committee to present today to the board the methodologies that you used where you took the F at age from the

Chesapeake Bay fleet compared to the total fleet over five years' time to calculate those points.

I also understand that there was an alternative approach that was brought up for discussion at the technical committee for calculating those fleet reference points, taking into consideration a much longer time period, starting back in 1996 to 2012 when management along the coast and in the bay were consistent and similar.

If this is accurate, can you provide some feedback to the board regarding the debate and explain a little bit about the technical committee's rationale only to bring to the attention of the board today the alternative option that used the five-year time period instead of consideration of multiple years outside of that five-year period?

MR. GODWIN: The time frame of years you're talking about were relative to the selectivity patterns that we assigned to these different fleets. It was just really a consistency issue. We went back and forth and did discuss the longer time frame. The reason we ended up going with the five-year time frame is because it is more consistent with the coastal and what was done in the benchmark stock assessment; more consistent with the coastal reference.

We did look at those and I don't remember off the top of my head the difference that it made. I don't know if we ever even calculated with both methodologies. I don't think the difference in this target reference for each particular fleet – I don't think it would have been much difference using the 12-year selectivity block versus the 5-year selectivity block.

CHAIRMAN GROUT: Do you have a follow-up, Mike?

MR. LUISI: Yes, I do, thank you. Well, I believe that the use – well, it is my opinion that the use of a longer time series would take into consideration a lot of the variable changes that

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we have seen as stock has grown and has declined. The development of reference points using a five-year period of the F ratio, it is during a time when we've had a declining spawning stock; and it doesn't take into consideration these variable effects on fishing mortality, year class strengths, annual climate variations, effort variability, et cetera, et cetera, et cetera.

If it is a consistency thing that we're talking about, I'm not sure that there is much more – I don't that there is another fishery along the Atlantic coast right now that has as much consistency over the past 20 years leading up to changes we're made than with the striped bass fishery. I would think that this alternative analysis including a much larger, wide-ranging time period would be something that this board would like to see. We'll see how the discussion goes, but I think that's something that would be appropriate to present back to the board at another time.

MR. WILLIAM A. ADLER: Mr. Chairman, I'm referring here to Figure 3, Page 7, the charts. Excuse my ignorance here; but commercial discard fleet; what is it? I mean is this commercial catches that are thrown back over? Where does that come into play with what they – what is it?

MR. GODWIN: The commercial discards is exactly that; it is composed of fish that are maybe thrown back because they're undersize. It is composed of fish that are thrown back because it is out of the season or the harvest season. We have discards in the recreational sector as well. Most of those discards; they either come from fish that are under the size limit for the particular state or maybe if the angler is over their bag limit and they catch a few. We just don't model the recreational discards separately. They are modeled in with the catch.

Because of the way we have to estimate the commercial discards, we don't have a very way

of estimating specifically commercial discards from the gillnet fishery in the Chesapeake Bay or commercial discards from the pound net fishery. Because of the way we have to estimate these discards, there is really no good, clean place to put them; so we just lump all that into one particular fleet and it is modeled that way. These commercial discards; it is really the same way that we've always estimated the discards from the various sectors in the stock assessments.

MR. ADLER: If I may, Mr. Chairman, then the other ones are commercial catches that are not discarded; am I correct?

MR. GODWIN: Correct.

MR. ROB O'REILLY: Mr. Chairman, I, too, have a couple of comments about the ratio of age five full F in the bay and the coast as it pertains to the biological reference points. I think the way I look at that is the last five years, through 2012, if you look at those graphs that were handed out earlier to us at the beginning of the meeting – and I think we already know this; that there is a non-equilibrium situation.

I'm not sure why you would want a biological reference point that was based on that type of information, non-equilibrium. The other part of this, I think Mike covered some of it, but the period from 1996 to 2012, the word "consistency" was mentioned in relation to the five years; but the consistency really is the regulations.

It is also the fact that you have three stocks primarily that are part of that full F on age five that is being looked at for the reference points. The variability of those stocks isn't linear; so there might be one stock more abundant or biomass might be better in one year than another. I think a longer time series at least gives you an idea of how you deal with that variability rather than taking a snapshot of the last five years. I appreciate the time.

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MR. MARK GIBSON: Mr. Chairman, I want to follow up a little more on the length of the duration of the window for the computation. The question I have is in the SCA Model you have to set selectivity blocks to the separability assume; and what is the length of the window in the terminal year block?

DR. KATIE DREW: The longer time series that they're referencing, the '96 to 2012, is a single block within the model; so that is a single, constant selectivity block over that time. Obviously, that doesn't reflect the changes in effort that each fleet may or may not undergo.

DR. MICHELLE DUVAL: Mr. Chairman, my question was really about these differences on the slide in the commercial discard fleet. Those are such small numbers when we're talking about an F target and F threshold. Charlton, I was wondering if you might be able to put that into context in terms of something that I think the public could understand whether it is pounds of fish or numbers of fish or something like that. I think it is difficult for the public to grasp that just looking at F targets and thresholds that small in terms of what 52.8 percent difference means. Thank you.

MR. GODWIN: As far as numbers of fish, just to give you some sort of idea of what that kind of F target and referencing just really what the discards have been in that sector; if you look for the commercial discards, they average anywhere from a couple of hundred thousand fish to this most recent estimate was actually one of the highest in the time series to about 900,000 fish.

This is compared to total removals of three or four million fish in some years, to give you kind of an idea of the numbers of that commercial discard. Like I say, those estimates are really the least precise estimates that we have that go into the three different fleet models. That is something that we've kind of struggled with in estimating those numbers through the years.

MR. CLARK: Charlton, I just want to get back to something you said about the Delaware Bay reference points. You said it is a viable option to create reference points but not for an assessment update. Does this mean that you're planning to do those for the benchmark assessment; and prior to the benchmark would you be able to produce anything preliminary just so we could see what they might look like?

MR. GODWIN: I think that's up to the discretion of the board which way they want to go to continue developing those. The reason we kind of said that was a viable option is because, yes, that Delaware Bay – the harvest in that Delaware Bay fleet could be separated out fairly easily and put into a separate fleet in the model. Because it wasn't modeled that way in the benchmark, a stock assessment update, that would be considered a fairly substantial change. I think, yes, if the board wishes to continue looking at that a reference point in the future, I think we can certainly do that.

REPRESENTATIVE WALTER A. KUMIEGA, III: Are there any thoughts or discussion about how to improve the numbers on the commercial discards? I originally was going to ask if there was any way we could possibly reduce that number; but I don't think that number is good enough. I don't think we have enough information to really ask the commercial fleet or talk to the commercial fleet – and it is obviously more than one fleet. It is a lot of different fisheries. I mean, there is nothing worse than throwing dead fish overboard. If there is a way we can work on getting better information on that, maybe there is a way that can be reduced.

MR. GODWIN: I think really the ideal way to estimate discards from that sector would be to have some sort of observer in those fisheries to actually see what is getting discarded. I think your point to the way we currently estimate those discard estimates, it really would be very hard to actually put in some sort of management tool that then we could look at and say, okay,

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we've done this and now the discards have been reduced and it is because we did this. I don't think that would work the way we currently estimate those discards based on the tag returns we get from the various sectors.

CHAIRMAN GROUT: Further questions of our Technical Committee Chair from the board? Seeing none; I appreciate the effort that you and the technical committee put in on this. I guess we look forward to the updated assessment at our fall meeting. Mike.

MR. LUISI: Mr. Chairman, this is not a question for the technical committee; but I had another comment that I'd like to make. This issue about Chesapeake reference points is something that is very important to us, especially in the bay states, specifically in Maryland. We've heard from the public today, both the commercial and for-hire fleet.

The recreational fishermen in our state and in the bay also feel that this is a very important issue. I want to remind the board that this objective was part of the original development of Addendum IV back two years ago. Getting to the point where we are today, we were able to see the development of these reference points, which I have to applaud the technical committee for the work as well as ASMFC staff over the last years. I know it has been a very tall order to fill.

Just the showing today of our charter fleet and also the Secretary of the Department of Natural Resources for Maryland, Mr. Mark Belton, is here in attendance with us today to show his support for our continued efforts to move this forward to develop this more fully. I think the board needs to see what I have suggested as another way of looking at reference points for the fleets, taking into consideration a longer period of time and the variation in time that would go into the development of those reference points.

Mr. Chairman, I do have a motion prepared. I did not have a chance to give it to staff prior to this

discussion; but if you're okay with that, I can make a motion or suggest what it is we'd like to see the technical committee do in preparation for the annual meeting.

CHAIRMAN GROUT: If you'd like to bring that up as to what you're specifically suggesting, we can see if there is a consensus from the board about this. If there is discussion, then maybe it would be better put into a motion. Try it first as discussion about a specific charge to the technical committee.

MR. LUISI: Thank you for that, Mr. Chairman. The purpose of what we'd like to see would be to direct the Striped Bass Technical Committee to prepare for the board an evaluation of the various methodologies of calculating the F ratio and fleet reference points, which includes not only what they calculated with the five-year time period but inclusion of the 1996 to 2012 time series; present that back to the board with potentially pros and cons of each and an analysis or an assessment of whether or not each one of those options, I would guess we'd call them, are relevant and appropriate for management use to allow for it to maintain a stock at a sustainable level.

I feel that the decision to go with the five-year time series versus a twenty-year time series based on consistency with the previous assessment is not a technically driven decision. I think the decision to which time frame is being used should be a decision made by the board. I would like the board to have all of that information in front of them as well as the assessment update information that I'm aware is taking place as we speak at the annual meeting so that we can have a debate and discussion as to whether or not we move this forward in the form of an addendum for the adoption of these reference points.

Right now given what I've seen and the questions that we've had around the table, I'm not sure that we're at the point today that we

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should be initiating an addendum without the full inclusion of the different methodologies and options that were used for calculating reference points. Thank you.

CHAIRMAN GROUT: Charlton, you had a comment about his request.

MR. GODWIN: I just wanted to make one comment just before the board discusses this. If we do look at the 12-year selectivity block; that would also require a recalculation of the current coast-wide F target and threshold that we currently have. In order to be consistent, we would have to recalculate that as well. I just wanted to let everybody know that is what would have to happen.

CHAIRMAN GROUT: I guess my question from a policy standpoint, usually we have updated reference points during a benchmark stock assessment. We have just been through that and the plan this year and as we've been moving forward, it is certainly a turn of the crank.

It is something to consider if we do look at trying to potentially consider modifications of the reference point; that is beyond the scope of the updated stock assessment right now. That's something to consider as we consider Maryland's request here of the technical committee. Do we have any discussion on this? You've heard Maryland's request to have an additional time period looked at in developing fleet reference points. Any discussion on that? Ritchie White.

MR. G. RITCHIE WHITE: I guess a question for the technical committee as to the amount of work involved in this and what workload they presently have and how this might impact that.

DR. DREW: The work of recalculating all the reference points, considering that we have a methodology that the technical committee has accepted and now it is merely a question of time periods involved for both the coastwide and for

these fleet-specific reference points, it would not be an outrageous amount of work. I think it is something we could accomplish before the next meeting and be able to present that along with the update information if the board is so interested.

MR. O'REILLY: I'm glad to hear Katie say that because I think this is very important. It is a large step that we had hoped back in October of 2013 would have been done a lot earlier. There are no complaints about the timing; it is just that we keep waiting. I see the table up on the screen and that I would take as an illustration because that places ocean and bay and commercial discard reference points there.

I'm not certain that this isn't a better time, having done the benchmark stock assessment, to allow everyone to see what the changes are because, of course, there would be changes. If there is a difference from the 1996 to 2012 basis for the reference point, then it is going to have some changes in the ocean as well.

I think the points made earlier are at least not from the inter-workings of the model as such, but the fact we are looking at multiple stocks and we looking at not a very minor component of producing the Chesapeake Bay reference points when we look at that ratio of full F on age five in the bay and coast. I hope we can go forward to the annual meeting, have the type of information that Mike Luisi mentions, go through a discussion and vet then go forward at that level. I appreciate the time.

MR. GIBSON: I certainly don't object to the examination of the longer window of time, particularly in respect to the answer to my question on the model configuration and selectivity block. I would just hope that the technical committee – and they're probably already thinking about this – would pay close attention to the stability of the F ratios in the different time blocks, what the variation looks like under this five year versus twelve year,

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whether there are time trends or obvious breaks to blocks in the F ratio series and think about that in terms of the pros and cons.

CHAIRMAN GROUT: Anymore questions? Bill.

MR. WILLIAM J. GOLDSBOROUGH: Mr. Chairman, two quick things; one, a clarification. I don't believe it is a 12-year time frame we're looking at but 12 years beyond the 5, so it is actually a total of 17 versus the 5 that was used. I guess I would just make – sort of stepping back from it a second – a broad observation.

It seems to me all things being equal that our technical datasets tend to be more powerful for us the longer they are. It seems to me especially over this time period we're talking about where we've seen quite a variation in the stock and fishery that it would be a richer dataset as well taking this whole 17 years. It seems it would yield more robust estimates.

DR. DUVAL: Mr. Chairman, I agree with Mark Gibson's comments in regards that I have no objection to looking at a longer time frame. I'm certainly sympathetic to the bay states' jurisdictions regarding having some reference against which to measure the impact or success of their management measures.

I think some of my only concerns, as we continue to discuss this, is really – and this was brought up at the last meeting as well – is some consistency in management given that we have just had a benchmark stock assessment, that given sort of the pain that we just went through to implement some decreases in available quota.

I guess maybe just sort of philosophically, it seems like we're sort of tied up between fleets that we have in our existing model based on selectivities along with a desire to actually have an assessment that's really based more on stocks. We have this bay fleet that is not necessarily the Chesapeake Bay stock that presents a little bit of a conundrum, but I think

everyone would like to work towards perhaps a future term of reference and a future benchmark assessment that would allow us to get to those types of stock-specific approaches.

I understand that we don't have the information there. It is a bit of a long ramble. I just have some concerns about consistency in management given what we've just gone through, but I certainly don't object to Maryland's request.

CHAIRMAN GROUT: Seeing no other hands; is there any objection to tasking the technical committee with the task that was requested by Maryland? Seeing none; you have been tasked, Charlton; more work. Again, thank you very much for the efforts the technical committee has put in on this issue.

2015 FISHERY MANAGEMENT PLAN REVIEW

CHAIRMAN GROUT: Our next item on the agenda is the FMP review that we need to approve and also state compliance. I will turn it over to our new plan coordinator, Max Appelman.

MR. MAX APPELMAN: Again, for those of you I have not formally met, I am Max Appelman. I am the FMP coordinator for striped bass. I will be walking through the 2015 Striped Bass Fishery Management Plan Review. A brief little overview; we will cover the status of the stock; also the status of the fishery; status of management measures; and then wrap up with compliance and plan review team recommendations.

A brief reminder to the board that this is a review of the 2013 and 2014 fishing seasons. Basically Amendment 6 and Addenda 1 through 3 set the management, regulations and monitoring requirements for those fishing seasons. Addendum IV wasn't implemented until and so that will be covered in next year's FMP review of the 2015 fishing season.

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Based on results of the 2013 benchmark stock assessment and the recommended biological reference points that are listed here in this table, the Atlantic striped bass stock is not overfished and overfishing is not occurring. If you take a look at this figure here, this is of spawning stock biomass from 1982 to 2012, which is the terminal year from the last stock assessment.

Basically the take-home here is that spawning stock biomass has declined over the last decade or so and was estimated at just over 58,000 metric tons in 2012, which is below the target and just above the threshold. This figure is showing the fishing mortality for the same time series. Again, the take-home here is that over the last decade or so fishing mortality has been fluctuating across that F threshold and in 2012 was estimated at 0.20, which is below the threshold but above the target.

This table here is summarizing Tables 3 and 4 from the FMP Review, which went out in board materials. Instead of reciting all these numbers here, I'm just going to highlight a few of them. It has also been brought to my attention that these numbers in red might be sending the wrong message. I'm not trying to insinuate anything negative here. I'm just trying to help out with my presentation; so please ignore the red.

Essentially total harvest in 2014 was roughly 30 million pounds and 2.5 million fish, which is a 7 and 12 percent decrease from 2013; also pointing out that commercial landings in 2013 and 2014 were relatively similar with 5.9 million pounds landed in 2014, which represents 20 percent of total harvest and sort of indicates that striped bass harvest is predominantly from the recreational sector.

Another point I wanted to make was that in 2014 60 percent of commercial landings came from the Chesapeake Bay fisheries. This next table is showing coastal commercial quotas for 2014. Essentially one state had a reduced coastal

commercial quota due to overages in 2013; and all states harvested under their coastal commercial quotas in 2014 and therefore no deductions had been applied to the 2015 quota.

This next table is a summary of Tables 5 and 6 from the FMP Review for the recreational fisheries. Just a couple of highlights here; the recreational fishery harvested approximately 1.8 million fish in 2014, weighing 24.1 million pounds, which is roughly 80 percent of the total striped bass harvest by weight; and again pointing out that much of the total harvest is from the recreational sector.

This next figure is showing total recreational catch; so both fish harvested and fish released, while the dotted line at the top of the figure is showing the percentage of that released catch towards the total. Basically over the past decade total recreational catch has decreased and so has the percent of catch released. That was estimated at 80 percent in 2014; and this could indicate that anglers are keeping more fish or are catching fewer sub-legal fish.

Moving on to the Chesapeake Baywide quota in 2014; in summary here each fishery harvested under their respective quotas. Total removals were estimated at 7.3 million pounds and were split relatively equal between the commercial and recreational sectors, with 3.6 million pounds landed in the commercial fishery and 3.7 million pounds in the recreational fishery.

Continuing on now with the Albemarle Sound and Roanoke River striped bass stock, based on results of the 2013 North Carolina specific benchmark assessment, the Albemarle Sound and Roanoke River striped bass fishery is not overfished and overfishing is not occurring; very similarly to the stock status of the Atlantic coast-wide stock. In 2012 the fishing mortality was estimated at 0.34, which is just above the target and below the threshold, while spawning stock biomass was estimated at 835,000 pounds, which is also between target and threshold.

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Also, the 2014 harvest was roughly 122,000 pounds; 28 percent of that came from the Roanoke River Management Area and 72 percent from the Albemarle Sound Management Area. Moving on to the status of management measures, under Addendum II the technical committee annually reviews juvenile abundance indices or JAIs from six different surveys to monitor recruitment failure.

Here it is defined as a value that is lower than 75 percent of all values in the dataset for three consecutive years. During this 2015 review, the technical committee evaluated 2012, 2013 and 2014 JAI values; and no states met the criteria for recruitment failure in 2015. Under Addendum II all states with commercial fisheries are required to implement a commercial tagging program and submit a monitoring report no less than 60 days prior to the start of their first commercial fishing season.

Some of the pieces of information that are included in this report are the number of tags that are going to be issued for the upcoming season and account for tags from the last season; changes to tag appearance; orientation of the date or the color of the tag, for example. Also, any changes to how the program is implemented or any other issues that merit being brought up that should be addressed.

It is important to note that not all states submitted these monitoring reports as described in Addendum III; and so the plan review team sort of had to track down the necessary information for this review. However, the PRT did find that all states had implemented commercial tagging programs consistent with the requirements of Addendum III. Please refer to Table 10 in the FMP Review for a description of each state's commercial tagging program.

Moving on to compliance and recommendations; the plan review team did find that all states had implemented regulations

consistent with Amendment 6 and Addendums 1 through 3. Since not all states submitted their commercial tagging reports, the plan review team does recommend that all states submit those reports as described in Addendum III to Amendment 6. Lastly, the plan review team recommends the board accept this 2015 Striped Bass Fishery Management Plan Review. Thank you, Mr. Chair; I'll take any questions.

MR. ADLER: On Page 29, Table 4, help me understand. It says commercial harvest and the total is 766,298 for 2014; and they had dead discards and they have that at 931,000. Does that mean they harvested 766,000 and threw over dead 931,000? That was one question. Now, over on Table 7, recreational, I sort of see this one where it says recreational releases, 7 million; dead discards estimated at 655,000. I don't understand how Table 4 can have more dead discards from the commercial than they caught. Am I misreading this?

MR. APPELMAN: You're correct; those are fish that were thrown over dead. This might be a better question directed to the technical committee, but it goes back to those tag returns from the commercial and recreational fisheries and coming up with an estimate of commercial discards. Also with the recreational dead discards, that is a percentage which is applied to the MRIP data that we get. We apply a 9 percent post-release mortality estimate to the total recreational harvest to get that number in Table 7.

MR. ADLER: If I may, Mr. Chairman, okay, I understand you do a percentage for dead discards in the recreational fishery. I understand that and those figures sort of – they say, okay, you know, they discarded a lot and some of them died, okay; but Table 4 on the commercial one, it seems out of whack that they would estimate that the catch was 766,000 and they threw over dead more than that. That sort of like doesn't fit.

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DR. DREW: Those are two separate numbers. To get the total commercial removals in this case, you would actually add them together. We're saying 780,000 of them were reported harvested and we estimated that in addition 900,000 were discarded dead. If you look back, you can see that's actually the highest number we've had in a long time; so I think there are two issues.

One is that this number is fairly uncertain so it is difficult to estimate so that probably there is a lot of uncertainty around that actual number. The other thing to keep in mind is that the 2011 year class is now moving into the fishery; and so you probably have a large number of fish that are available to the gear but not legal harvest size.

We would expect dead discards to increase during this time period as the 2011 fishery recruits to the gear but is not legal to be harvested yet. As you have more and more of those small fish around, people are going to have to throw more of them back. I think there are two things that are going into that really high number that we're seeing for the most recent year.

MR. ADLER: Okay, so in other words we're not talking about discards by the commercial fleet that swim away. We're talking about some of them apparently swam away but more of them died than swam away according to these figures.

DR. DREW: They're two separate numbers. The total harvest is the total amount that is reported harvested. The dead discards includes – it does include a mortality correction; so we don't assume that everything thrown overboard dies. We assume there is a proportion – depending on the gear, a certain number of them will survive and a certain number of them will die; but that discard number is based completely separate from the number that is reported harvested. You would have to add those two together to get the total number of fish that the commercial fishery killed in 2014.

MR. ROY MILLER: Mr. Chairman, I just have a quick correction to Table 8 that is on Page 33 where it has Delaware harvest in 2014. I believe the number that is shown there of 14,894 was in fact the number of fish and not the pounds. That should be corrected. Thank you.

MR. O'REILLY: Mr. Chairman, just a friendly edit; and I guess these will get posted. From Table 3 on – and maybe this has been the convention, I'm not sure – everything is entitled "Migratory Striped Bass"; so we have harvest of migratory striped bass when in fact although it says the bay, Maryland and Virginia are included, clearly, we have fish that are non-migratory.

You heard a lot about the male fish. In addition, a lot of our harvest is before any migration happens; so if there would be some confusion down the line, I'd recommend maybe not using the word "migratory" for each of these tables.

CHAIRMAN GROUT: Rob, I think this comes back to the convention that was used back when you and I were on the technical committee that it is a migratory stock of striped bass. Even though you're right, there are fish in the Chesapeake Bay that have yet to migrate and some that don't, that's fine. I think that's the reference here. Michelle.

DR. DUVAL: Just a quick question regarding the tagging report; we were one of the states that submitted a tagging report last year and we're getting ready to prepare one for this past year. My question is really more about the information contained in there. When we got the data request I guess a couple weeks ago, one of the pieces of information that was requested was number of participants.

I think in Addendum III it was your tags, what do they look like, different colors you're using for gear types or area, et cetera, the total number of tags that each states orders versus the total number of tags that were used. Is the total number of participants something that you want

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us to include in that tagging report? It doesn't really matter for us at this point, but just for future references the total number of participants is a piece of information that is requested.

MR. APPELMAN: For next year we're probably going to send out a very specific report of what we want to see in that report or specific guidelines as to what to include in that report. You can expect to see that for next year.

DR. DUVAL: So for this year, because North Carolina's fishery has a December 1 start date, we would be submitting our report no later than October 1st. Our intent was to update the numbers that we submitted last year with a table; so we should go ahead and just do what we did for last year for this year and then expect a format to be sent out for the following fishing year?

MR. APPELMAN: The short answer is, yes, we'll probably send out a brief memo immediately following this meeting.

DR. DUVAL: This is just a question probably for some of the bay jurisdictions. It was in 2013 that you all implemented that 14 percent reduction in the baywide quota; is that correct? Did that stay the same for the 2014 fishing year or did that go up or did it go down? It went back up?

MR. LUISI: I can answer the question, Mr. Chairman. The years kind of jumble themselves together after a while, but we did reduce, based on the exploitable stock biomass in the bay in 2013, by 14 percent. We then turned the following year, based on the exploitable stock biomass at the time as a result of new recruits coming into part of the fishery, we did go back to – again, we went up 14 percent the following year.

The reductions that we took last year were based in part I believe on 2012 quota or harvest; so it didn't factor into the decision of the reductions

that we took last year in the bay because it went back prior to the time period where we had the 14 percent, it came back up 14 percent again. I hope that answers your question.

DR. DUVAL: It was just out of curiosity because I noticed that some of the harvest numbers went up for 2014 both on the commercial and recreational side in the bay jurisdictions; and I just didn't see the number in there for what the actual baywide quota was.

CHAIRMAN GROUT: Further questions? Go ahead, Mike.

MR. LUISI: Just a simple observation. This might be a little picky, but it is a sensitive issue for us in Maryland. Between Page 10 and 11 there is a discussion referring to the Chesapeake Bay trophy fishery. It gives the history of the fishery, some of the changes that have been made, and it establishes the limits for what Maryland has had in place in the Potomac River since 2008.

It then goes into explaining after that how Virginia's fishery has a higher size limit and a shorter season, which kind of implies that they're functioning under that fishery as more conservative. I'm not sure that's necessarily the case. I think we have measures in place that would correspond with one another as far as their conservation effort. Again, it is a little picky and just in future reports, it might be best not to – you know, just state the facts and not have an implication implying that there is a difference between states. Thanks.

CHAIRMAN GROUT: Any further questions or comments? I need a motion to approve the FMP Review. Dennis Abbott.

MR. DENNIS ABBOTT: **I make a motion to accept the FMP Review for striped bass.**

CHAIRMAN GROUT: Is there a second; okay, Emerson. **Any discussion? Any objections? It stands approved.** We're now down to other

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business; is there any other business before this board today? Bill Goldsborough.

MR. GOLDSBOROUGH: Mr. Chairman, I was just wondering – I see Captain Ed O’Brien is here for the advisory panel – was there going to be a report from the panel?

ADJOURNMENT

CHAIRMAN GROUT: He was just here as are most APs in case the board had specific questions of the AP about certain things. Anything further? I’ll take a motion to adjourn. Thank you very much.

(Whereupon, the meeting was adjourned at 2:30 o’clock p.m., August 5, 2015.)

— — —

From: Nicholas Zullo [<mailto:nszullo@gmail.com>]
Sent: Wednesday, August 19, 2015 10:12 PM
To: Mike Waine <mwaine@asmfc.org>
Subject: Striped Bass Fishery

Mike Waine
Fishery Management Plan Coordinator
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201
Dear ASMFC Commissioners,

I believe the ASMFC should act as quickly as possible to halt the current decline in Striped Bass Fishery. The proposals in Draft Addendum IV are all aimed at bringing fishing mortality down to the new target level and that means reducing the total recreational (controlled through bag and size limits) and commercial (regulated by quotas) catch of striped bass by 25% or more, coast-wide and in the Chesapeake Bay (striped bass chief spawning grounds). The 25% reduction in catch for recreational and commercial should occur within a one year time frame starting with 2015 season. The immediate reductions will restore striped bass to the target abundance level sooner but even then not likely before the end of the decade.

My preferences on the specific options are as follows.

2.5.1 Coast wide Population Reference Point Options – I support Option B.

2.5.2 Chesapeake Bay Stock Reference Point Options – I support Option B.

2.5.3 Albemarle Sound/Roanoke River Stock Reference Point Options – I support Option B.

2.6 Timeline to Reduce F (Fishing Mortality) to the Target – I support Option A

3.0 Proposed Management Program – I support Option B. I see no reason to delay reducing fishing mortality. The sooner fishing mortality can be reduced the sooner abundance may begin to rebound.

Proposed Recreational Fishery Management Options – I support Option B2 for the Coastal fishery and B10 for the Chesapeake Bay.

Proposed Commercial Fishery Management Options - I support Option B16 for the Commercial Coastal Fishery and B18 for the Chesapeake Bay.

Thank you for your consideration,

Sincerely,

Nicholas Zullo
9 N. Harvie St, 1
Richmond, VA 23220

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Nicholas S. Zullo
(703)835-5451

From: David Boudier [<mailto:Dave@pdipowerdata.com>]
Sent: Sunday, September 27, 2015 7:19 AM
To: info <info@asmfc.org>
Subject: Rock fish breeding stock decline

To Whom it May Concern,

After doing much reading and my own observations fishing mostly the middle Chesapeake bay . It has become apparent that the available breeding size Rockfish(Striped Bass) has shown signs of a steep decline. It is my opinion that an upper harvest limit of somewhere between 40 and 44 inches should be imposed. This would allow the average size and population of the breeding stock to increase. As a side benefit it would increase angling opportunity for trophy sized catch and release fish which are of a higher economic value.

All of this will be for nothing if we do not increase the biomass of the Atlantic menhaden. The commercial industry is keying in on the part of the study that shows that the actual number of individual fish is the same as in the 70'S but with the average age of those fish being lower the biomass is nearly half of what was available.

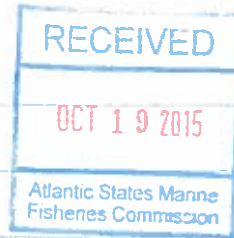
Thank you,

David Boudier

MERLE E. MARBLE
1793 BRIAR HILL LANE
COOPERSTOWN, PA. 18036

10/11/15

TO FOLKS AT ASMFC,



I HAVE READ SEVERAL ARTICLES IN THE FISHERMAN MAGAZINE, N.J. EDITION, REGARDING STRIPED BASS MANAGEMENT, STOCK ASSESSMENT, STOCK BIOMASS & A PROPOSAL TO MAKE THE STRIPED BASS THE OFFICIAL SALTWATER NEW JERSEY STATE FISH.

I HAVE BEEN FISHING THE "SALT" SINCE 1975, WITH MOST OF MY EXPERIENCE BEING SURF FISHING. I HAVE EXPERIENCED THE LOW OF LOWS, DURING THE LATE '70'S & '80'S, WHEN THE "TALK OF THE TOWN" WAS IF A BASS WAS CAUGHT. THEN CAME THE '90'S AND AS YOU ALL KNOW THE STRIPED BASS FISHING WAS A WHOLE DIFFERENT STORY.

WITH THIS SAID, AND MY EXPERIENCING THE HIGHEST OF HEIGHTS & THE LOWEST OF LOWS FISHING FOR STRIPED BASS, MY QUESTION WOULD BE THIS. IN ORDER TO SAVE THE LARGER FEMALES, HAS THERE EVER BEEN MUCH THOUGHT TO ALLOWING A "SCOT" SIZED FISH TO BE RETAINED AND THEN SAY THE LARGER FISH MUST BE RELEASED. THIS WOULD BE SIMILAR TO THE RED DRUM REGULATIONS IN PLACE IN MOST STATES.

EXAMPLE: 1 FISH BETWEEN 24"-30" / ALL FISH OUT OF THAT RANGE (OR MAYBE 2 DURING CERTAIN DATES) MUST BE RELEASED.

THIS TYPE OF REGULATION HAS WORKED WITH THE RED DRUM FISHERY. THIS WOULD ELIMINATE ^{LESS} OF THE EGG LADEN FEMALES IN THE SPRING, THUS THOUSANDS OF FUTURE FISH.

THANK YOU FOR HARD WORK ON FISHERIES ISSUES.

Merle E. Marble (267) 446-3609



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

MEMORANDUM

October 8, 2015

To: Atlantic Striped Bass Management Board
From: Atlantic Striped Bass Technical Committee
RE: 2015 Atlantic Striped Bass Stock Assessment Update

The 2015 Atlantic Striped Bass Stock Assessment Update utilizes catch and index data from 1982-2014.

In 2014, the Atlantic striped bass stock was not overfished or experiencing overfishing based on the point estimates of fully-recruited fishing mortality (F) and female spawning stock biomass (SSB) relative to the reference points defined in this assessment. SSB was estimated at 63,918 metric tons (140 million pounds) which is above the SSB threshold of 57,626 metric tons, but below the SSB target of 72,032 metric tons. Total F was estimated at 0.205 which is below the F threshold of 0.22 but above the F target of 0.18.

Commercial removals, i.e., landings plus dead discards, in 2013 and 2014 were estimated at 1,290,682 and 1,697,689 fish, respectively. Recreational removals, i.e., angler harvest plus dead releases, in 2013 and 2014 were estimated at 2,921,317 and 2,444,551, respectively.

Total abundance increased to 195 million fish by 2012 due primarily to the abundant 2011 year-class from the Chesapeake Bay. Total abundance dropped in 2013 as the small 2012 year-class recruited to the population. In 2014, total abundance was estimated at 134 million fish. Abundance of age 8+ fish has declined since 2012 and is expected to drop slightly in 2015.

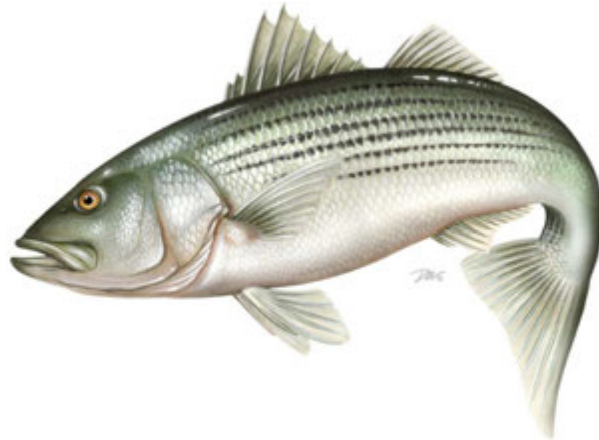
According to the projections model, if a constant catch of 3,402,641 fish, i.e., 2015 harvest estimate plus the average commercial discards during 2010-2014, was maintained during 2015-2017, the probability of SSB falling below the threshold is 0.49 by 2015 and declines slightly thereafter. The fully-recruited F is expected to decrease to an average of 0.18 during 2015-2017 and there is little chance (less than 12%) that F would exceed the F threshold.

Enclosed: 2015 Atlantic Striped Bass Stock Assessment Update

CC: Atlantic Striped Bass Technical Committee
Atlantic Striped Bass Stock Assessment Subcommittee
Atlantic Striped Bass Advisory Panel

M15-081

**Atlantic States Marine Fisheries Commission
Atlantic Striped Bass Stock Assessment Update
2015**



**Prepared by:
Atlantic Striped Bass Technical Committee**



Sustainably Managing Atlantic Coastal Fisheries

Update of the Striped Bass Stock Assessment using Data through 2014

This document summarizes the striped bass assessment that uses catch and index data from 1982-2014.

Commercial Data Sources

Strict quota monitoring is conducted by states through various state and federal dealer and fishermen reporting systems. Landings are compiled annually from those sources by state biologists. Commercial harvest in some states is recorded in pounds and is converted to number of fish using conversion methods. Biological data (e.g., length, weight, etc.) and age structures (scales) from commercial harvest are collected from a variety of gear types through state-specific port sampling programs. Harvest numbers are apportioned to age classes using length frequencies and age-length keys derived from biological sampling.

Commercial Landings (Weight)

Historically, annual commercial harvest of striped bass peaked at almost 6,804 mt (15 million pounds) in 1973, but through management actions, it declined by 99 percent to 63 mt (140,000 pounds) in 1986. Commercial landings have increased from 313 mt (800,000 pounds) in 1990 to 3,332 mt (7.3 million pounds) in 2004 following liberalization of fishery regulations. Since 2005, landings have fluctuated about an average of 3,162 mt (6.97 million pounds); however, landings have declined slightly in recent years (2011-2014) (Figure 1).

Commercial Landings (Numbers)

Commercial harvest of striped bass was over one million fish from 1997 through 2000 and near one million fish through 2006 (Table 1). Since 2007, numbers of fish landed have declined (Table 1). In 2014, only 766,298 fish were harvested and the Chesapeake Bay jurisdictions (Maryland, Virginia, and the Potomac River Fisheries Commission) accounted for 81% of the numbers of striped bass harvested (Table 1).

Commercial Landings Age Composition

The age structure of commercial harvest varies by state due to size regulations and season of the fisheries. The coast-wide time series of commercial-harvest age composition is provided in Table 2. In 2013 and 2014, the commercial harvest was comprised primarily of ages 4-10 striped bass (Table 3). Harvest in Chesapeake Bay fisheries (Maryland, Virginia, and the PRFC) was comprised mostly of ages 3-7 (Table 3).

Commercial Discards

Discard estimates for fisheries in Chesapeake Bay, the Ocean and Delaware Bay are based on the ratio of tags reported from discarded fish in the commercial fishery to tags reported from discarded fish in the recreational fishery, scaled by total recreational discards. Total discards in 2013 and 2014 were estimated to be 3.1 million and 4.6 million fish, respectively.

Total discards are allocated to fishing gears based on the relative number of tags recovered by each gear. Discards by fishing gear were multiplied by gear specific release mortalities and summed

to estimate total number of dead discards in a given year. The estimates of dead discards are 525,581 and 931,391 fish for 2013 and 2014, respectively (Table 4).

Age Composition of Commercial Dead Discards

Commercial discard proportions at age were obtained by applying age distributions from fishery dependent sampling or independent surveys that used comparable gear types. Gear specific proportions at age were applied to discard estimates by gear and expanded estimates summed across all gears. Most commercial discards since 2004 were fish of ages 3-7 (Table 4).

Total Removals by Commercial Fisheries

Total commercial striped bass removals (harvest plus dead discards) were 1.29 million and 1.69 million fish in 2013 and 2014, respectively. Except for 2014, harvest has generally exceeded dead discards since the mid 1990s (Figure 2). Commercial losses in 2013 and 2014 were dominated by the 2008 and 2009 year classes (ages 4 and 5 in 2013, and ages 5 and 6 in 2014).

Recreational Data Sources

Information on harvest and release numbers, harvest weights, and sizes of harvested bass from 1982-2003 come from the National Marine Fisheries Service's Marine Recreational Fisheries Statistics Survey (MRFSS/MRIP). The MRFSS/MRIP data collection consisted of a stratified intercept survey of anglers at fishing access sites that obtains numbers of fish harvested and released per angler trip, and a telephone survey that derives numbers of angler trips. Estimates of harvest and release numbers are derived on a bi-monthly basis.

In response to a peer review of the MRFSS program (National Resource Council 2006), NMFS established the Marine Recreational Information Program (MRIP) to improve recreational data collection and estimation methodologies. The timeline of MRIP changes can be found at <http://www.st.nmfs.noaa.gov/recreational-fisheries/in-depth/making-improvements-mrip-initiative/history-timeline/index>. MRIP estimates are now calculated assuming intercepts at a site represent a cluster of samples, and sample sites are weighted by their probability of selection, which is a function of fishing pressure recommended by state advisors. The MRFSS estimation procedure assumed that each intercept was an independent observation and that all sites were equally likely to have been sampled. Re-estimation of catch and harvest from 2004-2010 using the new methodology occurred in 2011 and is the standard used presently. However, the additional site metadata needed to replicate the MRIP estimation method are not currently available prior to 2004; therefore, estimates of catch for 1982–2003 are based on the MRFSS methodology.

Anecdotal evidence had suggested that North Carolina, Virginia, and possibly other states had sizeable wave-1 fisheries beginning in 1996 (wave-1 sampling that began in 2004 in North Carolina waters and large wave-1 tag return data for North Carolina and Virginia supported this contention). However, MRFSS/MRIP did not sample in January and February (wave-1) prior to 2004; therefore, there was little information for the winter fishery (Jan, Feb) that had developed off of North Carolina and Virginia. Harvest in wave 1 for these fisheries was estimated back to 1996 using observed relationships between landings and tag returns. For North Carolina, the ratio of estimated landings to tag returns in wave-1 of 2004 and annual tag returns in wave-1 were used to estimate annual landings

from tag returns in January and February of 1996-2003. For Virginia waters, the 1996-2004 mean ratio of landings and tag returns in wave-6 and annual tag returns in wave-1 were used to estimate landings from tag returns in January and February of 1996-2004. For 2005-2012, MRFSS/MRIP wave-1 estimates of harvest for the winter fishery in Virginia waters were still unavailable; therefore, they were estimated. The approach used to estimate wave-1 harvest in prior years was abandoned because correlation between wave 6 harvest and tag returns off Virginia weakened significantly. In 2012, the regression method of Nelson was updated to include the new MRIP NC wave 1 estimates of harvest and 2012 MRIP and tag data, and the wave 1 estimates from 2005-2012 were re-estimated. For 2013 and 2014, the 2005-2012 regression was used to estimate Virginia wave-1 harvest. Dead releases for the winter recreational fishery in North Carolina or Virginia were not estimated.

Most states use the length frequency distributions of harvested striped bass measured by the MRFSS. The MRFSS measurements are converted from fork length (inches) to total length (inches) using conversion equations. Proportions-at-length are calculated and multiplied by the MRFSS harvest numbers to obtain total number harvested-at-length. Data on sizes of released striped bass come mostly from state-specific sampling or volunteer angling programs. Proportions-at-length are calculated and multiplied by the number of MRFSS/MRIP dead releases to obtain total number dead releases-at-length. For those programs that do not collect data on released fishes, the lengths of tagged fish released by anglers participating in the American Littoral Society's striped bass tagging program or from state-sponsored tagging programs are used. Details on calculations are given in the 2013 SARC document (NEFSC, 2013).

Many states collect scale samples during state sampling programs designed to collect information on harvest and released striped bass from the recreational fishery. Age-length keys are usually constructed and applied to harvest and dead release numbers-at-length. When sampling of the recreational fishery does not occur, age-length keys are constructed by using data on age-length from commercial sampling, fisheries-independent sampling or striped bass tagging programs. For those states that do not collect scale samples, age-length keys are usually borrowed from neighboring states.

Age composition of the January/February recreational fishery in North Carolina and Virginia was estimated from length-frequency data collected by MRFSS/MRIP and appropriate state age-length keys. Length-frequencies for the North Carolina winter harvest of 2004 came from data in wave-6 of 2003 and wave-1 of 2004. Length-frequencies for the winter harvests of 1996-2003 came from wave-6 of year t-1. Lengths were converted to age for North Carolina with a combined age-length key from New York and North Carolina. Length-frequencies for the Virginia winter harvest in 1996-2012 came from MRFSS/MRIP data in wave-6 of year t-1. We converted the Virginia lengths to age with a Virginia age-length key in 2013, and used the MD coast age distribution to apportion wave-1 harvest to age classes in 2014 (there were no coastal age data provided by VA).

Recreational Total Landings

Figure 1 traces the impressive growth of the Atlantic coast-wide recreational fisheries from 1982 through 2014. Harvest increased from 1,010 mt (2.2 million pounds) in 1990 to 14,082 mt (31 million pounds) in 2006 (Figure 1). Following the peak in 2006, harvest declined through 2012 to 8,740 mt (19 million pounds) and increased in 2013 and 2014 (Figure 1).

Recreational Landings in Numbers

Recreational harvest of striped bass was greater than 1.4 million fish from 1997 through 2006, and more than 2.4 million striped bass during 2003-2006 (Table 5). Harvest was generally highest in Virginia, Maryland, New Jersey, and Massachusetts (Table 5). Coast-wide harvest of striped bass

declined to 1.5 million fish in 2012 and increased to an average of 1.97 million fish in 2013-2014 (Table 5).

Age Composition of Recreational Landings

Time series of harvest numbers-at-age are given in Table 6. Coast-wide recreational harvest was dominated by the 2003 (age 10) and 2007 (age 6) year-classes in 2013, and by the 2004 (age 10) and 2009 (age 5) year-classes in 2014 (Table 7). Ages 5-10 comprised about 62% in 2013 and 72% in 2014 of the coast-wide harvest, and ages 8+ comprised >49% in both years (Table 6). Recreational harvest from the ocean states (includes Delaware Bay) was comprised mostly of ages 6-10, while harvest in Chesapeake Bay (MD and VA) was dominated by ages 4-8 (Table 7).

Recreational Dead Releases

The number of striped bass that are caught and released (B2) is estimated by MRFSS/MRIP (Table 8). The releases have accounted for 85 to 90% of the annual catch in most years (Figure 2). The number of releases that die due to the capture and release process is estimated by multiplying the total release numbers (B2) by an estimate of hooking mortality. The overall 9% hooking mortality rate estimated by Diodati and Richards (1996) was used. Estimates of the number of dead releases are presented in Table 9. The numbers of fish released dead increased from 132 thousand fish in 1990 to 1.4 million fish in 1997. Releases remained around 1.2 million through 2003, but increased to the series maximum of 2.1 million fish in 2006. Releases declined substantially from 2006 through 2012 (Table 9). The number of dead releases increased to 768,599 fish in 2013 and declined slightly to 655,429 fish in 2014. The numbers of fish released dead are generally highest in Maryland, Massachusetts, New Jersey and New York (Table 9).

Age Composition of Dead Releases

Ages of coast-wide recreational dead releases ranged from 0 to 15+, but most dead releases were ages 2-6 (Table 10). The dead releases were dominated by ages 2-5 in MD and VA and 3-6 in ocean states (Table 10).

Total Removals by Recreational Fisheries

Total recreational striped bass removals (harvest and dead discards) in 2013 and 2014 were 2.92 million and 2.44 million fish, respectively (Figure 2). In 2013 and 2014, the harvest and dead releases combined were dominated by ages 2-6 in Maryland and Virginia and ages 6-10 in ocean states.

Incidental Removals

Some states collect information on the number of striped bass killed for other purposes such as scientific research. These are tabulated by region, age and year in Table 11.

Total Removals

Combined losses (commercial, recreational and incidental removals) indicated that the recreational fishery removed the largest number of striped bass in 2013 and 2014 (Figure 3). Historically, the recreational fishery has been the dominant source of fishing removals since 1991 (Figure 2). The above components were totaled by year to produce the overall catch at age matrices by region (Table 12). Estimated total removals in Chesapeake Bay and the Ocean regions declined from 2006 through 2012 (Table 12; Figure 4). The total removals of striped bass in Chesapeake Bay in 2013 increased by 14% compared to 2012 and in 2014 increased by 9% compared to 2013 (Table

12; Figure 4). The total removals of striped bass in the Ocean region in 2013 increased by 40% compared to 2012 and in 2014 declined by 26% compared to 2013 (Table 12; Figure 4). Ages 3-6 in 2013 and 2014 sustained the highest losses in Chesapeake Bay and ages 6-10 in 2013 and 2014 sustained the highest losses in the Ocean region.

Catch Weight at Age

Catch mean weight at age data, which is used to calculate total biomass and spawning stock biomass, was calculated for the period 1998-2002 using all available weight data from MA, NY, MD, VA, NH, and CT (1998-2001) and adding data from RI and DE in 2002 (NOAA 46th SAW Striped Bass Assessment Report - Appendix A5). Mean weights at age for the 2003-2014 striped bass catches were determined as a result of the expansion of catch and weight at age. Data came from Maine and New Hampshire recreational harvest and discards; Massachusetts recreational and commercial catch; Rhode Island recreational and commercial catch; Connecticut recreational catch; New York recreational catch and commercial landings; New Jersey recreational catch; and Delaware, Maryland, Virginia, and North Carolina recreational and commercial catch. Weighted mean weights at age were calculated as the sum of weight at age multiplied by the catch at age in numbers, divided by the sum of catch at age in numbers. Details of developing weights at age for 1982 to 1996 can be found in NEFSC Lab Ref. 98-03. Weights at age for 1982-2014 are presented in Table 13.

Indices of Relative Abundance

States provide age-specific and aggregate indices from fisheries-dependent and fisheries-independent sources that are assumed to reflect trends in striped bass relative abundance. Descriptions of the current survey indices are given below. A summary of index information is provided in Table 14.

Fishery-Independent Surveys

Connecticut Trawl Survey (CTTRL)

Connecticut provides an aggregate (ages 4-6) index of relative abundance from a bottom trawl survey. The Connecticut DEEP Marine Fisheries Division has conducted a fisheries-independent Trawl Survey in Long Island Sound since 1984. The Long Island Sound Trawl Survey (LISTS) provides fishery independent monitoring of important recreational species, as well as annual total counts and biomass for all finfish taken in the Survey. All finfish species are measured on all tows. The Long Island Sound Trawl Survey encompasses an area from New London, Connecticut (longitude 72° 03') to Greenwich, Connecticut (longitude 73° 39'). The sampling area includes Connecticut and New York state waters from 5 to 46 meters in depth and is conducted over mud, sand and transitional (mud/sand) sediment types. Long Island Sound is surveyed in the spring (April-June) and fall (September-October) periods with 40 sites sampled monthly for a total of 200 sites annually.

The sampling gear employed is a 14 m otter trawl with a 51 mm codend. To reduce the bias associated with day-night changes in catchability of some species, sampling is conducted during daylight hours only). LISTS employs a stratified-random sampling design. The sampling area is divided into 1.85 x 3.7 km (1 x 2 nautical miles) sites, with each site assigned to one of 12 strata defined by depth interval (0 - 9.0 m, 9.1 - 18.2 m, 18.3 - 27.3 m or, 27.4+ m) and bottom type (i.e., mud, sand, or transitional). For each monthly sampling cruise, sites are selected randomly from

within each stratum. The number of sites sampled in each stratum was determined by dividing the total stratum area by 68 km² (20 square nautical miles), with a minimum of two sites sampled per stratum. Discrete stratum areas smaller than a sample site are not sampled. The CTRRL index is computed as the stratified geometric mean number per tow.

New York Ocean Haul Seine Survey

New York provided age-specific geometric mean indices of relative abundance for striped bass generated from an ocean haul seine survey from 1987 - 2006. Since 1987, NY DEC sampled the mixed coastal stocks of striped bass by ocean haul seine. Sampling was conducted annually during the Fall migration on the Atlantic Ocean facing beaches off the east end of Long Island. A crew of commercial haul seine fishermen was contracted to set and retrieve the gear, and assist department biologists in handling the catch. The survey seine measured approximately 1,800 feet long and was composed of two wings attached to a centrally located bunt and cod end. The area swept was approximately ten acres. The seine was fifteen feet deep in the wings and twenty feet deep in the bunt.

Under the original design, sampling dates were selected at random to create a schedule of thirty dates. For each date selected, two of ten fixed stations were chosen at random, without replacement, as the sampling locations for that day. Since this design was difficult to implement due to weather-related delays, the sampling design was altered in 1990. Instead of randomly selecting thirty days, sixty consecutive working days were identified during the fall. One station was randomly selected, without replacement, for each working day until six "rounds" of ten hauls had been scheduled. Hauls that were missed due to bad weather or equipment failure were added to the next scheduled sampling day. No more than three hauls were attempted for any given day so that sampling was evenly distributed over time. Sixty hauls were scheduled for each year.

Since 1995, the survey team was prohibited from gaining access to several of the fixed stations. Instead of the original ten stations, two of the original stations plus three alternate sites were used to complete the annual survey. These alternate stations occur within the geographic range of the original standard stations. Also since 1995, funding delays resulted in a one-month delay in the commencement of field sampling activities. Between 1987 and 1994 field sampling began in early September. Since 1995, sampling began in late September to early October. In addition, decreases in funding have led to reductions in annual sampling effort from sixty seine hauls to forty-five seine hauls per season since 1997. The time series of catch and catch-at-age has been standardized by date for the entire time series.

This survey (see below) ended in 2007 due to state changes in contract relationships with private fishermen. The index remains in the assessment because it provides abundance trends for 1987-2006.

NEFSC Trawl Survey

The original vessel for this survey was replaced in 2009 with a larger vessel that cannot sample the inshore strata where most striped bass were caught. The index is still used in the assessment because it provides abundance trends for 1991-2008. The Northeast Fisheries Science Center provided an aggregate (2-9) index of relative abundance from the spring stratified-random bottom trawl survey. The survey covers waters from the Gulf of Maine to Cape Hatteras, NC. Only data from inshore strata from 1991-2008 are used.

New Jersey Bottom Trawl Survey (NJTRL)

New Jersey provides age-specific (2-9+) geometric mean indices of relative abundance for striped bass from a stratified-random bottom trawl initiated in 1989. The survey area consists of NJ coastal

waters from Ambrose Channel, or the entrance to New York harbor, south to Cape Henlopen Channel, or the entrance to Delaware Bay, and from about the 3 fathom isobath inshore to approximately the 15 fathom isobath offshore. This area is divided into 15 sampling strata. Latitudinal boundaries are identical to those which define the sampling strata of the National Marine Fisheries Service (NMFS) Northwest Atlantic groundfish survey. Exceptions are those strata at the extreme northern and southern ends of NJ. Where NMFS strata are extended into NY or DE waters, truncated boundaries were drawn which included only waters adjacent to NJ, except for the ocean waters off the mouth of Delaware Bay, which are also included. Samples are collected with a three-in-one trawl, so named because all the tapers are three to one. The net is a two seam trawl with forward netting of 12 cm (4.7 inches) stretch mesh and rear netting of 8 cm (3.1 inches) stretch mesh. The codend is 7.6 cm stretch mesh (3.0 inches) and is lined with a 6.4 mm (0.25 inch) bar mesh liner. The headrope is 25 m (82 feet) long and the footrope is 30.5 m (100 feet) long. Trawl samples are collected by towing the net for 20 minutes. The total weight of each species is measured with hanging metric scales and the length of all individuals comprising each species caught, or a representative sample by weight for large catches, is measured to the nearest cm total length and only data from April are used for striped bass.

Maryland Spawning Stock Survey (MDSSN)

Maryland provides spawning stock age-specific (2-13+) mean indices of relative abundance for striped bass in Chesapeake Bay from a gillnet survey initiated in 1985. Multi-panel experimental drift gill nets are deployed in spawning areas in the Potomac River and in the Upper Chesapeake Bay during the spring spawning season in April and May. There are generally 20-25 sampling days in a season. Ten mesh panels 150 feet long that range from 8 to 11.5 feet deep are used. The panels are constructed of multifilament nylon webbing in 3.00- to 10.00-inch stretch-mesh. In the Upper Bay, the entire suite of 10 meshes is fished simultaneously. In the Potomac River, two suites of 5 panels are fished simultaneously. Overall, soak times for each mesh panel range from 15 to 65 minutes. In both systems, all 10 meshes are fished twice daily (20 sets) unless weather or other circumstances prohibit a second soak. Sampling locations are assigned using a stratified random survey design. Each sampled spawning area is considered a stratum. One randomly chosen site per day is fished in each spawning area. The Potomac River sampling area consists of 40 0.5-square-mile quadrants and the Upper Bay sampling area consists of 31 1-square-mile quadrants. The Choptank River was also sampled between 1985-1996. A sub-sample of striped bass captured in the nets is aged. Scales are removed from two-three randomly chosen male striped bass per one cm length group, per week, for a maximum of ten scales per length group over the entire season. Scales are taken from all males over 700 mm TL and all females regardless of total length.

CPUEs for individual mesh sizes and length groups are calculated for each spawning area. Mesh-specific CPUEs ($CPUE_{i,j}$) are calculated by summing the catch in each length group across days and sets, and dividing the result by the total effort for each mesh. Sex-specific mesh selectivity coefficients are then used to correct the mesh-specific length group CPUE estimates. Sex-specific models are used to develop selectivity coefficients for fish sampled from the Potomac River and Upper Bay. Model building and hypothesis testing has determined that male and female striped bass possess unique selectivity characteristics, but no differences are evident between the Upper Bay and the Potomac River. Therefore, sex-specific selectivity coefficients for each mesh and length group are estimated by fitting a skew-normal model to spring data from 1990 to 2000 following the procedure presented in Helser and others. (1998). Model residuals are re-sampled 1,000 times to generate a population of 1,000 mesh- and size-class specific selectivity coefficients for each year, sample area,

and sex. The CPUE for each size class and mesh is then divided by the appropriate selectivity coefficient to generate 1,000 replicate matrices of mesh- and length-specific corrected catch frequencies. A vector of selectivity-corrected length-group CPUEs for each spawning area and sex is then developed. The selectivity-corrected CPUEs are averaged across meshes, using a mean that is weighted by the capture efficiency of the mesh. Finally, area- and sex-specific estimates of relative abundance are pooled to develop Bay-wide estimates of relative abundance.

Delaware Spawning Stock Electrofishing Survey (DESSN)

Delaware provides spawning stock age-specific (2-13+) mean indices of relative abundance for striped bass in the Delaware River from an electroshock survey initiated in 1996. Striped bass are sampled in the Delaware River from the vicinity of Big Timber Creek and League Island near river kilometer 152 located between Central Philadelphia downstream to the Delaware Memorial Bridge below Wilmington, DE at river kilometer 110. A stratified-random sampling design is used and a Smith-Root model 18-E boat electrofisher is used to collect striped bass. Typically, sampling is conducted with the boat moving in the direction of the tidal flow and in a zigzag pattern. Only striped bass approximately >200 mm total length are collected. Sampling is conducted weekly during mid-April to May (two days per week) and seven 12-minute timed samples are made per day. Length, weight, and sex are recorded and scales are collected from each fish. Due to staffing problems, the DE SSN was not completed in 2014.

New York Young-of-the-Year and Yearling Survey (NYYOY and NY Age 1)

In 2014, New York proposed a change in the young-of-year striped bass sampling program for the Hudson River. Objectives were to 1) adopt a more efficient sampling design for the juvenile striped bass survey without compromising the integrity of the index, and 2) determine the time-period for the index that best measures the abundance of juvenile striped bass. In the original program, from 1979-2013, approximately 25 stations were sampled every other week beginning in August and continued through the remaining summer/fall months. Sites were selected from a suite of 36 fixed stations located in the brackish water portion of the Hudson River: Tappan Zee to Haverstraw Bay (rkm 35 – 63). Sampling occurred over two to three days. A minimum of a four person sampling crew was needed to perform the survey each sampling day due to gear constraints and the large amount of data recorded at each site.

The gear is a 71 m x 3 m beach seine with 0.64 mm mesh. Sampling occurs during the day. Fish captured by seine are sorted by species and life stage, counted, and returned to the river. Lengths of striped bass and selected other species are obtained from a subset of the catch. The gear and fish processing procedure has not changed.

The “old” index was based on a six week time-period dating back to the beginning of the survey in 1979, where sampling was conducted from late August through November. However, an in-river, July through November off-shore trawl survey conducted in the same reach, indicated that young-of-year striped bass were present in this nursery area well before the late August start date of the seine program. Subsequently in 1985, three additional weeks of sampling were added to the seine program, moving back the start of sampling to mid-July to create the “nine-week index”. For all years, both the “6-week” (beginning in 1979) and “9-week” (beginning in 1985) relative abundance indices were calculated as geometric means of catch per haul. Only those hauls that resulted in a representative sample, i.e. no major loss due to obstructions or gear problems (tears, hangs, etc.) were included in the calculation. Both series were reported to ASMFC; however, the “6-week” was used as the primary Hudson index.

In the revised sampling program, in 2014, NY sought a more efficient sample design given staffing constraints and the desire to remove redundancies in effort. We examined the existing 35 year time series, 1979 to 2013, to eliminate sites that compromised the safety of the crew or equipment, sampled redundant adjacent habitats, or presented other recurring sampling issues. This analysis whittled sampling sites down from 25 to 13. The “revised” index incorporates the “9-week” index (mid July through November) seasonal component, retains the broad geographical reach of the nursery area, and does not compromise the integrity of the abundance index as it correlates well with the original indices:

- 6-week 13 site subset (6-week13ss) vs original 6-week: $R = 0.979$, $R^2 = 0.956$, $p < 0.0001$
- 9-week 13 site subset (9-week13ss) vs original 9-week: $R = 0.984$, $R^2 = 0.968$, $p < 0.0001$

In addition to running this correlation to the original index, New York also revisited the validation procedure for the revised index. We compared the nine week, 13 site subset survey with the Western Long Island Age 1 survey and to the Hudson Age 6-8 gill net (former shad fishery bycatch) index. The correlations met the significance level required by ASMFC for both surveys. The ASFMC Management Board accepted the revision of the index as recommended by the Technical Committee in May 2014.

During the 2014 field season, the sampling design had to be slightly altered due to the presence of a large, immovable hang in one of the 13 selected sites. An adjacent alternate site with similar habitat characteristics was selected as a replacement; recalculation of the index using the substituted site resulted in a slight change to the annual index values. This final revised index still met the validation significance level required by ASMFC. The geometric mean is used as the relative index.

New York also provides an index of relative abundance for yearling striped bass in western Long Island. The beach seine (61-m) survey samples fixed stations during May-October. The geometric mean is used as the relative index.

New Jersey Young-of-the-Year Survey (NJYOY)

New Jersey provides an index of relative abundance for young-of-the year striped bass in the Delaware River for years 1980 to present. A bagged beach seine is used at fixed and random stations, which are sampled biweekly from August-October. About 256 hauls are made each year. Relative abundance index for striped bass is calculated as the mean geometric number of young-of-the-year captured per seine haul.

Virginia Young-of-the-Year Survey (VAYOY)

Virginia provides an index of relative abundance for young-of-the-year bass in the Virginia portion of Chesapeake Bay. Begun in 1980, the fixed station survey is conducted in the James, York, and Rappahannock river systems. Eighteen index stations are sampled five times a year on a biweekly basis from mid-July through September. Twenty auxiliary stations provide geographically expanded coverage during years of unusual precipitation or drought when the normal index stations do not yield samples. A bagged beach seine (30.5 m long) is set by hand with one end fixed on the beach and the other fully extended perpendicular to the beach. The seine is swept with the current. Two hauls are made at each site. Abundance indices are computed as the geometric mean number of young-of-the-year or yearling bass per haul.

Maryland Young-of-the-Year and Yearlings Surveys (MDYOY and MD Age1)

Maryland provides an index of relative abundance for young-of-the-year and yearling striped bass in the Maryland portion of Chesapeake Bay. Begun in 1954, the fixed station survey is conducted in the Upper Bay, Choptank, Nanticoke, and Potomac Rivers. Each station is sampled once during each monthly round performed during July, August, and September. A bagless beach seine (30.5 m long) is set by hand with one end fixed on the beach and the other fully extended perpendicular to the beach. The seine is swept with the current. Two hauls are made at each site. Abundance indices are computed as the geometric mean number of young-of-the-year or yearling bass per haul.

Fisheries-Dependent Indices

Total Catch Rate Index

An aggregate index of relative abundance for 1988 to present is generated from MRFSS/MRIP intercept data. Generalized linear modeling (GLM; McCullagh and Nelder, 1989) is used to derive annual mean catch-per-hour estimates by adjusting the number of caught fish per trip for the classification variables of state, year, two-month sampling wave, number of days fished in the past 12 months (as a measure of avidity), and number of hours fished. In the analyses, only data from anglers who reported that they targeted striped bass is used to insure methods used among anglers are as consistent as possible and to identify those targeting anglers that did not catch striped bass (zero catches). Also, only data from private boats fishing in the Ocean during waves 3-5 are used.

A delta-lognormal model (Lo *et al.* 1992) was selected as the best approach to estimate year effects after examination of model dispersion (Terceiro, 2003) and standardized residual deviance versus linear predictor plots (McCullagh and Nelder, 1989). In the delta-lognormal model, catch data is decomposed into catch success/failure and positive catch per trip ($y > 0$) components. Each component is analyzed separately using appropriate statistical techniques and then the statistical models are recombined to obtain estimates of the variable of interest. The catch success/failure was modeled as a binary response to the categorical variables using multiple logistic regression. The *glm* function in R is used to estimate parameters, and goodness-of-fit was assessed using concordance measures and the Hosmer-Lemeshow test. Positive catches, transformed using the natural logarithm, is modeled assuming a normal error distribution using function *glm* in R. Any variable not significant at $\alpha=0.05$ with type-III (partial) sum of squares is dropped from the initial GLM model and the analysis is repeated. First-order interactions were considered in the initial analyses but it was not always possible to generate annual means by the least-square methods with some interactions included (Searle and others 1980); therefore, only main effects are considered. The annual index of striped bass total catch rate is estimated by multiplying together the prediction of the probability of obtaining a positive catch and the least-squares mean estimate of the positive catch from the models.

Virginia Pound Net (VAPNET)

Since 1991, the Virginia Institute of Marine Science has conducted the Virginia pound net survey. The pound net survey takes place on the striped bass spawning grounds in the Rappahannock River between river miles 44-47. VIMS has the option of sampling up to four commercial nets. The upper and lower nets are used for this survey and the middle nets are used for tagging. VIMS alternates sampling between the upper and lower nets. The sampling occurs from March 30 to May 3, when the females are on the spawning ground. The pound nets are checked twice a week, but are fishing

constantly. When the samples are collected, the fish are sexed and measured, scales are taken from every fish, and a subsample of fish have otoliths removed.

Comparison of Fisheries-Independent and Fisheries-Dependent Indices

Time series of each index used in the current assessment are shown in Table 15 and 16. The fishery-independent indices for combined ages generally indicate an increase in population abundance from the early 1990s through the mid 1990s, and relatively stable levels through 2007 (Figure 5). The New Jersey and Connecticut trawl indices showed declines through 2011 and increases in 2012 and 2013, respectively (Figure 5). The Maryland gillnet survey showed a relatively stable spawning stock biomass population since the mid 1980s. The Delaware electrofishing index exhibited a slight decline in spawning stock through 2009, an increase through 2011 and a decline in 2012 (Figure 5).

The coast-wide MRFSS/MRIP index indicated that abundance declined from 1998 to 2003, rose steadily through 2006, declined through 2011, increased through 2013 and declined slightly in 2014 (Figure 5). The VA pound net index showed variable but level trends prior to 1999, an increase in 1999 and 2000, a decline through 2002, an increase through 2004, and then a variable but level trend through 2010. A decline occurred in 2011 and has remained at about the same level during 2012-2014.

Young-of-the-year and age-1 indices in Chesapeake Bay were variable but declines were observed during 2004-2010 and in some years close to low values not observed since 1990 (Figure 6). In Delaware Bay, recruitment of YOY increased from 2007 through 2009, declined slightly during 2010-2011, and increased in 2013 and 2014. Recruitment in the Hudson River declined from 2007-2013 (Figure 6). Strong year-classes were evident in 1993, 1996, 2001, 2003 and 2011 in Chesapeake Bay (Maryland and Virginia), and in 1993, 1995, 1999, 2003, 2009 and 2014 in Delaware Bay, in 1997, 1999, 2001, 2003, 2010 and 2014 in Hudson River (Figure 6). The lowest YOY index value in the Chesapeake Bay time series was observed in 2012.

Age composition data for the age-specific indices are given in Table 17.

Model Description

See the 2013 SARC document for complete description of the striped bass statistical catch-at-age model. A summary of the model structure used in this assessment is listed in Table 18.

Data Inputs

Plus Group

As in the 2013 benchmark, an age 13+ plus-group was used for catch and indices data as an attempt to address the increase in scale-ageing bias after ages 12 or so.

Removals Data

Total removals (recreational and commercial harvest numbers plus number of discards that die due to handling and release and incidental removals) and the proportions of catch-at-age of striped bass fisheries are the primary data used in the model. The removals data were partitioned into three “fleets” in an attempt to account for more realistic patterns in fishing selectivity known to have

occurred as management measures changed over time. All selectivity time blocks corresponded to Amendment changes. Removals data were split into *Chesapeake Bay*, *Ocean* and the *Commercial Dead Discards*. The latter was a separate fleet because commercial discards were from a multitude of gears that do not necessarily target striped bass and the mixed gear types may have a unique selectivity over time. In addition, the data prior to 1996 could not be separated into regions. The Chesapeake Bay fleet includes commercial and recreational harvest and recreational dead discards taken in the Bay by MD, VA, and the PRFC. The Ocean fleet includes commercial and recreational harvest and recreational dead discards taken in the ocean by ME, NH, MA, NY, NJ, DE (Delaware Bay and ocean), MD, VA and NC.

Young-of-the-Year and Age 1 Indices

All indices used in the benchmark assessment were used in the update. Each index was linked to a particular age (Table 19). Young-of-the-year indices were lagged one year ahead and linked to age 1.

Starting Values

Initial starting values for all parameters are given in Table 20. Based on the coast-wide age samples, the starting effective sample sizes for the age proportions in each fleet were set at 50. Used as starting values, the average effective sample size for each survey with age composition data was calculated in the 2007 benchmark (<http://www.nefsc.noaa.gov/publications/crd/crd0803/>) by using methods in Pennington and Volstad (1994) and Pennington and others (2002). In essence, effective sample size was estimated by first calculating the length sample variance using the simple random sampling equation and dividing into it the cluster sampling variance of mean length derived through bootstrapping, assuming each seine/trawl haul, gillnet set, or electrofishing run was the sampling unit. The average of the annual effective sample sizes was used as starting values in each survey multinomial error distribution (NJ Trawl = 23; NYOHS = 56; DESSN = 68; MDSSN=68; VAPNET = 68).

Sex Proportions-at-age

Female sex proportions-at-age are used to apportion the numbers-at-age to female numbers-at-age for calculation of female spawning stock biomass. The sex proportions were derived from available state catch datasets. The proportions used were:

Age	1	2	3	4	5	6	7	8	9	10	11	12	13+
Prop	0.53	0.56	0.56	0.52	0.57	0.65	0.73	0.81	0.88	0.92	0.95	0.97	1.00

Female Maturity

The proportions mature-at-age for females were derived from literature values and field samples.

Age	1	2	3	4	5	6	7	8	9	10	11	12	13+
Prop	0.0	0.0	0.0	0.04	0.13	0.45	0.89	0.94	1.00	1.00	1.00	1.00	1.00

Natural Mortality

The age-specific M estimates used in the updated base model are:

Age	1	2	3	4	5	6	≥ 7
M	1.13	0.68	0.45	0.33	0.25	0.19	0.15

Model Specification

Phases

Model parameters were solved in phases. The parameters solved in each phase were:

- 1 Yr 1, Age 1 N or Avg N (log)
- 2 recruitment deviations and fishing mortality
- 3 stock-recruitment parameters
- 4 catch selectivity parameters
- 5 survey selectivity parameters
- 6 catchability coefficients of survey indices

Catch Selectivity Functions

The same four time blocks for catch selectivity estimations used in the 2013 benchmark were used in this update. The periods are listed in Table 18.

Stock-Recruitment Curve

Based on literature reviews and committee opinion, the Beverton-Holt equation was selected as the appropriate stock recruitment relationship for striped bass.

Data Weighting

Data weighting was accomplished by first running the model with all initial starting values, lambda weights = 1, and index CV weights = 1. The lambda weights for the total removal data were increased to 2 for the Bay, Ocean, and Commercial Discards to force the model to better fit the data in these early years (1982-1984). Based on recommendations by the SARC panel, the initial effective sample sizes were first adjusted once by using the Francis multipliers and the model was re-run. After the model was re-run, the index CV weights were adjusted to obtain index RMSE values close to 1.0. The estimated RMSE values were used as the CV weights and this allowed the resulting RMSE values to be near 1.0. The model was re-run to make small adjustments in the RMSE values. Since the MRFSS and MDSSN indices have considerable influence on the model results, the CV weights for these indices were then adjusted until the RMSE values were nearly identical to balance the influence of each index.

Results

Resulting RMSE for fleet catch and survey indices and effective sample sizes for age compositions are given in Table 21. Resulting contributions to total likelihood are listed in Table 22. The converged total likelihood was 10,383.3. Estimates of fully-recruited fishing mortality for each fleet, total fishing mortality, recruitment, parameters of the selectivity functions for the selectivity periods, catchability coefficients for all surveys, and parameters of the survey selectivity functions are given in Table 23 and are shown graphically in Figures 7-9. Graphs depicting the observed and predicted values and residuals for the catch age composition, survey indices, and survey compositions are given in Appendix A. The model fit the observed total catches (Figure 7) and catch age compositions of all fleets well, except for ages 1 and 13+ for the Ocean and Commercial Discard fleets (Appendix A), and the YOY, age 1, CTTRL, and NEFSC indices reasonably well (Appendix A). The predicted trends matched the observed trends in age composition survey indices (except MDSSN and NYOHS), and predicted the survey age composition reasonably well (MDSSN) to poorly (NJ Trawl) (Appendix A).

Estimates of the catch selectivity patterns for each fleet showed that, although the patterns varied over time with changes in regulation, selectivity was dome-shaped for Chesapeake Bay and Commercial Discard fleets and primarily flat-topped for the Ocean over time (Figure 8).

Fishing Mortality

Partial fully-recruited fishing mortality in 2014 for the Bay, Ocean and Commercial Discard fleets was 0.065, 0.145, and 0.042, respectively (total fully-recruited $F_{2014}=0.205$) (Table 23; Figure 9). The maximum total F-at-age in 2014 was 0.205 for age 11 (Table 24). Fishing mortality-at-age in 2013 and 2014 for the three fleets is shown in Figure 10. Fishing mortality-at-age peaked at age 5 in the Chesapeake Bay and Commercial Discards fleets and age 13+ in the Ocean fleet. The highest fishing mortality was attributed to the Ocean fleet at ages ≥ 6 (Table 24).

Population Abundance (January 1)

Striped bass abundance (1+) increased steadily from 1982 through 1997 when it peaked around 249 million fish (Table 25; Figure 11). Total abundance fluctuated without trend through 2004. From 2005-2009, age 1+ abundance declined to about 133 million fish. Total abundance increased to 195 million fish by 2012 (Figure 11). The increase in 2012 was due primarily to the abundant 2011 year class from Chesapeake Bay (Table 25). Total abundance dropped in 2013 as the very small 2012 year-class from Chesapeake Bay recruited to the population (Figure 11). Abundance increased slightly in 2014 to 134 million fish. Abundance of striped bass age 8+ increased steadily through 2004 to 11.4 million fish, but declined to 7.6 million fish through 2010 (Table 25; Figure 11). A small increase in 8+ abundance occurred in 2011 as the 2003 year class became age 8 (Figure 11). Abundance of age 8+ fish has declined since 2012 (Figure 11) and is expected to drop slightly in 2015.

Spawning Stock Biomass and Total Biomass

Weights-at-age used to calculate female spawning stock biomass (SSB) were generated from catch weights-at-age and the Rivard algorithm described in the NEFSC's VPA/ADAPT program. Female SSB grew steadily from 1982 through 2003 when it peaked at about 78 thousand metric tons (Table 26, Figure 12A). Female SSB has declined since then and was estimated at 63,918 metric tons (95% CI: 51,183-76,653) in 2014 (Table 26; Figure 12A). The SSB point estimate in 2014 remained above the threshold level of 57,626 thousand metric tons and indicates that the striped bass are not overfished. However, given the error associated with the 2014 values, there is a probability of 0.16 that the female spawning stock biomass in 2014 is below the threshold. The spawning stock numbers (Figure 12B) declined more rapidly than the spawning stock biomass.

Exploitable biomass (January 1) increased from 9,901 metric tons in 1982 to its peak at 109 thousand metric tons in 1997 (Figure 12C). It declined through 1999 but increased slightly in 2000. Exploitable biomass was relatively stable at an average of 103 thousand metric tons through 2005, but it has since declined to about 89 thousand metric tons in 2014 (Figure 12C).

Retrospective Analysis

Retrospective analysis plots and percent difference plots between the 2014 and peels of the retrospective analysis are shown in Figure 13. Moderate retrospective bias was evident in the more recent estimates of fully-recruited total F, SSB, and age 8+ abundance of SCA (Figure 13). The retrospective pattern suggests that fishing mortality is likely slightly over-estimated (between 2 and 13% since 2007) and could decrease with the addition of future years of data, while female spawning biomass appears under-estimated and could increase with the addition of future years of data. Similar retrospective trends have been observed in the previous assessments of striped bass using the ADAPT VPA (ASMFC 2005), the 2007 benchmark, 2013 benchmark and supporting ASAP model presented in the 2013 benchmark assessment document.

Comparison of Results from the 2015 Updated Assessment with 2013 Benchmark Assessment

Fully-recruited fishing mortality and female spawning stock biomass estimates from the update and benchmarks assessments are shown in Figure 14. The updated assessment produced slightly lower fully-recruited fishing mortality and higher female spawning stock biomass estimates from 2005-2012 than the 2013 benchmark assessment (Figure 14).

Status of the Stock

In 2014, the Atlantic striped bass stock was not overfished or experiencing overfishing based on the point estimates of fully-recruited fishing mortality and female spawning stock biomass relative to the reference points defined in this assessment. Female spawning stock biomass was estimated at 63,918 metric tons (140 million pounds) which is above the SSB threshold of 57,626 metric tons, but below the SSB target of 72,032 metric tons. Total fishing mortality was estimated at 0.205 which is below the F threshold of 0.219 but above the F target of 0.180 (Figure 14). However, because of error associated with these estimates, there is a probability of 0.16 that the 2014 female SSB estimates is below or equal to the SSB threshold, or conversely, a probability of 0.84 that the 2014 female SSB is above the threshold. There is a probability of 0.29 that the 2014 fully-recruited fishing mortality is

above or equal the fishing mortality threshold, or conversely, a 0.71 chance that the 2014 fully-recruited is below the fishing mortality threshold. If the estimates of SSB and fully-recruited F are adjusted for the average retrospective bias in the last five years (since there was not a consistent pattern in the retrospective bias and the number of years chosen for the correction will affect the level of bias, the committee chose the last five years for recent trends), the probability of the 2014 female SSB estimates being below or equal to the SSB threshold declines to 0.03, while the probability of the 2014 fully-recruited fishing mortality being above or equal the fishing mortality threshold declines to 0.19.

Projections

Three-year projections of female spawning stock biomass were made by using a population simulation model written in R. The model begins in year 2014 with known January-1 values of abundance-at-age from the SCA and projects SSB and fishing mortality in 2015-2017 assuming a constant catch of 3,402,641 fish (estimated 2015 harvest plus average commercial discards during 2010-2014). For 2014, the January-1 abundance-at-age data with associated standard errors from the SCA model, the fully-recruited fishing mortality estimate in 2014 ($F=0.205$), selectivity-at-age in 2014, Rivard weights in 2014, natural mortality, female sex proportions-at-age, and female maturity-at-age are used to calculate female spawning biomass as modeled in the SCA model. For 2015, the January-1 abundance-at-age is calculated from the known values of 2014 abundance-at-age, selectivity and fully-recruited fishing mortality. For the remaining years, the Jan-1 abundance-at-age is projected and is calculated by using the previous year's abundance-at-age, selectivity, fishing mortality and natural mortality following the standard exponential decay model. The fully-recruited fishing mortality in 2015-2017 is estimated by using an iterative approach in which catch-at-age is calculated by using the catch equation given a January-1 abundance-at-age, starting fishing mortality and average selectivity-at-age from 2010-2014. The sum of age-specific catches are then compared to the assumed constant catch for 2015-2017. This procedure is repeated by changing fully-recruited F until the square of the log difference between predicted catch and total catch is minimized. Given the value of fully-recruited F , spawning stock biomass for the current year is then calculated.

For each iteration of the simulation, the abundance-at-age in 2014 is randomly drawn from a normal distribution parameterized with the 2014 estimates of January-1 abundance-at-age and associated standard errors from the stock assessment model. For the remaining years, abundance of age-1 recruits is randomly selected from the 1990-2014 recruitment estimates. An age 13 plus-group is assumed. For years 2015-2017, selectivity-at-age was derived from the geometric mean of the 2010-2014 F -at-ages and dividing the resulting vector by the maximum F -at-age. Female spawning stock biomass was calculated by using average Rivard weight estimates from 2010-2014, sex proportions-at-age, and female maturity-at-age.

For each year of the projection, the probability of SSB being equal to or lower than the SSB reference point was calculated from the 10,000 simulations by using function *p_{gen}* in R package *fishmethods*. The SSB reference point was the 1995 SSB estimate (57,626 metric tons) and the error of the estimates of current SSB and SSB reference point were incorporated in the calculation of probability. Similarly, the probability of current F being greater than or equal to the F reference point ($F=0.22$) was calculated from 10,000 simulations as well. The CV of the F reference point was assumed equal to the value for the 2014 fully-recruited F estimate.

If the constant catch of 3,402,641 fish was maintained during 2015-2017, the probability of being below the SSB threshold increases to 0.49 by 2015 (Figure 15). After 2015, the probability is expected to decline slightly (2017: Pr=0.40). The fully-recruited F is expected to decrease to an average of 0.18 during 2015-2017 and there is little chance that the fully-recruited F would exceed the F threshold in any year (Pr \leq 0.12).

If the numbers-at-age and fully-recruited F in 2014 were adjusted for average (2009-2013) retrospective bias, the probabilities of being below the SSB threshold are sharply reduced (Figure 16). The probability increases from 0.03 in 2014 to 0.12 by 2015 (Figure 16). After 2015, the probability is expected to decline (2017: Pr=0.06). The fully-recruited F is expected to decrease to an average of 0.17 during 2015-2017 and there is little chance that the fully-recruited F would exceed the F threshold in any year (Pr \leq 0.06). However, these results should be treated with caution because the magnitude of the retrospective bias in numbers-at-age and fully-recruited F appears relatively unpredictable (i.e., it is expected that numbers-at-age are underestimated and fully-recruited F is overestimated in the terminal year, but the magnitude cannot be predicted).

In addition, projections were run to estimate the probability of SSB being less than or equal to the SSB target (=72,032 mt), and F being equal to or greater than the F target (=0.18) reference point. If the constant catch of 3,402,641 fish was maintained during 2015-2017, the probability of being below the SSB target reference point increases to 0.98 by 2015 (Figure 17). After 2015, the probability is expected to decline slightly (2017: Pr=0.978). The fully-recruited F is expected to decrease to an average of 0.18 during 2015-2017 and the probability of being above the F target is expected to increase slightly from 0.46 in 2015 to 0.60 in 2017.

If the numbers-at-age and fully-recruited F in 2014 were adjusted for average (2009-2013) retrospective bias, the probabilities of being below the SSB target are reduced (Figure 18). The probability increases from 0.62 in 2014 to 0.88 in 2015 (Figure 18). After 2015, the probability is expected to decline (2017: Pr=0.81). The fully-recruited F is expected to decrease to an average of 0.17 during 2015-2017. The probability of F being below the F target drops to 0.25 in 2015 but increases to 0.42 by 2017. The same caution made in the reference point comparisons above for the retrospective adjustment applies here as well.

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Table 1. Commercial harvest (numbers) by state and year.

Year	ME	NH	MA*	RI	CT	NY	NJ	DE	MD	PRFC	VA	NC	Total
1982			26,183	52,896	207	74,935		12,794	189,089	54,421	14,905	3,200	428,630
1983			9,528	48,173	83	66,334		5,806	147,079	63,171	15,962	1,405	357,541
1984			5,838	8,878	192	70,472		12,832	392,696	372,924	6,507	532	870,871
1985	90		7,601	7,173	350	52,048		1,359		82,550	23,450		174,621
1986			3,797	2,668						10,965	251		17,681
1987			3,284	23						9,884	361		13,552
1988			3,388							19,334	10,588		33,310
1989			7,402										7,402
1990			5,927	784		11,784		698	534	38,884	56,222	803	115,636
1991			9,901	3,596		15,426		3,091	31,880	44,521	44,970	413	153,798
1992			11,532	9,095		20,150		2,703	119,286	23,291	42,912	1,745	230,714
1993			13,099	6,294		11,181		4,273	211,089	24,451	39,059	3,414	312,860
1994			11,066	4,512		15,212		4,886	208,914	25,196	32,382	5,275	307,443
1995			44,965	19,722		43,704		5,565	280,051	29,308	88,274	23,325	534,914
1996			38,354	18,570		39,707		20,660	415,272	46,309	184,495	3,151	766,518
1997			44,841	7,061		37,852		33,223	706,847	87,643	165,583	25,562	1,108,612
1998			43,315	8,835		45,149		31,386	790,154	93,299	204,911	16,040	1,233,089
1999			40,838	11,559		49,795		34,841	650,022	90,575	205,143	21,040	1,103,812
2000			40,256	9,418		54,894		25,188	627,777	91,471	202,227	6,480	1,057,712
2001			40,248	10,917		58,296		34,373	549,896	87,809	148,346	22,936	952,820
2002			48,926	11,653		47,142		30,440	296,635	80,300	127,211	15,784	658,091
2003			61,262	15,497		68,354		31,531	439,482	83,091	161,777	13,823	874,817
2004			66,556	15,867		70,367		28,406	461,064	91,888	147,998	31,014	913,160
2005			65,332	14,949		70,560		26,336	569,964	80,615	119,244	26,573	973,572
2006			75,062	15,429		73,528		30,212	655,951	92,288	109,396	2,799	1,054,664
2007			57,634	13,934		78,287		31,090	598,495	86,695	140,602	16,621	1,023,358
2008			65,330	16,616		73,263		31,866	594,655	81,720	134,603	12,903	1,010,955
2009			63,875	20,725		82,574		21,590	618,076	89,693	138,303	8,675	1,043,512
2010			65,277	17,256		81,896		19,830	584,554	90,258	159,197	12,670	1,030,938
2011			63,309	14,344		87,349		20,517	490,969	96,126	148,063	10,814	931,490
2012			66,394	14,953		66,897		15,738	472,517	90,616	111,891	323	839,329
2013			62,570	13,825		76,206		17,679	399,118	78,006	117,697	0	765,101
2014			60,619	10,468		52,903		14,894	370,661	81,429	175,324	0	766,298

* Includes fish taken for personal consumption

Table 2. Total commercial harvest (numbers) by age and year.

Year	Age													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13+	
1982	0	45,129	200,221	117,158	22,927	5,035	3,328	2,861	1,871	4,407	5,837	7,639	12,217	428,630
1983	0	54,348	120,639	120,999	38,278	7,416	1,954	677	607	1,690	1,314	2,375	7,245	357,541
1984	0	478,268	270,140	55,598	30,580	21,688	6,441	1,744	1,020	771	146	279	4,196	870,871
1985	0	53,699	45,492	7,545	9,448	19,248	21,569	6,581	3,692	1,514	466	607	4,760	174,621
1986	0	639	6,020	3,207	180	703	1,425	1,199	546	182	105	220	3,255	17,681
1987	0	0	3,087	4,265	1,618	252	1,104	1,075	448	233	95	273	1,102	13,552
1988	0	0	2,086	3,961	15,491	6,469	2,803	539	541	218	266	108	828	33,310
1989	0	0	0	0	0	139	1,111	959	1,007	631	475	164	2,916	7,402
1990	0	650	12,551	48,024	29,596	15,122	3,111	2,357	1,147	519	272	130	2,157	115,636
1991	0	2,082	22,430	44,723	41,048	21,614	8,546	4,412	4,816	1,163	269	125	2,570	153,798
1992	0	640	32,277	58,009	46,661	41,581	22,186	11,514	8,746	6,314	1,062	464	1,260	230,714
1993	0	1,848	21,073	93,868	87,447	42,112	32,485	13,829	8,396	6,420	3,955	763	664	312,860
1994	0	1,179	22,873	71,614	101,512	48,269	28,530	14,886	8,902	5,323	2,513	1,250	592	307,443
1995	0	6,726	35,190	114,519	134,709	98,471	38,918	34,191	37,324	21,827	8,364	3,166	1,509	534,914
1996	0	557	50,102	127,825	179,031	161,361	120,693	51,995	29,907	18,864	11,663	9,674	4,847	766,518
1997	0	1,843	37,754	342,867	213,454	206,836	102,034	76,149	54,989	30,373	17,813	13,813	10,686	1,108,612
1998	0	6,124	54,375	267,791	411,067	184,209	94,726	75,915	63,592	31,809	19,948	12,110	11,423	1,233,089
1999	0	7,591	94,342	211,645	264,460	221,773	92,992	66,837	63,357	35,916	20,939	14,180	9,780	1,103,812
2000	0	244	51,876	203,457	284,772	194,336	121,949	72,841	51,768	37,496	19,263	11,391	8,320	1,057,712
2001	0	165	86,190	189,602	241,867	140,555	89,963	95,580	34,026	31,547	22,172	12,853	8,300	952,820
2002	0	184	39,914	133,965	130,689	107,219	68,875	45,032	56,146	28,715	20,386	12,252	14,713	658,091
2003	0	3,932	59,027	156,836	171,626	132,005	96,662	76,612	70,049	59,722	20,916	15,944	11,484	874,817
2004	1,221	18,069	83,780	173,546	123,717	102,815	94,480	97,849	73,246	57,207	43,534	22,876	20,818	913,160
2005	0	145	43,488	239,748	252,020	102,076	57,072	56,939	75,306	50,440	41,629	25,937	28,771	973,572
2006	0	81	90,820	192,639	335,889	150,133	48,304	43,705	46,313	61,550	39,664	23,017	22,550	1,054,664
2007	0	0	4,711	305,597	207,826	190,053	78,099	51,494	64,579	51,397	32,964	20,498	16,141	1,023,358
2008	0	0	12,506	233,419	311,903	125,702	92,605	60,928	42,177	41,351	35,246	29,726	25,394	1,010,955
2009	0	69	19,745	190,560	356,448	191,280	68,995	69,342	41,636	31,813	27,531	18,630	27,461	1,043,512
2010	0	7,178	46,448	219,450	247,340	177,935	133,809	58,962	45,183	30,091	21,540	17,394	25,606	1,030,938
2011	0	788	49,592	127,860	199,887	198,523	118,074	93,069	45,488	42,628	15,586	12,507	27,489	931,490
2012	0	7,574	52,373	100,268	247,767	138,058	93,514	54,667	60,289	25,132	25,512	14,275	19,900	839,329
2013	0	465	56,877	130,722	149,660	148,739	70,319	57,246	50,022	53,178	14,798	12,540	20,534	765,101
2014	0	469	58,072	108,014	194,079	133,322	87,856	49,620	41,178	38,606	26,715	9,220	19,147	766,298

Table 3. Age composition of commercial harvest in 2013 and 2014 by state.

2013														
State	1	2	3	4	5	6	7	8	9	10	11	12	13+	Total
MA	0	0	3	10	167	685	1,676	8,951	18,711	14,960	5,864	3,056	8,486	62,569
RI	0	0	0	0	304	1,148	2,064	2,906	3,889	1,859	345	529	780	13,825
NY	0	0	276	2,209	4,970	16,843	10,492	14,082	10,216	14,358	1,104	1,381	276	76,206
DE	0	0	0	170	1,576	5,048	5,028	3,860	1,352	126	422	73	24	17,679
MD Bay	0	0	52,339	105,400	102,753	85,465	24,523	11,055	5,105	4,122	615	134	0	391,510
MD Cst	0	0	0	0	34	432	412	565	1,072	2,753	628	908	803	7,608
PRFC	0	0	431	6,177	18,819	24,278	18,532	8,188	862	287	0	287	144	78,006
VA Bay	0	465	3,828	16,756	21,036	14,816	7,567	7,487	8,317	12,922	5,059	4,860	6,607	109,719
VA Cst	0	0	0	0	0	25	25	151	497	1,791	761	1,313	3,415	7,978
NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
														765,100

2014														
State	1	2	3	4	5	6	7	8	9	10	11	12	13+	Total
MA	0	0	0	0	142	440	1,670	2,909	9,631	16,262	13,407	5,281	10,877	60,619
RI	0	0	7	15	56	110	349	851	2,349	2,644	1,963	822	1,304	10,468
NY	0	0	126	5,935	9,413	10,571	11,492	7,322	4,348	2,539	896	260	0	52,903
DE	0	0	0	162	1,131	2,601	2,345	3,154	1,365	921	1,305	748	1,162	14,894
MD Bay	0	0	35,270	69,988	114,454	64,571	35,685	20,383	13,796	6,290	1,500	81	163	362,180
MD Cst	0	0	0	0	345	1,073	1,547	1,931	995	651	1,316	116	508	8,481
PRFC	0	0	0	7,834	28,861	27,418	12,369	3,711	825	0	412	0	0	81,430
VA Bay	0	469	22,669	24,080	39,680	26,442	22,046	9,189	6,655	7,024	4,288	870	2,965	166,377
VA Cst	0	0	0	0	0	95	352	171	1,215	2,275	1,629	1,041	2,169	8,946
NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
														766,299

Table 4. Commercial discards (numbers) by age and year. * = updated.

Year	Age													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13+	
1982	0	31,645	3,644	11,456	5,623	1,291	2,397	1,014	369	92	85	0	7	57,624
1983	0	24,067	1,453	2,878	7,761	2,311	610	610	262	174	0	0	0	40,127
1984	0	33,575	1,611	5,812	9,734	11,272	2,815	117	586	66	0	52	0	65,639
1985	0	7,728	30,472	5,939	10,891	3,395	2,742	1,045	261	131	131	0	0	62,734
1986	0	5,841	20,758	100,067	27,989	13,315	4,295	1,415	346	0	0	0	0	174,024
1987	0	4,206	14,382	28,597	51,389	16,940	6,520	1,319	1,011	395	111	86	111	125,066
1988	0	6,142	22,593	36,616	70,959	71,694	23,232	9,116	3,110	1,653	218	195	24	245,552
1989	0	13,854	50,240	49,029	83,396	82,757	33,479	15,502	6,342	705	1,409	1,409	705	338,827
1990	0	14,526	68,713	80,935	111,888	115,702	71,600	36,256	5,948	1,539	1,401	1,503	0	510,011
1991	79	12,632	37,009	64,210	77,335	56,894	36,912	24,857	6,610	4,071	6,542	16	0	327,167
1992	117	3,698	34,218	36,746	44,412	34,688	14,798	11,179	3,398	2,356	991	0	0	186,601
1993	0	7,449	50,160	79,011	95,116	63,487	20,941	15,351	9,270	4,606	1,651	536	260	347,839
1994	0	31,770	47,169	45,081	88,122	84,570	39,229	12,524	6,223	3,674	712	415	30	359,518
1995	0	72,822	75,520	53,551	94,158	121,592	61,447	19,083	7,569	4,269	2,290	2,346	807	515,454
1996	0	27,133	114,085	76,336	61,884	58,787	30,835	14,916	6,148	3,989	159	502	50	394,824
1997	476	7,108	64,352	61,871	30,602	20,951	14,002	6,592	1,963	4,309	2,658	801	1,060	216,745
1998	0	13,233	53,899	98,510	83,288	29,197	12,970	12,591	7,860	4,372	3,891	2,419	3,802	326,032
1999	984	58,076	49,894	43,744	55,740	14,477	5,213	3,704	1,980	1,304	648	612	243	236,619
2000	196	178,457	189,933	157,291	62,699	33,918	26,938	7,831	4,111	3,876	801	863	83	666,997
2001	0	2,638	58,079	77,958	88,808	29,410	18,877	11,613	9,664	6,371	4,778	1,957	747	310,900
2002	1,700	20,888	42,641	21,409	28,791	23,720	12,381	6,854	5,645	2,255	1,522	149	248	168,201
2003	1,512	6,227	28,061	54,464	56,728	19,866	30,850	18,633	16,410	13,572	8,164	3,207	4,281	261,974
2004	2,943	52,811	80,744	76,790	62,580	48,683	52,231	41,378	23,549	9,829	10,381	2,365	1,359	465,642
2005	432	11,513	103,930	245,644	169,860	68,808	54,397	43,911	43,609	23,102	16,147	8,477	8,713	798,544
2006	0	555	25,769	28,836	36,995	27,669	15,055	16,698	12,693	13,187	7,392	4,430	5,245	194,524
2007	284	6,302	18,190	89,608	97,557	139,873	78,655	48,521	42,665	30,644	22,419	19,979	11,902	606,599*
2008	0	109	2,928	45,076	71,474	58,005	44,675	21,699	13,857	13,043	12,619	14,253	10,978	308,715
2009	0	1,661	80,748	166,818	123,878	91,220	30,653	38,426	20,517	16,384	15,706	7,675	18,258	611,944
2010	0	1,379	16,212	76,208	64,148	46,221	19,637	9,510	6,534	4,079	3,116	1,792	6,007	254,841
2011	0	3,880	61,564	109,748	131,320	80,575	54,479	49,187	37,502	30,917	15,468	11,281	31,535	617,457*
2012	0	9,118	50,673	116,560	205,853	136,385	109,776	38,433	41,328	17,081	22,239	17,148	28,267	792,861*
2013	0	4,502	70,746	116,465	100,230	73,842	44,949	32,774	22,008	20,188	7,357	10,847	21,673	525,581
2014	0	21	37,916	108,024	233,435	180,063	148,881	62,830	47,609	50,812	33,159	6,274	22,367	931,391

Table 5. Recreational harvest (numbers) by state and year (includes wave 1 estimated harvest for Virginia).

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1982	929		83,933	1,757	50,081	21,278	58,294	0	984	0	0	217,256
1983	7,212	4,576	39,316	1,990	42,826	43,731	127,912	135	31,746	0	0	299,444
1984	0	0	3,481	1,230	5,678	57,089	13,625	16,571	16,789	0	0	114,463
1985	11,862	0	66,019	670	15,350	23,107	13,145	0	2,965	404	0	133,522
1986	0	0	29,434	3,291	1,760	27,477	36,999	0	14,077	1,585	0	114,623
1987	0	90	10,807	2,399	522	14,191	9,279	0	4,025	2,442	0	43,755
1988	0	647	21,050	5,226	2,672	20,230	12,141	0	133	24,259	367	86,725
1989	738	0	13,044	4,303	5,777	12,388	1,312	0	0	0	0	37,562
1990	2,912	617	20,515	4,677	6,082	24,799	44,878	2,009	736	56,017	0	163,242
1991	3,265	274	20,799	17,193	4,907	54,502	38,300	2,741	77,873	42,224	391	262,469
1992	6,357	2,213	57,084	14,945	9,154	45,162	41,426	2,400	99,354	21,118	967	300,180
1993	612	1,540	58,511	17,826	19,253	78,560	64,935	4,055	104,682	78,481	264	428,719
1994	3,771	3,023	74,538	5,915	16,929	87,225	34,877	4,140	199,378	127,945	7,426	565,167
1995	2,189	3,902	73,806	29,997	38,261	155,821	254,055	15,361	355,237	149,103	11,450	1,089,182
1996	1,893	6,461	68,300	60,074	62,840	225,428	127,952	22,867	337,415	244,746	17,136	1,175,112
1997	35,259	13,546	199,373	62,162	64,639	236,902	67,800	19,706	334,068	518,483	96,189	1,648,127
1998	38,094	5,929	207,952	44,890	64,215	166,868	88,973	18,758	391,824	383,786	45,773	1,457,062
1999	21,102	4,641	126,755	56,320	55,805	195,261	237,010	8,772	263,191	411,873	65,658	1,446,388
2000	62,186	4,262	181,295	95,496	53,191	270,798	402,302	39,543	506,462	389,126	20,452	2,025,113
2001	59,947	15,291	288,032	80,125	54,165	189,714	560,208	41,195	382,557	355,020	58,873	2,085,127
2002	71,907	12,857	308,749	78,190	51,060	202,075	416,455	29,149	282,429	411,248	109,052	1,973,171
2003	57,765	24,878	407,100	115,471	95,983	313,761	391,842	29,522	525,191	455,812	127,727	2,545,052
2004	48,816	8,386	445,745	83,990	102,844	263,096	424,208	25,429	368,682	548,768	230,783	2,550,747
2005	83,617	24,940	340,743	110,490	141,290	376,894	411,532	20,438	533,929	293,161	104,904	2,441,938
2006	75,347	13,521	314,987	75,811	115,214	367,835	509,606	20,159	669,140	547,482	79,023	2,788,125
2007	53,694	6,348	315,409	101,400	118,549	474,062	289,656	8,465	765,169	353,372	37,376	2,523,500
2008	59,152	5,308	377,959	51,191	108,166	685,589	309,411	26,934	415,403	401,155	25,750	2,466,018
2009	62,153	8,587	344,401	71,427	60,876	356,311	283,024	19,539	501,845	326,867	5,650	2,040,680
2010	17,396	5,948	341,045	70,108	92,806	538,374	320,413	16,244	457,898	102,405	23,778	1,986,415
2011	18,105	32,704	255,507	88,635	63,288	674,844	393,194	18,023	445,171	146,603	94,182	2,230,256
2012	11,624	14,498	377,931	61,537	64,573	424,522	168,629	25,399	262,143	134,758	0	1,545,614
2013	23,143	17,657	298,945	218,236	143,373	490,855	345,008	19,520	477,295	118,686	0	2,152,718
2014	20,750	6,415	277,138	103,516	86,763	409,342	225,910	8,774	583,028	67,486	0	1,789,122

Table 6. Recreational harvest (numbers) by age and year (includes wave 1 for Virginia).

Year	Age													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13+	
1982	0	5,721	36,125	81,725	24,916	10,963	16,943	11,960	8,970	5,980	4,983	5,980	2,990	217,257
1983	4,617	25,001	50,976	62,840	95,870	27,371	15,035	3,338	1,799	1,799	2,699	2,699	5,398	299,443
1984	2,021	22,316	24,474	15,610	16,528	15,288	8,034	2,548	0	849	849	0	5,945	114,463
1985	225	3,305	13,315	22,732	36,208	19,572	18,593	9,786	1,957	1,957	0	0	5,872	133,522
1986	11,002	5,426	9,354	12,136	12,339	13,473	12,285	18,427	7,020	4,387	2,632	877	5,265	114,623
1987	1,083	1,370	3,822	2,596	4,838	3,756	3,756	2,817	3,756	1,878	939	1,878	11,267	43,756
1988	1,023	8,195	5,116	5,120	6,135	11,214	10,191	12,225	9,169	3,056	3,056	3,056	9,169	86,725
1989	0	0	3,130	2,087	4,174	6,260	7,304	4,174	2,087	2,087	1,043	0	5,217	37,562
1990	627	7,933	17,317	39,534	22,708	22,980	16,657	15,810	7,680	3,009	1,797	899	6,290	163,242
1991	1,368	21,382	38,339	61,798	27,957	13,322	24,432	26,848	23,268	9,293	4,159	937	9,367	262,470
1992	1,881	15,923	61,295	52,925	54,507	20,325	13,805	23,488	23,613	18,849	3,854	1,943	7,771	300,179
1993	2,209	18,044	53,461	93,539	68,083	49,704	18,614	20,458	36,054	35,685	19,855	4,461	8,552	428,719
1994	2,112	43,976	138,180	95,461	91,957	47,419	29,827	23,833	34,809	29,999	13,650	8,815	5,128	565,167
1995	562	134,922	222,570	183,276	105,211	164,461	64,387	81,839	59,042	34,224	24,276	6,888	7,523	1,089,181
1996	531	129,149	257,038	214,669	109,367	116,156	137,033	80,275	58,041	27,210	18,534	19,437	7,673	1,175,113
1997	1,837	2,837	74,549	240,321	185,350	213,594	217,940	290,961	183,150	120,586	58,005	32,037	26,958	1,648,125
1998	0	20,368	133,541	229,441	168,884	164,613	134,977	153,529	163,905	96,099	87,690	41,837	62,180	1,457,063
1999	0	2,307	39,471	141,735	166,527	282,809	200,750	168,942	155,988	108,584	87,820	42,054	49,400	1,446,388
2000	0	503	37,950	255,084	402,268	367,123	423,409	201,142	120,257	97,670	53,095	28,375	38,237	2,025,112
2001	1,036	559	60,048	169,642	340,240	403,155	379,607	314,763	150,791	92,207	80,417	44,978	47,683	2,085,127
2002	0	1,530	33,823	141,000	266,095	405,275	334,964	249,670	237,566	107,817	86,338	46,611	62,481	1,973,171
2003	0	36,600	76,642	198,625	295,548	362,028	463,663	336,910	275,724	218,321	123,058	72,670	85,263	2,545,052
2004	427	214	94,601	207,895	211,670	268,011	301,427	435,274	331,997	265,634	210,003	103,959	119,632	2,550,745
2005	0	322	40,333	245,135	337,585	282,138	285,659	240,402	308,962	233,801	232,352	100,482	134,766	2,441,938
2006	0	8,326	112,441	209,402	372,824	335,684	245,484	289,948	249,576	341,499	248,790	158,204	215,948	2,788,125
2007	0	73	25,068	333,424	269,399	403,913	267,964	239,743	269,469	267,806	182,806	133,849	129,988	2,523,500
2008	0	246	7,036	74,691	340,359	211,584	473,211	359,388	200,562	243,217	197,085	156,271	202,367	2,466,018
2009	0	970	15,868	103,386	228,968	429,381	221,964	309,080	169,576	122,503	132,590	111,295	195,097	2,040,680
2010	0	8,973	25,576	141,402	156,928	288,769	487,688	201,524	215,001	155,490	81,649	79,440	143,974	1,986,415
2011	0	8,101	33,913	89,551	176,608	330,321	360,990	542,248	186,305	174,692	84,284	63,411	179,831	2,230,256
2012	880	5,750	37,455	51,034	138,448	166,043	230,082	267,495	275,475	91,442	91,694	60,174	129,641	1,545,614
2013	0	24,441	91,051	168,967	140,260	348,574	240,079	233,810	264,731	340,962	81,245	69,275	149,323	2,152,718
2014	0	425	113,852	179,894	226,704	179,158	203,847	129,816	180,710	203,607	147,676	76,302	147,129	1,789,122

Table 7. Age composition of recreational harvest in 2013 and 2104 by state.

2013		Age												
State	1	2	3	4	5	6	7	8	9	10	11	12	13+	Total
ME	0	1,489	5,213	3,704	2,368	3,311	1,818	1,647	1,733	1,123	349	163	226	23,143
NH	0	0	83	158	1,963	5,145	2,858	2,800	2,446	1,525	290	190	199	17,657
MA	0	0	642	6,053	28,774	57,188	38,366	42,629	48,936	37,782	12,445	8,143	17,987	298,945
RI	0	0	0	0	5,699	41,989	79,481	46,533	26,334	9,588	2,859	2,999	2,755	218,236
CT	0	0	17	567	2,802	32,938	10,156	17,329	25,961	41,477	5,568	1,525	5,034	143,373
NY	0	2,442	3,358	2,061	17,382	71,288	20,040	32,098	88,446	109,726	32,095	29,910	82,008	490,855
NJ	0	0	0	0	325	41,819	47,915	59,316	39,678	94,696	18,593	12,862	29,805	345,008
DE	0	0	0	3	229	2,598	3,639	3,007	2,520	2,328	1,598	1,564	2,034	19,520
MD Bay	0	10,924	71,035	133,802	70,036	79,800	25,592	17,160	16,767	26,688	4,180	8,211	4,448	468,642
MD Cst	0	0	0	0	51	699	1,273	1,335	1,765	2,304	196	291	739	8,654
VA Bay	0	9,586	10,703	22,621	10,441	9,189	4,192	4,974	3,557	5,126	2,339	2,334	1,330	86,391
VA Cst	0	0	0	0	190	2,610	4,749	4,982	6,588	8,599	733	1,085	2,759	32,295
NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	24,441	91,051	168,967	140,260	348,575	240,079	233,810	264,731	340,962	81,245	69,275	149,324	2,152,719

2014		Age												
State	1	2	3	4	5	6	7	8	9	10	11	12	13+	Total
ME	0	295	8,306	6,422	2,393	916	1,001	353	388	355	220	49	53	20,750
NH	0	0	0	0	709	1,558	1,915	509	562	541	370	94	158	6,415
MA	0	0	0	1,476	10,319	29,805	57,596	29,644	41,356	44,669	29,955	10,113	22,204	277,138
RI	0	0	40	0	4,379	8,372	13,321	7,731	14,182	18,140	15,006	6,652	15,693	103,516
CT	0	0	692	2,413	6,221	11,718	12,885	11,940	15,667	12,148	7,045	2,835	3,199	86,763
NY	0	0	384	298	16,297	51,836	44,715	41,316	62,254	67,718	52,686	20,248	51,590	409,342
NJ	0	0	0	2,850	6,436	16,468	28,927	22,913	26,725	41,518	11,410	32,638	36,024	225,910
DE	0	0	30	45	155	752	872	1,428	1,423	1,010	633	463	1,963	8,774
MD Bay	0	0	86,682	156,785	170,625	49,576	35,536	10,571	15,585	15,610	27,939	2,575	9,725	581,208
MD Cst	0	0	0	0	0	72	166	178	288	270	499	61	285	1,819
VA Bay	0	130	17,718	9,605	9,169	7,842	6,356	2,634	1,311	720	236	369	5,275	61,366
VA Cst	0	0	0	0	0	244	558	599	968	908	1,678	205	960	6,120
NC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	425	113,852	179,894	226,704	179,159	203,847	129,816	180,710	203,607	147,676	76,302	147,129	1,789,121

Table 8. Recreational releases by state and year.

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1982	687	0	6,441	2,551	643,187	12,297	87,648	0	30,376	0	0	783,187
1983	0	0	34,018	5,444	0	1,469	117,807	0	213,487	11,997	0	384,222
1984	1,887	0	98,405	85,135	31,176	40,469	52,930	0	104,095	8,775	0	422,872
1985	81,153	93	12,360	40,567	26,946	57,540	5,524	702	147,103	2,598	0	374,586
1986	4,379	0	442,298	2,014	10,494	123,842	0	0	390,063	7,528	0	980,618
1987	18,106	435	93,660	63,849	78,434	253,986	56,697	16,988	118,395	7,611	0	708,161
1988	4,528	6,699	209,632	23,347	25,532	92,611	486,306	2,455	132,250	5,631	0	988,991
1989	16,028	4,822	193,067	38,007	125,370	365,712	265,958	4,807	114,269	72,766	0	1,200,806
1990	12,542	15,518	339,511	67,509	89,490	265,099	254,384	14,411	420,084	175,046	0	1,653,594
1991	67,490	6,559	448,735	30,975	301,476	756,663	166,198	38,334	1,036,011	208,350	256	3,061,047
1992	31,177	27,613	779,814	120,410	292,259	799,149	413,506	36,932	749,959	115,899	679	3,367,397
1993	373,064	14,979	833,566	100,993	271,318	694,107	308,253	89,543	1,556,848	100,374	1,524	4,344,569
1994	363,703	43,501	2,102,514	138,989	489,967	1,132,707	568,047	103,992	2,785,392	197,022	5,005	7,930,839
1995	505,758	285,486	3,280,882	356,324	507,124	1,209,585	694,889	115,363	2,401,277	370,949	16,225	9,743,862
1996	1,626,705	292,820	3,269,746	314,336	1,051,612	1,436,091	776,165	99,372	2,545,238	759,916	116,667	12,288,668
1997	1,417,976	279,298	5,417,751	606,746	722,708	1,018,892	736,734	130,073	4,019,987	1,232,323	135,853	15,718,341
1998	691,378	243,301	7,184,358	613,421	1,026,192	884,626	488,319	185,016	2,641,680	796,372	173,704	14,928,367
1999	649,816	145,730	4,576,208	360,121	704,025	1,228,628	1,152,682	105,696	2,387,615	940,755	263,445	12,514,721
2000	942,593	209,606	7,382,031	541,516	926,367	1,373,069	885,289	151,838	3,244,731	1,022,040	129,729	16,808,809
2001	870,522	164,336	5,410,899	377,474	1,107,707	824,278	965,650	162,677	2,890,054	620,947	49,953	13,444,497
2002	1,392,200	238,003	5,718,984	530,402	696,976	588,155	715,099	114,650	2,928,589	706,729	63,269	13,693,056
2003	846,708	260,167	4,361,710	448,707	843,037	1,083,808	925,885	169,012	4,652,800	970,554	48,945	14,611,333
2004	693,400	225,777	4,979,075	525,936	826,724	2,709,246	1,502,694	155,655	3,479,634	1,732,890	222,302	17,053,333
2005	2,985,203	572,633	3,988,679	633,871	1,761,628	1,412,191	1,218,893	251,049	3,855,552	1,295,768	103,432	18,078,899
2006	4,000,309	460,615	7,809,777	834,953	986,700	1,722,386	1,890,294	247,653	3,711,343	1,655,007	24,262	23,343,299
2007	1,115,068	257,372	5,331,470	677,851	984,638	1,677,717	1,789,294	248,689	3,064,928	949,158	13,838	16,110,023
2008	465,003	77,237	3,649,415	416,373	3,104,779	1,346,385	1,309,453	260,677	1,338,728	532,161	10,776	12,510,987
2009	263,512	57,443	2,282,601	398,686	1,161,278	1,073,467	800,510	145,586	1,423,332	358,991	5,407	7,970,813
2010	193,743	51,833	1,671,437	183,112	670,534	1,068,672	690,340	65,048	1,508,647	134,350	20,365	6,258,081
2011	142,505	98,693	973,192	214,302	612,367	1,506,080	884,013	110,085	1,127,511	153,582	110,150	5,932,480
2012	214,185	64,226	989,509	247,075	264,927	586,044	406,096	109,960	2,206,518	101,736	1,615	5,191,891
2013	422,598	84,015	1,691,026	826,280	778,250	989,783	1,107,218	83,494	2,387,276	168,989	1,057	8,539,986
2014	277,209	78,612	1,826,412	163,239	303,836	726,137	1,051,323	185,166	2,415,192	254,795	626	7,282,547

Table 9. Recreational dead releases (numbers) by state and year (using 0.09 release mortality).

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1982	62	0	580	230	57,887	1,107	7,888	0	2,734	0	0	70,487
1983	0	0	3,062	490	0	132	10,603	0	19,214	1,080	0	34,580
1984	170	0	8,856	7,662	2,806	3,642	4,764	0	9,369	790	0	38,058
1985	7,304	8	1,112	3,651	2,425	5,179	497	63	13,239	234	0	33,713
1986	394	0	39,807	181	944	11,146	0	0	35,106	678	0	88,256
1987	1,630	39	8,429	5,746	7,059	22,859	5,103	1,529	10,656	685	0	63,734
1988	408	603	18,867	2,101	2,298	8,335	43,768	221	11,903	507	0	89,009
1989	1,443	434	17,376	3,421	11,283	32,914	23,936	433	10,284	6,549	0	108,073
1990	1,129	1,397	30,556	6,076	8,054	23,859	22,895	1,297	37,808	15,754	0	148,823
1991	6,074	590	40,386	2,788	27,133	68,100	14,958	3,450	93,241	18,752	23	275,494
1992	2,806	2,485	70,183	10,837	26,303	71,923	37,216	3,324	67,496	10,431	61	303,066
1993	33,576	1,348	75,021	9,089	24,419	62,470	27,743	8,059	140,116	9,034	137	391,011
1994	32,733	3,915	189,226	12,509	44,097	101,944	51,124	9,359	250,685	17,732	450	713,776
1995	45,518	25,694	295,279	32,069	45,641	108,863	62,540	10,383	216,115	33,385	1,460	876,948
1996	146,403	26,354	294,277	28,290	94,645	129,248	69,855	8,943	229,071	68,392	10,500	1,105,980
1997	127,618	25,137	487,598	54,607	65,044	91,700	66,306	11,707	361,799	110,909	12,227	1,414,651
1998	62,224	21,897	646,592	55,208	92,357	79,616	43,949	16,651	237,751	71,673	15,633	1,343,553
1999	58,483	13,116	411,859	32,411	63,362	110,577	103,741	9,513	214,885	84,668	23,710	1,126,325
2000	84,833	18,865	664,383	48,736	83,373	123,576	79,676	13,665	292,026	91,984	11,676	1,512,793
2001	78,347	14,790	486,981	33,973	99,694	74,185	86,909	14,641	260,105	55,885	4,496	1,210,005
2002	125,298	21,420	514,709	47,736	62,728	52,934	64,359	10,319	263,573	63,606	5,694	1,232,375
2003	76,204	23,415	392,554	40,384	75,873	97,543	83,330	15,211	418,752	87,350	4,405	1,315,020
2004	62,406	20,320	448,117	47,334	74,405	243,832	135,242	14,009	313,167	155,960	20,007	1,534,800
2005	268,668	51,537	358,981	57,048	158,547	127,097	109,700	22,594	347,000	116,619	9,309	1,627,101
2006	360,028	41,455	702,880	75,146	88,803	155,015	170,126	22,289	334,021	148,951	2,184	2,100,897
2007	100,356	23,163	479,832	61,007	88,617	150,995	161,036	22,382	275,844	85,424	1,245	1,449,902
2008	41,850	6,951	328,447	37,474	279,430	121,175	117,851	23,461	120,486	47,894	970	1,125,989
2009	23,716	5,170	205,434	35,882	104,515	96,612	72,046	13,103	128,100	32,309	487	717,373
2010	17,437	4,665	150,429	16,480	60,348	96,180	62,131	5,854	135,778	12,092	1,833	563,227
2011	12,825	8,882	87,587	19,287	55,113	135,547	79,561	9,908	101,476	13,822	9,913	533,923
2012	19,277	5,780	89,056	22,237	23,843	52,744	36,549	9,896	198,587	9,156	145	467,270
2013	38,034	7,561	152,192	74,365	70,043	89,080	99,650	7,514	214,855	15,209	95	768,599
2014	24,949	7,075	164,377	14,692	27,345	65,352	94,619	16,665	217,367	22,932	56	655,429

Table 10. Recreational dead releases (numbers) by age and year.

2013															
State	Age													Total	
	0	1	2	3	4	5	6	7	8	9	10	11	12		13+
ME	0	0	2,779	8,998	4,407	3,194	5,653	3,261	3,074	3,196	2,095	651	304	422	38,034
NH	0	0	1,160	2,261	1,321	670	865	430	319	294	167	32	21	22	7,561
MA	0	0	37,188	39,760	19,343	9,912	11,147	6,963	7,574	9,754	6,397	1,785	749	1,620	152,192
RI	0	0	20,460	21,504	19,035	5,618	3,621	1,623	792	858	437	139	89	186	74,365
CT	0	326	11,533	27,733	14,979	5,227	6,962	605	603	997	824	167	23	64	70,043
NY	0	907	16,199	38,694	13,559	4,475	5,823	980	1,466	2,745	3,483	344	61	344	89,080
NJ	0	0	6,103	38,483	30,899	8,752	7,353	2,065	1,426	921	2,385	275	305	684	99,650
DE	0	0	2,219	2,716	686	125	560	789	344	32	13	8	10	11	7,514
MD Bay	0	723	68,367	57,664	45,124	13,753	11,104	5,039	3,684	2,687	3,633	574	981	1,034	214,367
MD Cst	0	0	50	91	99	50	87	32	32	16	22	3	1	5	488
VA Bay	0	536	2,851	4,104	4,557	1,153	776	324	203	107	163	26	28	70	14,898
VA Cst	0	0	32	58	63	32	56	20	20	10	14	2	1	3	311
NC	0	0	4	10	13	10	14	8	8	8	10	2	2	4	95
Total	0	2,491	168,947	242,077	154,085	52,972	54,019	22,140	19,545	21,627	19,643	4,009	2,575	4,469	768,599

2014															
State	Age													Total	
	0	1	2	3	4	5	6	7	8	9	10	11	12		13+
ME	0	0	428	11,248	6,411	2,168	1,257	1,444	508	551	495	302	64	72	24,949
NH	0	0	195	3,858	1,774	684	210	164	47	47	45	31	8	13	7,075
MA	0	0	4,040	78,151	37,692	17,257	7,237	7,256	2,771	3,038	3,159	2,124	685	968	164,377
RI	0	0	374	7,614	4,787	832	150	139	82	145	186	154	68	161	14,692
CT	0	148	995	10,740	7,017	3,217	651	440	634	561	730	647	467	1,099	27,345
NY	0	320	3,482	33,544	17,410	5,204	1,062	758	773	600	496	375	409	919	65,352
NJ	0	0	756	17,402	17,156	42,293	9,316	2,394	1,472	1,074	1,021	218	781	736	94,619
DE	0	0	1,943	4,377	2,479	1,695	2,756	2,058	675	328	208	76	24	45	16,665
MD Bay	0	4,809	10,595	153,153	23,820	15,985	2,948	2,015	611	907	693	1,299	118	320	217,275
MD Cst	0	0	0	26	22	23	11	5	5	1	0	0	0	0	93
VA Bay	0	40	7,502	9,267	2,711	1,426	724	304	319	120	139	162	14	36	22,765
VA Cst	0	0	0	46	39	42	20	8	8	1	0	0	0	0	167
NC	0	0	0	7	7	10	7	6	3	4	4	3	1	3	56

Table 11. Age composition of incidental removals.

Year	Bay													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1982	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	63	194	1250	730	289	86	65	42	25	26	19	24	12	2825
2000	39	96	2125	3439	1255	355	195	101	61	40	33	9	8	7756
2001	0	15	337	956	660	120	63	56	50	51	21	10	4	2343
2002	0	9	62	408	508	156	84	36	27	17	7	1	1	1317
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 11 cont.

Year	Age														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13+		
1982	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1999	1	4	271	203	107	136	26	3	0	0	0	0	0	0	752
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	1	29	6	6	15	21	25	10	6	2	0	0	0	121
2005	0	20	5	5	11	13	15	23	19	8	4	1	1	1	125
2006	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2007	0	3	8	11	8	5	0	0	0	0	0	0	0	0	35
2008	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2009	0	0	17	15	0	0	0	0	0	0	0	0	0	0	32
2010	0	0	17	14	1	0	0	0	0	0	0	0	0	0	32
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 12. Total removals and associated coefficients of variation and age proportions of total removals of striped bass split into Chesapeake Bay, Ocean, and Commercial Discard fleets, 1982-2014. Age-0 fish are not included.

Year	Chesapeake Bay		Age Proportions												
	Total	CV	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	262,133	0.857	0.00507	0.12678	0.59014	0.23839	0.03160	0.00498	0.00099	0.00089	0.00012	0.00000	0.00029	0.00047	0.00029
1983	277,824	0.224	0.01104	0.28325	0.36483	0.28873	0.03398	0.00918	0.00351	0.00307	0.00086	0.00028	0.00016	0.00032	0.00078
1984	798,853	0.444	0.00557	0.61276	0.33834	0.03751	0.00495	0.00013	0.00068	0.00005	0.00001	0.00000	0.00000	0.00000	0.00000
1985	122,842	0.447	0.01132	0.52144	0.40241	0.04234	0.01142	0.00471	0.00483	0.00153	0.00000	0.00000	0.00000	0.00000	0.00000
1986	56,504	0.516	0.09360	0.28059	0.46742	0.10997	0.01729	0.00595	0.01951	0.00567	0.00000	0.00000	0.00000	0.00000	0.00000
1987	23,170	0.489	0.05059	0.17128	0.40184	0.24355	0.07494	0.00375	0.02876	0.02530	0.00000	0.00000	0.00000	0.00000	0.00000
1988	42,211	0.887	0.02643	0.20139	0.10296	0.10244	0.36728	0.14152	0.05660	0.00138	0.00000	0.00000	0.00000	0.00000	0.00000
1989	16,791	0.285	0.06463	0.56728	0.15406	0.10122	0.07011	0.02801	0.01070	0.00400	0.00000	0.00000	0.00000	0.00000	0.00000
1990	205,740	0.333	0.01873	0.14393	0.18579	0.32698	0.17722	0.10363	0.02839	0.00924	0.00457	0.00152	0.00000	0.00000	0.00000
1991	352,428	0.171	0.00255	0.15667	0.24267	0.25941	0.15361	0.07895	0.05201	0.02952	0.01372	0.00641	0.00448	0.00000	0.00000
1992	383,546	0.156	0.00530	0.09234	0.22350	0.24898	0.18261	0.12646	0.06779	0.03110	0.01392	0.00612	0.00188	0.00000	0.00000
1993	597,071	0.152	0.00278	0.11137	0.16410	0.27782	0.20806	0.11027	0.06903	0.02844	0.01566	0.00797	0.00363	0.00087	0.00000
1994	859,681	0.158	0.00841	0.08882	0.17138	0.19982	0.23514	0.13061	0.08229	0.04048	0.02364	0.01201	0.00506	0.00235	0.00000
1995	1,133,791	0.132	0.00447	0.14701	0.20492	0.22479	0.16855	0.14799	0.04925	0.03082	0.01229	0.00383	0.00414	0.00097	0.00099
1996	1,465,451	0.137	0.00036	0.09842	0.26089	0.18188	0.16817	0.14229	0.08644	0.03241	0.01535	0.00720	0.00462	0.00121	0.00076
1997	1,998,211	0.117	0.02075	0.04500	0.07404	0.32221	0.18116	0.15894	0.08528	0.05664	0.02819	0.01457	0.00648	0.00427	0.00247
1998	1,934,786	0.099	0.00169	0.03597	0.14993	0.25242	0.27003	0.12710	0.06030	0.03604	0.02901	0.01880	0.00978	0.00517	0.00377
1999	1,726,756	0.107	0.00123	0.01763	0.15538	0.22930	0.22668	0.19522	0.07263	0.03593	0.02879	0.01361	0.01137	0.00630	0.00593
2000	2,019,358	0.092	0.01360	0.05297	0.06707	0.24036	0.27401	0.16615	0.09269	0.04241	0.01809	0.01515	0.00751	0.00515	0.00486
2001	1,695,685	0.089	0.02650	0.05998	0.11749	0.19551	0.23594	0.13129	0.08764	0.06882	0.02137	0.01887	0.01455	0.01317	0.00888
2002	1,311,055	0.096	0.01116	0.10412	0.10416	0.19271	0.18460	0.15229	0.10087	0.04483	0.05433	0.01364	0.01389	0.00794	0.01547
2003	2,052,319	0.075	0.00000	0.10428	0.13637	0.17148	0.14837	0.12365	0.09679	0.06315	0.05577	0.05495	0.01998	0.01202	0.01319
2004	1,825,612	0.076	0.03768	0.04394	0.20312	0.20733	0.11058	0.09403	0.08510	0.06536	0.04986	0.03511	0.03521	0.01488	0.01780
2005	1,963,065	0.088	0.00404	0.12303	0.06758	0.24029	0.21357	0.08748	0.05656	0.03891	0.05310	0.03768	0.03703	0.02214	0.01857
2006	2,329,278	0.072	0.01351	0.05082	0.17163	0.17673	0.24904	0.11652	0.04082	0.03479	0.03336	0.04266	0.02650	0.01715	0.02646
2007	2,134,342	0.100	0.00347	0.03161	0.03894	0.34255	0.18042	0.15994	0.05946	0.03628	0.03861	0.03262	0.03410	0.01809	0.02391
2008	1,548,345	0.081	0.01419	0.01321	0.04745	0.17432	0.34241	0.09064	0.09039	0.05106	0.02367	0.03694	0.03197	0.04284	0.04091
2009	1,702,422	0.082	0.00349	0.03330	0.04027	0.22943	0.25108	0.19254	0.03551	0.05209	0.04212	0.02027	0.02750	0.02219	0.05020
2010	1,482,203	0.111	0.00349	0.00724	0.13179	0.16251	0.23568	0.19246	0.14358	0.03569	0.03282	0.01731	0.00698	0.00878	0.02166
2011	1,378,058	0.088	0.01078	0.02751	0.04607	0.28452	0.15229	0.17340	0.12382	0.08052	0.02371	0.02888	0.01392	0.00895	0.02563
2012	1,198,075	0.108	0.05011	0.05544	0.10794	0.11923	0.25603	0.14501	0.08838	0.03531	0.05086	0.01895	0.02779	0.00991	0.03504
2013	1,363,533	0.081	0.00092	0.06761	0.14675	0.24527	0.17454	0.16533	0.06290	0.03869	0.02743	0.03883	0.00938	0.01235	0.01000
2014	1,492,601	0.112	0.00325	0.01253	0.21758	0.19752	0.25472	0.12027	0.07659	0.03177	0.02626	0.02042	0.02401	0.00270	0.01238

Table 12 cont.

Year	Ocean		Age Proportions												
	Total	CV	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	454,241	0.366	0.00192	0.09698	0.22097	0.32694	0.09921	0.03720	0.04890	0.03454	0.02380	0.02287	0.02365	0.02971	0.03331
1983	413,741	0.699	0.00653	0.04616	0.19767	0.25603	0.30420	0.07791	0.03870	0.00765	0.00524	0.00825	0.00959	0.01205	0.03003
1984	224,539	0.450	0.00973	0.11611	0.15973	0.20421	0.19731	0.16935	0.06206	0.01893	0.00451	0.00722	0.00443	0.00124	0.04517
1985	219,014	0.679	0.00017	0.01728	0.11977	0.13099	0.20756	0.17460	0.18067	0.07387	0.02579	0.01585	0.00213	0.00277	0.04854
1986	164,055	0.324	0.04844	0.02205	0.15063	0.18503	0.12483	0.10479	0.08366	0.13130	0.04612	0.02785	0.01669	0.00669	0.05193
1987	97,873	0.265	0.01071	0.03159	0.17315	0.19850	0.15288	0.08658	0.06610	0.04540	0.05458	0.02157	0.01056	0.02198	0.12638
1988	166,833	0.326	0.00637	0.10903	0.12105	0.13938	0.13371	0.12561	0.09128	0.09001	0.06513	0.01963	0.01991	0.01897	0.05992
1989	136,245	0.276	0.00021	0.11817	0.22478	0.13368	0.16919	0.10076	0.08498	0.04536	0.03088	0.01995	0.01114	0.00120	0.05969
1990	221,962	0.126	0.00071	0.08812	0.14014	0.20822	0.11709	0.12640	0.10339	0.09868	0.04569	0.01956	0.00932	0.00463	0.03806
1991	339,335	0.144	0.00138	0.07349	0.13753	0.21154	0.10729	0.05437	0.10331	0.11826	0.10193	0.03752	0.01508	0.00313	0.03518
1992	450,413	0.106	0.00216	0.03819	0.25005	0.17186	0.16916	0.06228	0.04469	0.08125	0.08000	0.06316	0.01181	0.00534	0.02005
1993	535,519	0.119	0.00479	0.03264	0.12837	0.21235	0.16552	0.12198	0.04575	0.04911	0.08234	0.08233	0.04671	0.01088	0.01721
1994	726,704	0.074	0.00071	0.08875	0.30239	0.15930	0.15848	0.06702	0.03408	0.03328	0.05852	0.05144	0.02245	0.01571	0.00787
1995	1,367,251	0.099	0.00003	0.18718	0.15586	0.13456	0.08978	0.13697	0.05718	0.08427	0.07277	0.04281	0.02543	0.00738	0.00578
1996	1,582,160	0.067	0.00033	0.03773	0.20362	0.19814	0.14332	0.11791	0.12558	0.06498	0.04515	0.02287	0.01586	0.01732	0.00721
1997	2,173,177	0.055	0.00106	0.07183	0.09794	0.14617	0.10018	0.09920	0.10283	0.14866	0.09919	0.06575	0.03218	0.01912	0.01587
1998	2,098,919	0.064	0.00589	0.05958	0.10075	0.14372	0.15136	0.11133	0.08738	0.09777	0.09259	0.04866	0.04597	0.02207	0.03292
1999	1,953,346	0.062	0.00039	0.00743	0.07537	0.10786	0.11237	0.19360	0.12586	0.10795	0.09818	0.06923	0.05035	0.02498	0.02644
2000	2,584,015	0.064	0.00356	0.02137	0.04529	0.15533	0.15168	0.16933	0.19966	0.09557	0.05935	0.04518	0.02493	0.01290	0.01586
2001	2,554,609	0.045	0.00170	0.01553	0.04076	0.07805	0.16409	0.18713	0.17640	0.15741	0.07048	0.03981	0.03448	0.01607	0.01810
2002	2,553,899	0.052	0.00317	0.03562	0.05083	0.07920	0.11422	0.20629	0.14982	0.12079	0.10372	0.05129	0.03890	0.02117	0.02498
2003	2,682,570	0.047	0.00035	0.04553	0.07122	0.06428	0.11528	0.12142	0.17520	0.13276	0.10143	0.07438	0.04304	0.02630	0.02881
2004	3,173,119	0.063	0.00127	0.01806	0.12858	0.09754	0.08148	0.09566	0.09711	0.15098	0.10876	0.08659	0.06406	0.03374	0.03617
2005	3,079,601	0.055	0.00434	0.08402	0.06446	0.13414	0.12610	0.09345	0.09115	0.08397	0.10216	0.07424	0.06973	0.02901	0.04321
2006	3,614,394	0.051	0.00081	0.02834	0.20945	0.06263	0.12243	0.10721	0.06851	0.08024	0.06795	0.09247	0.06733	0.04167	0.05098
2007	2,862,392	0.052	0.00062	0.03268	0.09830	0.12323	0.09599	0.13814	0.09448	0.08547	0.09679	0.09560	0.05763	0.04446	0.03661
2008	3,054,618	0.059	0.00321	0.01403	0.05737	0.06605	0.15785	0.09098	0.16941	0.12409	0.07045	0.08173	0.06487	0.04276	0.05720
2009	2,099,071	0.055	0.00088	0.03088	0.02788	0.05193	0.07758	0.24108	0.10273	0.15564	0.08113	0.05836	0.05782	0.04468	0.06941
2010	2,098,391	0.058	0.00022	0.01035	0.04893	0.02783	0.05848	0.13228	0.26271	0.10345	0.11146	0.08251	0.04706	0.04250	0.07222
2011	2,317,689	0.054	0.00390	0.01838	0.03177	0.05015	0.03966	0.13735	0.15787	0.24812	0.08807	0.08143	0.03775	0.02870	0.07686
2012	1,654,349	0.074	0.00144	0.03236	0.03716	0.03177	0.07348	0.09537	0.14922	0.18255	0.17587	0.05969	0.05344	0.03946	0.06820
2013	2,322,884	0.083	0.00053	0.04376	0.08175	0.05137	0.04516	0.14030	0.10623	0.11100	0.12871	0.15534	0.03757	0.02908	0.06918
2014	1,718,249	0.072	0.00027	0.00728	0.10278	0.06659	0.07649	0.09272	0.11313	0.08143	0.11062	0.12741	0.08378	0.04897	0.08856

Table 12 cont.

Year	Commercial Discards			Age Proportions											
	Total	CV		1	2	3	4	5	6	7	8	9	10	11	12
1982	57,624	0.350	0.00000	0.54917	0.06325	0.19881	0.09759	0.02240	0.04160	0.01760	0.00640	0.00160	0.00148	0.00000	0.00012
1983	40,127	0.350	0.00000	0.59977	0.03620	0.07172	0.19342	0.05759	0.01521	0.01521	0.00652	0.00435	0.00000	0.00000	0.00000
1984	65,639	0.350	0.00000	0.51151	0.02455	0.08854	0.14829	0.17173	0.04288	0.00179	0.00893	0.00100	0.00000	0.00079	0.00000
1985	62,734	0.350	0.00000	0.12319	0.48574	0.09467	0.17361	0.05411	0.04371	0.01665	0.00416	0.00208	0.00208	0.00000	0.00000
1986	174,024	0.350	0.00000	0.03356	0.11928	0.57502	0.16084	0.07651	0.02468	0.00813	0.00199	0.00000	0.00000	0.00000	0.00000
1987	125,066	0.350	0.00000	0.03363	0.11499	0.22866	0.41089	0.13545	0.05213	0.01055	0.00808	0.00315	0.00089	0.00069	0.00089
1988	245,552	0.350	0.00000	0.02501	0.09201	0.14912	0.28898	0.29197	0.09461	0.03713	0.01267	0.00673	0.00089	0.00079	0.00010
1989	338,827	0.350	0.00000	0.04089	0.14828	0.14470	0.24613	0.24425	0.09881	0.04575	0.01872	0.00208	0.00416	0.00416	0.00208
1990	510,011	0.350	0.00000	0.02848	0.13473	0.15869	0.21938	0.22686	0.14039	0.07109	0.01166	0.00302	0.00275	0.00295	0.00000
1991	327,167	0.350	0.00024	0.03861	0.11312	0.19626	0.23638	0.17390	0.11282	0.07598	0.02020	0.01244	0.02000	0.00005	0.00000
1992	186,601	0.350	0.00063	0.01982	0.18337	0.19692	0.23801	0.18589	0.07930	0.05991	0.01821	0.01263	0.00531	0.00000	0.00000
1993	347,839	0.350	0.00000	0.02142	0.14421	0.22715	0.27345	0.18252	0.06020	0.04413	0.02665	0.01324	0.00475	0.00154	0.00075
1994	359,518	0.350	0.00000	0.08837	0.13120	0.12539	0.24511	0.23523	0.10911	0.03484	0.01731	0.01022	0.00198	0.00115	0.00008
1995	515,454	0.350	0.00000	0.14128	0.14651	0.10389	0.18267	0.23589	0.11921	0.03702	0.01468	0.00828	0.00444	0.00455	0.00156
1996	394,824	0.350	0.00000	0.06872	0.28895	0.19334	0.15674	0.14889	0.07810	0.03778	0.01557	0.01010	0.00040	0.00127	0.00013
1997	216,745	0.350	0.00220	0.03279	0.29690	0.28546	0.14119	0.09666	0.06460	0.03041	0.00906	0.01988	0.01226	0.00370	0.00489
1998	326,032	0.350	0.00000	0.04059	0.16532	0.30215	0.25546	0.08955	0.03978	0.03862	0.02411	0.01341	0.01193	0.00742	0.01166
1999	236,619	0.350	0.00416	0.24544	0.21086	0.18487	0.23557	0.06118	0.02203	0.01565	0.00837	0.00551	0.00274	0.00259	0.00103
2000	666,997	0.350	0.00029	0.26755	0.28476	0.23582	0.09400	0.05085	0.04039	0.01174	0.00616	0.00581	0.00120	0.00129	0.00012
2001	310,900	0.350	0.00000	0.00849	0.18681	0.25075	0.28565	0.09460	0.06072	0.03735	0.03108	0.02049	0.01537	0.00629	0.00240
2002	168,201	0.350	0.01011	0.12418	0.25351	0.12728	0.17117	0.14102	0.07361	0.04075	0.03356	0.01340	0.00905	0.00089	0.00148
2003	261,974	0.350	0.00577	0.02377	0.10711	0.20790	0.21654	0.07583	0.11776	0.07112	0.06264	0.05181	0.03116	0.01224	0.01634
2004	465,642	0.350	0.00632	0.11341	0.17340	0.16491	0.13439	0.10455	0.11217	0.08886	0.05057	0.02111	0.02229	0.00508	0.00292
2005	798,544	0.350	0.00054	0.01442	0.13015	0.30761	0.21271	0.08617	0.06812	0.05499	0.05461	0.02893	0.02022	0.01062	0.01091
2006	194,524	0.350	0.00000	0.00285	0.13247	0.14824	0.19018	0.14224	0.07739	0.08584	0.06525	0.06779	0.03800	0.02277	0.02696
2007	606,599	0.350	0.00047	0.01039	0.02999	0.14772	0.16083	0.23059	0.12967	0.07999	0.07034	0.05052	0.03696	0.03294	0.01962
2008	308,715	0.350	0.00000	0.00035	0.00948	0.14601	0.23152	0.18789	0.14471	0.07029	0.04489	0.04225	0.04088	0.04617	0.03556
2009	611,944	0.350	0.00000	0.00271	0.13195	0.27260	0.20243	0.14907	0.05009	0.06279	0.03353	0.02677	0.02567	0.01254	0.02984
2010	254,841	0.350	0.00000	0.00541	0.06361	0.29904	0.25172	0.18137	0.07706	0.03732	0.02564	0.01601	0.01223	0.00703	0.02357
2011	617,457	0.350	0.00000	0.00628	0.09971	0.17774	0.21268	0.13049	0.08823	0.07966	0.06074	0.05007	0.02505	0.01827	0.05107
2012	792,861	0.350	0.00000	0.01150	0.06391	0.14701	0.25963	0.17202	0.13846	0.04847	0.05212	0.02154	0.02805	0.02163	0.03565
2013	525,581	0.350	0.00000	0.00857	0.13460	0.22159	0.19070	0.14050	0.08552	0.06236	0.04187	0.03841	0.01400	0.02064	0.04124
2014	931,391	0.350	0.00000	0.00002	0.04071	0.11598	0.25063	0.19333	0.15985	0.06746	0.05112	0.05456	0.03560	0.00674	0.02402

Table 13. Catch weights-at age (kilograms).

Year	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	0.13	0.64	1.09	1.54	2.42	3.75	4.83	5.79	6.20	8.68	10.80	11.20	14.05
1983	0.20	0.55	0.94	1.37	2.37	3.29	3.77	5.36	6.01	8.10	9.57	10.39	11.11
1984	0.24	0.60	1.69	1.62	2.67	3.39	5.07	5.65	6.76	7.76	8.41	12.65	12.38
1985	0.06	0.61	1.07	1.66	2.19	3.59	4.91	5.46	6.77	7.45	9.00	10.69	13.91
1986	0.14	0.57	1.27	2.40	2.44	3.12	3.95	5.05	5.44	6.09	7.75	9.16	12.78
1987	0.20	0.77	1.41	2.11	2.50	2.91	3.61	4.74	5.52	6.49	7.77	9.78	13.15
1988	0.31	0.91	1.10	1.98	3.12	4.02	4.38	4.70	5.24	5.62	8.58	10.40	13.27
1989	0.16	0.83	1.22	2.23	3.06	4.53	5.37	6.23	6.04	8.68	8.94	9.74	13.36
1990	0.08	0.89	1.14	2.05	2.35	3.83	4.91	5.96	5.70	5.97	7.44	9.08	12.60
1991	0.21	0.92	1.29	2.17	2.62	3.17	4.81	5.64	6.46	6.24	9.46	8.30	14.22
1992	0.10	0.69	1.31	1.93	2.81	3.67	4.90	5.79	6.96	8.15	9.77	12.44	13.97
1993	0.07	0.76	1.31	1.99	2.77	3.58	4.80	6.11	7.03	8.01	9.53	10.76	14.55
1994	0.24	1.05	1.69	2.21	2.85	3.50	4.94	6.20	6.80	7.53	9.73	10.69	12.73
1995	0.28	0.70	1.35	2.18	2.77	3.65	5.38	6.16	7.27	8.86	7.57	9.73	16.66
1996	0.14	1.05	1.47	2.32	3.23	4.52	6.39	7.11	7.81	9.20	9.31	10.10	13.70
1997	0.13	0.62	1.18	2.46	2.81	3.64	4.51	5.07	6.73	9.17	9.94	10.24	14.78
1998	0.39	0.77	1.20	1.62	2.25	2.95	4.69	5.66	6.82	7.03	7.76	9.87	11.87
1999	0.62	0.90	1.11	1.44	1.91	2.51	3.36	5.03	6.56	7.85	8.69	9.76	11.98
2000	0.37	0.55	1.10	1.45	1.96	2.79	3.89	5.09	7.11	7.37	9.70	10.70	13.55
2001	0.16	0.38	1.12	1.75	2.21	3.25	4.12	5.02	6.36	7.79	8.65	8.29	10.87
2002	0.12	0.31	1.06	1.51	2.18	3.17	4.19	5.48	6.03	7.56	9.09	9.75	11.52
2003	0.10	0.60	1.00	1.40	2.20	3.20	4.10	5.20	6.10	7.20	8.50	9.40	11.00
2004	0.23	0.33	0.84	1.40	2.43	3.11	4.14	5.17	6.07	7.12	8.18	9.03	10.71
2005	0.13	0.50	1.14	1.64	2.22	3.23	4.18	5.64	6.38	7.21	8.51	10.00	12.19
2006	0.18	0.38	0.81	1.35	1.96	2.80	3.84	5.35	6.70	7.41	8.58	9.40	12.05
2007	0.10	0.46	0.94	1.30	2.10	3.07	4.31	5.32	6.89	7.84	9.39	10.12	12.77
2008	0.21	0.45	1.04	1.43	2.14	3.47	5.05	5.51	6.69	8.26	9.19	9.82	12.00
2009	0.26	0.62	1.03	1.41	1.92	3.29	4.49	5.74	6.87	7.73	8.81	9.47	12.24
2010	0.16	0.70	1.11	1.41	1.99	3.34	4.27	5.21	6.27	7.65	8.97	9.15	11.59
2011	0.20	0.52	1.04	1.55	2.00	3.08	4.10	5.13	6.41	7.54	8.20	9.98	13.08
2012	0.08	0.48	1.01	1.67	2.30	3.25	4.44	5.88	6.57	8.31	9.05	10.41	13.84
2013	0.19	0.49	0.96	1.39	2.27	3.38	4.14	5.30	6.69	7.55	9.26	10.44	13.14
2014	0.49	0.55	0.89	1.27	2.15	3.07	4.28	5.30	6.99	8.43	9.17	11.91	14.29

Table 14. Description and characteristics of fishery-independent and –dependent indices.

State	Index	Design	Time of Year	What Stock?	Ages
Marine Recreational Fisheries Survey	Total Catch Rate Index	Stratified Random	May-Dec	Mixed	Aggregate (3-13+)
Connecticut Trawl Survey	Mean number per tow	Stratified Random	April-June	Mixed	Aggregate (4-6)
NEFSC Trawl Survey	Mean number per tow	Stratified Random	March-May	Mixed	Aggregate (2-9)
New Jersey Trawl Survey	Mean number per tow	Stratified Random	April	Mixed	2-13+
New York Ocean Haul Seine Survey	Mean number per haul	Random	Sept-Nov	Mixed	2-13+
Delaware Electrofishing Survey	Mean number per hour	Lattice	April-May	Delaware	2-13+
New York YOY Seine Survey	Mean number per haul	Fixed	July-Nov	Hudson	0
New York W. Long Island Seine Survey	Mean number per haul	Fixed	May-Oct	Hudson	1
New Jersey YOY Seine Survey	Mean number per haul	Fixed/Random	Aug-Oct	Delaware	0
Virginia YOY Seine Survey	Mean number per haul	Fixed	July-Sept	Chesapeake	0
Maryland YOY and Age 1 Seine Survey	Mean number per haul	Fixed	July-Sept	Chesapeake	0-1
Maryland Gillnet Survey	Mean number per set	Stratified Random	April-May	Chesapeake	2-13+
Virginia Pound Net Survey	Mean number per set	Fixed	March-May	Chesapeake	1-13+

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Table 15. Index and coefficients of variation for fishery-independent and –dependent indices.

Year	Aggregate						Age-specific									
	MRIP		NEFSC		CTTRL		NYOHS		NJTRL		MD SSN		DE SSN		VAPNET	
	Index	CV	Index	CV	Index	CV	Index	CV	Index	CV	Index	CV	Index	CV	Index	CV
1982																
1983																
1984					0.02	1.00										
1985					0.01	1.00					4.88	0.25				
1986					0.01	1.00					10.07	0.25				
1987					0.05	0.40	3.83	0.11			7.15	0.25				
1988	0.40	0.79			0.04	0.50	3.60	0.10			3.27	0.25				
1989	0.29	0.85			0.06	0.33	2.58	0.13	0.23	0.61	3.96	0.25				
1990	0.25	0.77			0.16	0.27	3.50	0.18	1.13	0.60	5.04	0.25				
1991	0.31	0.38	0.23	0.17	0.15	0.21	3.28	0.19	1.41	0.67	4.61	0.25			18.75	0.25
1992	0.89	0.24	0.24	0.34	0.22	0.25	3.00	0.19	0.65	0.70	6.29	0.25			8.45	0.25
1993	0.67	0.21	0.48	0.21	0.27	0.16	3.32	0.11	0.67	0.53	6.25	0.25			21.72	0.25
1994	1.06	0.16	1.39	0.22	0.30	0.19	2.90	0.15	1.47	0.40	5.13	0.25			13.87	0.25
1995	1.32	0.14	0.95	0.20	0.60	0.13	2.84	0.18	4.21	0.14	4.62	0.25			14.52	0.25
1996	1.64	0.12	0.60	0.20	0.63	0.14	5.11	0.10	5.66	0.20	7.59	0.25	3.38	0.10	12.30	0.25
1997	1.59	0.13	1.18	0.13	0.85	0.13	4.84	0.14	5.82	0.21	3.87	0.25	4.10	0.09	20.10	0.25
1998	2.04	0.10	0.73	0.15	0.97	0.13	5.01	0.15	5.01	0.10	4.79	0.25	3.73	0.12	14.85	0.25
1999	2.01	0.11	0.45	0.23	1.10	0.12	3.46	0.16	3.51	0.12	3.97	0.25	2.59	0.12	29.89	0.25
2000	1.77	0.12	1.27	0.19	0.84	0.14	4.36	0.11	5.31	0.13	3.52	0.25	2.05	0.16	39.70	0.25
2001	1.43	0.12	0.62	0.26	0.61	0.15	3.47	0.15	1.58	0.36	2.83	0.25	1.88	0.18	18.63	0.25
2002	1.24	0.14	0.98	0.14	1.30	0.10	3.23	0.20	2.13	0.17	4.00	0.25	1.60	0.15	5.23	0.25
2003	1.06	0.15	0.77	0.24	0.87	0.09	4.24	0.19	6.83	0.10	4.55	0.25	2.47	0.12	15.65	0.25
2004	1.17	0.14	0.33	0.25	0.56	0.09	4.88	0.09	6.05	0.15	6.11	0.25	2.89	0.12	31.64	0.25
2005	1.52	0.14	0.29	0.20	1.17	0.10	3.91	0.14	6.41	0.12	4.96	0.25	1.77	0.14	18.14	0.25
2006	1.61	0.13	0.63	0.29	0.61	0.09	4.37	0.14	2.61	0.28	4.92	0.25	2.22	0.18	22.14	0.25
2007	0.93	0.15	0.74	0.13	1.02	0.10			3.50	0.32	2.14	0.25	1.78	0.33	31.52	0.25
2008	0.81	0.15	0.65	0.17	0.57	0.09			1.38	0.33	4.37	0.25	1.72	0.12	18.32	0.25
2009	0.80	0.15			0.60	0.10			2.24	0.34	5.70	0.25	1.25	0.17	22.96	0.25
2010	0.76	0.15			0.40	0.21			0.73	0.53	4.53	0.25	2.69	0.21	34.89	0.25
2011	0.68	0.15			0.48	0.21			2.07	0.28	4.58	0.25	3.25	0.20	8.96	0.25
2012	1.10	0.15			0.43	0.17			3.48	0.20	2.64	0.25	1.94	0.19	17.48	0.25
2013	1.73	0.15			0.67	0.09			2.51	0.54	4.41	0.25	2.10	0.07	10.60	0.25
2014	1.16	0.15			0.41	0.08			0.31	1.00	5.57	0.25			13.01	0.25

Table 16. Young-of-the-year and age-1 fishery-independent indices of relative abundance.

Year	Unlagged											
	YOY								Age 1			
	NY		NJ		MD		VA		NY		MD	
Index	CV	Index	CV	Index	CV	Index	CV	Index	CV	Index	CV	
1969					2.81	0.34					0.25	0.50
1970					12.52	0.26					0.13	0.50
1971					4.02	0.28					1.36	0.38
1972					3.26	0.30					0.46	0.42
1973					2.32	0.34					0.46	0.34
1974					2.63	0.32					0.26	0.38
1975					2.81	0.28					0.22	0.46
1976					1.58	0.30					0.13	0.70
1977					1.60	0.30					0.06	0.76
1978					3.75	0.26					0.18	0.46
1979	3.54	0.30			1.78	0.28					0.29	0.46
1980	10.01	0.24			1.02	0.28					0.18	0.44
1981	14.57	0.22			0.59	0.32					0.02	1.02
1982	23.30	0.19	0.10	1.22	3.57	0.27	2.71	0.50			0.02	1.16
1983	26.72	0.23	0.07	1.48	0.61	0.33	3.40	0.40			0.32	0.40
1984	24.67	0.20	0.37	0.71	1.64	0.28	4.47	0.46			0.01	2.00
1985	2.20	0.54	0.03	2.05	0.91	0.36	2.41	0.41	0.61	1.20	0.16	0.50
1986	4.65	0.49	0.32	0.55	1.34	0.32	4.74	0.37	0.30	1.00	0.03	0.94
1987	28.36	0.57	0.53	0.47	1.46	0.33	15.74	0.34	0.21	1.11	0.06	0.92
1988	49.28	0.37	0.35	0.41	0.73	0.39	7.64	0.32	0.81	0.90	0.07	0.58
1989	35.37	0.44	1.07	0.36	4.87	0.34	11.23	0.29	1.78	0.70	0.19	0.48
1990	35.53	0.46	1.05	0.32	1.03	0.29	7.34	0.31	0.37	0.84	0.33	0.42
1991	6.00	0.52	0.47	0.26	1.52	0.32	3.76	0.33	1.26	0.67	0.20	0.44
1992	16.93	0.37	1.18	0.23	2.34	0.32	7.35	0.36	1.34	0.66	0.15	0.52
1993	21.99	0.48	1.78	0.24	13.97	0.25	18.11	0.23	0.75	0.70	0.19	0.50
1994	23.61	0.38	0.96	0.24	6.40	0.27	10.48	0.27	1.43	0.76	0.78	0.36
1995	19.03	0.35	1.98	0.25	4.41	0.24	5.45	0.32	1.29	0.68	0.12	0.56
1996	12.12	0.40	1.70	0.23	17.61	0.25	23.00	0.29	1.54	0.75	0.08	0.78
1997	27.11	0.49	1.01	0.24	3.91	0.25	9.35	0.30	1.00	0.84	0.26	0.46
1998	16.10	0.43	1.31	0.26	5.50	0.25	13.25	0.29	2.10	0.79	0.17	0.50
1999	30.67	0.39	1.90	0.23	5.34	0.30	2.80	0.34	2.05	0.59	0.37	0.36
2000	6.88	0.54	1.78	0.26	7.42	0.23	16.18	0.31	1.56	0.74	0.26	0.40
2001	28.90	0.54	1.20	0.23	12.57	0.28	14.17	0.32	2.16	0.60	0.32	0.36
2002	14.72	0.37	0.53	0.29	2.20	0.27	3.98	0.37	2.53	0.53	0.79	0.32
2003	29.78	0.50	2.47	0.24	10.83	0.26	22.89	0.28	1.19	0.53	0.07	0.66
2004	8.73	0.38	1.13	0.26	4.85	0.25	12.70	0.27	2.41	0.53	0.74	0.36
2005	11.28	0.54	1.22	0.22	6.91	0.25	9.09	0.28	0.64	0.89	0.28	0.44
2006	5.83	0.44	0.67	0.25	1.78	0.29	10.10	0.28	2.02	0.62	0.28	0.42
2007	42.65	0.42	1.41	0.21	5.12	0.27	11.96	0.30	0.58	0.80	0.07	0.60
2008	19.04	0.39	1.26	0.24	1.26	0.31	7.97	0.33	1.24	0.65	0.31	0.40
2009	13.92	0.47	1.92	0.24	3.92	0.23	8.42	0.30	0.33	0.79	0.12	0.54
2010	25.62	0.46	1.30	0.21	2.54	0.25	9.07	0.35	0.45	0.76	0.17	0.45
2011	12.16	0.53	1.41	0.26	9.57	0.24	27.09	0.26	2.00	0.66	0.02	1.02
2012	9.85	0.49	0.34	0.24	0.49	0.32	2.68	0.29	0.90	0.60	0.35	0.34
2013	5.07	0.41	0.90	0.13	3.42	0.21	10.94	0.29	0.56	0.68	0.05	0.74
2014	24.60	0.38	1.65	0.08	4.06	0.29	11.30	0.29	0.82	0.61	0.12	0.57

Table 17. Age composition of age-specific survey indices.

NYOHS

Year	Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1987		0.0318	0.1949	0.3591	0.2787	0.0883	0.0349	0.0067	0.0017	0.0000	0.0006	0.0000	0.0028
1988		0.2255	0.2687	0.1945	0.1660	0.0851	0.0218	0.0144	0.0039	0.0021	0.0007	0.0000	0.0137
1989		0.1833	0.2690	0.1478	0.1596	0.1025	0.0936	0.0217	0.0030	0.0020	0.0030	0.0020	0.0108
1990		0.0608	0.2957	0.3063	0.1139	0.0985	0.0557	0.0444	0.0158	0.0058	0.0010	0.0000	0.0023
1991		0.2070	0.3666	0.2439	0.0519	0.0166	0.0253	0.0416	0.0230	0.0063	0.0020	0.0036	0.0115
1992		0.0792	0.4166	0.2577	0.1211	0.0329	0.0143	0.0170	0.0250	0.0175	0.0032	0.0058	0.0096
1993		0.1563	0.3868	0.2908	0.0701	0.0328	0.0094	0.0090	0.0115	0.0131	0.0070	0.0025	0.0082
1994		0.1410	0.2705	0.1562	0.1346	0.0832	0.0546	0.0375	0.0222	0.0406	0.0127	0.0241	0.0203
1995		0.2450	0.2695	0.2542	0.0720	0.0658	0.0352	0.0123	0.0054	0.0123	0.0115	0.0031	0.0084
1996		0.0832	0.7475	0.1142	0.0328	0.0094	0.0073	0.0027	0.0013	0.0007	0.0000	0.0005	0.0003
1997		0.2063	0.2425	0.4508	0.0669	0.0184	0.0037	0.0037	0.0039	0.0017	0.0007	0.0009	0.0006
1998		0.1876	0.2969	0.1714	0.2855	0.0366	0.0091	0.0058	0.0029	0.0002	0.0010	0.0015	0.0011
1999		0.0697	0.6277	0.1722	0.0594	0.0438	0.0050	0.0032	0.0046	0.0035	0.0039	0.0007	0.0046
2000		0.1273	0.1930	0.4338	0.1541	0.0364	0.0368	0.0041	0.0039	0.0016	0.0018	0.0010	0.0044
2001		0.0524	0.4553	0.1474	0.2129	0.0735	0.0274	0.0194	0.0032	0.0039	0.0011	0.0000	0.0025
2002		0.3225	0.2261	0.1843	0.0805	0.0735	0.0572	0.0198	0.0198	0.0013	0.0048	0.0018	0.0057
2003		0.2022	0.3647	0.1251	0.0922	0.0406	0.0646	0.0506	0.0227	0.0177	0.0126	0.0009	0.0049
2004		0.0501	0.5698	0.2734	0.0628	0.0222	0.0076	0.0061	0.0036	0.0011	0.0014	0.0017	0.0002
2005		0.2444	0.1280	0.4126	0.1370	0.0336	0.0138	0.0035	0.0090	0.0065	0.0035	0.0037	0.0045
2006		0.0639	0.6359	0.0728	0.1610	0.0424	0.0144	0.0057	0.0025	0.0003	0.0010	0.0000	0.0000

NJ Trawl

Year													
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1989	0.0000	0.2780	0.4440	0.0060	0.1370	0.0520	0.0110	0.0160	0.0000	0.0560	0.0000	0.0000	0.0000
1990	0.0000	0.0610	0.1820	0.0200	0.4140	0.1320	0.0290	0.0970	0.0050	0.0610	0.0000	0.0000	0.0000
1991	0.0000	0.2770	0.2840	0.0210	0.0200	0.1480	0.1320	0.0170	0.0340	0.0460	0.0210	0.0000	0.0000
1992	0.0000	0.2580	0.4780	0.0610	0.0640	0.0550	0.0740	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000
1993	0.0000	0.2380	0.3530	0.1500	0.0870	0.1230	0.0240	0.0250	0.0000	0.0000	0.0000	0.0000	0.0000
1994	0.0000	0.2870	0.3700	0.1550	0.0900	0.0480	0.0310	0.0100	0.0090	0.0000	0.0000	0.0000	0.0000
1995	0.0000	0.6580	0.1720	0.0670	0.0450	0.0320	0.0120	0.0070	0.0040	0.0030	0.0000	0.0000	0.0000
1996	0.0000	0.1620	0.5800	0.1600	0.0610	0.0210	0.0130	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000
1997	0.0000	0.1870	0.4090	0.2360	0.1130	0.0350	0.0120	0.0050	0.0010	0.0030	0.0000	0.0000	0.0000
1998	0.0000	0.4420	0.1930	0.0430	0.1300	0.0860	0.0540	0.0250	0.0140	0.0110	0.0020	0.0010	0.0000
1999	0.0000	0.0770	0.3200	0.1810	0.2560	0.1150	0.0320	0.0110	0.0050	0.0030	0.0000	0.0010	0.0000
2000	0.0000	0.1520	0.1400	0.1570	0.2740	0.1670	0.0730	0.0270	0.0060	0.0020	0.0010	0.0000	0.0000
2001	0.0000	0.1480	0.1670	0.1990	0.2990	0.1030	0.0420	0.0230	0.0130	0.0060	0.0010	0.0000	0.0000
2002	0.0000	0.0050	0.0230	0.0710	0.2060	0.3590	0.2300	0.0760	0.0240	0.0040	0.0000	0.0000	0.0000
2003	0.0000	0.3040	0.2380	0.0410	0.1260	0.0970	0.1220	0.0490	0.0150	0.0060	0.0010	0.0010	0.0000
2004	0.0000	0.1820	0.5190	0.0900	0.0400	0.0580	0.0430	0.0360	0.0210	0.0080	0.0040	0.0010	0.0000
2005	0.0000	0.4928	0.2179	0.0610	0.1055	0.0473	0.0418	0.0193	0.0090	0.0025	0.0018	0.0004	0.0007
2006	0.0000	0.0605	0.1003	0.0549	0.2475	0.2560	0.1001	0.0690	0.0456	0.0447	0.0129	0.0073	0.0012
2007	0.0000	0.0287	0.0405	0.2849	0.1571	0.2686	0.0905	0.0325	0.0250	0.0232	0.0204	0.0193	0.0101
2008	0.0000	0.0126	0.0542	0.1013	0.4130	0.0979	0.1441	0.0902	0.0269	0.0158	0.0110	0.0196	0.0118
2009	0.0000	0.1092	0.0085	0.0339	0.1526	0.4425	0.0972	0.0936	0.0374	0.0169	0.0039	0.0034	0.0008
2010	0.0000	0.0272	0.0165	0.0035	0.0448	0.1776	0.4689	0.0912	0.0955	0.0532	0.0212	0.0004	0.0000
2011	0.0000	0.0998	0.0867	0.0706	0.0215	0.0954	0.1651	0.2748	0.0888	0.0472	0.0258	0.0059	0.0183
2012	0.0029	0.1942	0.0929	0.0413	0.0819	0.0460	0.1051	0.1715	0.2066	0.0473	0.0084	0.0018	0.0000
2013	0.0000	0.5249	0.1973	0.0071	0.0177	0.0622	0.0470	0.0417	0.0394	0.0529	0.0075	0.0024	0.0000
2014	0.0000	0.0661	0.5814	0.1700	0.0191	0.0435	0.0389	0.0231	0.0272	0.0116	0.0116	0.0075	0.0000

Table 17 cont.

MDSSN

Year	Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1985	0.2879	0.6259	0.0653	0.0098	0.0027	0.0045	0.0001	0.0008	0.0001	0.0001	0.0008	0.0020	
1986	0.2286	0.2593	0.4942	0.0040	0.0053	0.0020	0.0029	0.0028	0.0000	0.0000	0.0000	0.0009	
1987	0.1989	0.3609	0.1610	0.2463	0.0250	0.0031	0.0036	0.0003	0.0000	0.0000	0.0000	0.0009	
1988	0.1246	0.2370	0.2178	0.1741	0.2279	0.0040	0.0000	0.0001	0.0133	0.0000	0.0000	0.0011	
1989	0.0837	0.3908	0.2034	0.1150	0.1233	0.0831	0.0004	0.0002	0.0001	0.0000	0.0000	0.0000	
1990	0.1550	0.3140	0.2391	0.0959	0.0681	0.0636	0.0592	0.0017	0.0002	0.0002	0.0010	0.0020	
1991	0.1593	0.4148	0.1351	0.1023	0.0580	0.0566	0.0418	0.0231	0.0009	0.0033	0.0000	0.0049	
1992	0.0435	0.3515	0.2440	0.0932	0.1111	0.0682	0.0463	0.0218	0.0111	0.0052	0.0000	0.0039	
1993	0.0655	0.2112	0.2994	0.1411	0.0816	0.0830	0.0593	0.0361	0.0118	0.0050	0.0014	0.0047	
1994	0.0523	0.2016	0.1908	0.2296	0.1159	0.0662	0.0835	0.0343	0.0167	0.0061	0.0024	0.0006	
1995	0.1082	0.2538	0.1457	0.1319	0.1122	0.0871	0.0543	0.0429	0.0252	0.0210	0.0076	0.0101	
1996	0.0052	0.4852	0.1346	0.0458	0.0916	0.0849	0.0557	0.0467	0.0221	0.0200	0.0062	0.0021	
1997	0.1050	0.1197	0.3477	0.1189	0.0560	0.0510	0.0668	0.0577	0.0319	0.0311	0.0097	0.0046	
1998	0.0753	0.2983	0.0684	0.3118	0.0675	0.0276	0.0387	0.0362	0.0314	0.0190	0.0207	0.0052	
1999	0.0177	0.4392	0.2019	0.1432	0.0890	0.0287	0.0166	0.0279	0.0132	0.0128	0.0067	0.0031	
2000	0.0290	0.1437	0.3053	0.1427	0.1652	0.0773	0.0399	0.0229	0.0225	0.0220	0.0138	0.0157	
2001	0.0167	0.1384	0.1852	0.1826	0.0822	0.1007	0.1345	0.0466	0.0421	0.0348	0.0196	0.0166	
2002	0.2407	0.1037	0.0961	0.2081	0.0849	0.0747	0.0790	0.0568	0.0185	0.0102	0.0135	0.0138	
2003	0.0390	0.2418	0.1051	0.0815	0.1352	0.1248	0.0676	0.0604	0.0756	0.0217	0.0232	0.0240	
2004	0.0512	0.2932	0.1992	0.0671	0.0539	0.0719	0.0761	0.0609	0.0432	0.0447	0.0133	0.0254	
2005	0.1353	0.2111	0.1477	0.1941	0.0486	0.0516	0.0434	0.0548	0.0408	0.0350	0.0226	0.0152	
2006	0.0174	0.5259	0.0817	0.0969	0.0599	0.0297	0.0253	0.0366	0.0425	0.0265	0.0212	0.0366	
2007	0.0376	0.1067	0.3553	0.0691	0.0710	0.0626	0.0343	0.0417	0.0464	0.0742	0.0371	0.0640	
2008	0.0074	0.1989	0.2486	0.2574	0.0385	0.0520	0.0445	0.0254	0.0272	0.0227	0.0317	0.0457	
2009	0.0704	0.0739	0.2684	0.0905	0.2425	0.0370	0.0398	0.0547	0.0158	0.0277	0.0212	0.0579	
2010	0.0166	0.3305	0.1113	0.1435	0.1115	0.1212	0.0148	0.0307	0.0225	0.0088	0.0113	0.0777	
2011	0.0500	0.1600	0.2700	0.0990	0.1250	0.0830	0.0980	0.0220	0.0200	0.0170	0.0170	0.0390	
2012	0.0574	0.1965	0.0876	0.0895	0.0674	0.0872	0.0854	0.0946	0.0281	0.0624	0.0512	0.0926	
2013	0.0166	0.3305	0.1113	0.1435	0.1115	0.1212	0.0148	0.0307	0.0225	0.0088	0.0113	0.0777	
2014	0.0500	0.1600	0.2700	0.0990	0.1250	0.0830	0.0980	0.0220	0.0200	0.0170	0.0170	0.0390	

DE SSN

Year	Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1996	0.0060	0.4170	0.1920	0.0610	0.0850	0.0760	0.0640	0.0580	0.0150	0.0090	0.0090	0.0090	
1997	0.0930	0.0740	0.3910	0.1370	0.0510	0.0640	0.0730	0.0320	0.0300	0.0230	0.0090	0.0230	
1998	0.0400	0.0870	0.0980	0.3470	0.0900	0.0610	0.1050	0.0950	0.0340	0.0250	0.0080	0.0110	
1999	0.0000	0.1050	0.1440	0.1770	0.2350	0.0720	0.0540	0.0760	0.0580	0.0510	0.0140	0.0140	
2000	0.0360	0.0360	0.2100	0.1710	0.1380	0.2230	0.0660	0.0300	0.0390	0.0320	0.0100	0.0100	
2001	0.0060	0.1150	0.1000	0.1850	0.1100	0.1400	0.2000	0.0500	0.0150	0.0400	0.0200	0.0200	
2002	0.0340	0.0710	0.1910	0.1780	0.1570	0.1130	0.0890	0.0970	0.0260	0.0160	0.0100	0.0180	
2003	0.0200	0.0970	0.0970	0.1340	0.0890	0.1110	0.1250	0.1050	0.1210	0.0340	0.0280	0.0380	
2004	0.0070	0.1660	0.2310	0.0980	0.0680	0.0540	0.1120	0.0780	0.0810	0.0440	0.0140	0.0470	
2005	0.0960	0.1570	0.1680	0.1980	0.0810	0.0460	0.0300	0.0360	0.0610	0.0360	0.0460	0.0460	
2006	0.0595	0.2007	0.0967	0.1413	0.1413	0.0706	0.0520	0.0409	0.0483	0.0483	0.0372	0.0632	
2007	0.0061	0.0887	0.3700	0.1804	0.1009	0.0734	0.0306	0.0245	0.0306	0.0275	0.0398	0.0275	
2008	0.0299	0.0329	0.1257	0.3024	0.1467	0.1317	0.0449	0.0359	0.0359	0.0269	0.0449	0.0419	
2009	0.1296	0.1014	0.0930	0.1803	0.1352	0.0901	0.0789	0.0366	0.0338	0.0169	0.0282	0.0761	
2010	0.1469	0.2041	0.1204	0.1143	0.1224	0.0898	0.0469	0.0429	0.0245	0.0224	0.0204	0.0449	
2011	0.0220	0.0550	0.1890	0.1720	0.1300	0.0950	0.1140	0.0950	0.0450	0.0300	0.0120	0.0410	
2012	0.1538	0.2985	0.2062	0.0308	0.0338	0.0185	0.0677	0.0338	0.0185	0.0154	0.0554	0.0677	
2013	0.0382	0.0795	0.0572	0.0684	0.1701	0.1590	0.1335	0.1145	0.0636	0.0334	0.0270	0.0556	
2014	-	-	-	-	-	-	-	-	-	-	-	-	

Table 17 cont.

VA PNET

Year	Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1991	0.0231	0.0182	0.1970	0.4403	0.1469	0.0919	0.0275	0.0138	0.0275	0.0000	0.0000	0.0138	0.0000
1992	0.0245	0.0613	0.0736	0.1963	0.3374	0.1411	0.0368	0.0491	0.0245	0.0552	0.0000	0.0000	0.0000
1993	0.0056	0.0267	0.0487	0.1678	0.4470	0.1710	0.0305	0.0197	0.0272	0.0216	0.0342	0.0000	0.0000
1994	0.0000	0.1082	0.0361	0.0999	0.3449	0.1668	0.0864	0.0443	0.0391	0.0248	0.0248	0.0248	0.0000
1995	0.0029	0.2184	0.3448	0.0718	0.1609	0.0489	0.0431	0.0489	0.0287	0.0057	0.0201	0.0057	0.0000
1996	0.0000	0.0426	0.3314	0.2387	0.1361	0.1052	0.0743	0.0309	0.0309	0.0075	0.0000	0.0000	0.0025
1997	0.0000	0.0306	0.1990	0.4133	0.0638	0.0026	0.0357	0.0408	0.0765	0.0510	0.0510	0.0179	0.0179
1998	0.0000	0.0132	0.1492	0.4393	0.1027	0.0028	0.0361	0.0486	0.0541	0.0618	0.0618	0.0153	0.0153
1999	0.0000	0.0269	0.3932	0.3918	0.0951	0.0037	0.0170	0.0147	0.0109	0.0123	0.0133	0.0147	0.0065
2000	0.0000	0.0008	0.3964	0.4604	0.0848	0.0028	0.0127	0.0127	0.0102	0.0074	0.0094	0.0013	0.0013
2001	0.0000	0.0038	0.1471	0.4020	0.2303	0.0054	0.0311	0.0467	0.0467	0.0435	0.0242	0.0140	0.0054
2002	0.0000	0.0000	0.0975	0.2753	0.2639	0.0478	0.1300	0.0784	0.0535	0.0363	0.0115	0.0000	0.0057
2003	0.0000	0.0000	0.0486	0.1917	0.2128	0.0236	0.1169	0.0895	0.1086	0.0914	0.0722	0.0211	0.0236
2004	0.0000	0.0000	0.1111	0.1783	0.1889	0.1120	0.0714	0.1332	0.0746	0.0535	0.0320	0.0352	0.0099
2005	0.0000	0.0034	0.1037	0.3076	0.1569	0.0402	0.0436	0.0958	0.0958	0.0533	0.0391	0.0323	0.0283
2006	0.0000	0.0041	0.3606	0.2925	0.1449	0.0064	0.0233	0.0416	0.0393	0.0535	0.0105	0.0091	0.0142
2007	0.0000	0.0010	0.0799	0.2713	0.1957	0.0362	0.0355	0.0479	0.0600	0.0850	0.1206	0.0225	0.0444
2008	0.0000	0.0093	0.2402	0.3930	0.1779	0.0278	0.0328	0.0311	0.0158	0.0235	0.0235	0.0251	0.0000
2009	0.0000	0.0031	0.0826	0.2215	0.3028	0.0939	0.0533	0.0533	0.0520	0.0520	0.0293	0.0162	0.0402
2010	0.0000	0.0069	0.0787	0.1945	0.3121	0.1266	0.0458	0.0308	0.0380	0.0530	0.0329	0.0209	0.0598
2011	0.0000	0.0090	0.0516	0.1211	0.1547	0.1076	0.0886	0.0987	0.1076	0.1166	0.0706	0.0280	0.0460
2012	0.0000	0.0000	0.0824	0.1882	0.2235	0.1247	0.0612	0.0541	0.0753	0.0494	0.0565	0.0259	0.0588
2013	0.0000	0.0000	0.1557	0.1642	0.1802	0.0783	0.0283	0.0245	0.0283	0.1066	0.0368	0.0821	0.1151
2014	0.0000	0.0000	0.2575	0.2037	0.0315	0.0000	0.0046	0.0361	0.0500	0.1038	0.1176	0.0407	0.1545

Table 18. Model structure, equation, and data inputs used in this assessment.

General Definitions	Symbol	Description/Definition
Year Index	y	$y = \{1982, \dots, 2014\}$ for catch. $y = \{1970, \dots, 2014\}$ for indices.
Age Index: $a = \{1, \dots, 13+\}$	a	
Fleet Index: $f = \{1: \text{Chesapeake Bay, 2: Coast, 3: Commercial Dead Discards}\}$	f	
Indices Index: $t = \{1, \dots, 16\}$	t	
Input Data	Symbol	Description/Definition
Observed Fleet Catch	$C_{f,y}$	Reported number of striped bass killed each year (y) by fleet (f)
Coefficient of Variation for Fleets	$CV_{f,y}$	Calculated from MRIP harvest and releases estimates with associated proportional standard errors (commercial harvest from census – no error)
Observed Fleet Age Compositions	$P_{f,y,a}$	Proportion-at-age (a) for each year (y) and fleet (f)
Observed Total Indices of Relative Abundance	$I_{t,y}$	Reported by various states. YOY and Age 1 Indices: 6 Age-aggregated Indices: 3 (1 fishery-dependent; 2 fishery-independent) Indices with Age Composition: 5 (all fishery-independent)
Coefficient of Variation for Indices	$CV_{t,y}$	Calculated from indices and associated standard errors
Observed Age Compositions of Indices of Relative Abundance	$P_{t,y,a}$	Proportion-at-age (a) for each year (y) and index (t)
Effective Sample Size Starting Values	\hat{n}	Fleets: 50 Indices: NYOHS – 22, NJ Trawl – 23, MDSSN – 68, DESSN – 68, VAPNET – 68, VAGNET – 68 (calculated from method of Pennington and Volstad, 1995)

Table 18 cont.

Population Model	Symbol	Equation
Age-1 numbers	$\hat{N}_{y,1}$	$\hat{N}_{y,1} = \exp \left(\log_e(\hat{\alpha}) + \log_e(SSB_{y-1}) - \log_e \left(1 + \frac{SSB_{y-1}}{\hat{\beta}} \right) + \hat{e}_y - 0.5\hat{\sigma}_R^2 \right)$ $\hat{\sigma}_R = \sqrt{\frac{\sum (\hat{e}_y - \hat{\sigma})^2}{n-1}}$ <p>where e_y are independent and identically distributed normal random variables with zero mean and constant variance and are constrained to sum to zero over all years</p>
Abundance-at-Age	$\hat{N}_{y,a}$	<p>First year (ages 2-A in 1970): $\hat{N}_{y,a} = \hat{N}_{y,a-1} \exp^{-\hat{F}_{1982,a-1} - M_{1982,a-1}}$</p> <p>Rest of years (ages 2-12): $\hat{N}_{y,a} = \hat{N}_{y-1,a-1} \exp^{-\hat{F}_{y-1,a-1} - M_{y-1,a-1}}$</p>
Plus-group abundance-at-age	$\hat{N}_{y,A}$	$\hat{N}_{y,A} = \hat{N}_{y-1,A-1} \exp^{-\hat{F}_{y-1,A-1} - M_{y-1,A-1}} + \hat{N}_{y-1,A} \exp^{-\hat{F}_{y-1,A} - M_{y-1,A}}$
Fishing Mortality	$\hat{F}_{f,y,a}$	$\hat{F}_{f,y,a} = \hat{F}_{f,y} \cdot \hat{s}_{f,a}$ <p>where F_{fy} and s_{fa} are estimated parameters</p>
Total Mortality	$\hat{Z}_{y,a}$	$Z_{y,a} = F_{y,a} + M_{y,a}$
Fleet Selectivity	$\hat{s}_{f,a}$	<p>Fleet 1 (Chesapeake Bay): 1982-1984, 1985-1989, 1990-1995, 1996-2014 Fleet 2 (Coast): 1982-1984 Fleet 3 (Commercial Dead Discards): 1985-1989, 1990-1996, 1997-2002, 2003-2014</p> $\hat{s}_a = \frac{1}{1-\hat{\gamma}} \cdot \left(\frac{1-\hat{\gamma}}{\hat{\gamma}} \right)^{\hat{a}} \frac{\exp^{\hat{a}\hat{\gamma}(\hat{\beta}-a)}}{1 + \exp^{\hat{a}(\hat{\beta}-a)}}$ <p>Fleet 2 (Coast): 1985-1989, 1990-1996, 1997-2014</p> $\hat{s}_a = \exp^{-\exp^{-\hat{\beta}(a-\hat{a})}}$ <p>Fleet 3 (Commercial Dead Discards): 1982-1984</p> $\hat{s}_a = \alpha \exp^{\beta a}$
Predicted Catch-At-Age	$\hat{C}_{f,y,a}$	$\hat{C}_{f,y,a} = \frac{\hat{F}_{f,y,a}}{\hat{F}_{f,y,a} + M_{y,a}} \cdot (1 - \exp^{-\hat{F}_{y,a} - M_{y,a}}) \cdot \hat{N}_{y,a}$

Table 18 cont.

Population Model	Symbol	Equation
Predicted Total Catch	$\hat{C}_{y,a}$	$\hat{C}_{f,y} = \sum_a \hat{C}_{f,y,a}$
Predicted Proportions of Catch-At-Age	$\hat{P}_{f,y,a}$	$\hat{P}_{f,y,a} = \frac{\hat{C}_{f,y,a}}{\sum_a \hat{C}_{f,y,a}}$
Predicted Aggregated Indices of Relative Abundance	$\hat{I}_{t,y,\sum a}$	$\hat{I}_{t,y,\sum a} = \hat{q}_t \cdot \sum_a \hat{N}_{y,a} \cdot \exp^{-p_t \cdot Z_{y,a}}$
Predicted Age-Specific Indices of Relative Abundance	$\hat{I}_{t,y,a}$	$\hat{I}_{t,y,a} = \hat{q}_t \cdot \hat{s}_{t,a} \cdot \hat{N}_{y,a} \cdot \exp^{-p_t \cdot \hat{Z}_{y,a}}$
Predicted Total Indices of Relative Abundance with Age Composition Data	$\hat{I}_{t,y}$	$\hat{I}_{t,y} = \hat{q}_t \sum_a \hat{s}_{t,a} \cdot \hat{N}_{y,a} \cdot \exp^{-p_t \cdot \hat{Z}_{y,a}}$
Predicted Age Composition of Survey	$\hat{U}_{t,y,a}$	$\hat{U}_{t,y,a} = \frac{\hat{I}_{t,y,a}}{\sum_a \hat{I}_{t,y,a}}$
Female Spawning Stock Biomass (metric tons)	SSB_y	$SSB_y = \sum_{a=1}^A N_{y,a} \cdot sr_a \cdot m_a \cdot w_{y,a} / 1000$

Table 18 cont.

Likelihood	Symbol	Equation
Concentrated Lognormal Likelihood for Fleet Catch (F) and Indices of Relative Abundance (T)	$-L_F; -L_T$	$-L_F = 0.5 * \sum_f n_f * \ln \left(\frac{\sum_f RSS_f}{\sum_f n_f} \right); \quad -L_T = 0.5 * \sum_t n_t * \ln \left(\frac{\sum_t RSS_t}{\sum_t n_t} \right)$ <p>where</p> $RSS_f = \lambda_f \sum_y \left(\frac{\ln(C_{f,y} + 1e^{-5}) - \ln(\hat{C}_{f,y} + 1e^{-5})}{\delta_f \cdot CV_{f,y}} \right)^2$ $RSS_t = \lambda_t \sum_y \left(\frac{\ln(I_{t,y} + 1e^{-5}) - \ln(\hat{I}_{t,y} + 1e^{-5})}{\delta_t \cdot CV_{t,y}} \right)^2$ <p>$CV_{f,y}$ and $CV_{t,y}$ are the annual coefficient of variation for the observed total catch (f) and index (t) in year y, δ_f and δ_t is the CV weights for total catch f and index t, and λ_f and λ_t are relative weights.</p>
Multinomial fleet catch (FC) and index (TC) age compositions	$-L_{FC}; -L_{TC}$	$-L_{FC} = \lambda_f \sum_y -n_{f,y} \sum_a P_{f,y,a} \cdot \ln(\hat{p}_{f,y,a} + 1e^{-7})$ $-L_{TC} = \lambda_t \sum_y -n_{t,y} \sum_a U_{t,y,a} \cdot \ln(\hat{u}_{t,y,a} + 1e^{-7})$ <p>where λ_f and λ_t are a user-defined weighting factors and n_y are the effective sample sizes.</p>
Effective sample size	\hat{n}	The multiplier from equation 1.8 method of Francis (2011) was used to adjust the starting values.
Constraints Added To Total Likelihood	$P_{n1}, P_{rdev}, P_{fadd}$	$P_{n1} = \lambda_{n1} (\hat{N}_{y,1} - N_{y,1}^e)^2 \quad \text{- forces } N_{i,t} \text{ to follow S-R curve}$ $P_{rdev} = \lambda_R \sum_y \log_e(\hat{\sigma}_R) + \frac{\hat{\sigma}_y^2}{2\hat{\sigma}_R^2} \quad \text{- for bias correction to constrain deviations}$ $P_{fadd} = \begin{cases} \text{phase} < 3, & 10 \cdot \sum_y (F_{f,y} - 0.15)^2 \\ \text{phase} \geq 3, & 0.000001 \cdot \sum_y (F_{f,y} - 0.15)^2 \end{cases} \quad \text{- avoid small F values at start}$

Table 18 cont.

Diagnostics	Symbol	Equation
Standardized residuals (lognormal – catch and surveys)	$r_{f,y,a}$ or $r_{t,y,a}$	$r_{t,y} = \frac{\log I_{t,y} - \log \hat{I}_{t,y}}{\sqrt{\log_e((\delta_f CV_{t,y})^2 + 1)}}$ $r_{f,y} = \frac{\log C_{f,y} - \log \hat{C}_{f,y}}{\sqrt{\log_e(CV_{f,y}^2 + 1)}}$
Standardized residuals (age compositions – catch and surveys)	$ra_{f,y,a}$ or $ra_{t,y,a}$	$ra_{f,y,a} = \frac{P_{f,y,a} - \hat{P}_{f,y,a}}{\sqrt{\frac{\hat{P}_{f,y,a}(1 - \hat{P}_{f,y,a})}{\hat{n}_f}}}$ $ra_{t,y,a} = \frac{P_{t,y,a} - \hat{P}_{t,y,a}}{\sqrt{\frac{\hat{P}_{t,y,a}(1 - \hat{P}_{t,y,a})}{\hat{n}_t}}}$
Root mean square error	$RMSE$	<p>Total catch</p> $RMSE_f = \sqrt{\frac{\sum r_{f,y}^2}{n_f}}$ <p>Index</p> $RMSE_t = \sqrt{\frac{\sum r_{t,y}^2}{n_t}}$

Table 19. The fraction of total mortality (p) that occurs prior to the survey and ages to which survey indices are linked.

Survey	p	Linked Ages
Age-specific		
NY YOY	0	1 (January 1st)
NJ YOY	0	1 (January 1st)
MD YOY	0	1 (January 1st)
VA YOY	0	1 (January 1st)
MD Age 1	0	2 (January 1st)
NY Age 1	0	2 (January 1st)
Aggregate		
MRFSS	0.5	3-13+
NEFSC	0.333	2-9
CT Trawl	0.333	4-6
Indices with age composition		
NY OHS	0.75	2-13+
NJ Trawl	0.25	2-13+
MD SSN	0.25	2-13+
DE SSN	0.25	2-13+
VA Poundnet	0.25	1-13+

Table 20. Starting values used in the SCA model.

Parameter(s)	Equation	ADMB Name	Phase	Start Value	Lower Bound	Upper Bound
Yr 1, Age 1 N or Avg N (log)		log_R	1	10	0.27	25
R Deviation (log)		log_R_dev	2	0	-20	20
Fishing Mortality (log)		log_F	2	-1.6	-12	2.31
Aggregate qs (log)		agg_qs	6	-16	-50	0
AgeComp qs (log)		ac_qs	6	-16	-50	0
Catch Selectivity	Gompertz	flgom_a	4	3	-20	150
Catch Selectivity	Gompertz	flgom_b	4	1	-20	150
Catch Selectivity	Thompson	flthom_a	4	-3.81	-20	0
Catch Selectivity	Thompson	flthom_b	4	3	0	150
Catch Selectivity	Thompson	flthom_c	4	0.9	1.00E-28	0.999
Catch Selectivity	Exponential	flexp_a	4	0.1	-150	150
Catch Selectivity	Exponential	flexp_b	4	1	-150	150
AC Selectivity	Gompertz	acgom_a	5	3	-20	150
AC Selectivity	Gompertz	acgom_b	5	1	-20	150
AC Selectivity	Gamma	acgam_a	5	3	0	150
AC Selectivity	Gamma	acgam_b	5	1	0	150
AC Selectivity	Thompson	acthom_a	5	-3.81	-20	0
AC Selectivity	Thompson	acthom_b	5	3	0	150
AC Selectivity	Thompson	acthom_c	5	0.9	1.00E-28	0.999
AC Selectivity	User-Defined	userparms	5	0.6	0	1
S-R Equation	Beverton	BH_a	3	10000	0	100000
S-R Equation	Beverton	BH_b	3	11000	0	100000

Table 21. RMSE and effective sample size estimates for the fleet catch, relative abundance indices, and age compositions.

Index	n	Weight	RMSE	Percentile	
				0.025	0.975
NYYOY	35	2.65	1.000	0.768	1.239
NJYOY	32	1.45	0.998	0.757	1.248
MDYOY	45	1.85	1.002	0.797	1.213
VAYOY	32	1.40	0.986	0.757	1.248
NYAge1	29	1.40	0.990	0.743	1.259
MDAge1	45	1.30	0.987	0.797	1.213
MRFSS	27	1.83	0.994	0.733	1.268
CTTRL	31	3.30	1.007	0.752	1.252
NEFSC	18	1.30	0.997	0.669	1.318
NYOHS	20	2.85	1.019	0.687	1.304
NJTRAWL	26	2.60	1.017	0.728	1.272
MDSSN	30	2.82	0.995	0.748	1.256
DESSN	18	2.60	1.000	0.669	1.318
VAPNET	24	1.90	1.010	0.716	1.281

Age Composition	
Fleet/Index	n_{eff}
Bay Fleet	31.7
Ocean Fleet	46.8
Commercial Discards	23.0
NYOHS	18.7
NJTRAWL	5.0
MDSSN	17.5
DESSN	24.5
VAPNET	8.4

Table 22. Likelihood components with respective contributions from the base model run.

Likelihood Components		
Concentrated Log-Likelihood	Weight	RSS
Bay Total Catch	2	19.92
Ocean Total Catch	2	0.56
Commercial Discards Total Catch	2	0.11
Aggregate Abundance Indices		
NY YOY	1	24.39
NJ YOY	1	25.46
MD YOY	1	39.53
VA YOY	1	28.24
NY Age 1	1	24.31
MD Age 1	1	31.43
MRFSS/MRIP	1	25.18
CTTRL	1	21.42
NEFSC	1	15.78
Age Comp Abundance Indices		
NYOHS	1	19.52
NJ Trawl	1	18.61
MD SSN	1	24.12
DE SSN	1	16.93
VA PNET	1	22.08
Total RSS		357.60
No. of Obs		511.00
Conc. Likel.		-91.20
Age Composition Data		
	Likelihood	
Bay Age Comp	1	2014.65
Ocean Age Comp	1	3570.94
Commercial Discards Age Comp	1	1549.42
NYOHS	1	622.88
NJ Trawl	1	254.87
MD SSN	1	1060.51
DE SSN	1	1001.44
VA PNET	1	433.53
log_R constraint	1	0.28
Recr Devs	1	14.09
Total Likelihood		10383.30
AIC		21178.60

Table 23. Parameter estimates and associated standard deviations of base model configuration.

Year	Bay			Ocean			Commercial Discards			Total			Recruitment	SD	CV
	Full F	SD	CV	Full F	SD	CV	Full F	SD	CV	Full F	SD	CV			
1982	0.811	0.120	0.15	0.158	0.004	0.02	0.010	0.005	0.47	0.866	0.119	0.14	19,164,800	2,235,250	0.116633
1983	0.067	0.045	0.67	0.119	0.003	0.03	0.006	0.019	2.91	0.155	0.049	0.31	46,186,300	4,254,990	0.092127
1984	0.135	0.003	0.02	0.060	0.006	0.11	0.008	0.004	0.42	0.160	0.044	0.27	40,908,500	3,910,340	0.095587
1985	0.009	0.013	1.56	0.096	0.005	0.05	0.017	0.005	0.31	0.099	0.045	0.46	39,887,500	3,724,700	0.09338
1986	0.004	0.048	13.61	0.056	0.003	0.06	0.031	0.019	0.62	0.062	0.017	0.28	32,095,100	3,254,630	0.101406
1987	0.001	0.002	1.30	0.026	0.006	0.22	0.017	0.006	0.35	0.030	0.007	0.23	42,690,600	3,910,190	0.091594
1988	0.002	0.043	18.09	0.036	0.006	0.16	0.029	0.006	0.20	0.046	0.008	0.18	55,831,600	4,678,200	0.083791
1989	0.001	0.019	23.46	0.024	0.006	0.25	0.038	0.024	0.64	0.047	0.010	0.21	62,126,900	5,061,920	0.081477
1990	0.015	0.002	0.16	0.017	0.008	0.45	0.056	0.002	0.03	0.085	0.014	0.17	83,533,700	6,215,900	0.074412
1991	0.022	0.002	0.11	0.022	0.006	0.27	0.032	0.006	0.19	0.073	0.009	0.13	68,563,500	5,560,030	0.081093
1992	0.021	0.045	2.13	0.025	0.006	0.23	0.016	0.021	1.32	0.057	0.006	0.10	70,015,800	5,787,600	0.082661
1993	0.029	0.005	0.16	0.027	0.003	0.09	0.025	0.005	0.18	0.077	0.008	0.10	90,969,700	6,935,760	0.076243
1994	0.039	0.001	0.03	0.034	0.006	0.18	0.023	0.004	0.19	0.090	0.008	0.09	180,963,000	10,579,600	0.058463
1995	0.047	0.018	0.39	0.056	0.016	0.28	0.031	0.023	0.75	0.124	0.011	0.09	114,886,000	8,133,810	0.070799
1996	0.057	0.009	0.16	0.055	0.001	0.02	0.010	0.002	0.24	0.114	0.008	0.07	124,648,000	8,585,730	0.06888
1997	0.066	0.000	0.01	0.159	0.005	0.03	0.005	0.005	1.03	0.190	0.018	0.09	153,941,000	9,578,590	0.062222
1998	0.060	0.008	0.13	0.144	0.015	0.10	0.008	0.017	2.19	0.173	0.017	0.10	98,336,800	7,269,810	0.073928
1999	0.051	0.004	0.08	0.124	0.002	0.01	0.005	0.005	0.97	0.149	0.014	0.10	100,575,000	7,242,380	0.07201
2000	0.059	0.001	0.02	0.156	0.004	0.03	0.015	0.006	0.38	0.188	0.018	0.10	79,720,800	6,332,940	0.079439
2001	0.052	0.011	0.21	0.152	0.013	0.08	0.008	0.017	2.21	0.177	0.017	0.10	118,508,000	8,066,220	0.068065
2002	0.042	0.007	0.17	0.150	0.001	0.01	0.004	0.002	0.53	0.170	0.016	0.09	138,314,000	8,939,080	0.064629
2003	0.068	0.000	0.00	0.159	0.005	0.03	0.009	0.006	0.63	0.195	0.017	0.09	76,283,800	6,366,090	0.083453
2004	0.060	0.007	0.11	0.193	0.016	0.08	0.016	0.020	1.27	0.230	0.022	0.10	166,587,000	10,416,000	0.062526
2005	0.064	0.010	0.15	0.193	0.004	0.02	0.027	0.006	0.22	0.240	0.023	0.10	93,274,000	7,404,280	0.079382
2006	0.078	0.003	0.04	0.235	0.004	0.02	0.007	0.006	0.82	0.275	0.028	0.10	86,785,300	7,141,460	0.082289
2007	0.071	0.002	0.03	0.193	0.015	0.08	0.021	0.016	0.76	0.238	0.024	0.10	65,913,200	6,258,270	0.094947
2008	0.054	0.014	0.27	0.211	0.002	0.01	0.011	0.008	0.74	0.242	0.026	0.11	87,451,600	7,765,440	0.088797
2009	0.065	0.003	0.05	0.149	0.003	0.02	0.023	0.006	0.27	0.194	0.020	0.10	61,360,500	6,460,080	0.105281
2010	0.061	0.003	0.05	0.153	0.014	0.09	0.011	0.024	2.29	0.187	0.020	0.11	78,064,700	8,026,970	0.102825
2011	0.060	0.008	0.14	0.176	0.001	0.01	0.027	0.006	0.21	0.221	0.024	0.11	97,968,500	9,669,200	0.098697
2012	0.054	0.003	0.05	0.131	0.005	0.04	0.036	0.007	0.20	0.181	0.020	0.11	125,129,000	15,264,900	0.121993
2013	0.062	0.003	0.05	0.190	0.015	0.08	0.025	0.019	0.77	0.234	0.028	0.12	31,872,000	5,741,350	0.180138
2014	0.065	0.004	0.06	0.145	0.002	0.01	0.042	0.010	0.24	0.205	0.025	0.12	76,119,600	9,983,850	0.13116

Table 23 cont.

Catch Selectivity Parameters

Bay				Ocean			Commercial Discards				
	Estimate	SD	CV		Estimate	SD	CV		Estimate	SD	CV
1982-1984				1982-1984			1982-1984				
α	-5.628	0.429	0.08	α	-2.483	0.338	0.14	α	0.017	0.008	0.49
β	2.259	0.064	0.03	β	3.363	0.253	0.08	β	1.242	0.194	0.16
γ	0.923	0.021	0.02	γ	0.991	0.023	0.02				
1985-1989				1985-1989			1985-1989				
α	-3.821	0.480	0.13	α	5.133	0.614	0.12	α	-2.134	0.244	0.11
β	2.010	0.125	0.06	β	0.433	0.065	0.15	β	4.093	0.389	0.10
γ	0.951	0.023	0.02					γ	0.879	0.066	0.08
1990-1995				1990-1995			1990-1995				
α	-2.290	0.229	0.10	α	3.100	0.175	0.06	α	-1.908	0.157	0.08
β	3.467	0.247	0.07	β	0.918	0.111	0.12	β	4.674	0.366	0.08
γ	0.889	0.038	0.04					γ	0.815	0.063	0.08
1996-2014				1997-2014			1996-2002				
α	-1.918	0.118	0.06	α	5.427	0.263	0.05	α	-2.745	0.506	0.18
β	3.772	0.144	0.04	β	0.421	0.029	0.07	β	2.815	0.280	0.10
γ	0.941	0.017	0.02					γ	0.957	0.028	0.03
								2003-2014			
								α	-2.371	0.287	0.12
								β	3.748	0.193	0.05
								γ	0.976	0.017	0.02

Survey Selectivity Parameters			
	Estimate	SD	CV
NYOHS			
α	-5.691	0.088	0.02
β	2.288	0.034	0.02
γ	0.962	0.006	0.01
NJ Trawl			
α	3.107	0.611	0.20
β	0.525	0.133	0.25
DE SSN			
α	3.355	0.194	0.06
β	0.776	0.110	0.14
MDSSN			
s_2	0.138	0.022	0.16
VAPNET			
α	-3.221	0.438	0.14
β	3.108	0.106	0.03
γ	0.999	0.000	0.00

Catchability Coefficients			
Survey	Estimate	SD	CV
NY YOY	2.96E-07	4.17E-08	0.14
NJ YOY	1.23E-08	8.28E-10	0.07
MD YOY	4.35E-08	3.36E-09	0.08
VA YOY	1.08E-07	7.88E-09	0.07
NY Age 1	4.49E-08	3.99E-09	0.09
MD Age 1	9.54E-09	8.54E-10	0.09
MRFSS	3.14E-08	1.89E-09	0.06
NEFSC	3.48E-08	2.62E-09	0.08
CTTRL	1.00E-08	1.02E-09	0.10
NYOHS	1.59E-07	1.42E-08	0.09
NJTRL	9.65E-08	1.19E-08	0.12
MDSSN	1.24E-07	1.44E-08	0.12
DESSN	8.26E-08	9.64E-09	0.12
VAPNET	5.07E-07	5.16E-08	0.10

Table 24. Total fishing mortality-at-age and fishing mortality-at-age by fleet.

Total Fishing Mortality													
Year	Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	0.003	0.248	0.866	0.680	0.514	0.391	0.309	0.254	0.218	0.193	0.176	0.164	0.157
1983	0.001	0.025	0.108	0.154	0.155	0.144	0.135	0.128	0.122	0.118	0.115	0.111	0.109
1984	0.001	0.044	0.160	0.149	0.126	0.105	0.091	0.081	0.074	0.069	0.066	0.063	0.061
1985	0.001	0.008	0.019	0.038	0.057	0.069	0.079	0.086	0.092	0.095	0.097	0.099	0.099
1986	0.000	0.004	0.013	0.035	0.054	0.058	0.060	0.061	0.062	0.062	0.062	0.062	0.061
1987	0.000	0.002	0.006	0.018	0.027	0.029	0.029	0.029	0.030	0.029	0.029	0.029	0.029
1988	0.000	0.003	0.010	0.029	0.044	0.046	0.045	0.044	0.044	0.043	0.042	0.041	0.041
1989	0.000	0.002	0.009	0.031	0.047	0.046	0.042	0.039	0.037	0.035	0.033	0.031	0.030
1990	0.000	0.004	0.019	0.053	0.085	0.084	0.068	0.054	0.043	0.036	0.031	0.027	0.024
1991	0.000	0.004	0.021	0.052	0.073	0.070	0.059	0.050	0.042	0.037	0.033	0.030	0.028
1992	0.000	0.004	0.019	0.045	0.057	0.056	0.049	0.043	0.039	0.035	0.033	0.031	0.030
1993	0.000	0.005	0.025	0.059	0.077	0.073	0.063	0.054	0.047	0.042	0.038	0.035	0.033
1994	0.001	0.006	0.031	0.072	0.090	0.085	0.074	0.064	0.057	0.051	0.047	0.044	0.041
1995	0.001	0.008	0.043	0.098	0.124	0.120	0.107	0.094	0.085	0.078	0.072	0.068	0.065
1996	0.001	0.008	0.040	0.088	0.112	0.114	0.111	0.105	0.100	0.096	0.091	0.088	0.084
1997	0.001	0.006	0.031	0.081	0.121	0.143	0.160	0.173	0.182	0.187	0.190	0.190	0.190
1998	0.001	0.006	0.030	0.076	0.112	0.132	0.147	0.158	0.166	0.170	0.173	0.173	0.173
1999	0.001	0.005	0.025	0.064	0.095	0.112	0.126	0.135	0.142	0.146	0.148	0.149	0.149
2000	0.001	0.007	0.036	0.086	0.122	0.144	0.160	0.172	0.180	0.185	0.188	0.188	0.188
2001	0.001	0.006	0.029	0.072	0.106	0.128	0.145	0.158	0.167	0.173	0.176	0.177	0.177
2002	0.001	0.005	0.024	0.061	0.093	0.115	0.133	0.147	0.157	0.163	0.167	0.169	0.170
2003	0.001	0.006	0.029	0.084	0.127	0.150	0.166	0.179	0.187	0.192	0.195	0.195	0.195
2004	0.001	0.006	0.030	0.088	0.136	0.165	0.187	0.204	0.216	0.223	0.227	0.229	0.230
2005	0.001	0.007	0.033	0.100	0.152	0.180	0.201	0.217	0.228	0.235	0.239	0.240	0.239
2006	0.001	0.008	0.036	0.103	0.159	0.194	0.221	0.242	0.256	0.266	0.271	0.274	0.275
2007	0.001	0.007	0.034	0.100	0.152	0.180	0.201	0.217	0.227	0.234	0.237	0.238	0.238
2008	0.001	0.006	0.029	0.084	0.131	0.163	0.189	0.208	0.223	0.232	0.238	0.241	0.242
2009	0.001	0.006	0.030	0.090	0.135	0.156	0.171	0.181	0.189	0.193	0.194	0.194	0.193
2010	0.001	0.006	0.027	0.078	0.119	0.141	0.158	0.170	0.179	0.184	0.186	0.187	0.187
2011	0.001	0.006	0.031	0.093	0.142	0.167	0.187	0.201	0.211	0.217	0.220	0.221	0.220
2012	0.001	0.005	0.028	0.088	0.131	0.150	0.162	0.171	0.177	0.180	0.181	0.180	0.179
2013	0.001	0.006	0.032	0.096	0.146	0.174	0.195	0.211	0.222	0.229	0.233	0.234	0.234
2014	0.001	0.006	0.033	0.103	0.153	0.173	0.186	0.196	0.201	0.204	0.205	0.204	0.202

Chesapeake Bay													
Year	Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	0.0016	0.2399	0.8105	0.5333	0.3456	0.2240	0.1451	0.0941	0.0610	0.0395	0.0256	0.0166	0.0129
1983	0.0001	0.0199	0.0672	0.0442	0.0287	0.0186	0.0120	0.0078	0.0051	0.0033	0.0021	0.0014	0.0011
1984	0.0003	0.0401	0.1353	0.0890	0.0577	0.0374	0.0242	0.0157	0.0102	0.0066	0.0043	0.0028	0.0022
1985	0.0003	0.0052	0.0085	0.0072	0.0060	0.0050	0.0041	0.0034	0.0028	0.0024	0.0020	0.0016	0.0013
1986	0.0001	0.0021	0.0035	0.0030	0.0025	0.0021	0.0017	0.0014	0.0012	0.0010	0.0008	0.0007	0.0006
1987	0.0000	0.0009	0.0014	0.0012	0.0010	0.0008	0.0007	0.0006	0.0005	0.0004	0.0003	0.0003	0.0002
1988	0.0001	0.0014	0.0024	0.0020	0.0017	0.0014	0.0012	0.0010	0.0008	0.0007	0.0006	0.0005	0.0004
1989	0.0000	0.0005	0.0008	0.0007	0.0006	0.0005	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	0.0001
1990	0.0002	0.0011	0.0065	0.0153	0.0149	0.0119	0.0093	0.0072	0.0056	0.0043	0.0034	0.0026	0.0020
1991	0.0002	0.0016	0.0096	0.0225	0.0219	0.0175	0.0136	0.0106	0.0082	0.0064	0.0050	0.0038	0.0030
1992	0.0002	0.0015	0.0089	0.0210	0.0205	0.0163	0.0127	0.0099	0.0077	0.0060	0.0046	0.0036	0.0028
1993	0.0003	0.0021	0.0125	0.0293	0.0286	0.0228	0.0178	0.0138	0.0107	0.0083	0.0065	0.0050	0.0039
1994	0.0004	0.0028	0.0168	0.0394	0.0385	0.0307	0.0239	0.0186	0.0144	0.0112	0.0087	0.0067	0.0052
1995	0.0005	0.0034	0.0201	0.0472	0.0461	0.0368	0.0286	0.0222	0.0173	0.0134	0.0104	0.0081	0.0063
1996	0.0005	0.0028	0.0144	0.0421	0.0565	0.0545	0.0493	0.0441	0.0394	0.0352	0.0315	0.0281	0.0251
1997	0.0006	0.0033	0.0168	0.0491	0.0659	0.0635	0.0574	0.0514	0.0459	0.0410	0.0367	0.0327	0.0293
1998	0.0005	0.0030	0.0152	0.0446	0.0599	0.0578	0.0522	0.0467	0.0417	0.0373	0.0333	0.0298	0.0266
1999	0.0004	0.0025	0.0130	0.0381	0.0511	0.0493	0.0446	0.0399	0.0356	0.0318	0.0284	0.0254	0.0227
2000	0.0005	0.0029	0.0149	0.0437	0.0587	0.0567	0.0512	0.0458	0.0409	0.0366	0.0327	0.0292	0.0261
2001	0.0004	0.0026	0.0131	0.0384	0.0515	0.0497	0.0449	0.0402	0.0359	0.0321	0.0287	0.0256	0.0229
2002	0.0004	0.0021	0.0106	0.0311	0.0417	0.0402	0.0364	0.0325	0.0291	0.0260	0.0232	0.0207	0.0185
2003	0.0006	0.0034	0.0173	0.0507	0.0680	0.0656	0.0593	0.0531	0.0474	0.0424	0.0379	0.0338	0.0302
2004	0.0005	0.0030	0.0152	0.0446	0.0599	0.0577	0.0522	0.0467	0.0417	0.0373	0.0333	0.0298	0.0266
2005	0.0005	0.0032	0.0163	0.0478	0.0641	0.0619	0.0559	0.0501	0.0447	0.0400	0.0357	0.0319	0.0285
2006	0.0007	0.0039	0.0198	0.0581	0.0779	0.0752	0.0680	0.0608	0.0543	0.0485	0.0434	0.0387	0.0346
2007	0.0006	0.0035	0.0180	0.0528	0.0709	0.0684	0.0618	0.0553	0.0494	0.0442	0.0395	0.0353	0.0315
2008	0.0005	0.0027	0.0137	0.0402	0.0539	0.0520	0.0470	0.0421	0.0376	0.0336	0.0300	0.0268	0.0240
2009	0.0005	0.0032	0.0164	0.0481	0.0645	0.0623	0.0563	0.0504	0.0450	0.0402	0.0359	0.0321	0.0287
2010	0.0005	0.0030	0.0154	0.0451	0.0605	0.0584	0.0528	0.0472	0.0422	0.0377	0.0337	0.0301	0.0269
2011	0.0005	0.0030	0.0152	0.0444	0.0596	0.0575	0.0520	0.0465	0.0416	0.0371	0.0332	0.0296	0.0265
2012	0.0005	0.0027	0.0137	0.0401	0.0538	0.0519	0.0469	0.0420	0.0375	0.0335	0.0300	0.0268	0.0239
2013	0.0005	0.0031	0.0157	0.0460	0.0617	0.0596	0.0538	0.0482	0.0430	0.0385	0.0344	0.0307	0.0274
2014	0.0006	0.0032	0.0165	0.0483	0.0649	0.0626	0.0566	0.0506	0.0453	0.0404	0.0361	0.0323	0.0288

Table 24 cont.

Year	Ocean Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	0.0005	0.0057	0.0486	0.1365	0.1582	0.1570	0.1537	0.1502	0.1468	0.1435	0.1403	0.1371	0.1340
1983	0.0004	0.0043	0.0367	0.1031	0.1194	0.1186	0.1161	0.1134	0.1109	0.1084	0.1059	0.1035	0.1012
1984	0.0002	0.0022	0.0185	0.0520	0.0602	0.0598	0.0585	0.0572	0.0559	0.0546	0.0534	0.0522	0.0510
1985	0.0003	0.0020	0.0080	0.0193	0.0342	0.0497	0.0633	0.0740	0.0819	0.0875	0.0913	0.0938	0.0955
1986	0.0001	0.0012	0.0047	0.0113	0.0201	0.0292	0.0371	0.0434	0.0481	0.0514	0.0536	0.0551	0.0561
1987	0.0001	0.0006	0.0022	0.0052	0.0093	0.0135	0.0172	0.0201	0.0222	0.0238	0.0248	0.0255	0.0259
1988	0.0001	0.0008	0.0030	0.0073	0.0130	0.0188	0.0240	0.0280	0.0310	0.0331	0.0346	0.0355	0.0362
1989	0.0001	0.0005	0.0020	0.0049	0.0087	0.0127	0.0162	0.0189	0.0209	0.0223	0.0233	0.0240	0.0244
1990	0.0000	0.0011	0.0056	0.0109	0.0141	0.0157	0.0164	0.0166	0.0167	0.0168	0.0168	0.0168	0.0168
1991	0.0000	0.0014	0.0074	0.0143	0.0186	0.0207	0.0216	0.0220	0.0221	0.0222	0.0222	0.0222	0.0222
1992	0.0000	0.0016	0.0085	0.0164	0.0213	0.0236	0.0246	0.0251	0.0252	0.0253	0.0253	0.0253	0.0253
1993	0.0000	0.0017	0.0091	0.0175	0.0228	0.0253	0.0264	0.0268	0.0270	0.0271	0.0271	0.0271	0.0271
1994	0.0000	0.0022	0.0113	0.0218	0.0284	0.0316	0.0329	0.0335	0.0337	0.0338	0.0338	0.0338	0.0338
1995	0.0001	0.0036	0.0188	0.0363	0.0472	0.0525	0.0547	0.0556	0.0560	0.0561	0.0562	0.0562	0.0562
1996	0.0001	0.0036	0.0185	0.0358	0.0465	0.0517	0.0539	0.0548	0.0552	0.0553	0.0554	0.0554	0.0554
1997	0.0003	0.0024	0.0103	0.0268	0.0501	0.0755	0.0989	0.1181	0.1327	0.1432	0.1506	0.1556	0.1590
1998	0.0002	0.0022	0.0093	0.0242	0.0452	0.0682	0.0893	0.1066	0.1198	0.1293	0.1360	0.1405	0.1436
1999	0.0002	0.0019	0.0081	0.0209	0.0391	0.0589	0.0772	0.0921	0.1035	0.1117	0.1174	0.1214	0.1240
2000	0.0003	0.0024	0.0102	0.0263	0.0492	0.0742	0.0972	0.1161	0.1304	0.1408	0.1480	0.1530	0.1563
2001	0.0003	0.0023	0.0099	0.0256	0.0478	0.0721	0.0944	0.1127	0.1266	0.1366	0.1436	0.1484	0.1517
2002	0.0003	0.0023	0.0097	0.0253	0.0472	0.0712	0.0933	0.1114	0.1251	0.1350	0.1420	0.1467	0.1499
2003	0.0003	0.0024	0.0103	0.0267	0.0500	0.0754	0.0987	0.1178	0.1324	0.1429	0.1502	0.1552	0.1586
2004	0.0003	0.0029	0.0125	0.0324	0.0607	0.0915	0.1198	0.1430	0.1607	0.1734	0.1824	0.1885	0.1926
2005	0.0003	0.0029	0.0126	0.0325	0.0609	0.0918	0.1202	0.1435	0.1612	0.1740	0.1829	0.1891	0.1932
2006	0.0004	0.0036	0.0153	0.0397	0.0741	0.1118	0.1465	0.1748	0.1964	0.2120	0.2229	0.2304	0.2354
2007	0.0003	0.0029	0.0125	0.0325	0.0607	0.0915	0.1199	0.1431	0.1608	0.1735	0.1824	0.1885	0.1927
2008	0.0004	0.0032	0.0137	0.0355	0.0664	0.1002	0.1312	0.1567	0.1760	0.1900	0.1997	0.2064	0.2109
2009	0.0003	0.0023	0.0097	0.0251	0.0469	0.0708	0.0927	0.1106	0.1243	0.1342	0.1411	0.1458	0.1490
2010	0.0003	0.0023	0.0099	0.0258	0.0482	0.0727	0.0952	0.1136	0.1276	0.1378	0.1448	0.1497	0.1530
2011	0.0003	0.0027	0.0115	0.0297	0.0555	0.0838	0.1097	0.1310	0.1471	0.1588	0.1670	0.1726	0.1763
2012	0.0002	0.0020	0.0085	0.0221	0.0412	0.0622	0.0814	0.0972	0.1092	0.1179	0.1239	0.1281	0.1309
2013	0.0003	0.0029	0.0123	0.0320	0.0598	0.0902	0.1182	0.1411	0.1585	0.1711	0.1799	0.1859	0.1900
2014	0.0002	0.0022	0.0094	0.0244	0.0457	0.0689	0.0902	0.1077	0.1210	0.1306	0.1373	0.1419	0.1450

Year	Commercial Discards Age												
	1	2	3	4	5	6	7	8	9	10	11	12	13+
1982	0.0006	0.0020	0.0070	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
1983	0.0004	0.0013	0.0045	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065
1984	0.0005	0.0017	0.0058	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083	0.0083
1985	0.0001	0.0005	0.0028	0.0111	0.0167	0.0145	0.0114	0.0088	0.0068	0.0053	0.0041	0.0032	0.0024
1986	0.0001	0.0009	0.0052	0.0206	0.0309	0.0269	0.0211	0.0164	0.0127	0.0098	0.0076	0.0059	0.0045
1987	0.0001	0.0005	0.0028	0.0111	0.0167	0.0145	0.0114	0.0088	0.0068	0.0053	0.0041	0.0032	0.0024
1988	0.0001	0.0008	0.0050	0.0195	0.0292	0.0254	0.0199	0.0154	0.0119	0.0092	0.0071	0.0055	0.0043
1989	0.0002	0.0011	0.0064	0.0252	0.0378	0.0329	0.0258	0.0200	0.0155	0.0120	0.0093	0.0072	0.0055
1990	0.0003	0.0015	0.0069	0.0267	0.0563	0.0563	0.0422	0.0300	0.0211	0.0148	0.0104	0.0073	0.0051
1991	0.0002	0.0009	0.0039	0.0152	0.0321	0.0321	0.0240	0.0171	0.0120	0.0084	0.0059	0.0042	0.0029
1992	0.0001	0.0004	0.0019	0.0074	0.0156	0.0156	0.0117	0.0083	0.0058	0.0041	0.0029	0.0020	0.0014
1993	0.0001	0.0007	0.0031	0.0119	0.0252	0.0252	0.0189	0.0134	0.0094	0.0066	0.0047	0.0033	0.0023
1994	0.0001	0.0006	0.0028	0.0109	0.0230	0.0230	0.0172	0.0122	0.0086	0.0061	0.0043	0.0030	0.0021
1995	0.0002	0.0008	0.0038	0.0147	0.0309	0.0309	0.0232	0.0165	0.0116	0.0081	0.0057	0.0040	0.0028
1996	0.0001	0.0013	0.0073	0.0100	0.0092	0.0082	0.0073	0.0065	0.0058	0.0052	0.0046	0.0041	0.0036
1997	0.0001	0.0007	0.0038	0.0052	0.0048	0.0043	0.0038	0.0034	0.0030	0.0027	0.0024	0.0021	0.0019
1998	0.0001	0.0010	0.0055	0.0076	0.0070	0.0062	0.0055	0.0049	0.0044	0.0039	0.0035	0.0031	0.0027
1999	0.0001	0.0007	0.0038	0.0052	0.0048	0.0043	0.0038	0.0034	0.0030	0.0027	0.0024	0.0021	0.0019
2000	0.0002	0.0020	0.0113	0.0155	0.0143	0.0127	0.0113	0.0101	0.0090	0.0080	0.0071	0.0063	0.0056
2001	0.0001	0.0010	0.0057	0.0078	0.0072	0.0064	0.0057	0.0051	0.0045	0.0040	0.0036	0.0032	0.0028
2002	0.0000	0.0006	0.0032	0.0044	0.0041	0.0036	0.0032	0.0029	0.0026	0.0023	0.0020	0.0018	0.0016
2003	0.0000	0.0002	0.0015	0.0064	0.0089	0.0088	0.0084	0.0079	0.0075	0.0071	0.0067	0.0063	0.0060
2004	0.0000	0.0003	0.0027	0.0114	0.0158	0.0156	0.0148	0.0140	0.0132	0.0125	0.0118	0.0112	0.0105
2005	0.0001	0.0005	0.0046	0.0192	0.0268	0.0264	0.0251	0.0237	0.0224	0.0212	0.0200	0.0189	0.0178
2006	0.0000	0.0001	0.0012	0.0049	0.0068	0.0068	0.0064	0.0061	0.0057	0.0054	0.0051	0.0048	0.0046
2007	0.0000	0.0004	0.0035	0.0148	0.0207	0.0204	0.0194	0.0183	0.0173	0.0163	0.0154	0.0146	0.0138
2008	0.0000	0.0002	0.0019	0.0079	0.0109	0.0108	0.0103	0.0097	0.0092	0.0087	0.0082	0.0077	0.0073
2009	0.0001	0.0005	0.0040	0.0166	0.0231	0.0228	0.0217	0.0205	0.0193	0.0183	0.0173	0.0163	0.0154
2010	0.0000	0.0002	0.0018	0.0076	0.0105	0.0104	0.0099	0.0093	0.0088	0.0083	0.0079	0.0074	0.0070
2011	0.0001	0.0005	0.0045	0.0191	0.0265	0.0262	0.0249	0.0235	0.0222	0.0210	0.0198	0.0187	0.0177
2012	0.0001	0.0007	0.0061	0.0257	0.0358	0.0354	0.0336	0.0317	0.0300	0.0283	0.0267	0.0253	0.0239
2013	0.0001	0.0005	0.0042	0.0177	0.0246	0.0243	0.0231	0.0218	0.0206	0.0194	0.0184	0.0173	0.0164
2014	0.0001	0.0008	0.0072	0.0302	0.0421	0.0416	0.0395	0.0373	0.0352	0.0333	0.0314	0.0297	0.0280

Table 25. Estimates of population abundance by age.

Year	Age													Total	8+
	1	2	3	4	5	6	7	8	9	10	11	12	13+		
1982	19,164,800	5,877,320	4,201,390	2,456,710	598,881	198,913	170,662	115,002	87,552	97,978	77,167	152,037	78,761	33,277,173	608,497
1983	46,186,300	6,174,050	2,324,490	1,126,690	894,979	279,032	111,266	107,869	76,763	60,612	69,531	55,710	169,053	57,636,345	539,538
1984	40,908,500	14,906,400	3,049,230	1,329,850	694,562	597,196	199,880	83,711	81,713	58,459	46,357	53,370	173,409	62,182,638	497,020
1985	39,887,500	13,202,300	7,227,720	1,657,500	823,521	476,819	444,450	157,078	66,436	65,294	46,939	37,355	183,486	64,276,397	556,587
1986	32,095,100	12,877,500	6,637,540	4,520,550	1,147,620	605,881	367,958	353,566	124,029	52,180	51,101	36,655	172,129	59,041,809	789,660
1987	42,690,600	10,363,800	6,496,720	4,175,870	3,138,390	847,204	472,742	298,273	286,249	100,346	42,207	41,341	169,027	69,122,769	937,443
1988	55,831,600	13,788,400	5,240,620	4,116,060	2,949,860	2,379,100	680,884	395,158	249,266	239,206	83,864	35,283	175,948	86,164,649	1,178,725
1989	62,126,900	18,030,200	6,964,100	3,307,220	2,875,160	2,198,820	1,879,720	560,071	325,344	205,365	197,222	69,198	174,519	98,913,839	1,531,719
1990	83,533,700	20,064,000	9,115,580	4,399,700	2,305,460	2,136,080	1,736,470	1,550,770	463,521	269,952	170,764	164,284	203,491	126,113,772	2,822,782
1991	68,563,500	26,971,100	10,127,300	5,702,720	3,000,320	1,648,580	1,624,280	1,396,570	1,264,880	382,011	224,150	142,552	308,667	121,356,630	3,718,830
1992	70,015,800	22,138,900	13,610,700	6,323,750	3,892,150	2,172,940	1,270,810	1,317,620	1,143,900	1,043,600	316,870	186,656	377,359	123,811,055	4,386,005
1993	90,969,700	22,610,200	11,176,100	8,512,510	4,347,430	2,862,240	1,699,820	1,041,450	1,086,110	947,163	867,040	263,927	471,104	146,854,794	4,676,794
1994	180,963,000	29,372,900	11,403,000	6,952,870	5,770,920	3,136,330	2,199,770	1,373,750	849,285	891,814	781,718	718,313	611,482	245,025,152	5,226,362
1995	114,886,000	58,425,100	14,797,100	7,049,390	4,650,520	4,107,880	2,381,650	1,758,220	1,108,810	690,687	729,414	642,099	1,096,980	212,323,850	6,026,210
1996	124,648,000	37,086,200	29,367,700	9,040,640	4,594,080	3,198,610	3,012,480	1,842,820	1,377,140	876,750	550,056	584,016	1,400,650	217,579,142	6,631,432
1997	153,941,000	40,239,800	18,645,400	17,987,700	5,952,620	3,197,810	2,359,060	2,321,580	1,427,410	1,072,100	685,762	432,073	1,568,770	249,831,085	7,507,695
1998	98,336,800	49,684,900	20,257,200	11,527,600	11,925,300	4,108,660	2,291,330	1,729,980	1,680,970	1,024,550	765,456	488,301	1,423,840	205,244,887	7,113,097
1999	100,575,000	31,740,100	25,017,700	12,534,000	7,678,380	8,302,880	2,977,050	1,702,470	1,271,050	1,225,650	743,623	554,324	1,384,330	195,706,557	6,881,447
2000	79,720,800	32,466,700	15,998,500	15,560,400	8,450,930	5,438,160	6,135,650	2,260,110	1,279,810	949,071	911,443	551,856	1,438,090	171,161,520	7,390,380
2001	118,508,000	25,729,000	16,329,300	9,836,740	10,269,600	5,824,460	3,895,570	4,501,300	1,637,960	919,813	678,710	650,200	1,419,080	200,199,733	9,807,063
2002	138,314,000	38,252,800	12,958,700	10,118,100	6,582,530	7,190,240	4,237,290	2,900,430	3,308,340	1,193,000	666,122	489,965	1,491,640	227,703,157	10,049,497
2003	76,283,800	44,651,200	19,284,500	8,070,300	6,845,430	4,671,170	5,299,620	3,193,260	2,155,620	2,434,420	872,133	485,057	1,439,140	175,685,650	10,579,630
2004	166,587,000	24,621,200	22,486,500	11,943,300	5,335,520	4,695,710	3,325,440	3,862,260	2,298,430	1,538,520	1,728,790	617,832	1,362,860	250,403,362	11,408,692
2005	93,274,000	53,767,100	12,396,300	13,908,300	7,860,150	3,625,770	3,293,040	2,374,480	2,711,520	1,594,540	1,059,300	1,185,250	1,355,080	198,404,830	10,280,170
2006	86,785,300	30,103,100	27,058,900	7,644,320	9,051,770	5,259,620	2,504,230	2,317,770	1,644,670	1,857,460	1,084,920	718,214	1,720,570	177,750,844	9,343,604
2007	65,913,200	28,004,800	15,135,500	16,638,800	4,959,790	6,013,790	3,583,410	1,728,370	1,566,600	1,095,360	1,225,410	711,873	1,595,420	148,172,323	7,923,033
2008	87,451,600	21,271,800	14,090,800	9,327,480	10,822,700	3,317,190	4,152,550	2,522,520	1,197,760	1,074,050	746,086	831,910	1,565,230	158,371,676	7,937,556
2009	61,360,500	28,226,400	10,711,100	8,725,370	6,168,220	7,391,540	2,330,500	2,960,060	1,762,650	825,065	732,890	506,201	1,620,180	133,320,676	8,407,046
2010	78,064,700	19,804,900	14,215,500	6,627,580	5,734,390	4,198,970	5,230,340	1,691,250	2,124,930	1,256,330	585,721	519,455	1,508,540	141,562,606	7,686,226
2011	97,968,500	25,197,700	9,978,090	8,821,670	4,405,470	3,964,030	3,014,410	3,844,650	1,227,910	1,529,770	899,816	418,418	1,447,910	162,718,344	9,368,474
2012	125,129,000	31,620,300	12,687,200	6,167,190	5,778,040	2,977,750	2,772,590	2,152,980	2,706,630	855,936	1,059,960	621,575	1,288,420	195,817,571	8,685,501
2013	31,872,000	40,390,900	15,933,700	7,863,880	4,060,850	3,947,940	2,120,540	2,029,600	1,561,910	1,952,290	615,532	761,554	1,374,360	114,485,056	8,295,246
2014	76,119,600	10,286,600	20,331,500	9,837,430	5,137,910	2,732,540	2,743,120	1,501,690	1,414,500	1,076,570	1,336,450	419,845	1,455,080	134,392,835	7,204,135

Table 26. Estimate of female spawning stock biomass-at-age by year.

Year	Age													Total	SD
	1	2	3	4	5	6	7	8	9	10	11	12	13+		
1982	0	0	0	59	87	197	481	466	416	713	748	1,532	1,037	5,736	1327.34
1983	0	0	0	27	128	230	256	403	378	397	580	534	1,768	4,701	1122.1
1984	0	0	0	35	106	503	557	307	433	370	347	578	2,031	5,267	1195.72
1985	0	0	0	51	113	434	1,220	605	357	412	364	344	2,405	6,305	1308.56
1986	0	0	0	165	173	473	872	1,277	562	284	352	307	2,081	6,545	1225.7
1987	0	0	0	145	528	646	1,014	976	1,290	544	278	351	2,109	7,883	1302.09
1988	0	0	0	139	567	2,323	1,657	1,254	1,062	1,167	604	314	2,213	11,300	1484.3
1989	0	0	0	115	536	2,481	5,781	2,306	1,540	1,371	1,415	601	2,212	18,359	1984.4
1990	0	0	0	147	362	2,107	5,132	6,490	2,253	1,410	1,190	1,368	2,434	22,893	2216.61
1991	0	0	0	196	501	1,323	4,536	5,486	6,679	2,033	1,703	1,060	4,166	27,681	2570.37
1992	0	0	0	205	696	2,003	3,436	5,255	6,302	7,002	2,494	1,996	5,002	34,390	3022.65
1993	0	0	0	283	745	2,630	4,688	4,340	6,063	6,387	7,157	2,550	6,502	41,345	3408.36
1994	0	0	0	250	1,017	2,820	6,154	5,752	4,682	5,750	6,520	6,858	7,378	47,181	3634.86
1995	0	0	0	266	820	3,826	7,040	7,357	6,433	4,976	4,950	5,728	17,280	58,677	4395.3
1996	0	0	0	339	907	3,474	10,234	8,762	8,404	6,595	4,531	5,022	18,109	66,379	4693.68
1997	0	0	0	720	1,075	3,060	6,478	8,882	8,010	8,116	5,931	3,913	21,651	67,836	4866.78
1998	0	0	0	319	1,851	3,246	6,146	6,598	8,769	6,133	5,503	4,380	15,809	58,755	4267.34
1999	0	0	0	320	951	5,509	5,912	6,016	6,635	8,015	5,459	4,646	15,551	59,014	4371.87
2000	0	0	0	390	1,034	3,737	13,017	7,386	6,864	5,839	7,440	5,078	18,200	68,987	5034.94
2001	0	0	0	284	1,379	4,524	8,873	15,122	8,115	6,027	5,011	5,084	14,422	68,842	4850.9
2002	0	0	0	263	918	5,656	10,166	10,569	15,711	7,440	5,180	4,208	16,078	76,190	5374.99
2003	0	0	0	195	924	3,675	12,390	11,198	10,523	14,402	6,383	4,093	14,775	78,558	5513.22
2004	0	0	0	284	760	3,619	7,834	13,379	11,001	9,024	12,106	4,958	13,576	76,541	5569.8
2005	0	0	0	356	1,045	2,943	7,747	8,789	13,436	9,418	7,611	10,159	15,349	76,854	6037.35
2006	0	0	0	183	1,140	3,744	5,570	8,246	8,616	11,304	7,842	5,915	19,197	71,757	6074.51
2007	0	0	0	355	627	4,453	8,403	6,010	8,295	7,062	9,575	6,231	18,934	69,945	6336.47
2008	0	0	0	222	1,377	2,744	11,236	9,276	6,198	7,253	5,818	7,280	17,448	68,852	6317.69
2009	0	0	0	211	741	5,907	5,964	11,710	9,418	5,283	5,634	4,308	18,513	67,687	6438.82
2010	0	0	0	160	706	3,308	12,735	6,048	10,721	8,043	4,492	4,266	16,332	66,811	6392.72
2011	0	0	0	232	543	2,957	7,126	13,380	6,128	9,437	6,414	3,671	17,631	67,520	6842.52
2012	0	0	0	169	811	2,320	6,835	8,241	13,755	5,732	8,138	5,527	16,670	68,197	7362.52
2013	0	0	0	186	574	3,272	5,011	7,301	8,287	12,183	4,900	6,918	16,790	65,423	7418.14
2014	0	0	0	215	666	2,100	6,717	5,317	7,573	7,348	10,341	4,247	19,394	63,918	7959.33

Figure 1. Time series of coast-wide commercial and recreational harvest in metric tons.

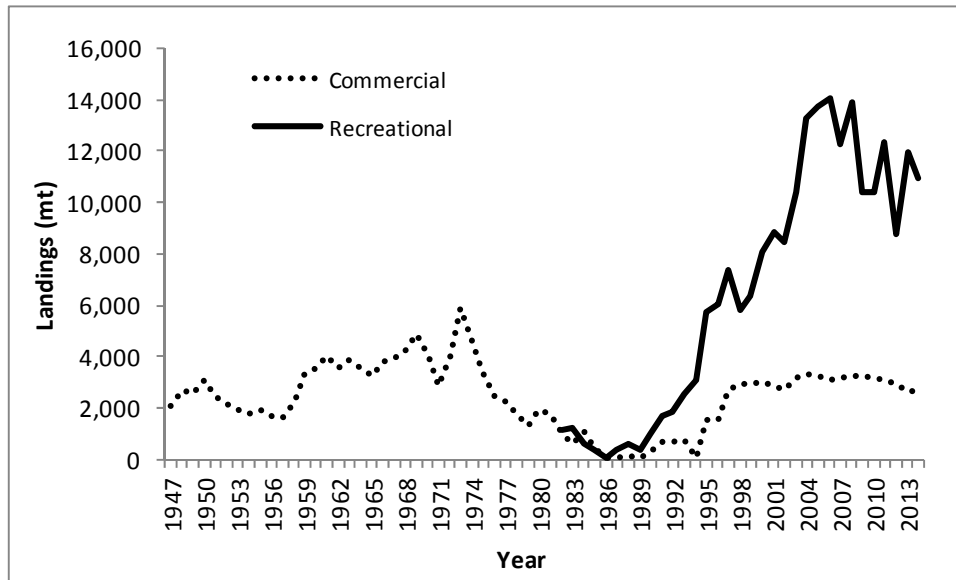


Figure 2. Time series of harvest and dead release/discard numbers from the coast-wide commercial and recreational fisheries during 1982-2014.

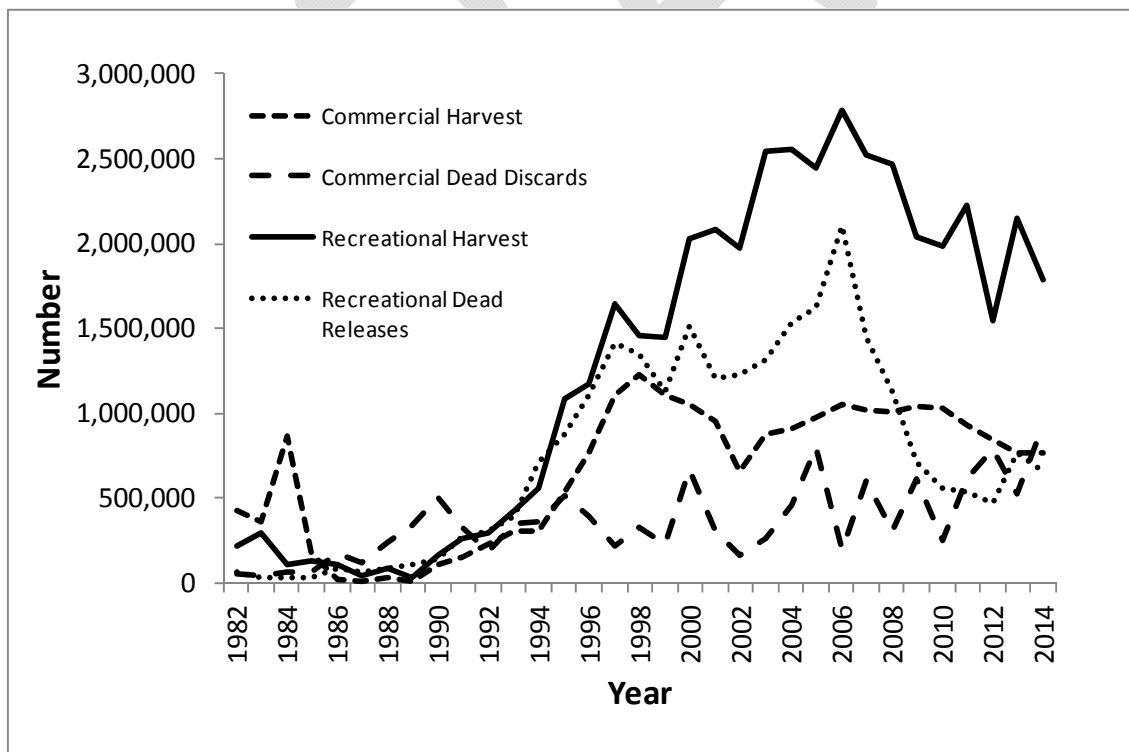


Figure 3. Percentage of total removals by fishery component in 2013 and 2014.

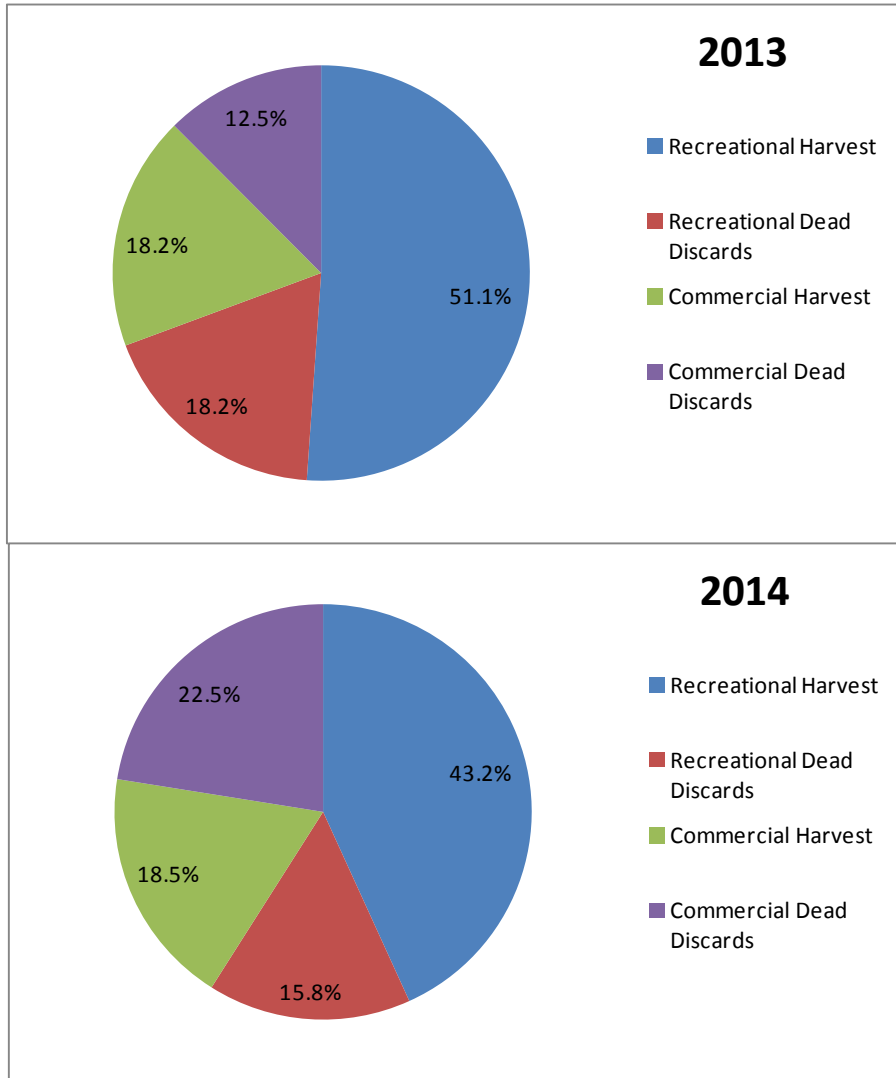


Figure 4. Total removals (numbers) of striped bass by regional fleets.

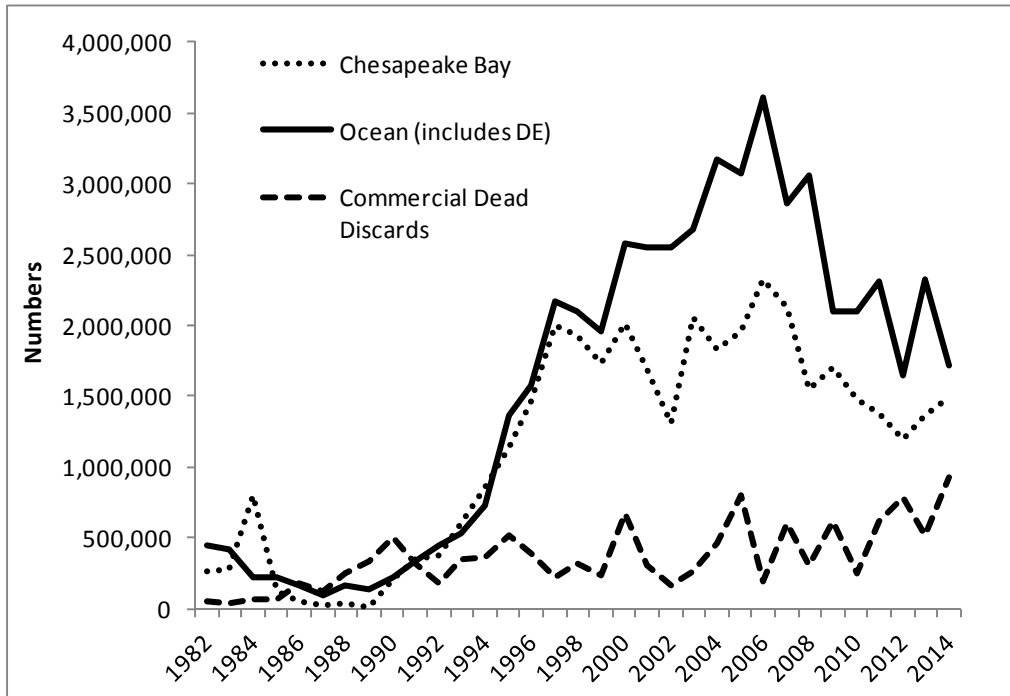


Figure 5. Fishery-independent and -dependent indices of relative abundance.

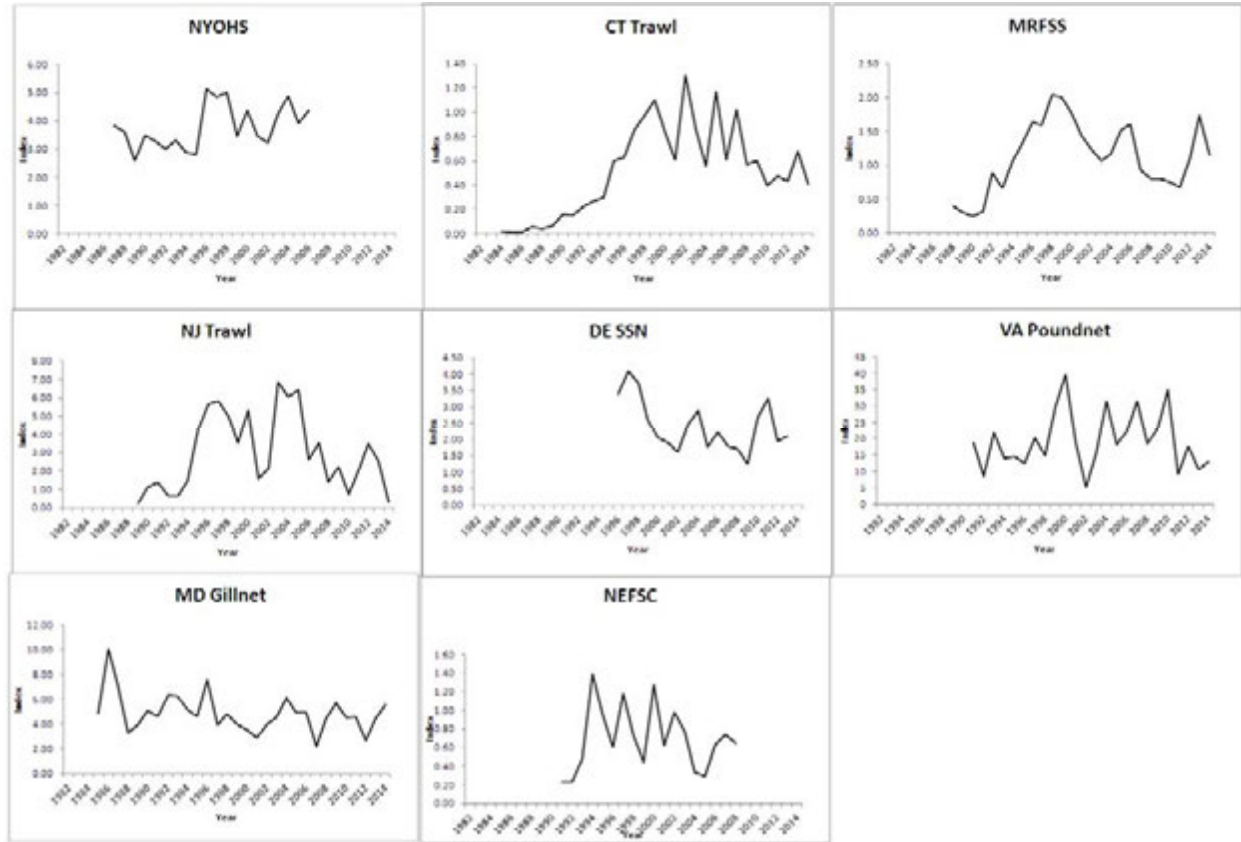


Figure 6. Young-of-the-year and age-1 indices of relative abundance.

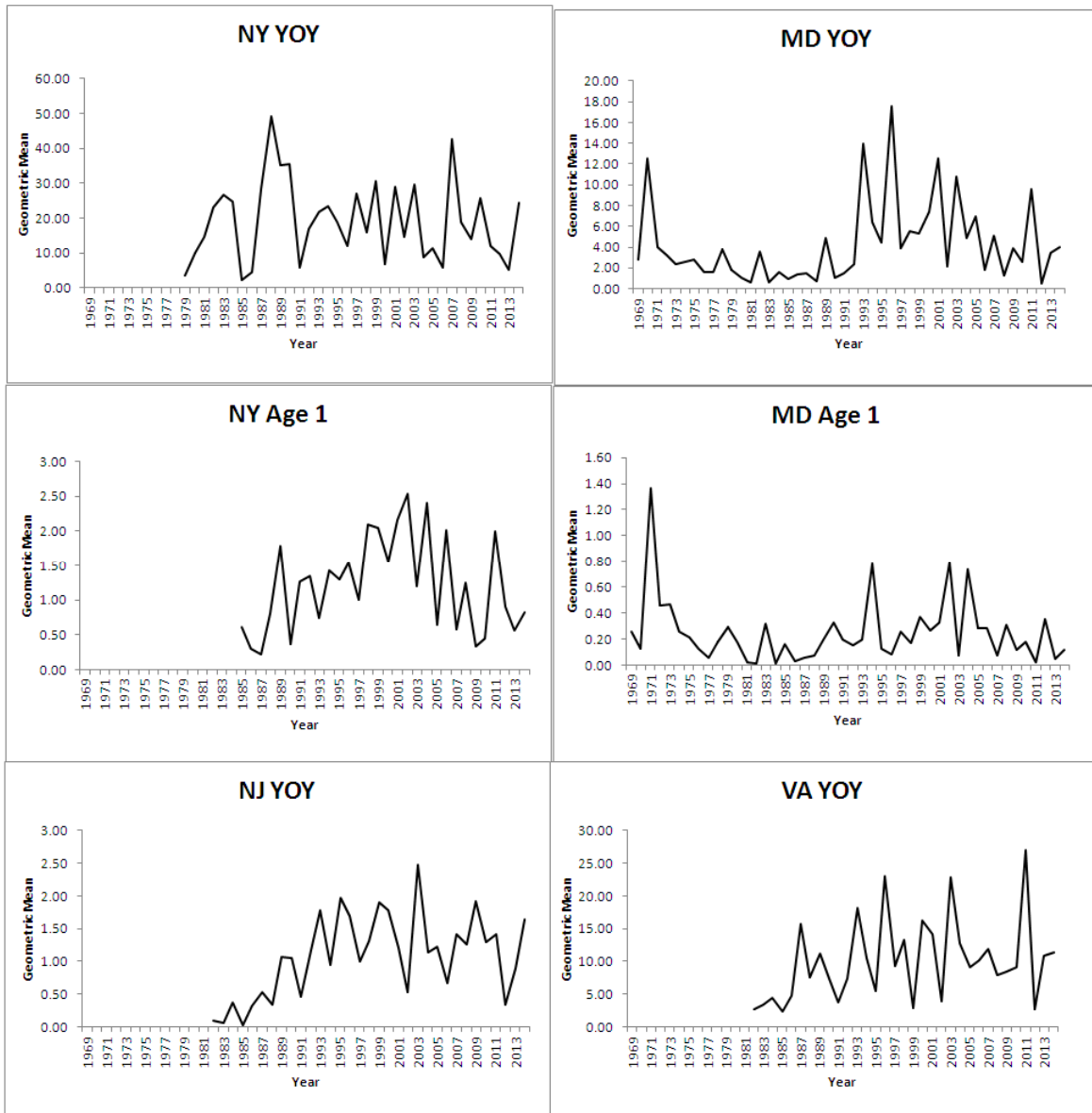


Figure 7. Observed and predicted total catch and standardized residuals by fleet (Fleet 1 = Bay, Fleet 2 = Ocean, Fleet 3 = Commercial Discards).

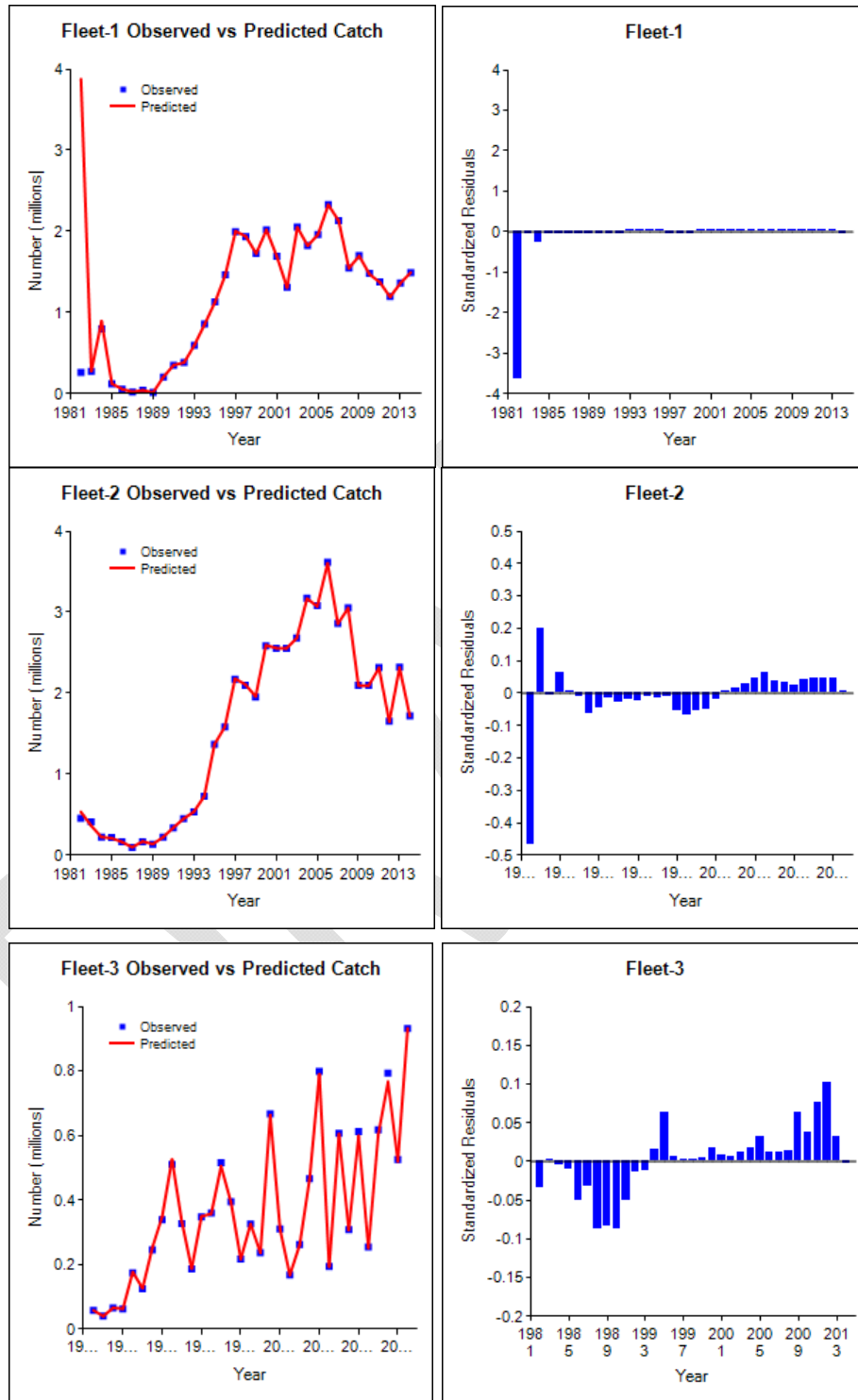


Figure 8. Catch selectivity patterns by fleet (Fleet 1 = Bay, Fleet 2 = Ocean, Fleet 3 = Commercial Discards).

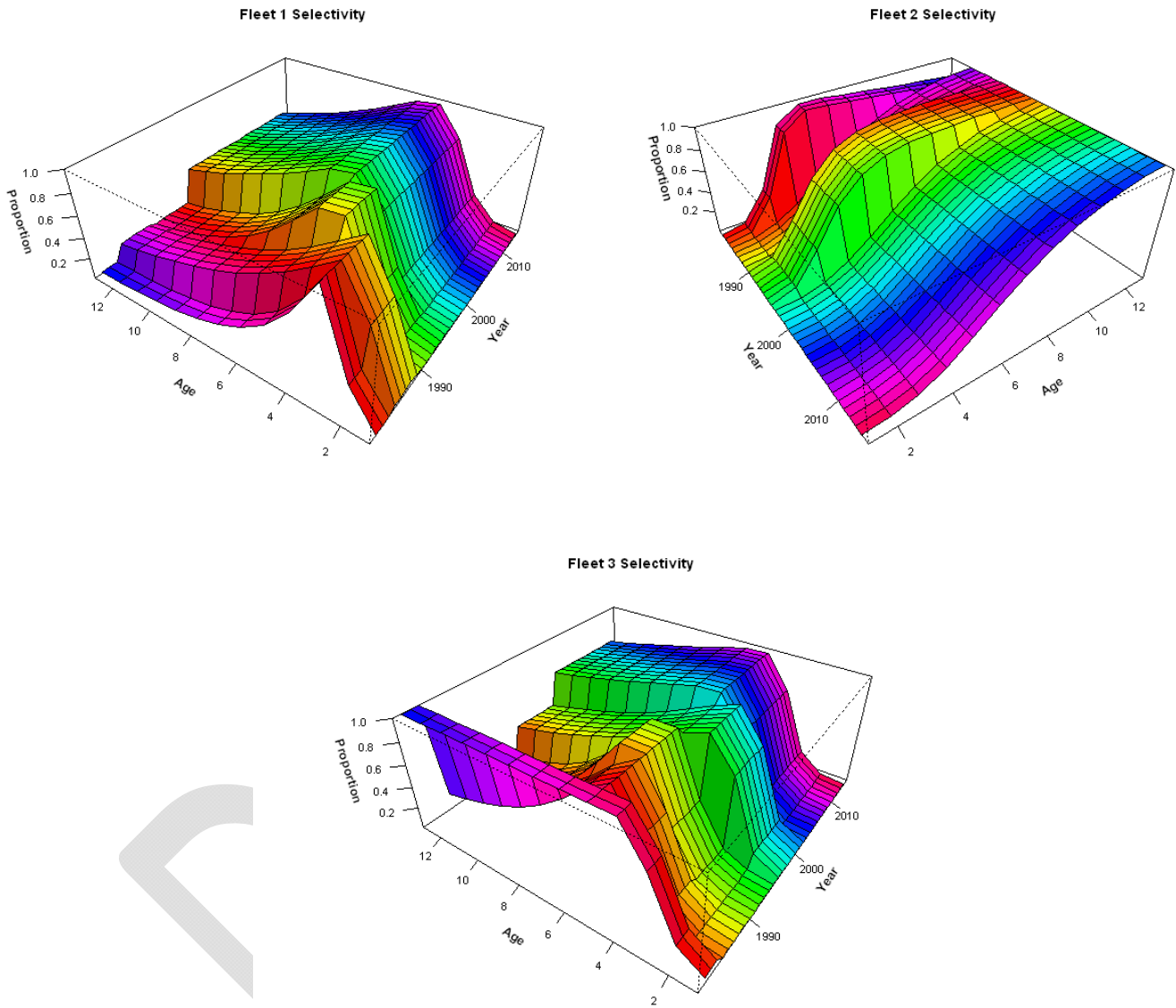


Figure 9. Estimates of total and fleet-specific fully-recruited fishing mortality (± 1 SD) and recruitment (± 1 SD) from the SCA base model run.

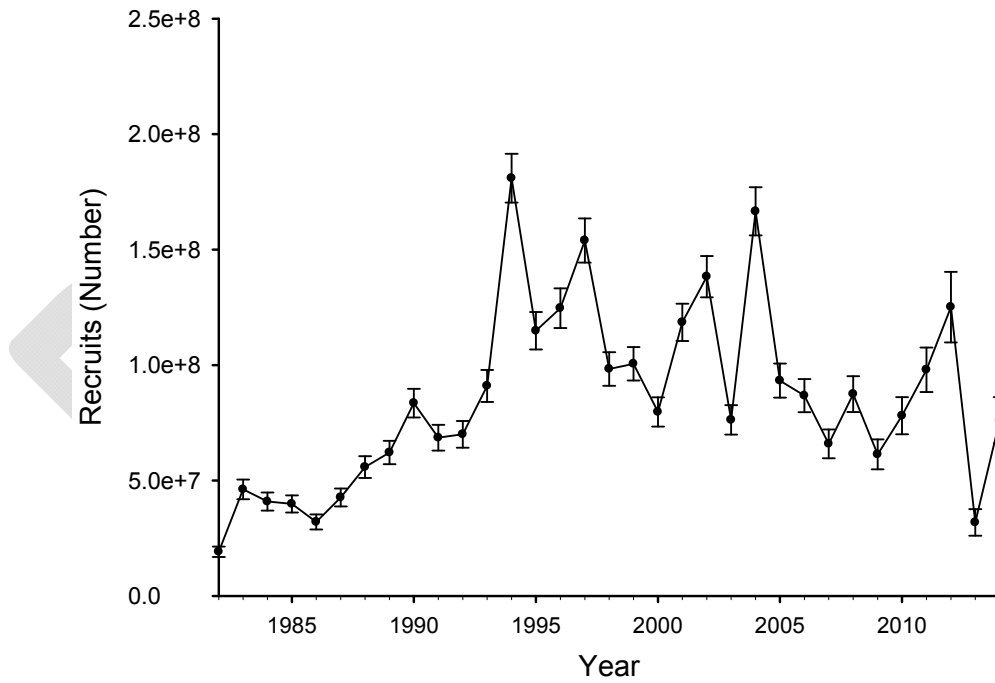
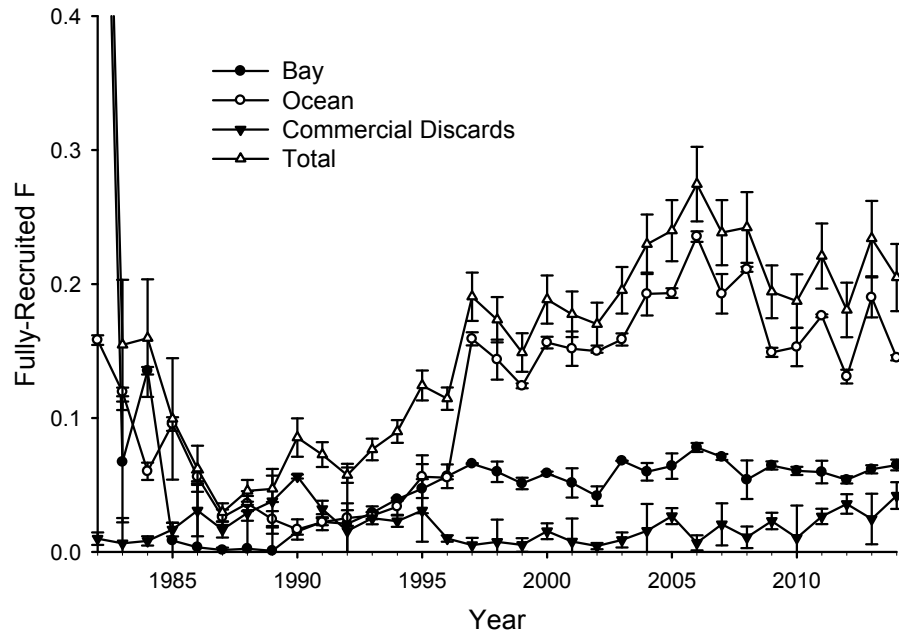


Figure 10. Comparison of fishing mortality-at-age in 2013 and 2014 from the SCA model partitioned into fleets.

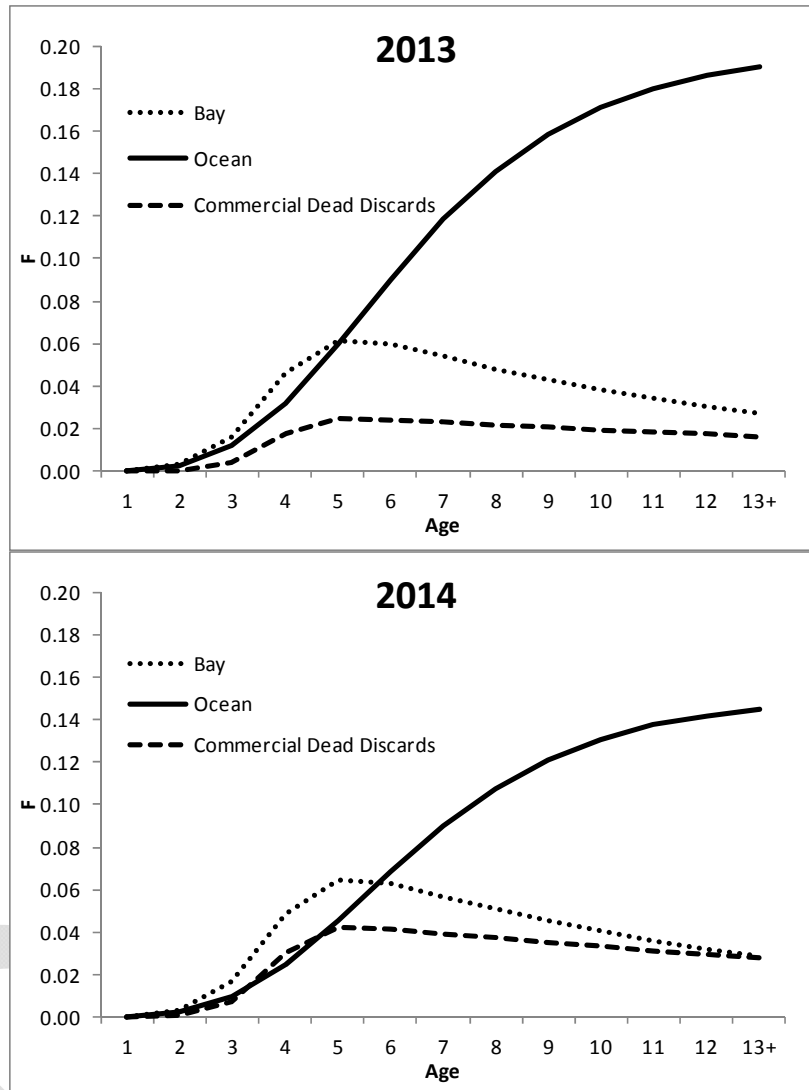


Figure 11. Estimates of January-1 total (age 1+) and 8+ abundance for 1982-2015. January-1 abundance for age 1 in 2015 was estimated from the 2014 observed values of the YOY indices and SCA model catchability coefficients, while older ages were projected from January-1 abundances and fishing and natural mortalities-at-age for 2014.

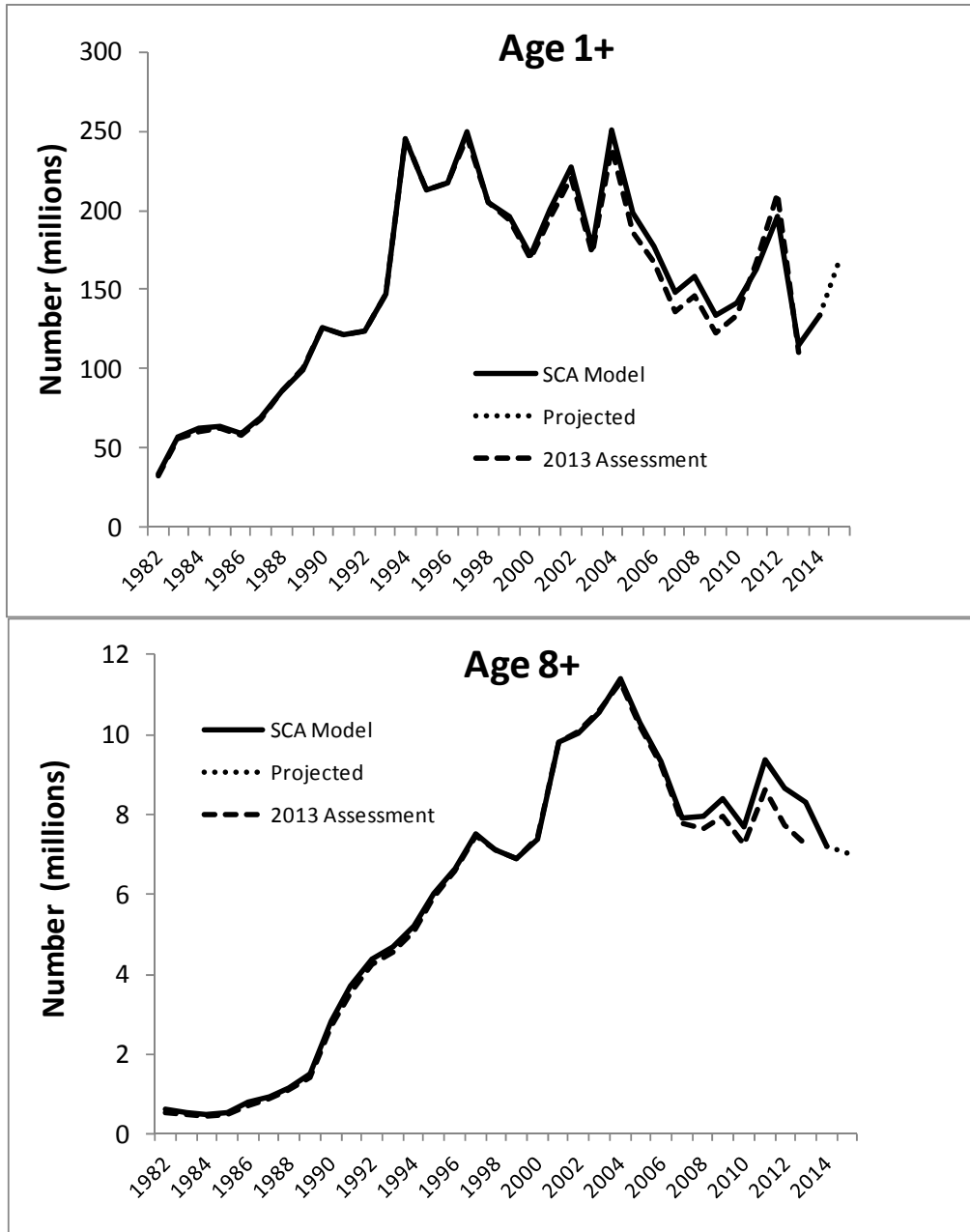


Figure 12. Estimates of A) female spawning stock biomass by year (solid line), B) female spawning stock numbers, and C) 1+ and 2+ January-1 biomass . Dotted lines equal 95% confidence intervals. Dashed line is the female spawning stock reference point (1995 value).

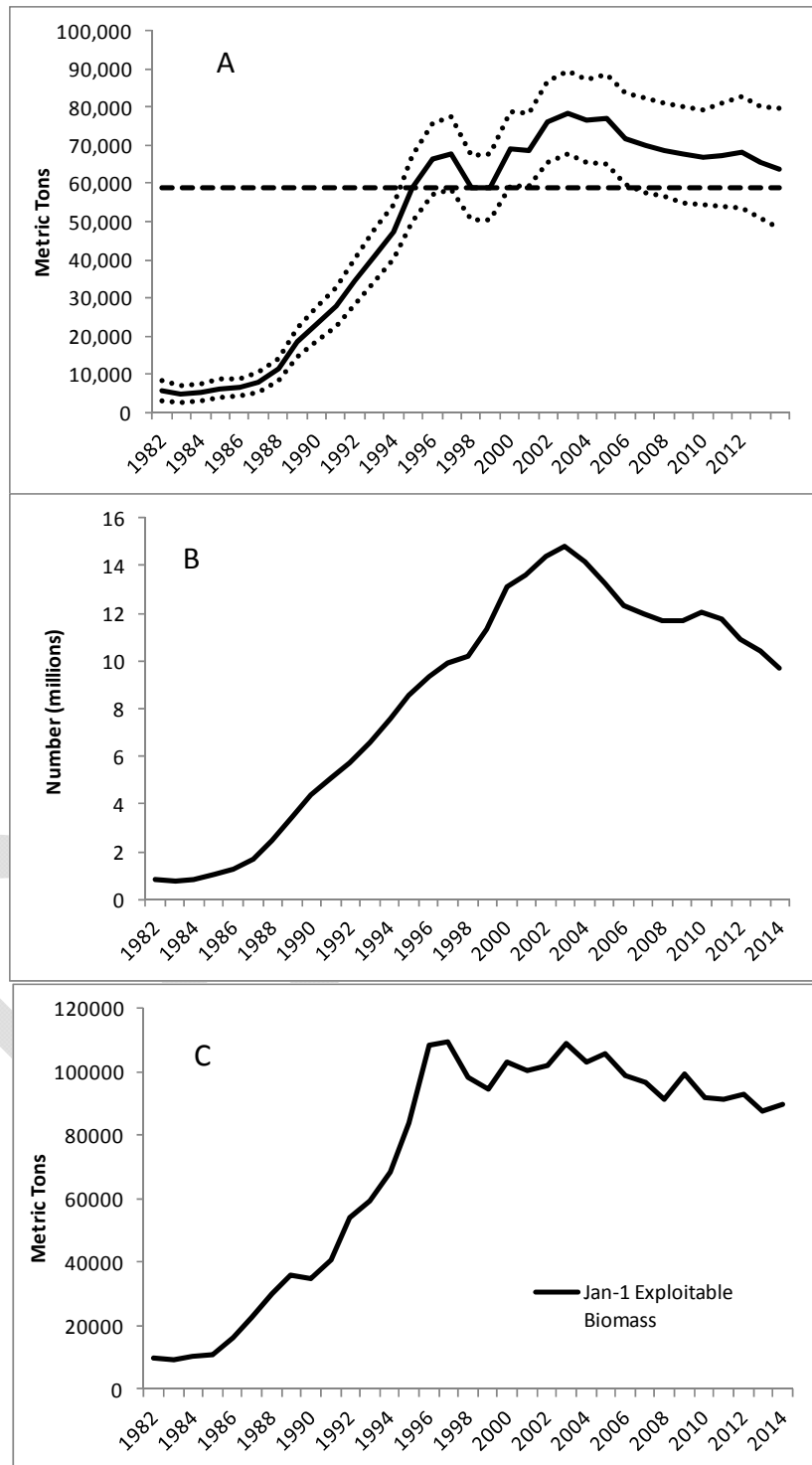


Figure 13. Retrospective analysis of fully-recruited F, female spawning stock biomass, 8+ abundance and Age 1 recruits.

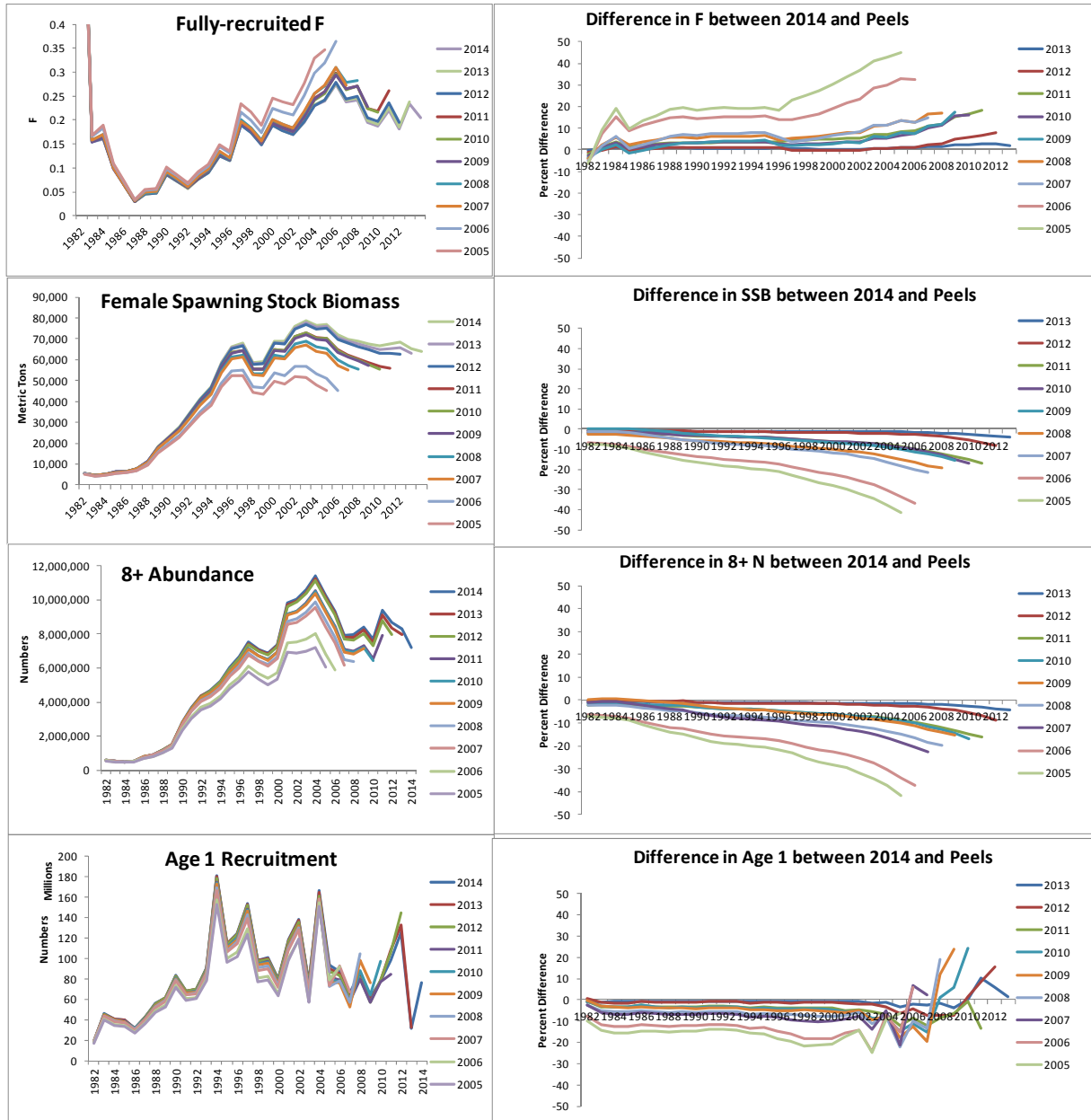


Figure 14. Comparison of coast-wide fully-recruited (age-11) fishing mortality and female spawning stock biomass estimates between the 2015 and 2013 assessments.

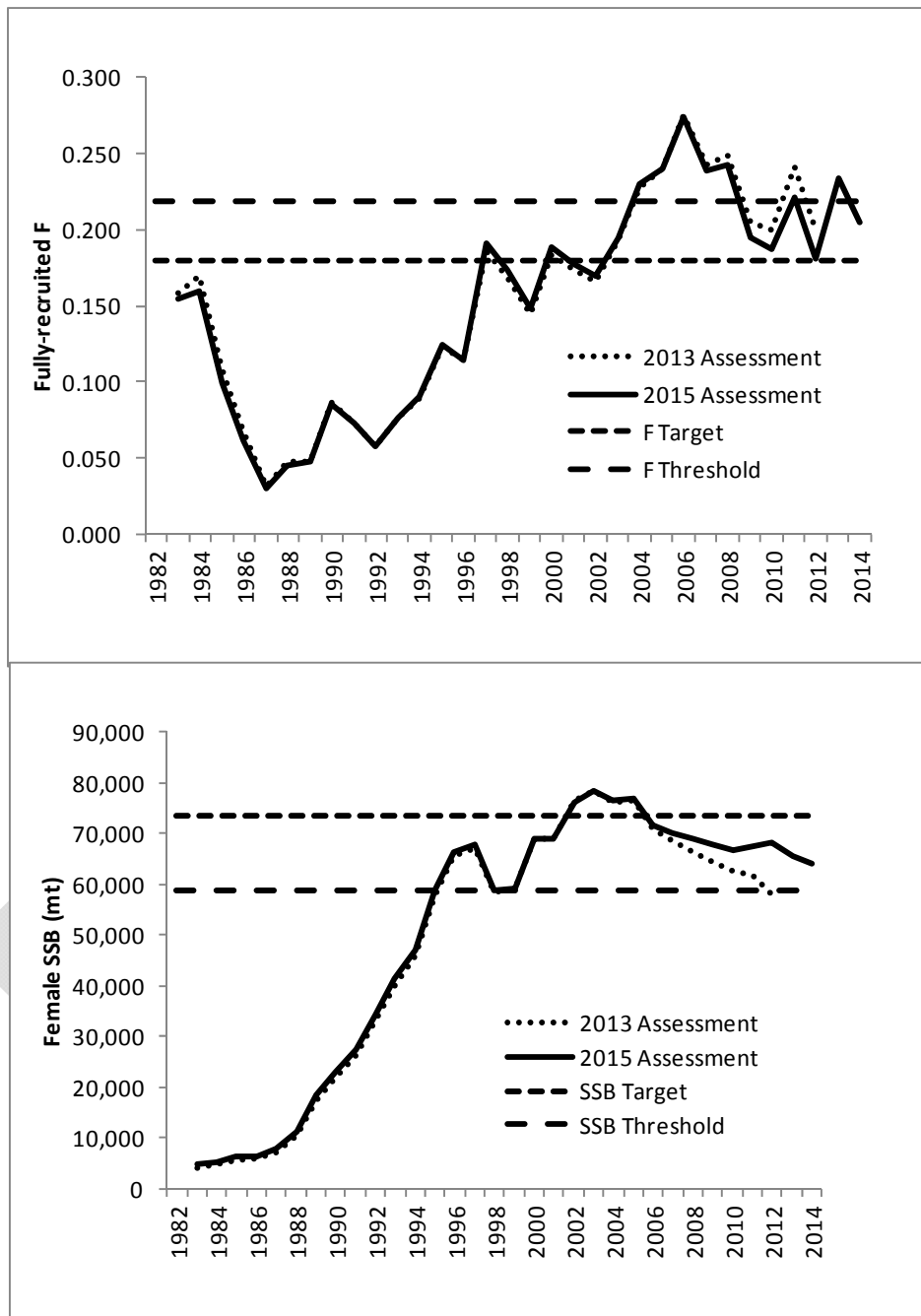


Figure 15. Projections of female spawning stock biomass and estimated fishing mortality assuming constant catch during 2015-2017. The graph on the left contains the projected estimates (median is the solid line with circle; 95% confidence intervals are dashed lines) compared to the reference point (dotted lines), and the graph on the right is the probability of the estimate comparison.

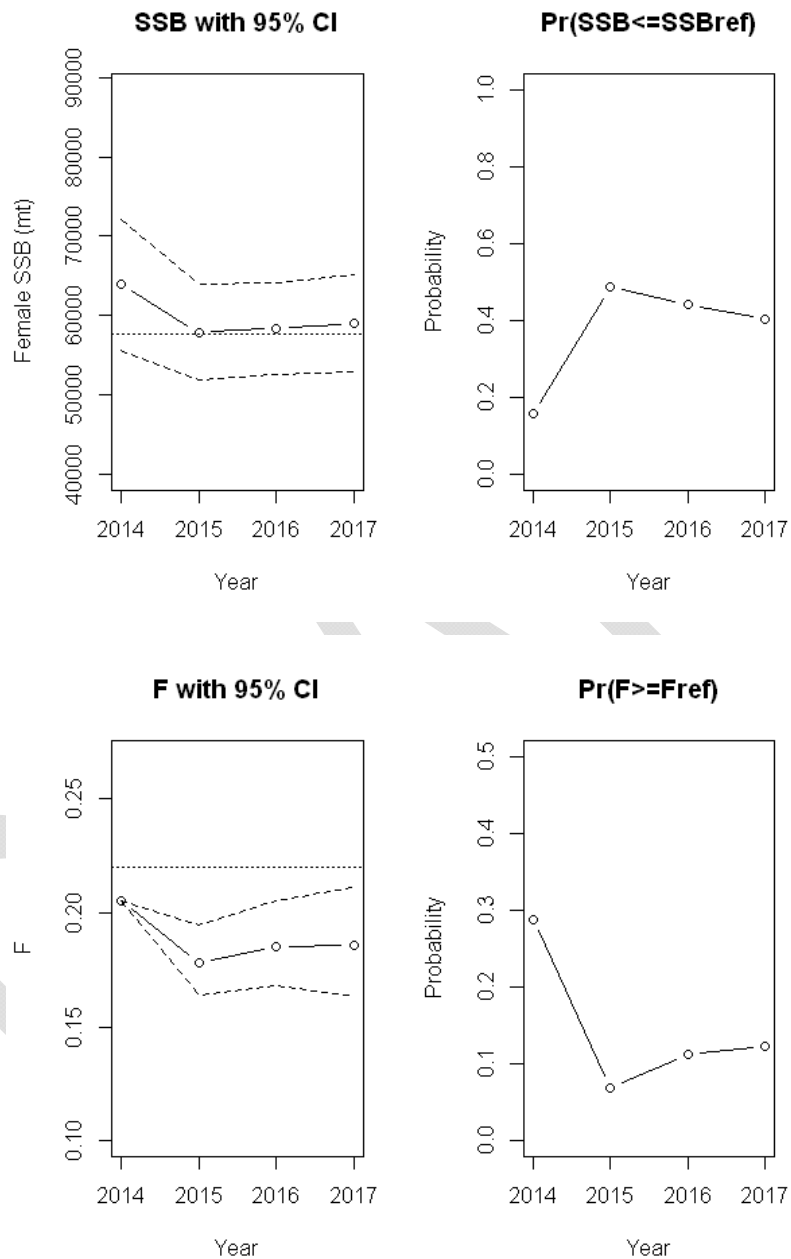


Figure 16. Projections of female spawning stock biomass and estimated fishing mortality assuming constant catch during 2015-2017 and adjusting the numbers-at-age in 2014 for the average age-specific retrospective bias in 2009-2013. The graph on the left contains the projected estimates (median is the solid line with circle; 95% confidence intervals are dashed lines) compared to the reference point (dotted lines), and the graph on the right is the probability of the estimate comparison.

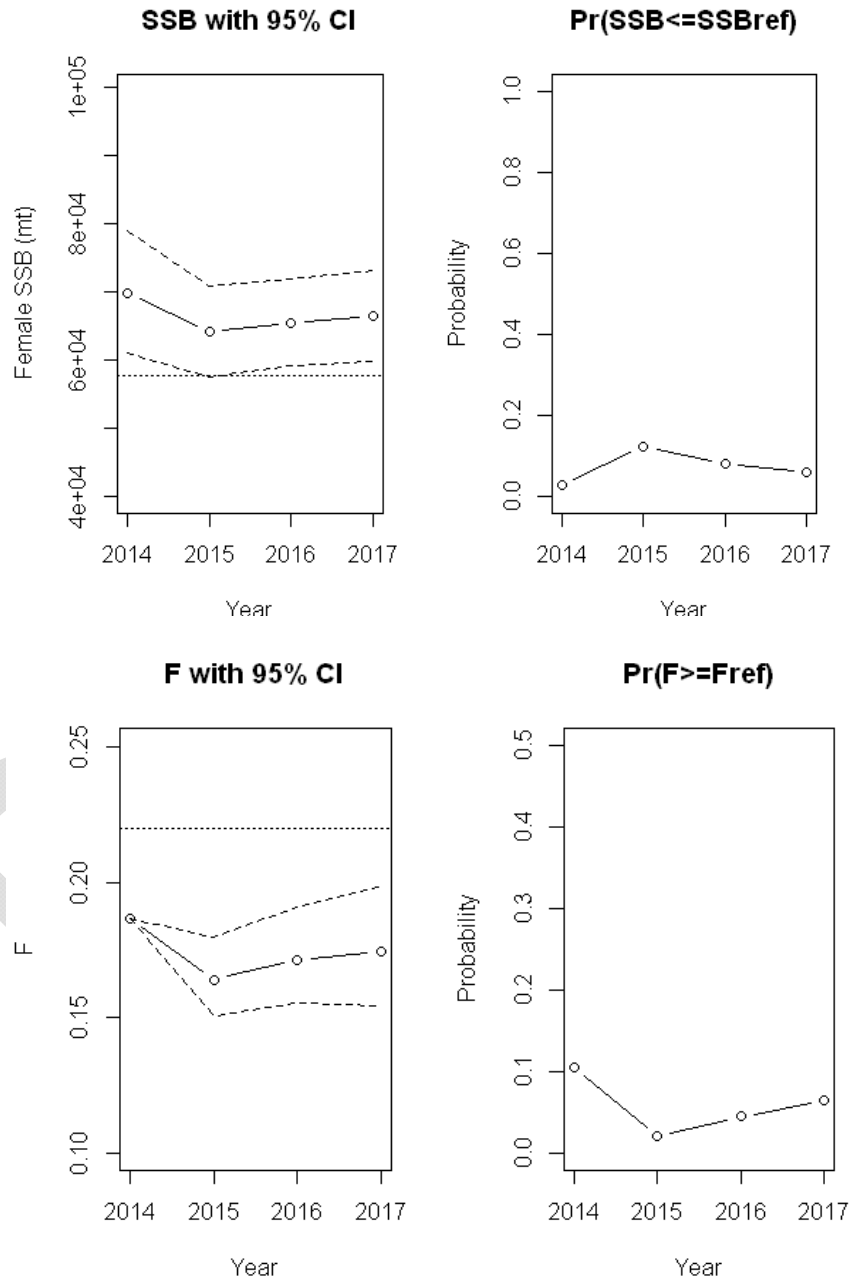


Figure 17. Projections of female spawning stock biomass and estimated fishing mortality assuming constant catch during 2015-2017. The graph on the left contains the projected estimates (median is the solid line with circle; 95% confidence intervals are dashed lines) compared to the targets (dotted lines), and the graph on the right is the probability of the estimate comparison.

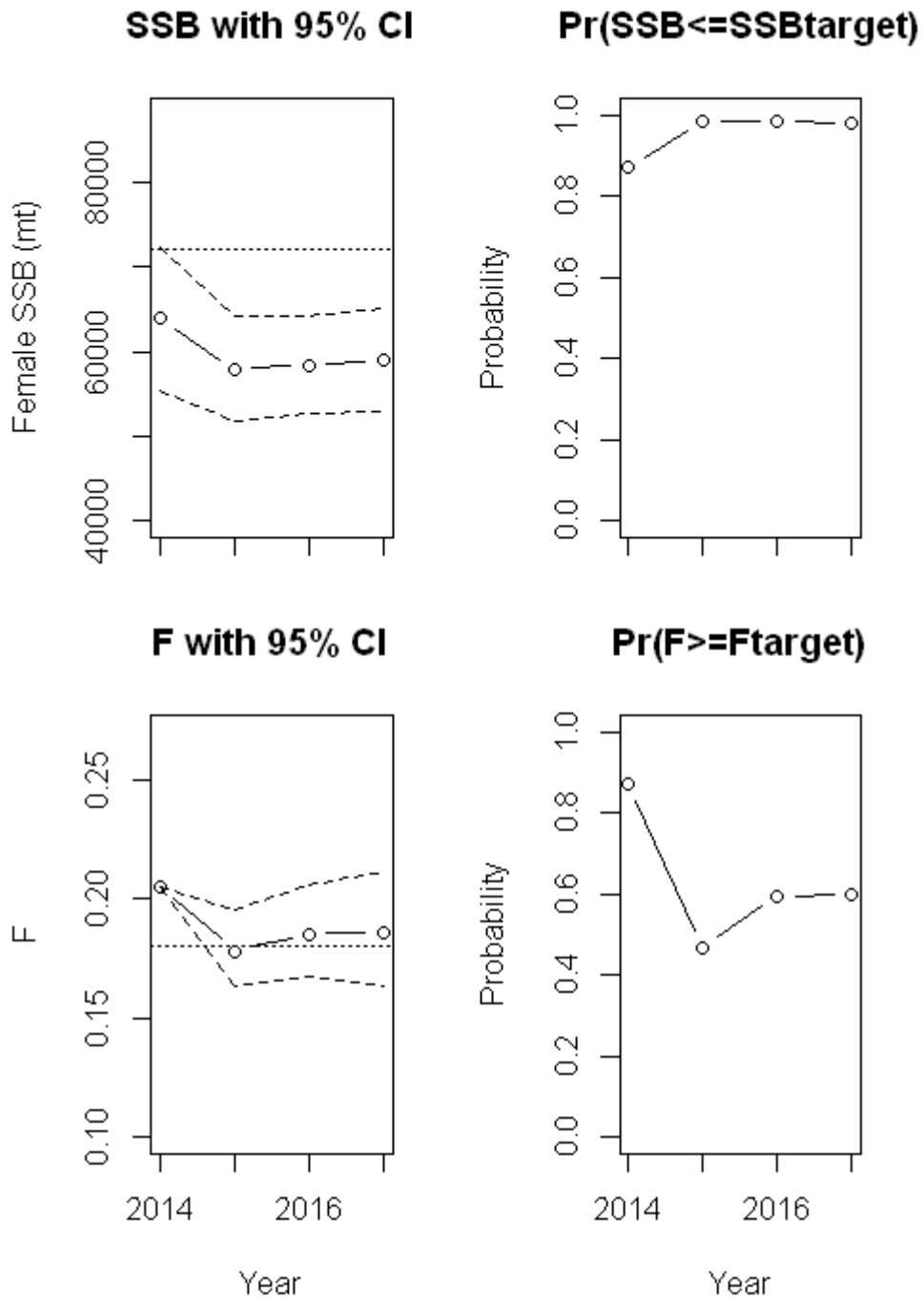
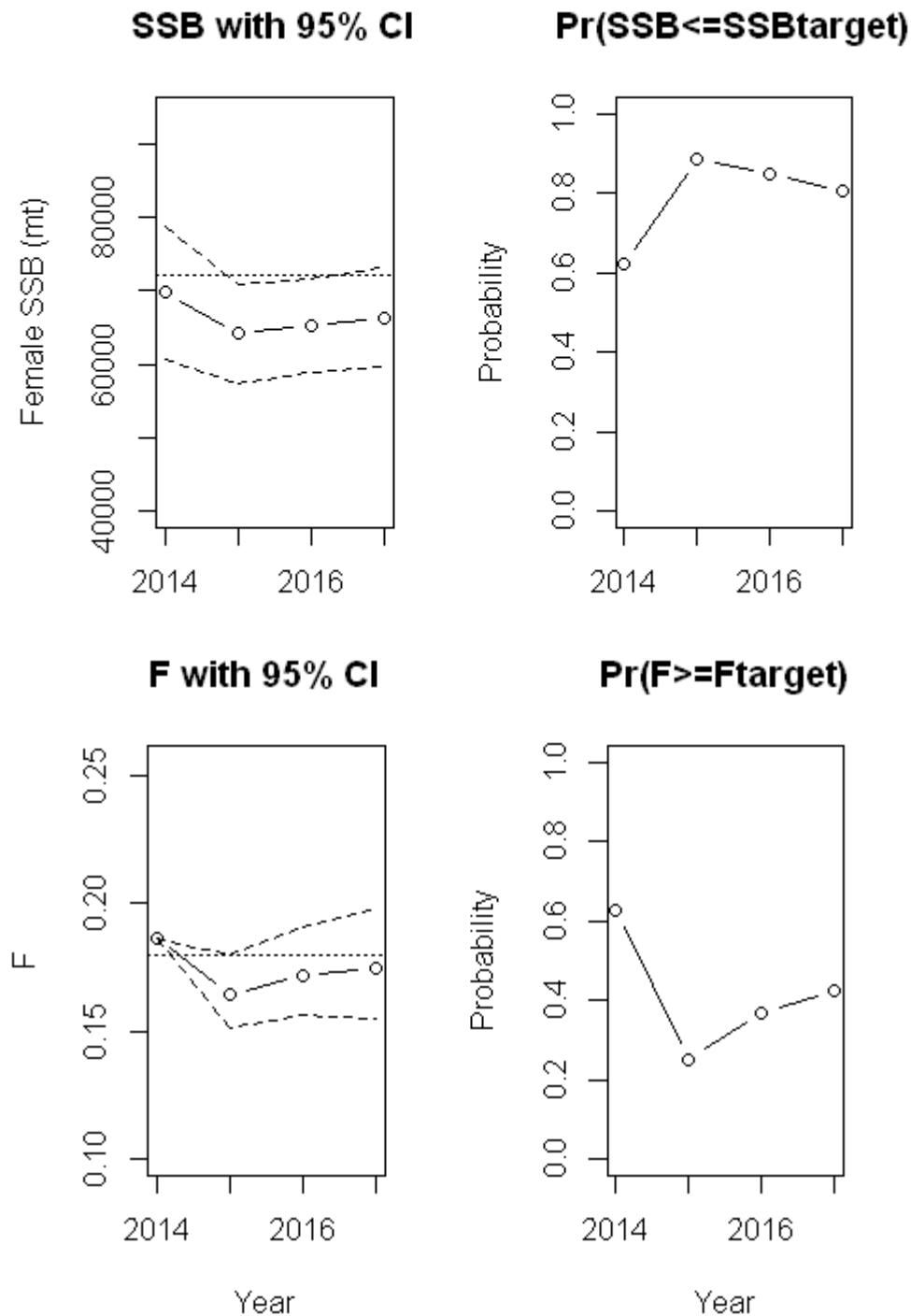


Figure 18. Projections of female spawning stock biomass and estimated fishing mortality assuming constant catch during 2015-2017 and adjusting the numbers-at-age in 2014 for the average age-specific retrospective bias in 2009-2013. The graph on the left contains the projected estimates (median is the solid line with circle; 95% confidence intervals are dashed lines) compared to the targets (dotted lines), and the graph on the right is the probability of the estimate comparison.



Appendix A. Plots of SCA model output.

Figure 1. Plots of observed and predicted catch proportions-at-age by year for each fleet.

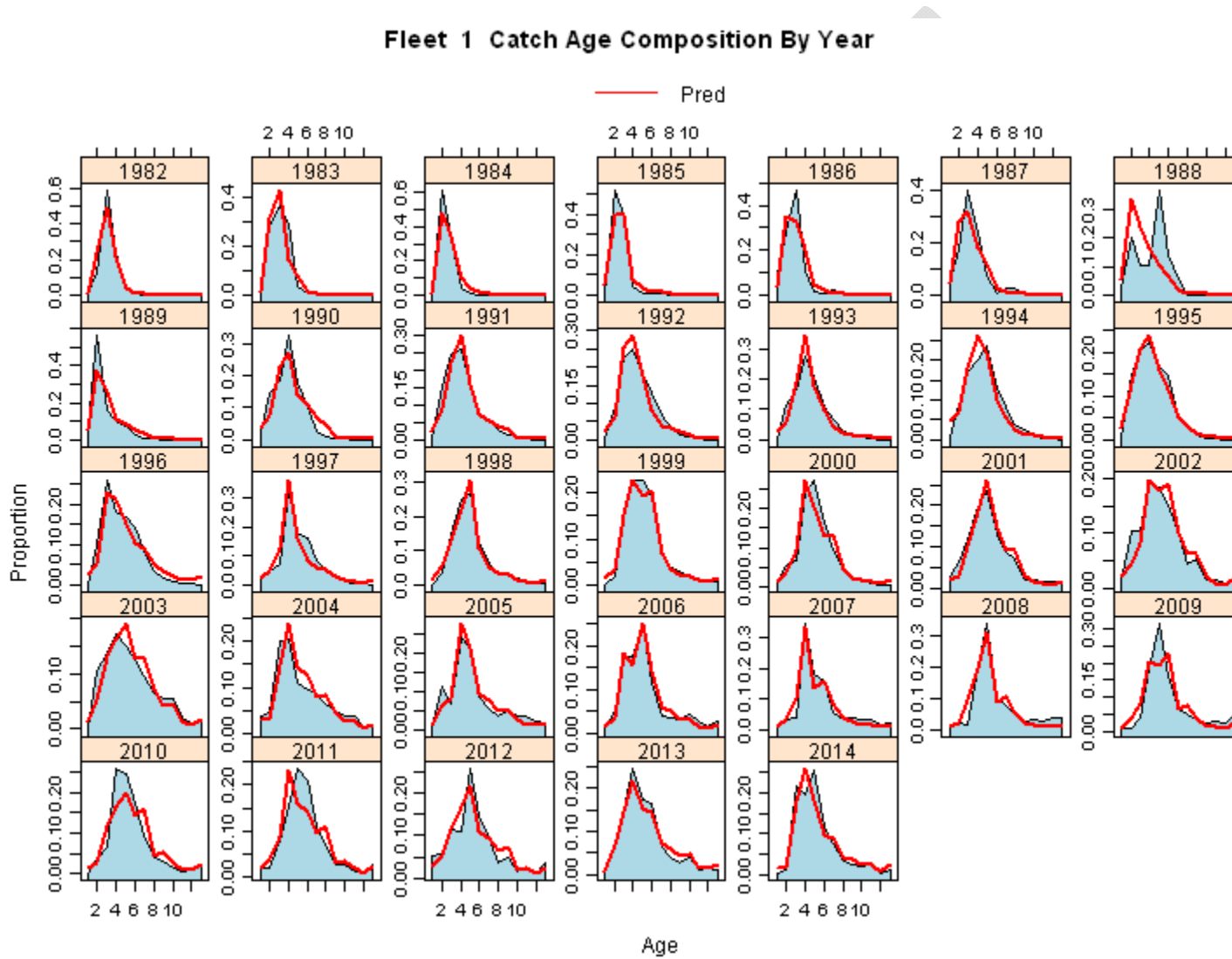


Figure 1 cont.

Fleet 2 Catch Age Composition By Year

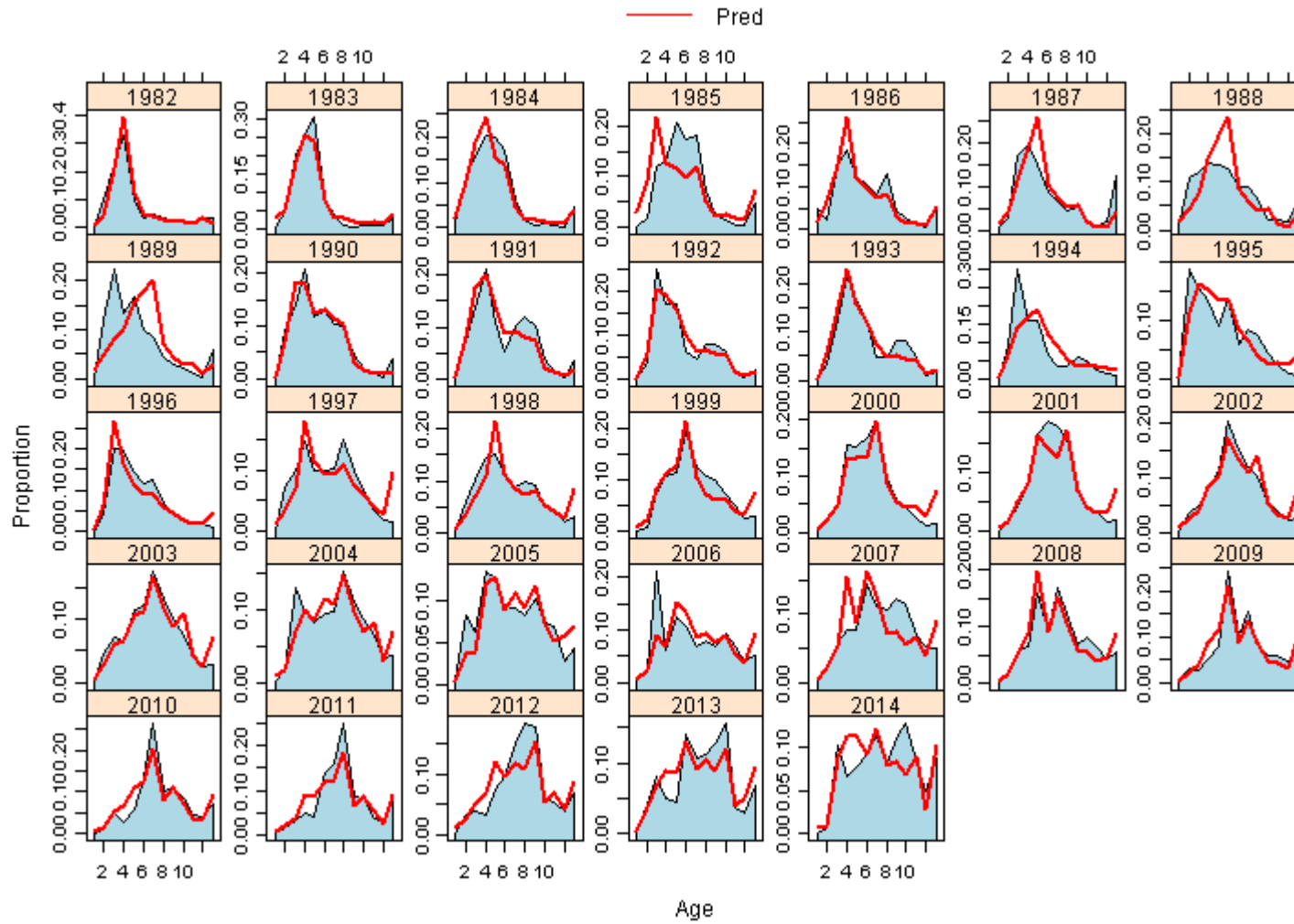


Figure 1 cont.

Fleet 3 Catch Age Composition By Year

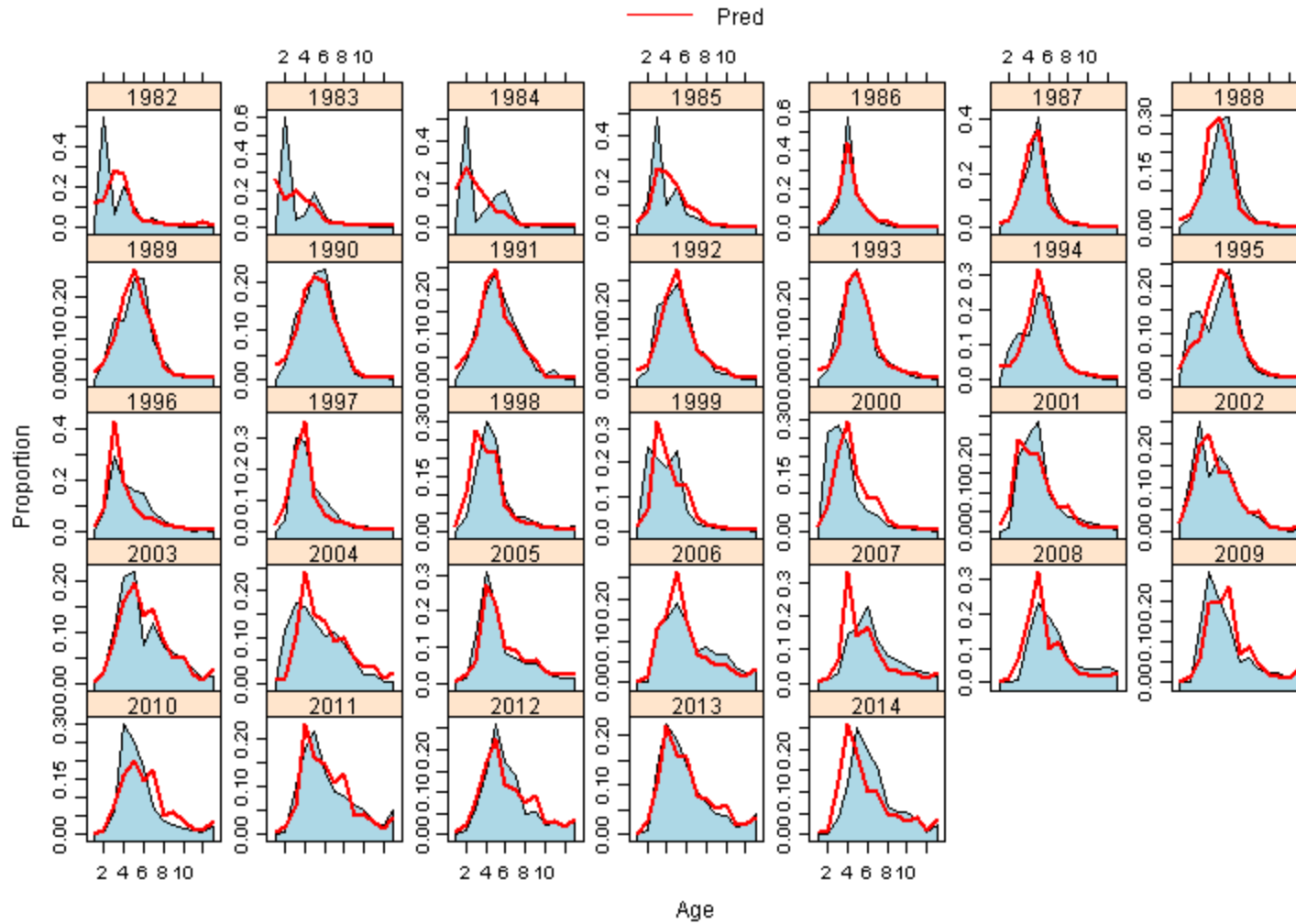


Figure 2. Standardized residuals of catch proportions-at-age by year for each fleet.

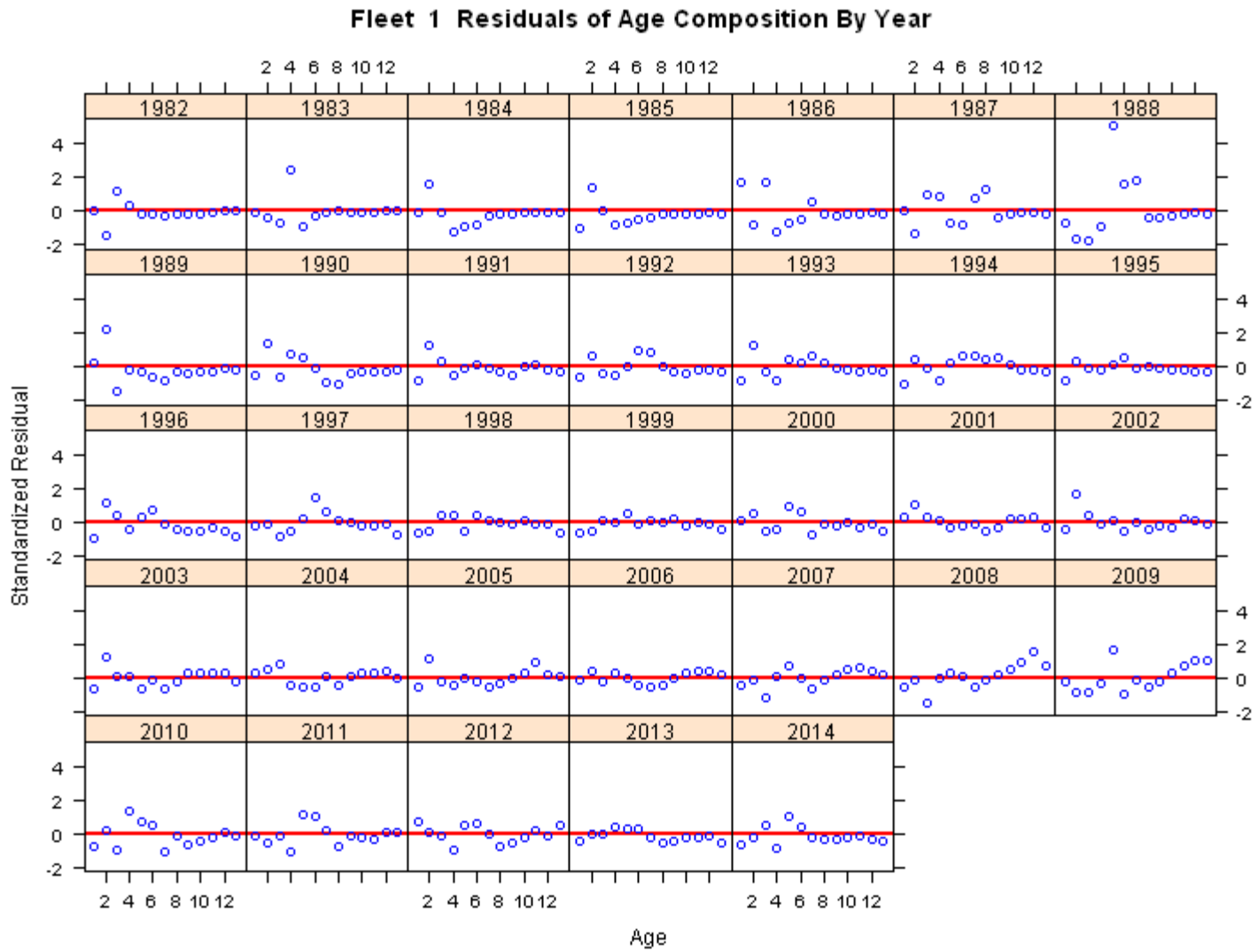


Figure 2 cont.

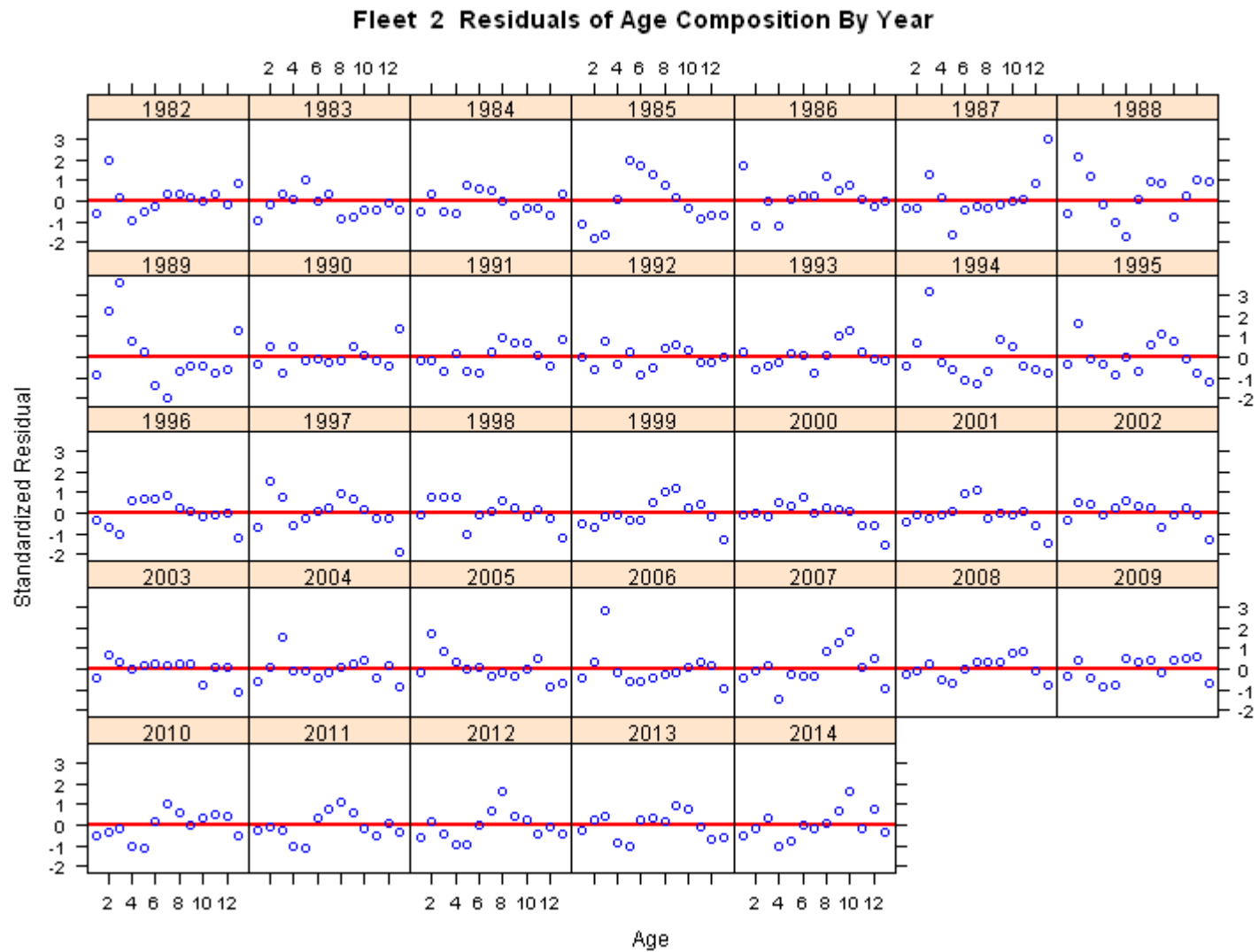


Figure 2 cont.

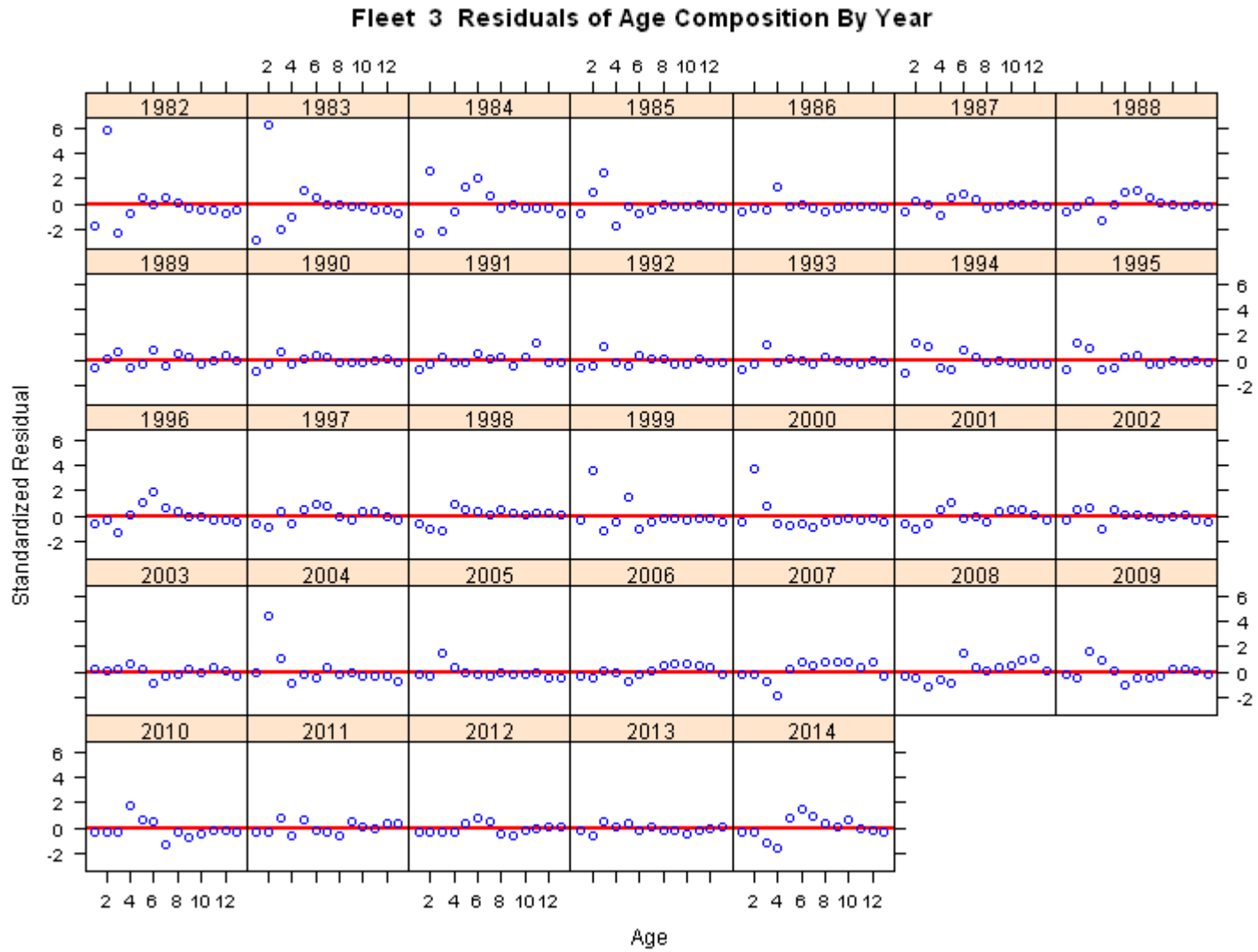


Figure 3 .Observed and predicted catch proportions-at-age by age for each fleet

Fleet 1 Catch Age Composition By Age

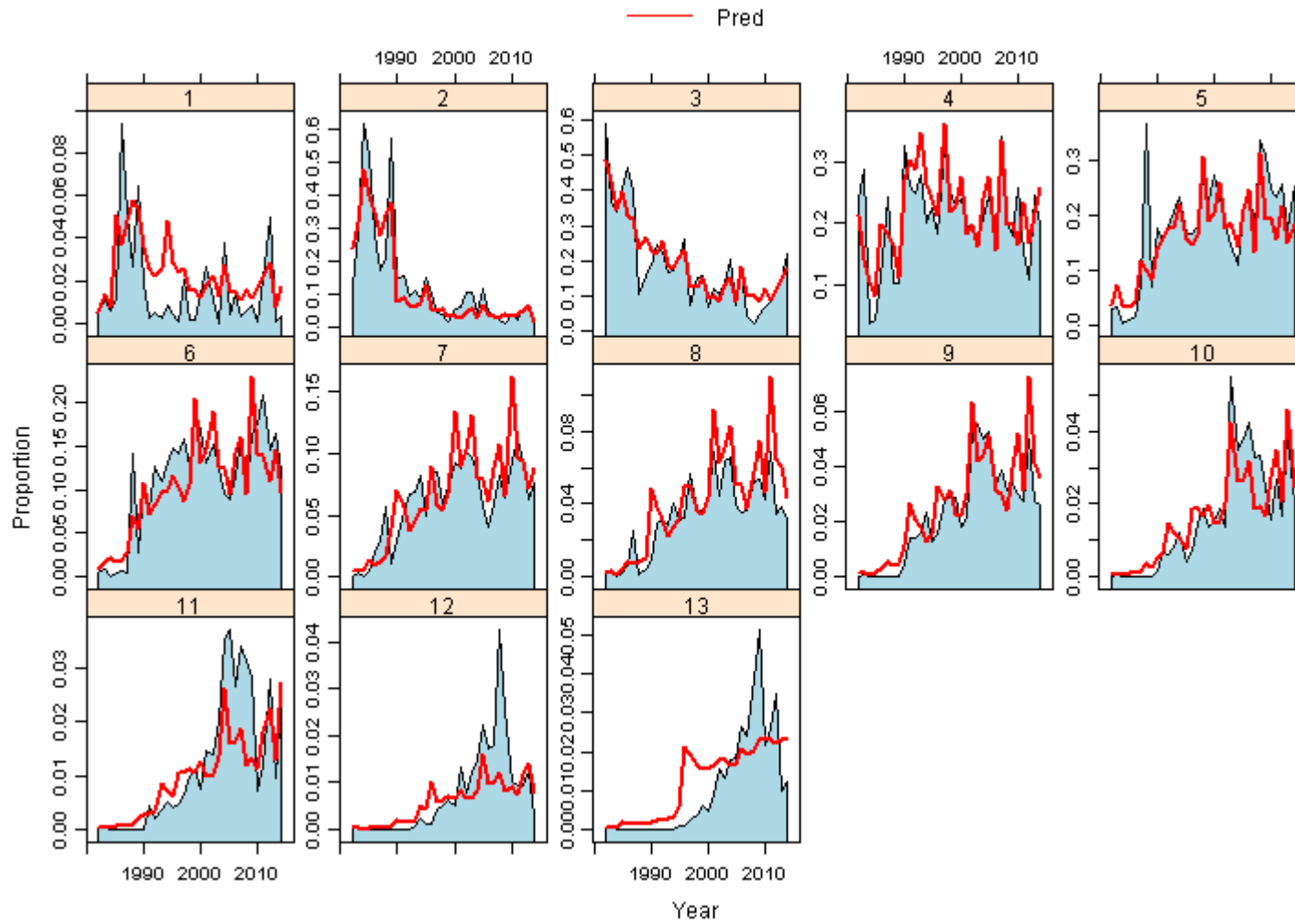


Figure 3 cont.

Fleet 2 Catch Age Composition By Age

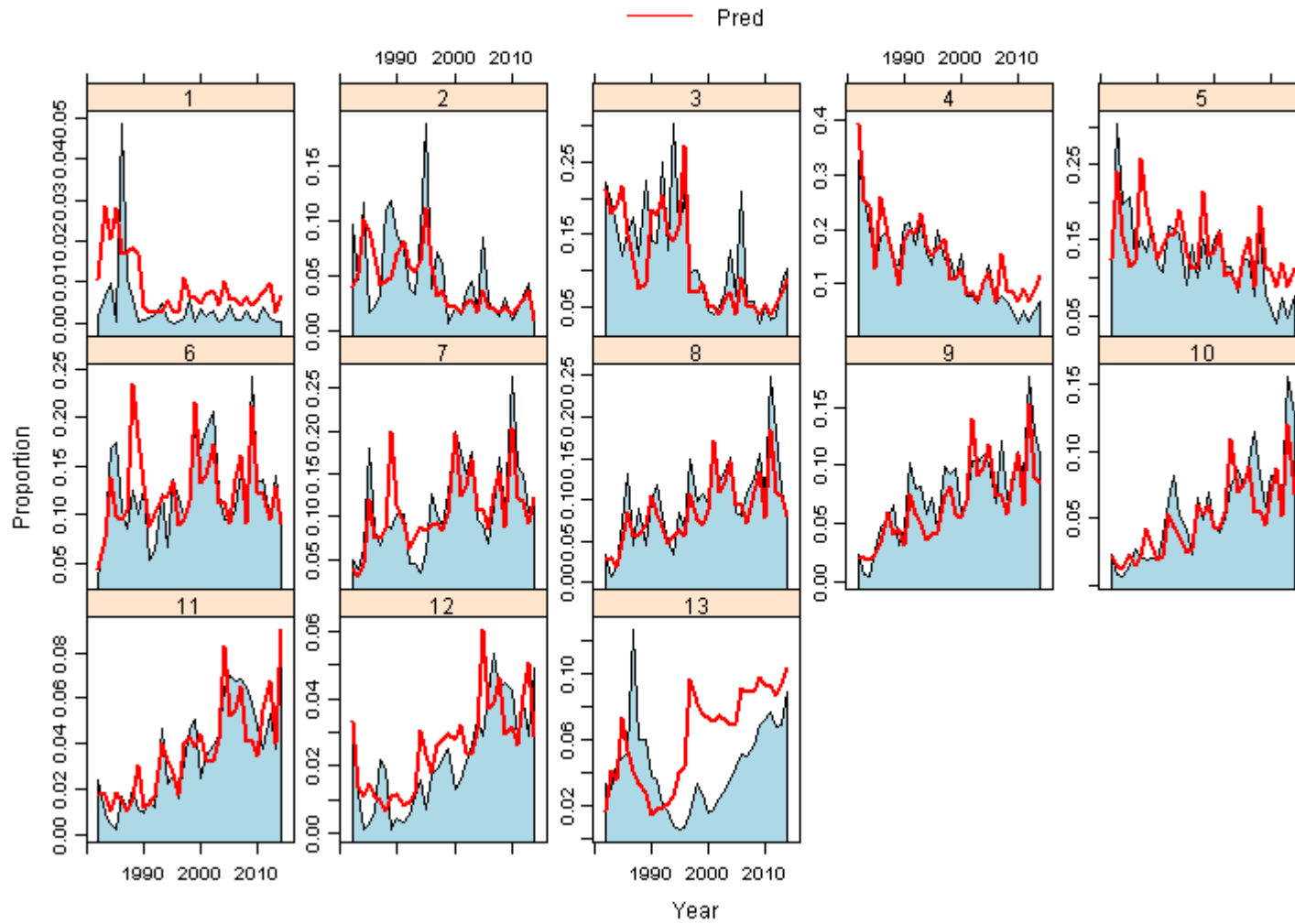


Figure 3 cont.

Fleet 3 Catch Age Composition By Age

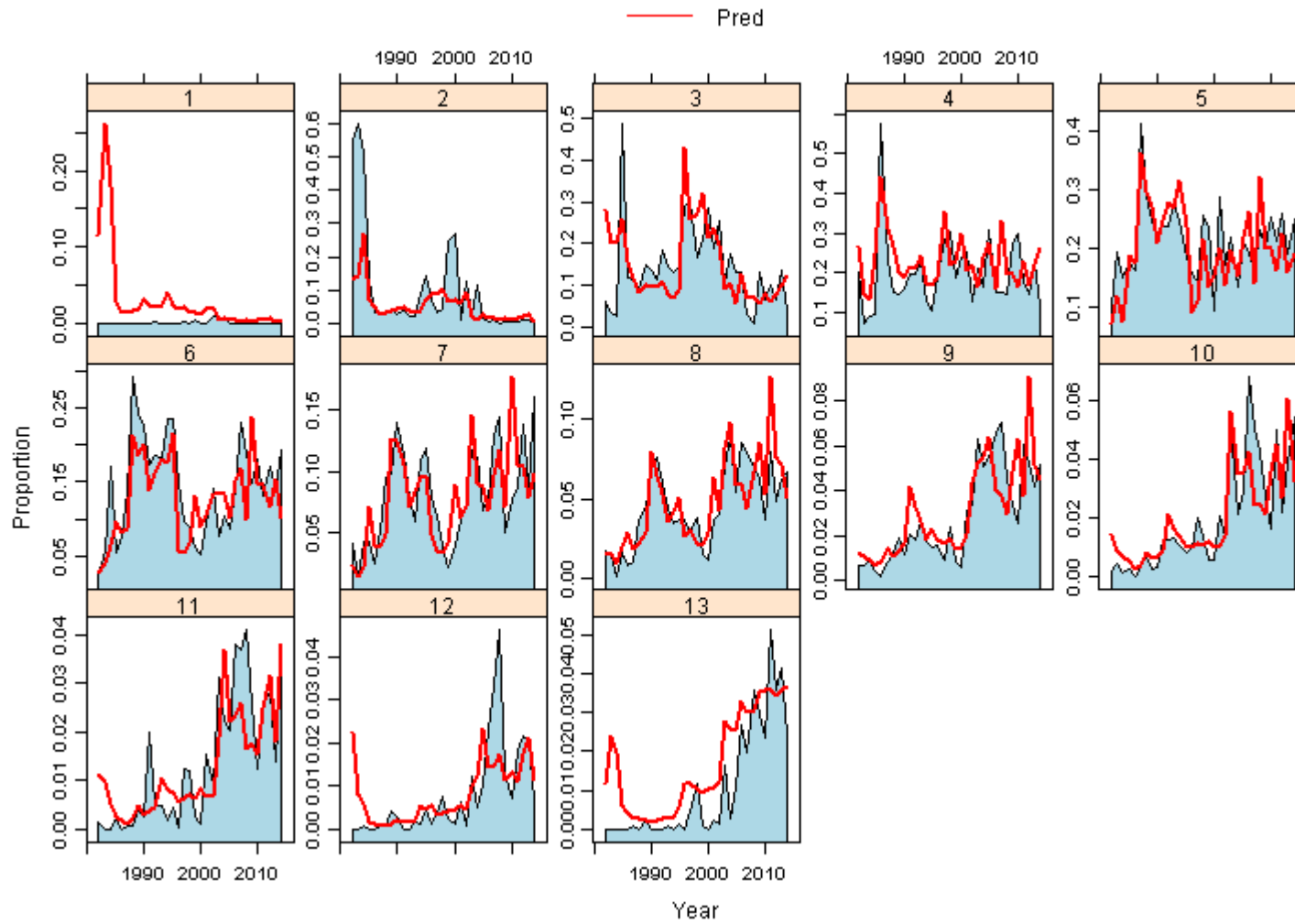


Figure 4. Standardized residuals of catch proportions-at-age by age.

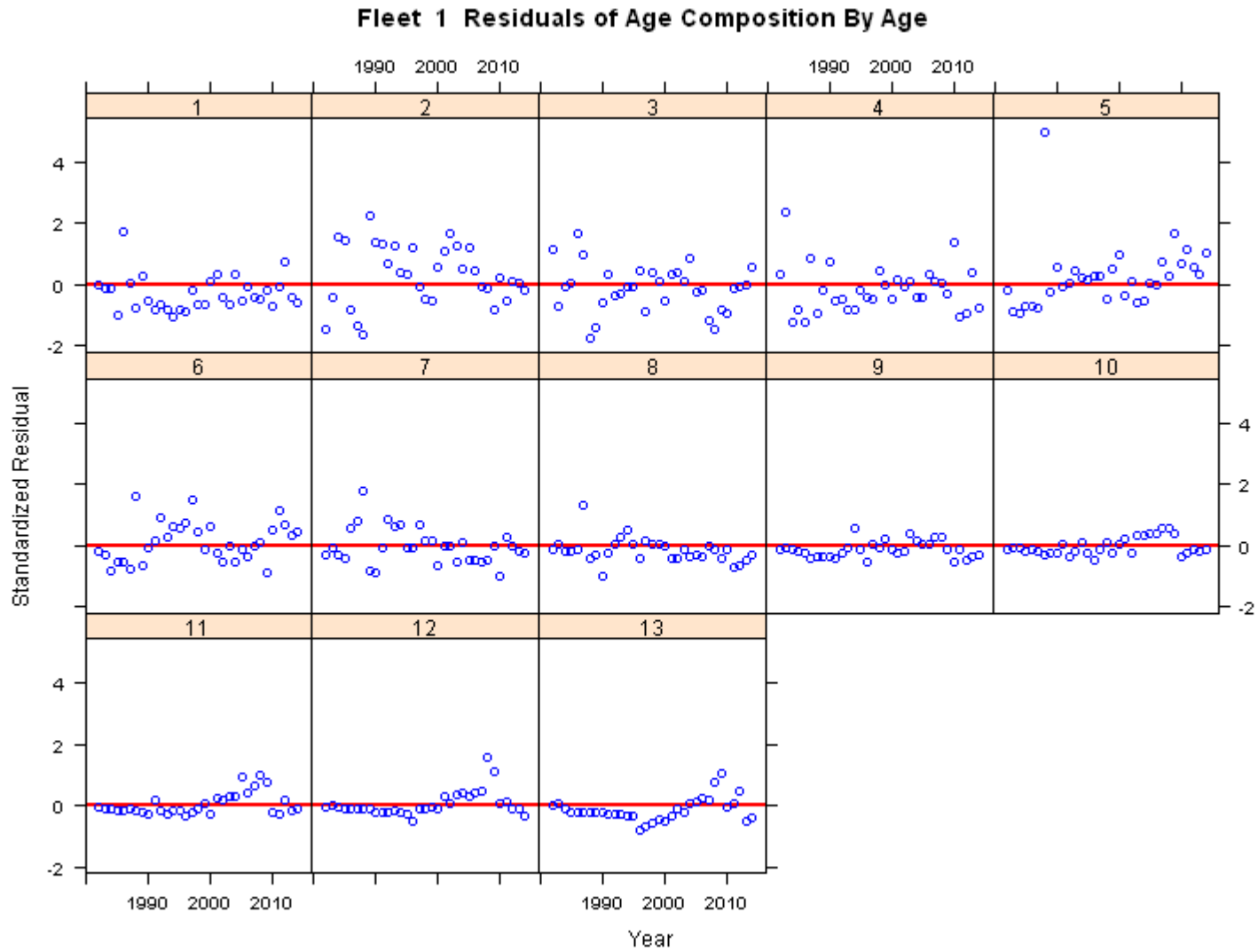


Figure 4 cont.

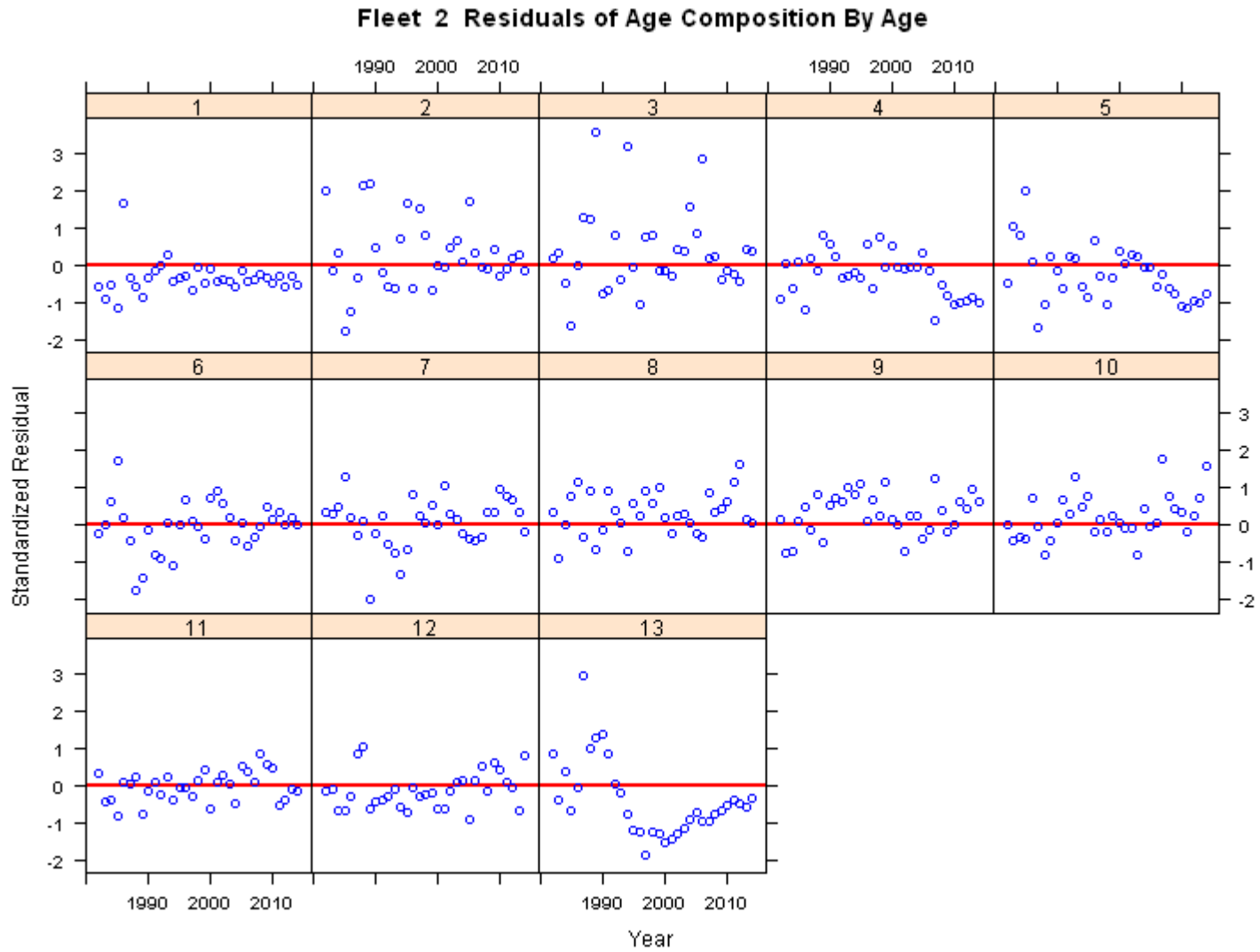


Figure 4 cont.

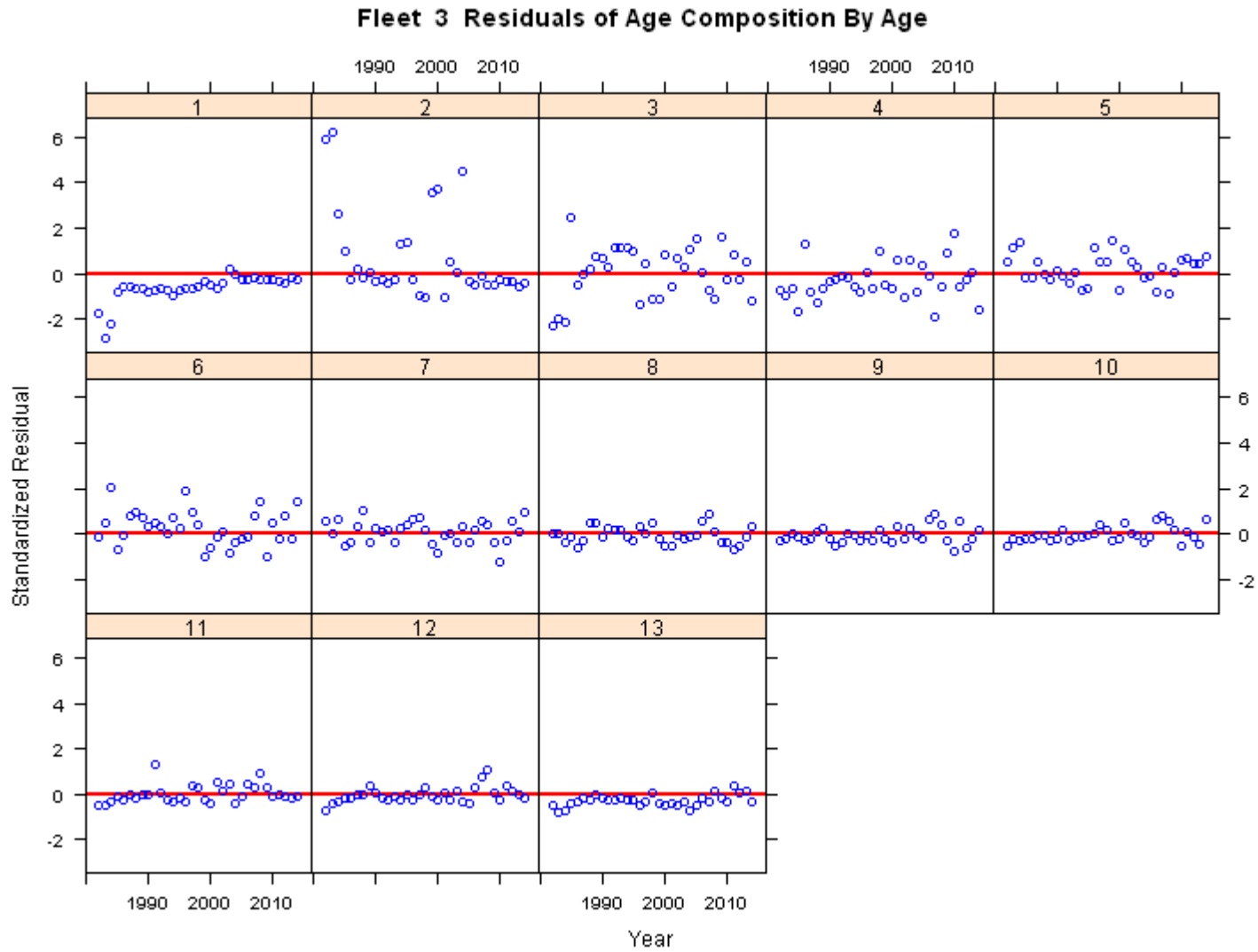


Figure 5. Observed and predicted values and standardized residuals for young-of-the-year and yearling surveys tuned to Age 1 and 2, respectively.

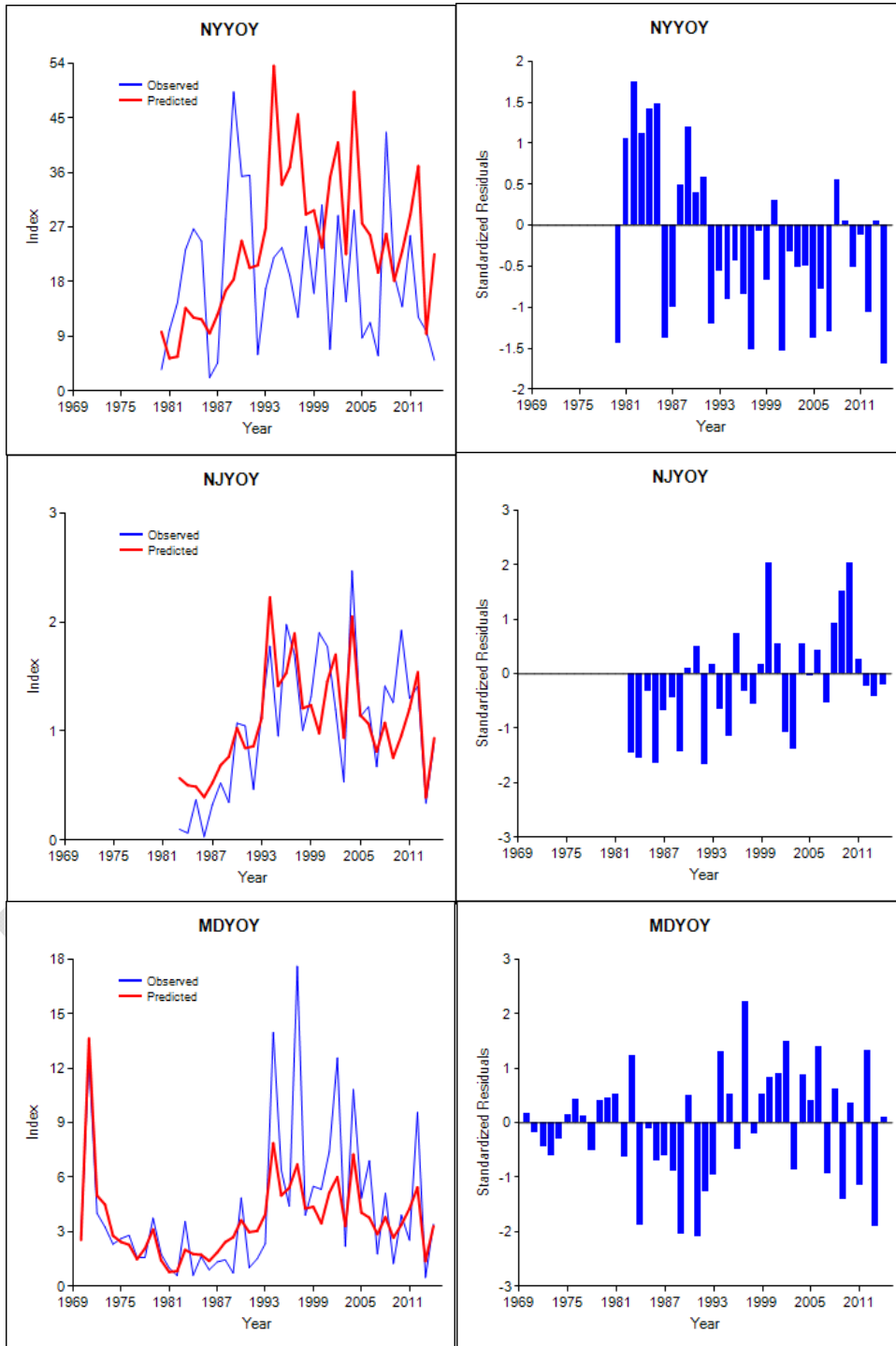


Figure 5 cont.

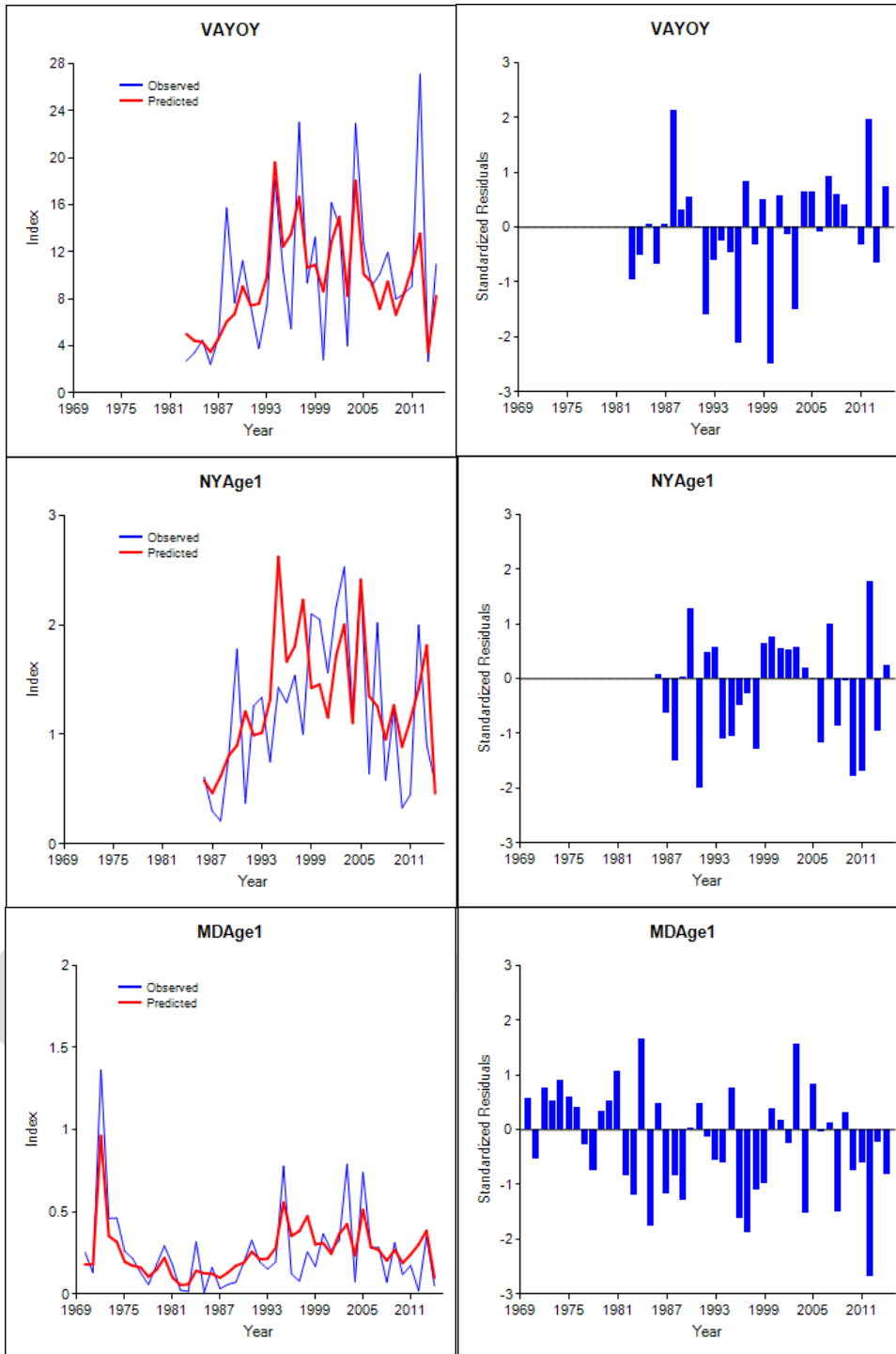


Figure 6. Observed and predicted values and standardized residuals for age-aggregated surveys.

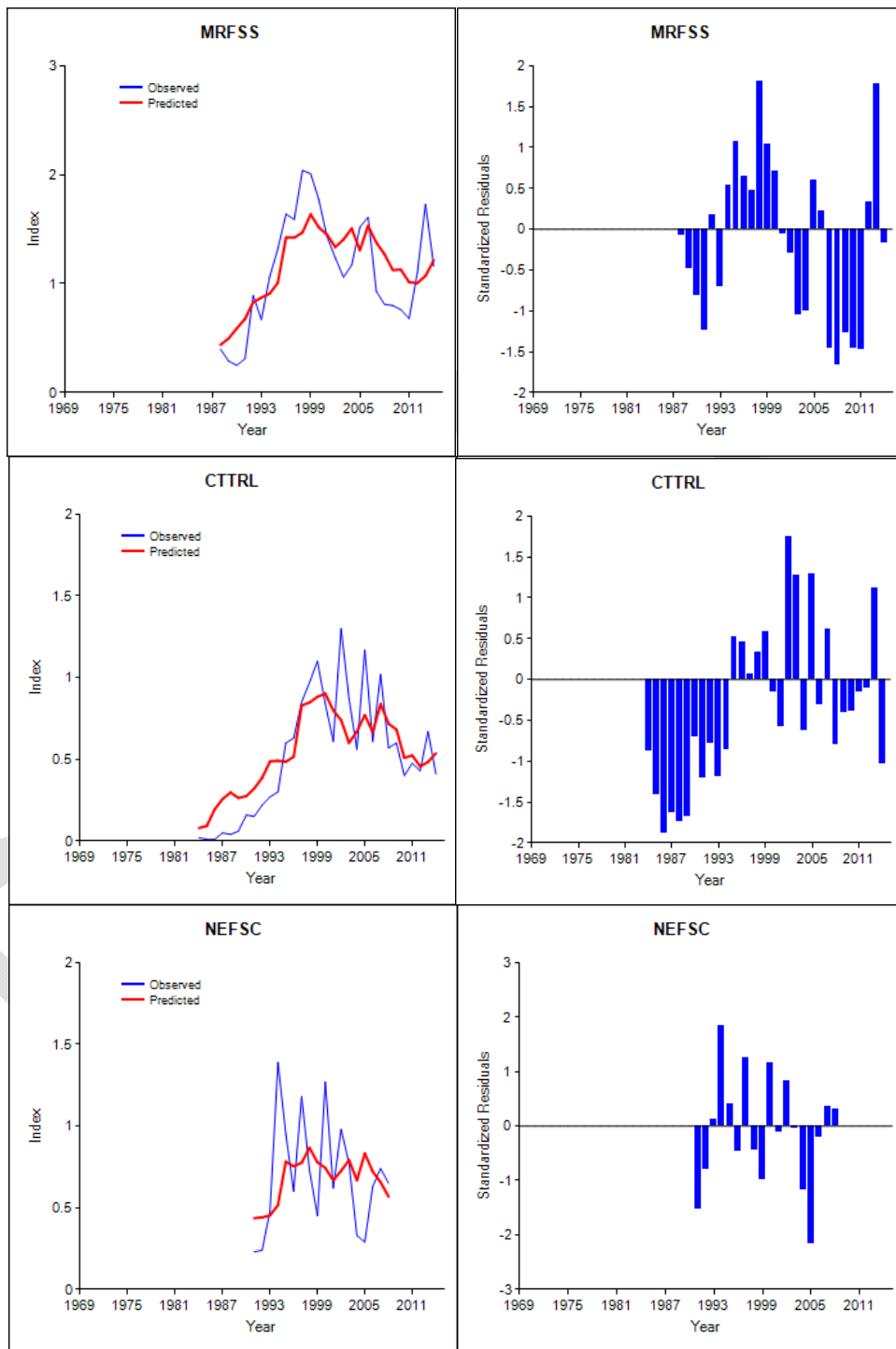


Figure 7. Observed and predicted values of the total index and standardized residuals for surveys with age composition data.

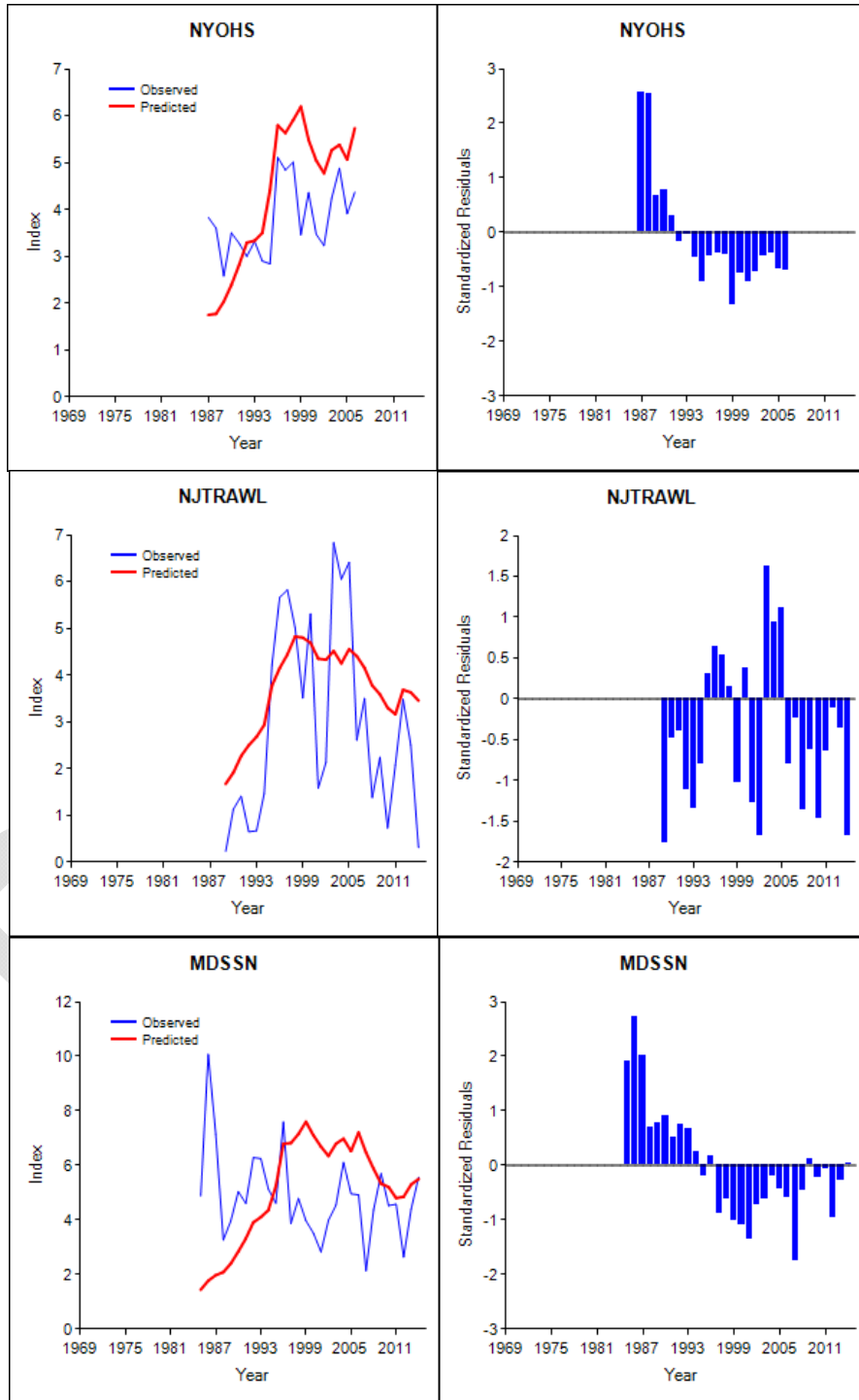


Figure 7 cont.

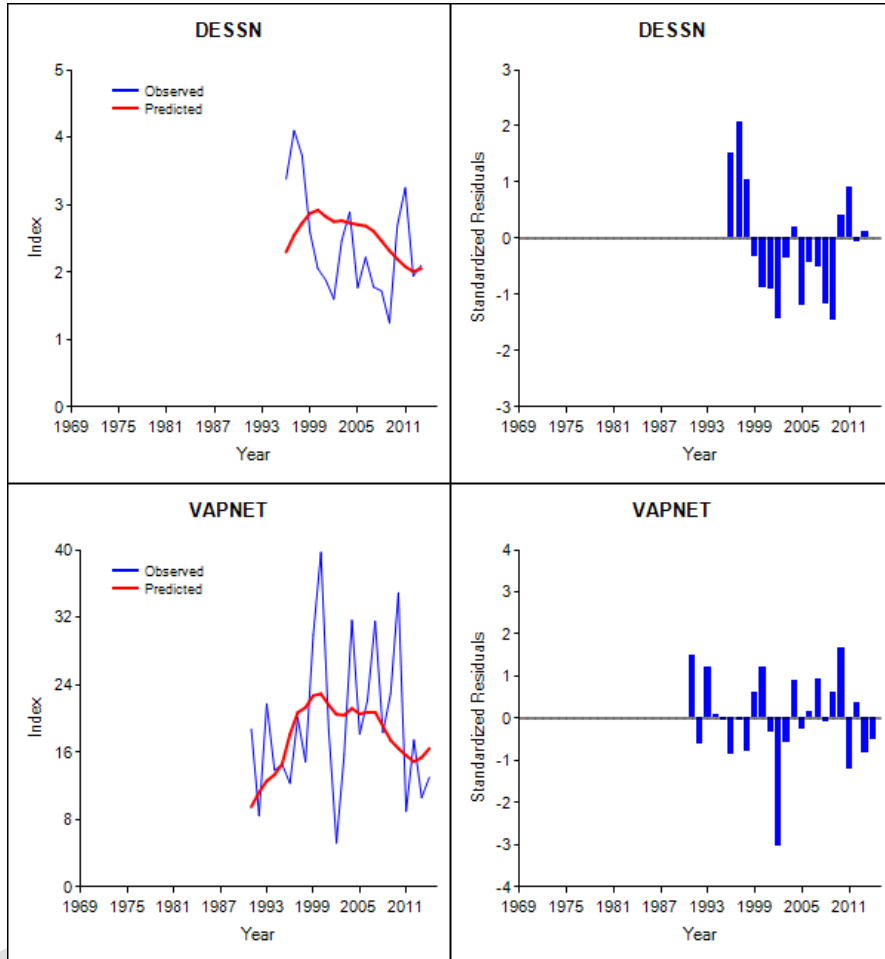


Figure 8. Selectivity patterns estimated for the NYOHS, NJ Trawl, MD SSN, DE SSN surveys and VAPNET.

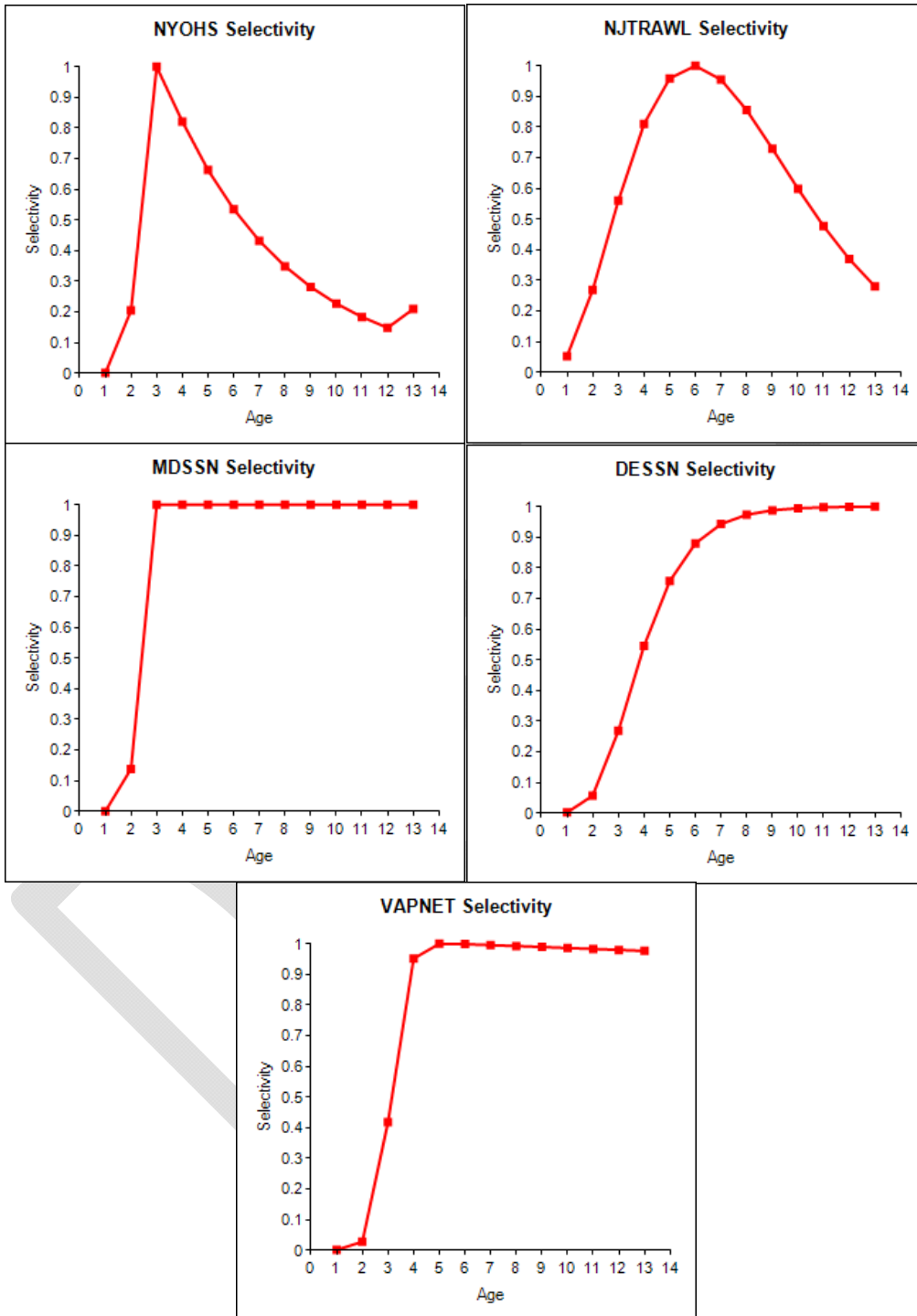


Figure 9. Observed and predicted proportions-at-age and standardized residual for each age by year for the NYOHS survey.

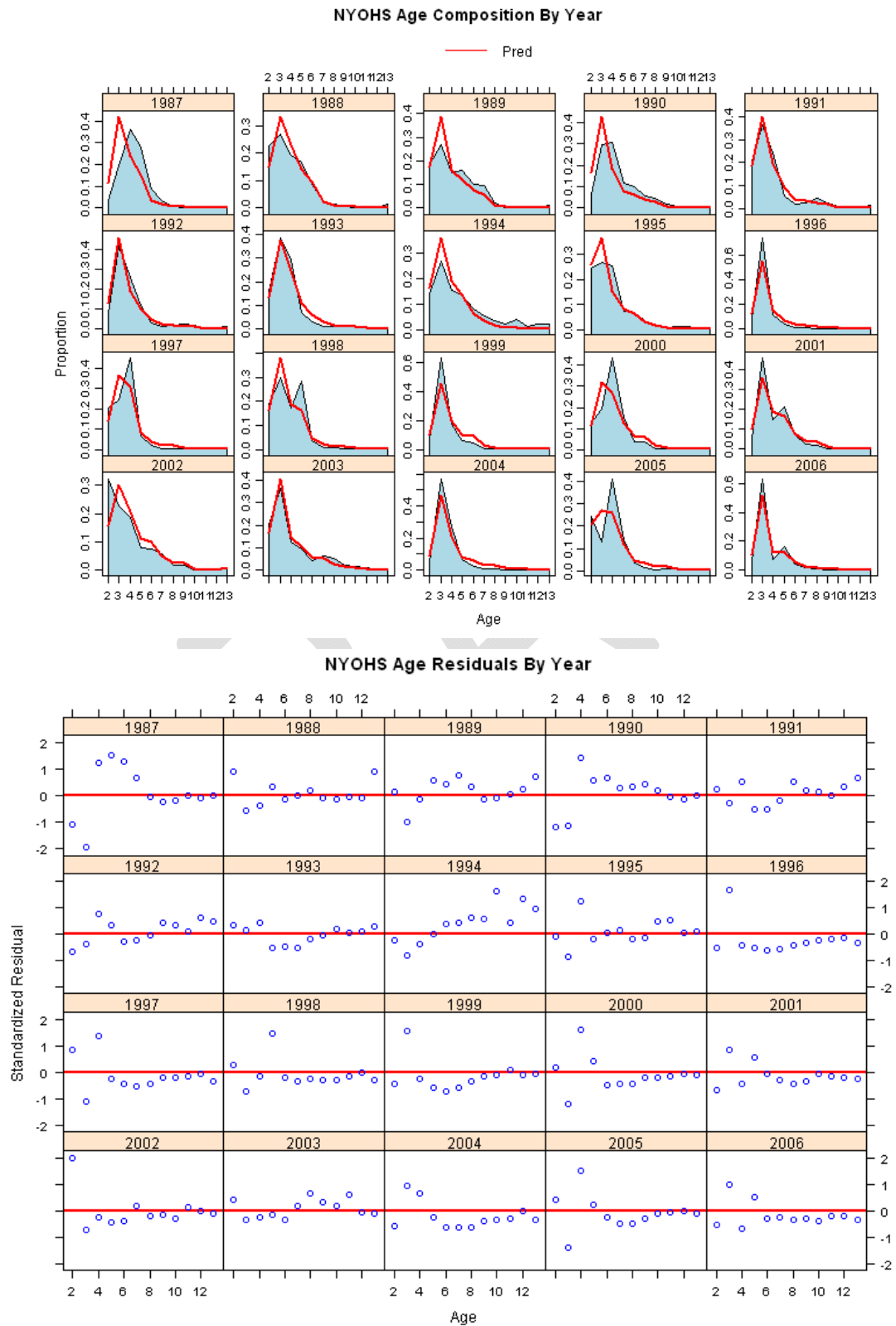


Figure 10. Observed and predicted proportions-at-age and standardized residual for each year by age for the NYOHS survey.

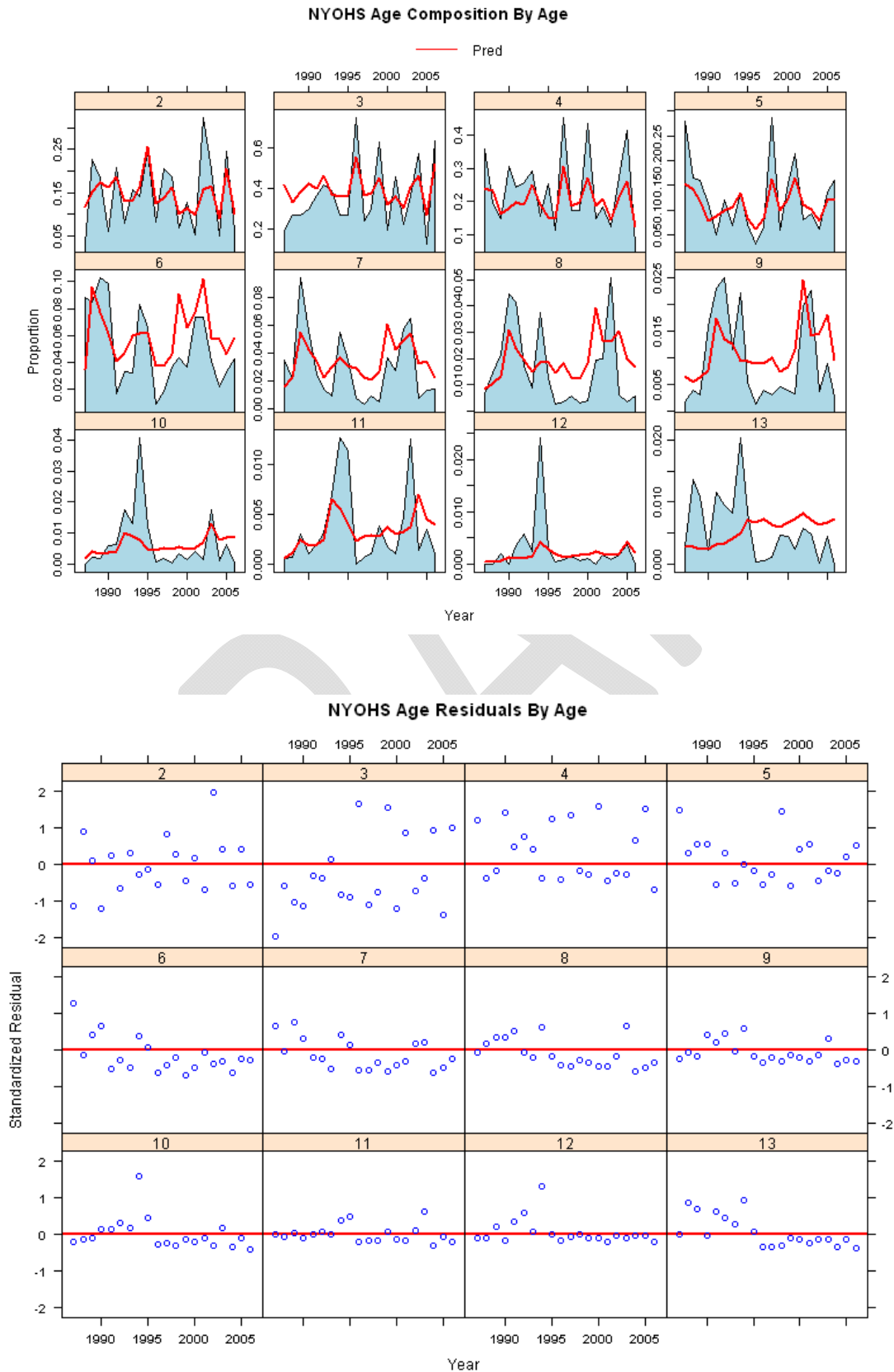


Figure 11. Observed and predicted proportions-at-age and standardized residuals for each age by year for the NJ Trawl survey.

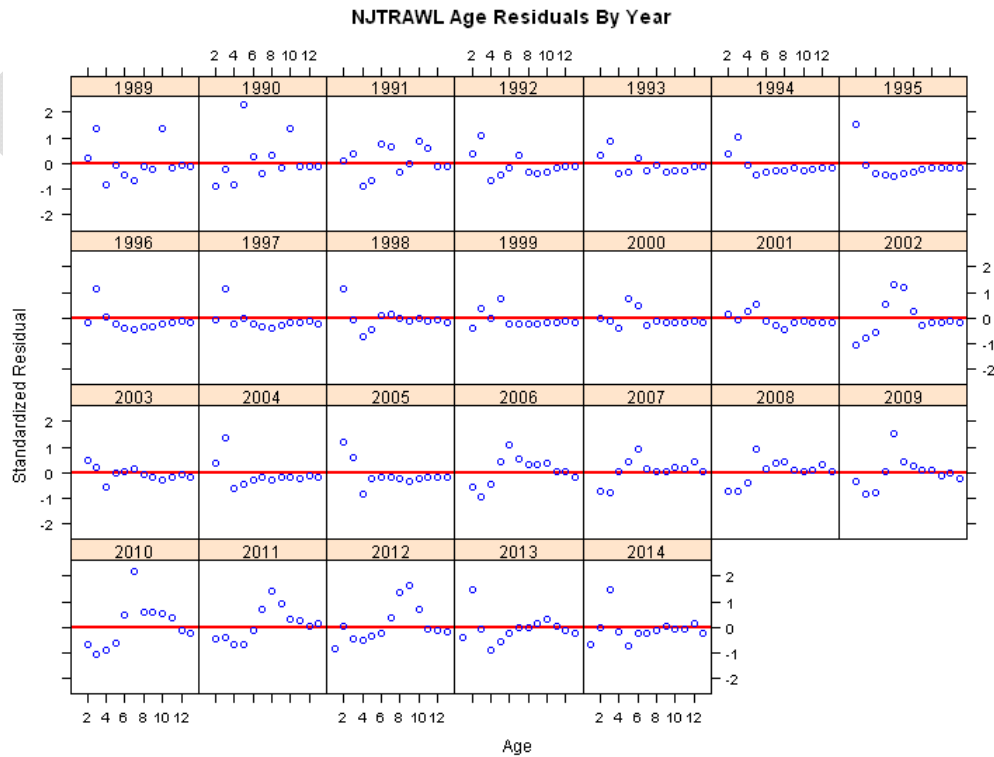
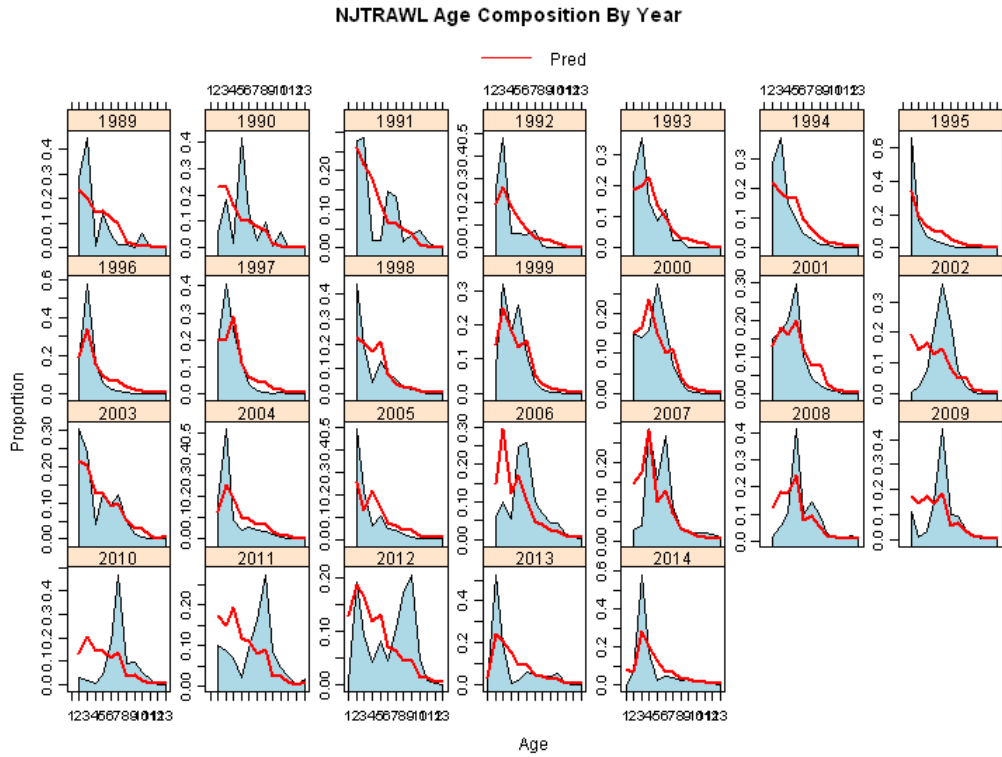


Figure 12. Observed and predicted proportions-at-age and residuals for each year by age for the NJ Trawl survey.

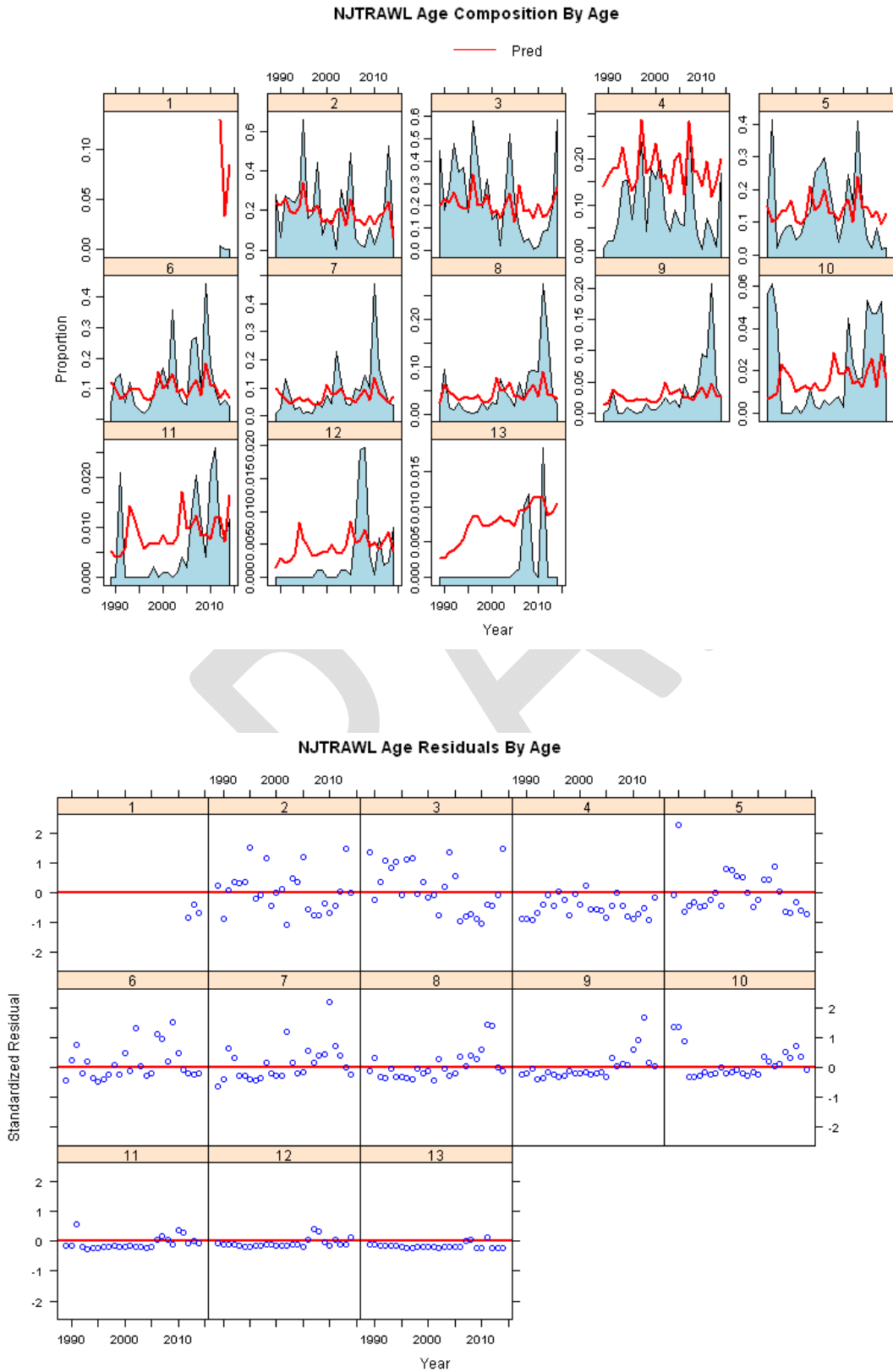


Figure 13. Observed and predicted proportions-at-age for each age by year for the MD SSN gillnet survey.

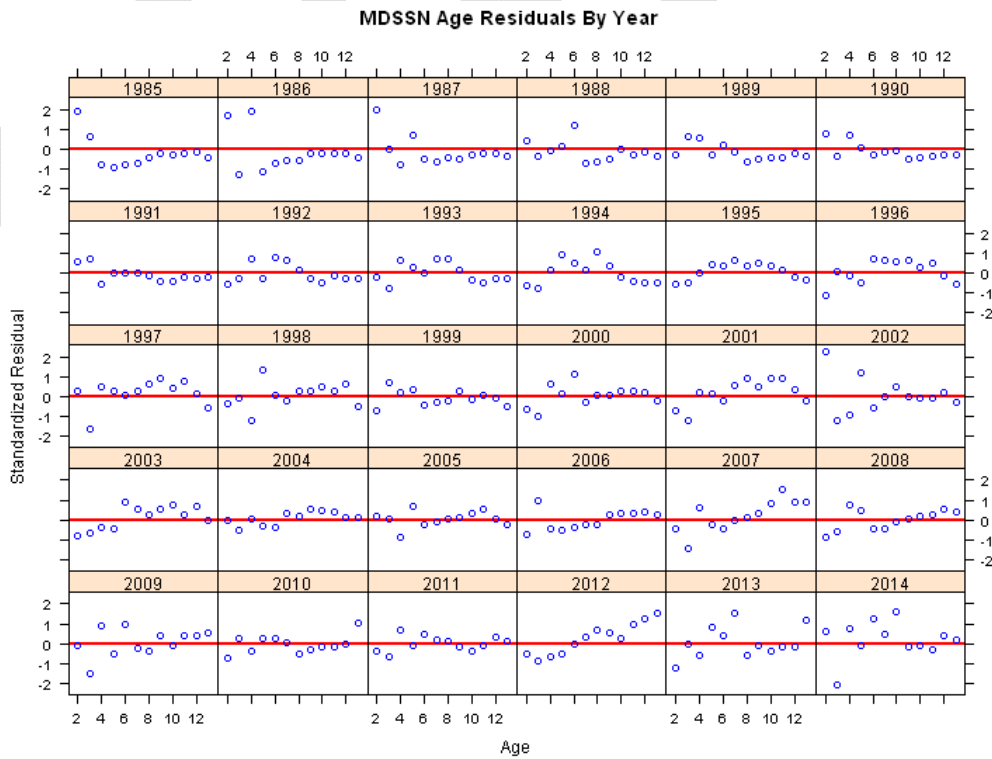
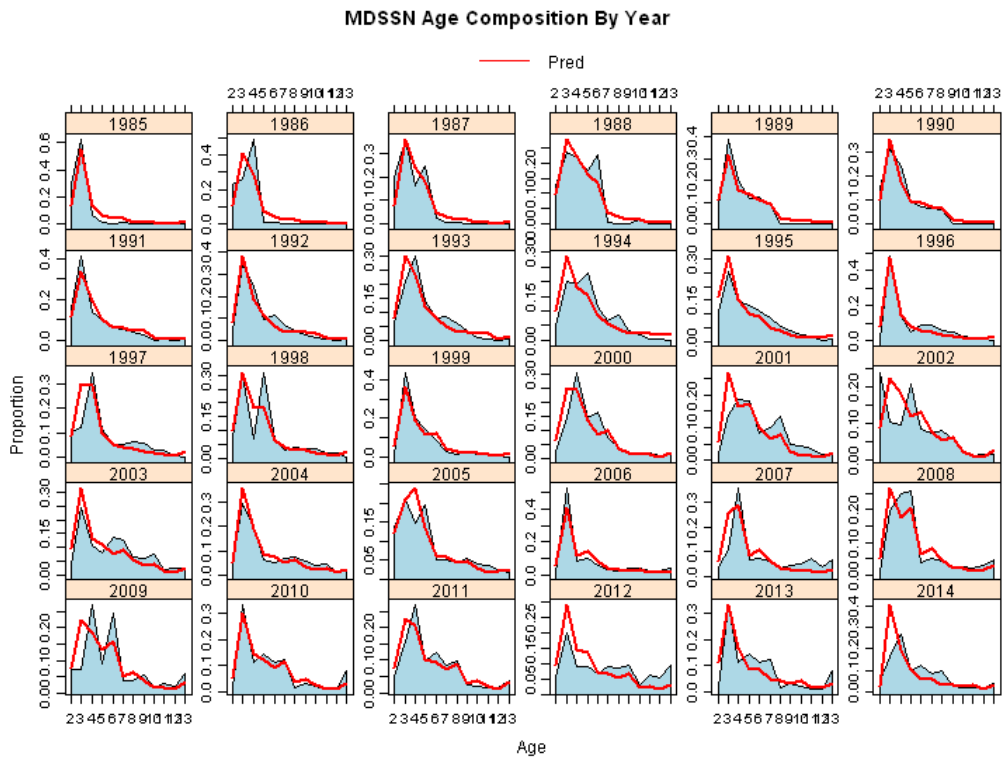


Figure 14. Observed and predicted proportions-at-age and standardized residuals for each year by age for the MD SSN gillnet survey.

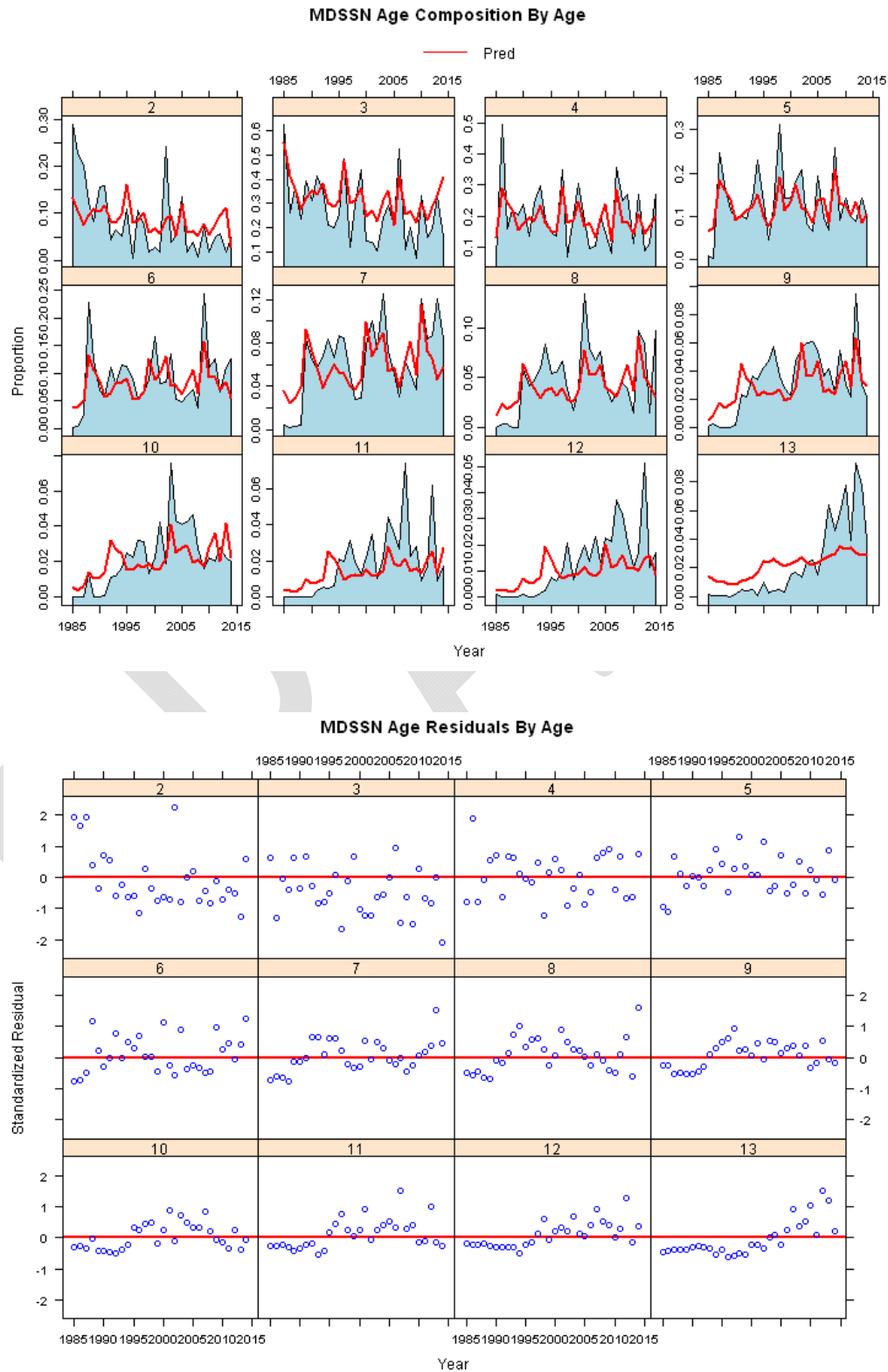


Figure 15. Observed and predicted proportions-at-age and standardized residuals for each age by year for the DE SSN electrofishing survey.

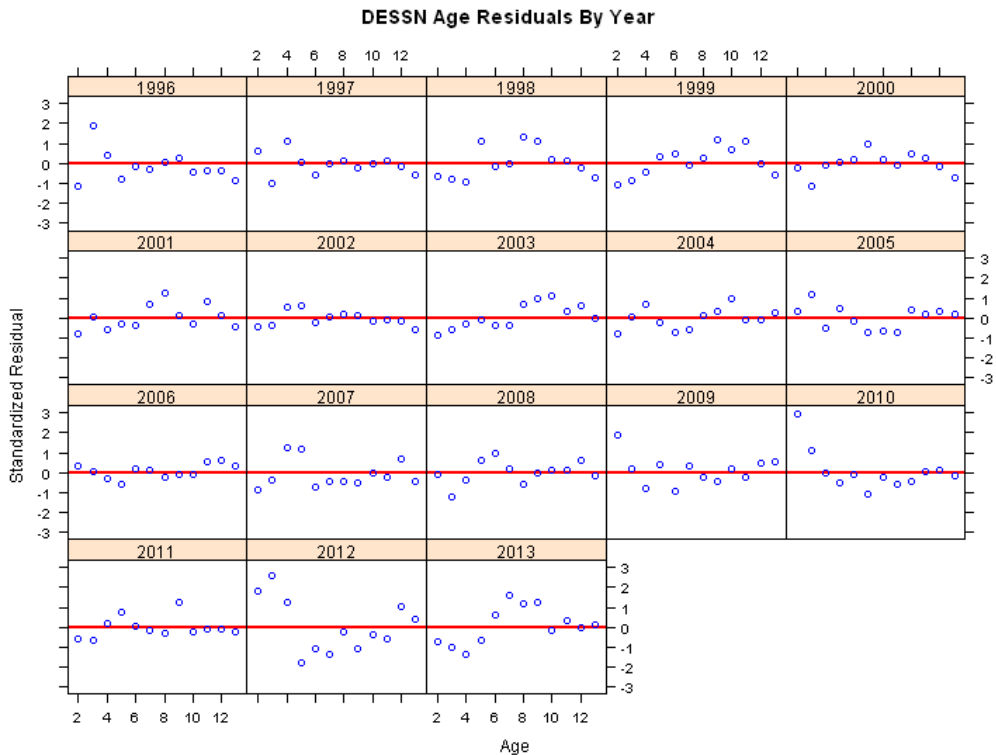
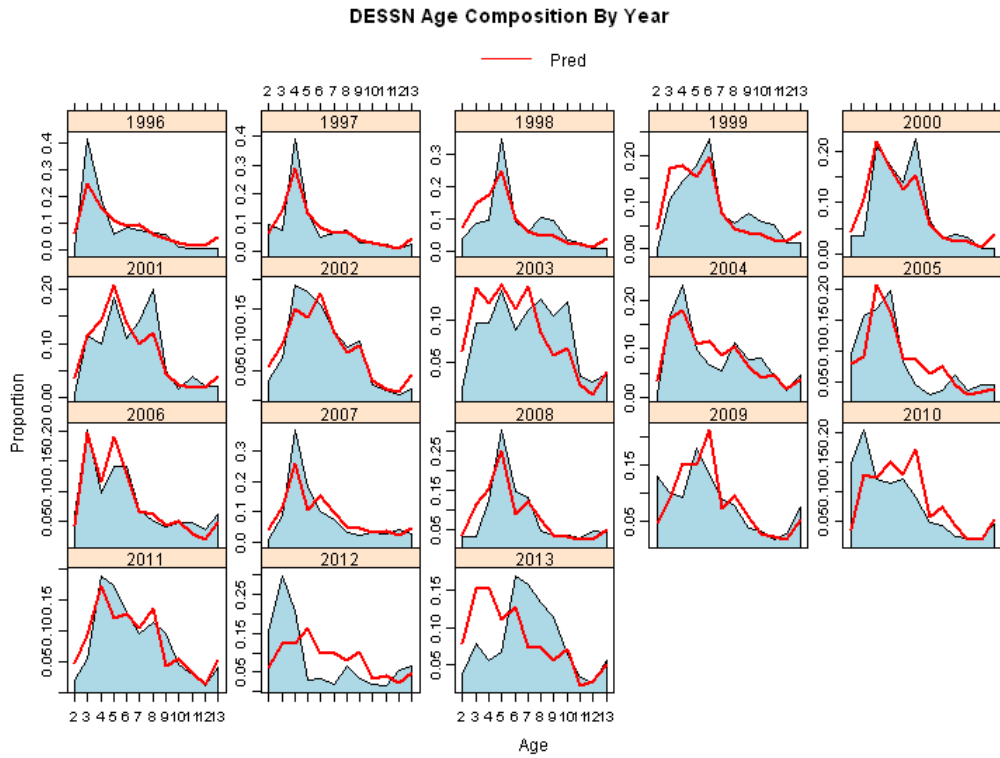


Figure 16. Observed and predicted proportions-at-age and standardized residuals for each year by age for the DE SSN electrofishing survey.

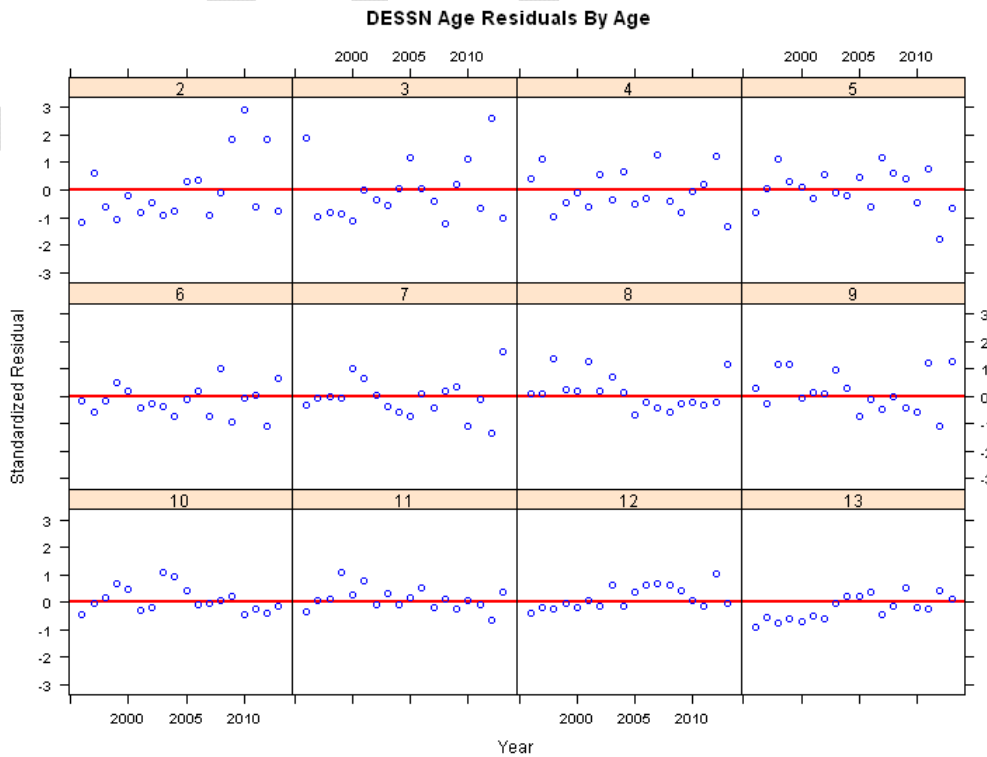
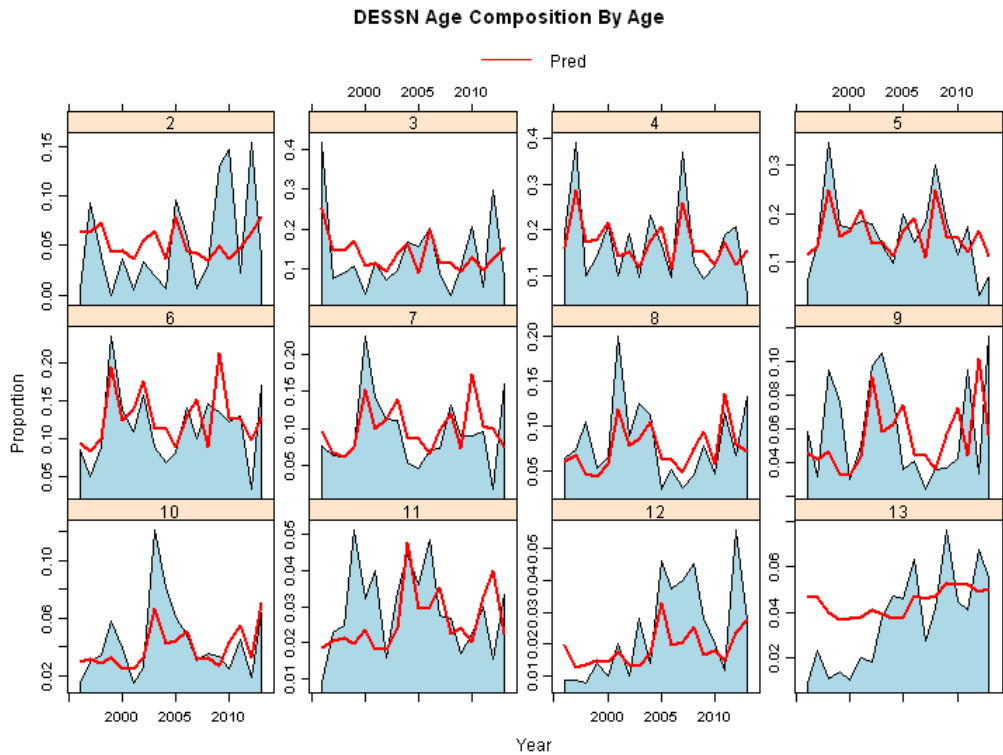


Figure 17. Observed and predicted proportions-at-age and standardized residuals for each age by year for the VAPNET survey.

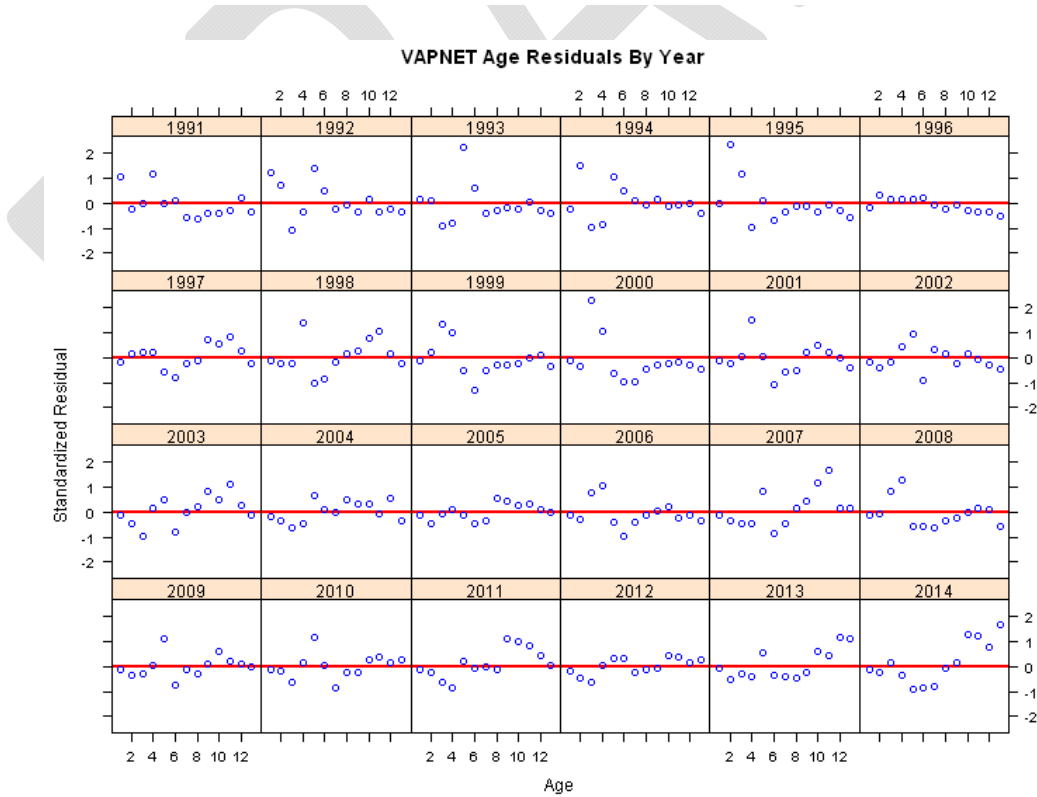
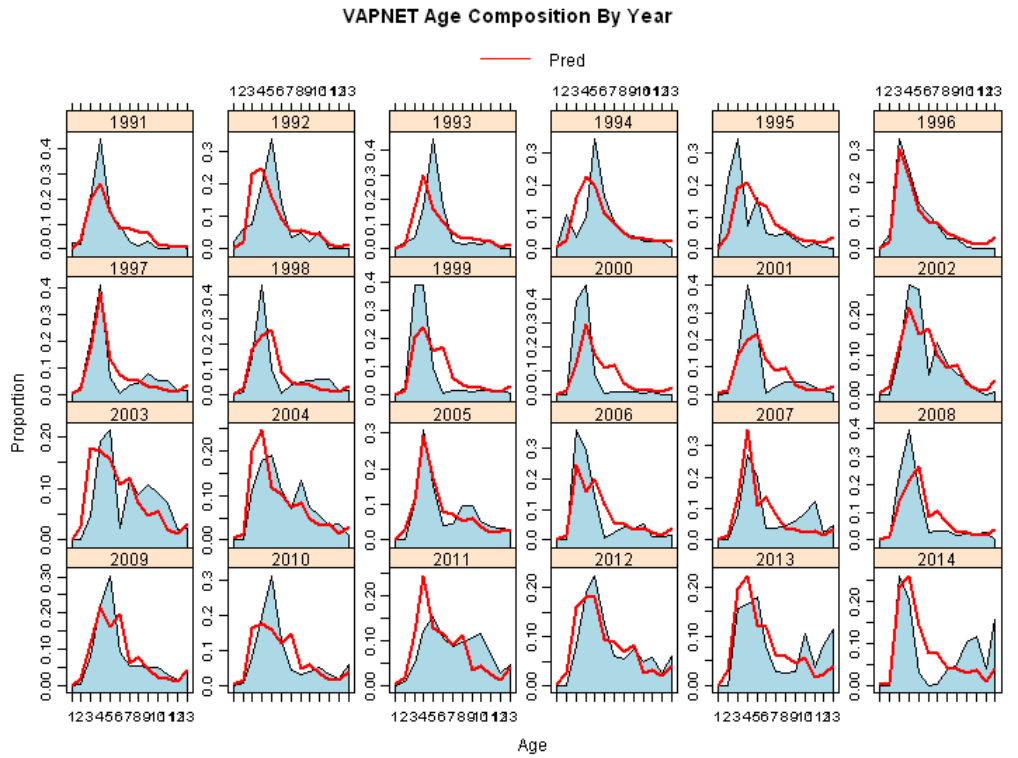
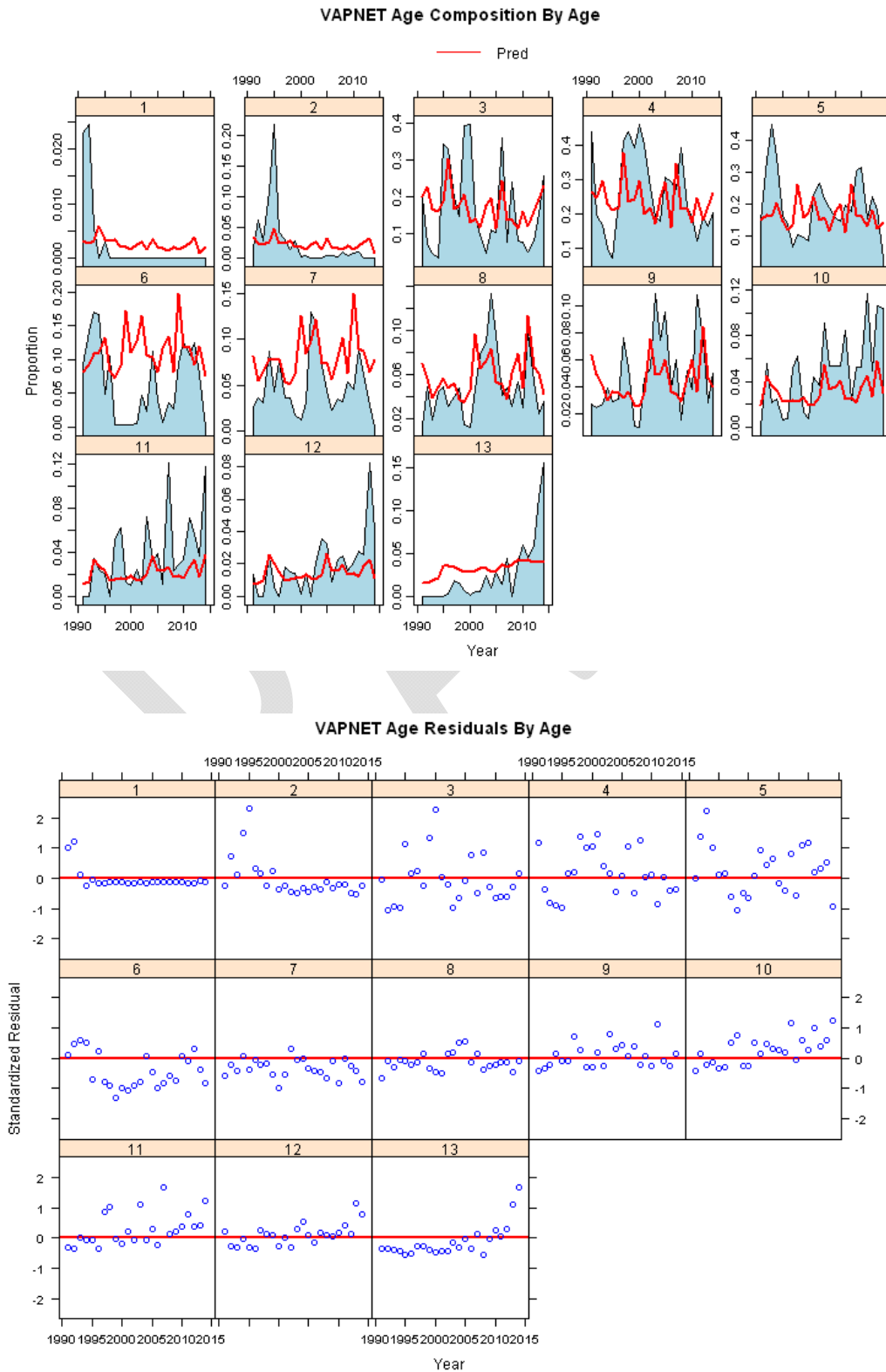


Figure 18. Observed and predicted proportions-at-age and standardized residuals for each year by age for the VAPNET survey.





Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

MEMORANDUM

October 14, 2015

To: Atlantic Striped Bass Management Board
From: Atlantic Striped Bass Technical Committee
RE: Comparing Atlantic Striped Bass Fishing Mortality Reference Points Using Two Different Time Periods for Selectivity: 2008-2012 (5-Year) and 1996-2012 (17-Year)

At their August 2015 meeting, the Atlantic Striped Bass Management Board reviewed the Technical Committee report for developing fishing mortality (F) reference points for the Chesapeake Bay, Ocean, and the Commercial Discard fleets of the Statistical Catch at Age stock assessment model for Striped Bass. The Board further tasked the Technical Committee to redevelop the F reference points using the 1996-2012 time period for developing the composite selectivity curve as opposed to the 2008-2012 time period.

Enclosed is a report comparing the two sets of coastwide and fleet-specific fishing mortality reference points calculated using the 2008-2012 time period and the 1996-2012 time period.

Enclosed: Comparing Atlantic Striped Bass Fishing Mortality Reference Points Using Two Different Time Periods for Selectivity: 2008-2012 (5-year) and 1996-2012 (17-year)

CC: Striped Bass Technical Committee

M15-082

Comparing Atlantic Striped Bass Fishing Mortality Reference Points Using Two Different Time Periods for Selectivity: 2008-2012 (5-Year) and 1996-2012 (17-Year)

Overview:

Addendum IV to Amendment 6 adopted new fishing mortality (F) and spawning stock biomass (SSB) reference points for the coastwide Atlantic Striped bass population as recommended by the 2013 benchmark assessment. The F reference point values were calculated using a composite selectivity that used the geometric mean of the most recent five years of total F-at-age. (Note: the 2013 stock assessment modeled removals from the population as three fleets: a Chesapeake Bay fleet, an ocean fleet, and a commercial discard fleet).

In May 2015, the Board tasked the Striped Bass Technical Committee to develop fleet-specific F reference points so that the impact of each fleet on the total coastwide Atlantic Striped Bass population remains sustainable (i.e., fleet-specific F reference points were calculated via the same five year selectivity time period so that when each fleet fishes at its target F, the maximum total F-at-age on the population is equal to the coastwide F target). Those proposed fleet-specific reference points and 2012 F status based on the 2013 assessment are as follows:

Fleet	F_{target}	F_{threshold}	F_{2012*}	F₂₀₁₂ based on 2015 assessment update	% Difference from target in 2012
Ocean	0.141	0.172	0.141	0.131	0%
Chesapeake Bay	0.052	0.064	0.059	0.054	10.8%
Commercial Discard	0.019	0.024	0.041	0.036	52.8%

*F₂₀₁₂ values reported here are from the 2013 assessment report. The 2015 stock assessment update resulted in lower F values for 2012 compared to those reported here.

Upon review at their August meeting, the Board further tasked the Technical Committee to redevelop the F reference points using a composite selectivity over a longer time period. The thought being that a longer time period would reflect the regulatory history of the fishery more adequately than a shorter (and more recent) time period. In order to maintain consistency across F reference point values, the coastwide F reference points (as adopted in Addendum IV) were also redeveloped with the longer time period.

Selectivity Pattern:

The full F values for the target and threshold are calculated using a composite selectivity that uses the geometric mean of total F-at-age for two different time periods; the most recent five years (2008-2012), and the most recent 17 years (1996-2012). The mean is divided by the maximum F-at-age to scale the curve to one. This essentially weights the selectivity pattern of each fleet (ocean, Chesapeake Bay, and commercial discard) by the degree to which they are contributing to total fishing mortality on the population. The Chesapeake Bay and commercial discard fleets are dome-shaped, peaking at age 5, while the ocean fleet is flat-topped, peaking at age 13+.

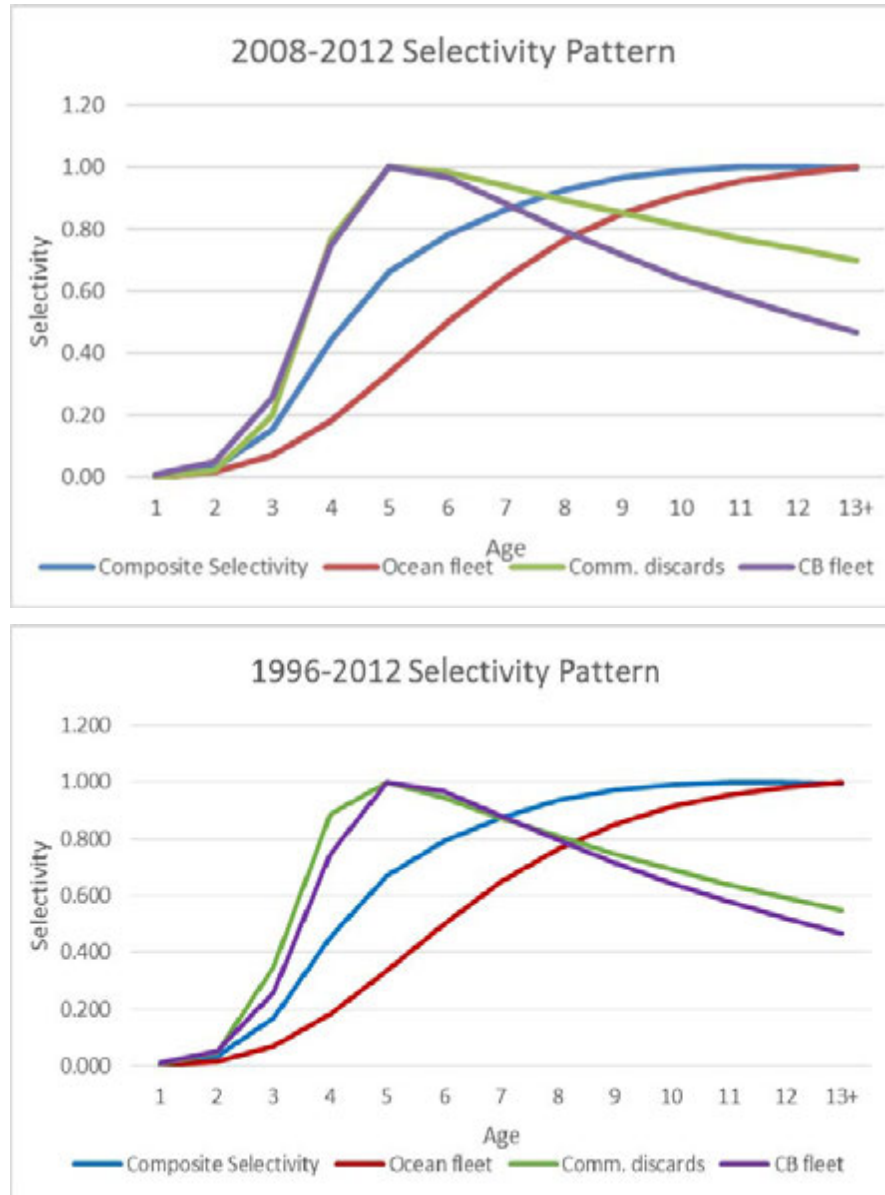


Figure 1. Comparison of the composite selectivity used to calculate the F reference points to the selectivities of the three fleets in the model; 2008-2012 (top), 1996-2012 (bottom).

Fleet-specific F reference Points:

To calculate the Bay-specific F reference points, the ratio of F-at-age-5 from the Chesapeake Bay fleet to total F-at-age-5 was calculated (using the ratio of means over the 1996-2012 and 2008-2012 time periods). This ratio was multiplied by the selectivity-at-age from the composite fleet at age-5 and the F_{target} and $F_{\text{threshold}}$ values to obtain the full F target and threshold values for the Chesapeake Bay.

For the commercial discard fleet, the ratio of total F-at-age-5 to fleet F-at-age-5 was also used; for the ocean fleet, the ratio of total F-at-age-12 to fleet F-at-age-12 was used, and the reference points were corrected for the not quite full selectivity on age-12 for this fleet (0.98 as opposed to 1), since full selectivity in the ocean fleet occurs at age 13+.

Table 1. Ratio of means for 1996-2012 and 2008-2012 time periods

	1996-2012	2008-2012
Chesapeake Bay	0.468	0.438
Ocean	0.790	0.770
Commercial Discards	0.111	0.163

Results:

Table 2. Fleet reference points and 2012 F status

	17- year selectivity (1996 - 2012)			5- year selectivity (2008 - 2012)		
	F_{target}	$F_{\text{threshold}}$	% Diff from target in 2012*	F_{target}	$F_{\text{threshold}}$	% Diff from target in 2012
Coastwide	0.177	0.216	13.1%	0.180	0.219	11.2%
Ocean	0.142	0.173	-1%	0.141	0.172	0%
C. Bay	0.056	0.068	5.0%	0.052	0.064	10.8%
Comm. Disc.	0.013	0.016	68.0%	0.019	0.024	52.8%

*comparison is made to the F_{2012} values from the 2013 assessment.

- Coastwide F reference points are very similar.
- Ocean fleet F reference points are nearly the same.
- Chesapeake Bay F reference points based on the 17 year period are slightly higher compared to those based on the 5 year period.
- The commercial discard target and threshold are 30% lower for the 17 year selectivity period compared to the five year period.

Discussion:

- The time period used to develop selectivity patterns was discussed extensively during the development of the Chesapeake Bay biological reference points with little consensus.
- The level of precision was not examined, however, it is unreasonable to expect the difference between both sets of F reference points to be statistically significant.

5-Year Time Period	17-Year Time Period
Reflects recent trends in effects of regulations, fishing effort, environment, spatial distribution of fish and the fleet, recruitment, etc. <i>→ better choice to represent future fishery if recent trends in those factors are expected to continue</i>	Reflects long-term average of the effects of regulations, fishing effort and environment <i>→ better choice to represent future fishery if those factors will vary within the range observed in 1996-2012</i>
Covers same part of a single selectivity block for all three fleets in the model	Covers a single selectivity block in the model for the Bay and Ocean fleets (+1 year of an earlier block for the Ocean fleet), and two blocks for the commercial discard fleet
Consistent with coastwide reference points adopted through Addendum IV	Would not change coastwide reference points to two decimal places (as established in Add. IV)

The reported differences in reference points for the Chesapeake Bay and commercial discard fleets calculated for different periods is driven primarily by a recent increase in estimated commercial discards. This results in higher contribution of commercial discards towards total mortality. Considering that commercial discard estimates are rather uncertain and that commercial harvest in recent years was declining, the reliability of recent trends in commercial discards is unknown. It is important to note that commercial discards cannot be split between the Chesapeake Bay and the ocean fisheries. Commercial discards are estimated from tag returns, and these estimates are highly uncertain due to low tag return rates each year, among other reasons. Discarding appears to be primarily regulatory, due to size limits, closed seasons, quotas, and gear restrictions.

Given the difficulties of controlling F from discards, a target and threshold for the commercial discard fleet may not be meaningful for management. However, without a control on this source of mortality, the population could still experience overfishing even with the Bay and the ocean fleets fishing at their targets. If F from the discard fleet cannot be reduced through management action, the Bay and ocean fleets will have to take reductions to maintain the coastwide F at the target.

Figure 2. Full F for each fleet relative to the coastwide target and threshold.

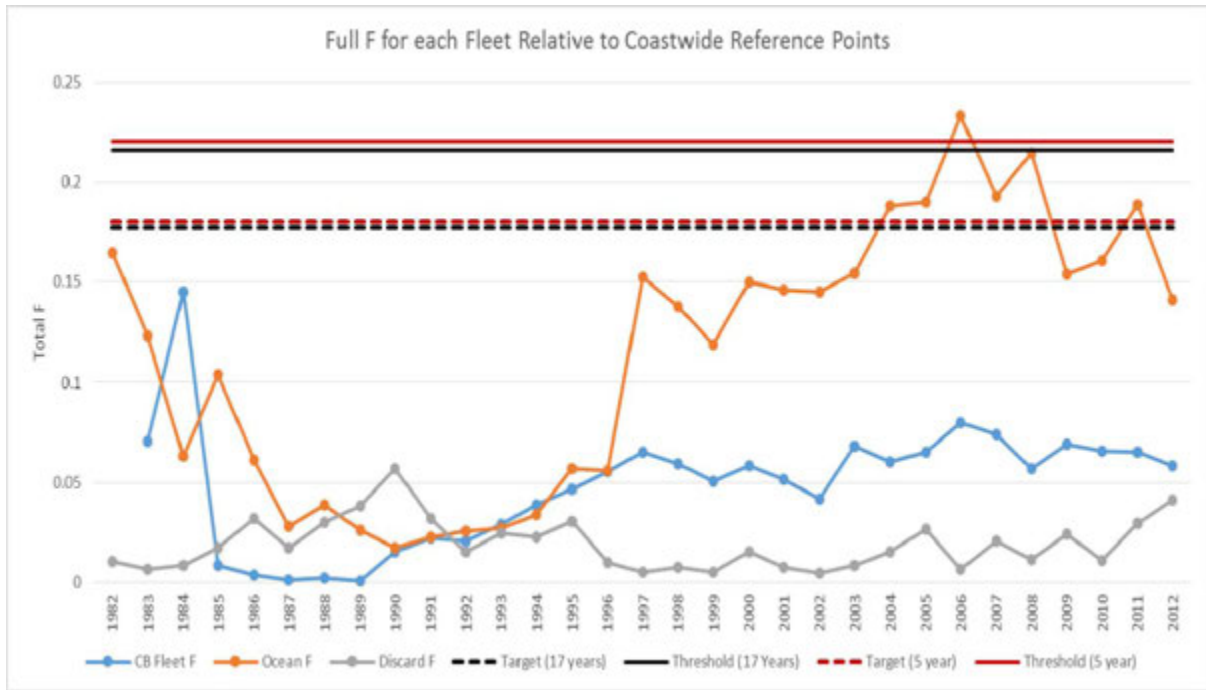
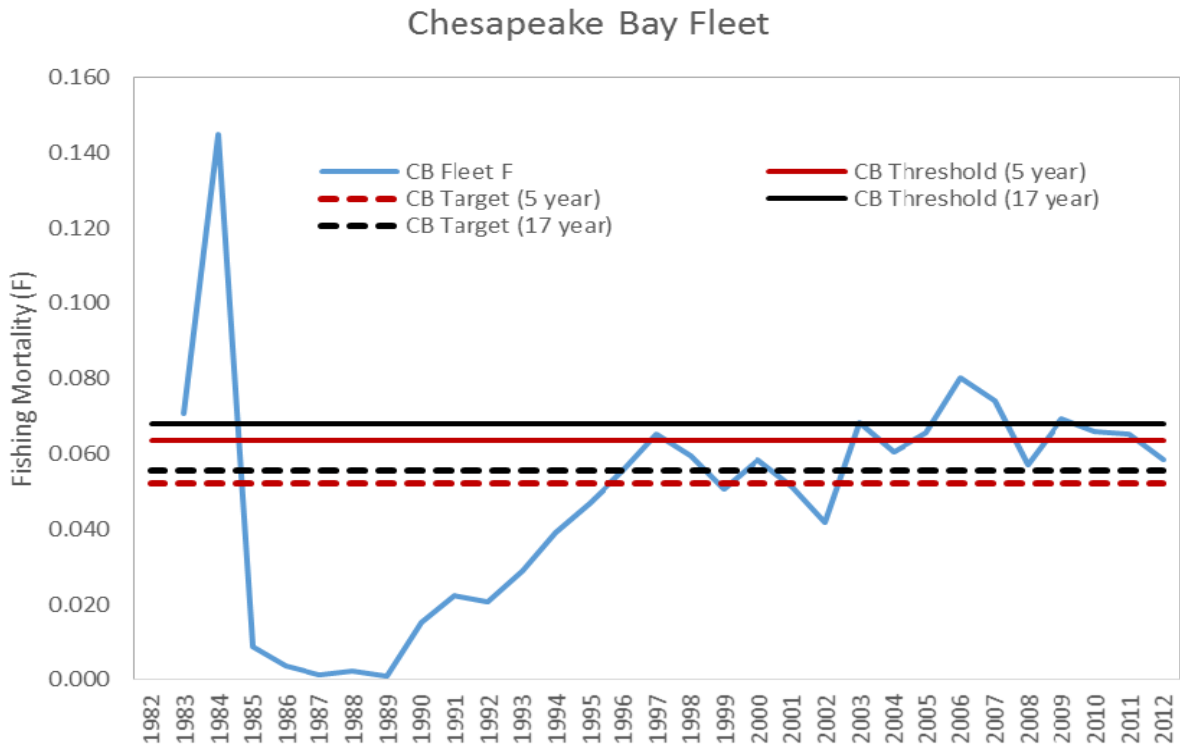
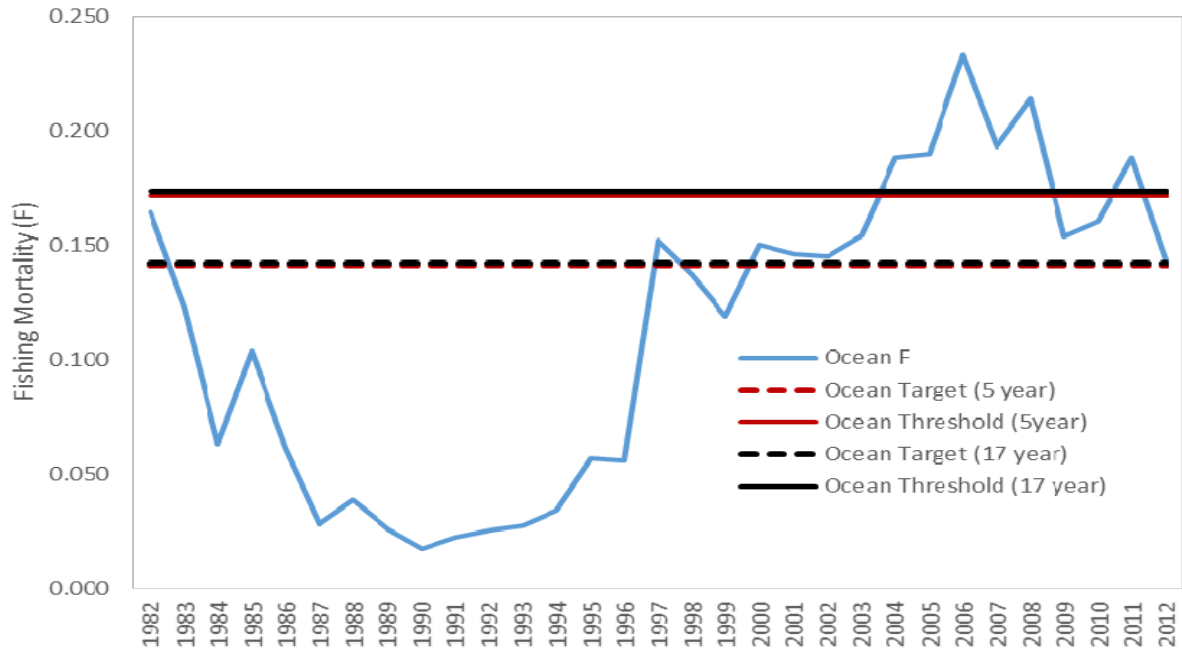


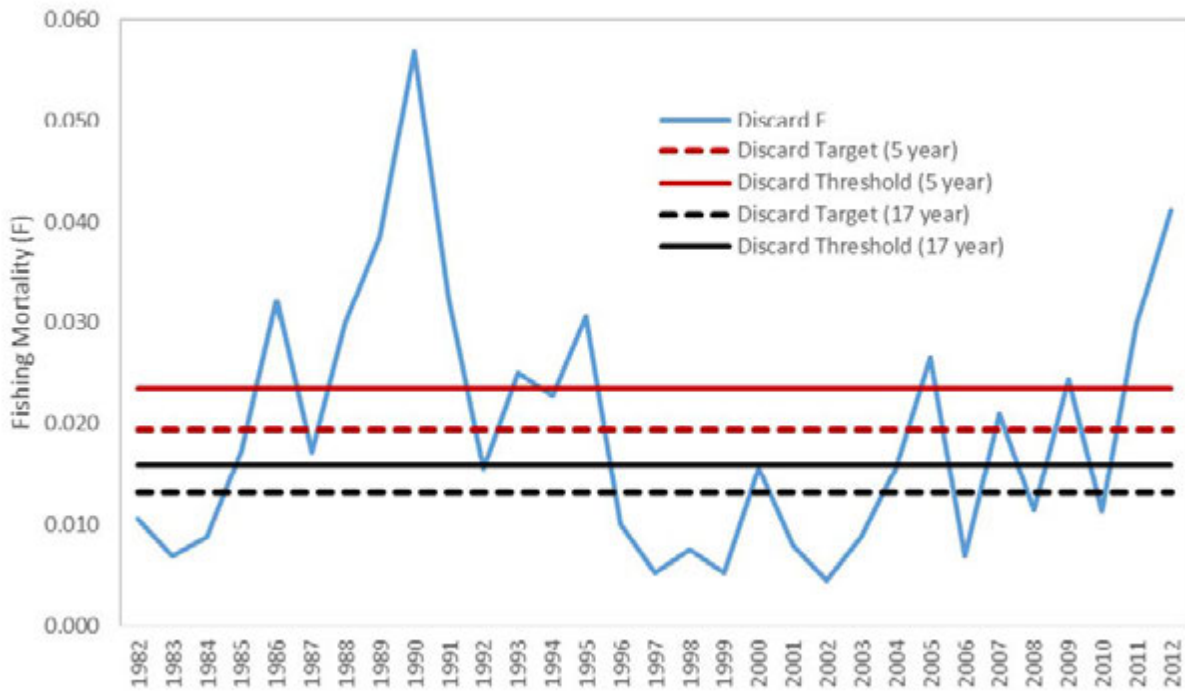
Figure 3. Full F and their respective targets and thresholds for the Chesapeake Bay fleet (top), ocean fleet (middle), and commercial discard fleet (bottom).



Ocean Fleet



Commercial Discard Fleet



Atlantic States Marine Fisheries Commission

Tautog Management Board

*November 4, 2015
10:15 a.m. – 12:15 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*A. Nowalsky*) 10:15 a.m.
2. Board Consent 10:15 a.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 10:20 a.m.
4. Public Information Document for Amendment 1 **Action** 10:30 a.m.
 - Review Options and Public Comment Summary (*A. Harp*)
 - Advisory Panel Recommendations (*A. Harp*)
 - Law Enforcement Sub-Committee Recommendations (*J. Snellbaker*)
5. Draft Amendment 1 (*A. Nowalsky*) 11:15 a.m.
 - Provide Guidance to the Plan Development Team for Draft Amendment 1
6. Review and Populate Advisory Panel Membership (*A. Harp*) **Action** 12:10 p.m.
7. Elect Vice Chair **Action** 12:15 p.m.
8. Other Business/Adjourn 12:15 p.m.

The meeting will be held at the World Golf Village Renaissance, 500 South Legacy Trail, St. Augustine, FL

MEETING OVERVIEW

Tautog Management Board Meeting
November 4, 2015
10:15 a.m. – 12:15 p.m.
St. Augustine, Florida

Chair: Adam Nowalsky (NJ) <i>Assumed Chairmanship:</i> 05/15	Technical Committee Chair: Jason McNamee (RI)	Law Enforcement Committee Representative: Jason Snellbaker
Vice Chair: VACANT	Advisory Panel Chair: VACANT	Previous Board Meeting: August 5, 2015
Voting Members: MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, USFWS (10 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Public Information Document for Amendment 1 to the Tautog Fishery Management Plan (10:30 – 11:15 a.m.) Action

Background

- Based on the results of the 2015 Benchmark Stock Assessment, the Board initiated Draft Amendment 1 to the Interstate Fishery Management Plan for Tautog in May 2015.
- The Tautog PID considers overall goals and objectives as well as regional management areas, reference points, management measures and unreported fishing.
(Public Information Document in Briefing Materials).
- Public hearings were held in MA, RI, CT, NY, NJ, DE, MD, VA, as well as an Advisory Panel meeting to discuss the outcome of the hearings.
(Public Hearing summaries and Advisory Panel Recommendations in Briefing Materials; Written Comments in Supplemental Materials)
- The first Law Enforcement Sub-Committee meeting was held in October 2012 to discuss the results of the public hearings with respect to the tautog black market and formulate a strategy to move forward.
(Recommendations in Supplemental Materials)

Presentations

- Overview of Public Comments by A. Harp
- Advisory Panel Recommendations by A. Harp
- Law Enforcement Sub-Committee Recommendations by J. Snellbaker

Board Actions for Consideration at this Meeting

- Approve a regional management area option which will be used to guide the development of the Draft Amendment

**5. Draft Amendment 1 to the Tautog Fishery Management Plan (11:15 a.m. – 12:10 p.m.)
Action****Background**

- Issues to consider for Draft Amendment 1:
- *Regional management areas* which include coastwide management (status quo) or a regional alternative to assess and manage tautog
- *Goals and Objectives* of the Tautog Fishery Management Plan to manage the fishery and resource
- *Management Measures* which includes whether 1) a region should have consistent management measures across states, 2) each state within a region should have the flexibility to manage their fishery using conservation equivalency or 3) a combination of the two meaning only select measures would apply to an entire region
- *Reference points and rebuilding timeframes*
- *Other issues* including adaptive management, landings and biological monitoring requirements and illegal fishing

Board Actions for Consideration at this Meeting

- Provide Guidance to the Plan Development Team on the development of Draft Amendment 1

5. Advisory Panel Membership (10:25-10:30 a.m.) Action
Background <ul style="list-style-type: none">• Captain Mel True (MA, Recreational) has been nominated to the Tautog Advisory Panel (Briefing Materials)
Presentations <ul style="list-style-type: none">• Nominations by A. Harp
Board actions for consideration at this meeting <ul style="list-style-type: none">• Approve nominations

6. Elect Vice Chair

7. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
TAUTOG MANAGEMENT BOARD**

**The Westin Alexandria
Alexandria, Virginia
August 5, 2015**

**These minutes are draft and subject to approval by the Tautog Management Board
The Board will review the minutes during its next meeting**

Draft Proceedings of the Tautog Management Board Meeting August 2015

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1. PAGE 12: Motion to approve the Tautog Public Information Document for public comment as revised today. Motion carried on Page 15.
2. PAGE 15: Motion to accept Travis Barao from Rhode Island, Edward Yates from New Jersey and Wes Blow from Virginia to be added to the Tautog Advisory Panel. Motion carried on Page 15.

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ATTENDANCE

Board Members

David Pierce, MA (AA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
William Adler, MA (GA)	John Clark, DE, proxy for D. Saveikis (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Roy Miller, DE (GA)
Mark Gibson, RI, proxy for R. Ballou (AA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Mike Luisi, MD (AA)
Dave Simpson, CT (AA)	Bill Goldsborough, MD (GA)
Lance Stewart, CT (GA)	David Sikorski, MD, proxy for Del. D. Stein (LA)
Craig Miner, CT (LA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Katherine Heinlein, NY, proxy for Sen. Boyle (LA)	Catherine Davenport, VA (GA)
James Gilmore (AA)	Kyle Schick, VA, proxy for Sen. Stuart (GA)
Emerson Hasbrouck, NY (GA)	Rep. Bob Steinburg, NC (LA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Peter Burns, NOAA
Tom Fote, NJ (GA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Staff

Bob Beal	Ashton Harp
Toni Kerns	Mike Waive

Guests

Pat Geer, GA DNR	Jim Dawson
Thad Altman	Bob Ballou, RI DEM
Tom Moore	Chip Lynch, NOAA
Jack Travelstead, CCA	Aaron Kornbluth, Pew
Arnold Leo, Town of East Hampton	Doug Ochsenknecht, VSSA
Meghan Lapp, Seafreeze	Raymond Kane, CCFA
Joe Cimino, VMRC	Steve Train
Dan Mckiernan, MA DMF	

**These minutes are draft and subject to approval by the Tautog Management Board.
The Board will review the minutes during its next meeting**

Draft Proceedings of the Tautog Management Board Meeting August 2015

The Tautog Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 5, 2015, and was called to order at 8:45 o'clock a.m. by Chairman Adam Nowalsky.

CALL TO ORDER

CHAIRMAN ADAM NOWALSKY: Good morning, everyone. My name is Adam Nowalsky. I'll be chairing the Tautog Board. I have assumed the chairmanship as the previous vice-chair and want to thank Jim Gilmore for his two previous years. I know there was some question about who was chairing this board today. Jim had assumed the chairmanship in April of 2013.

The commission had worked to go ahead and basically bring all the change of the chairs in line with the annual meetings; but with his chairmanship having already run two years and some of the issues we have to discuss I am now the Chair. Again, thank you, Jim, for your two previous years of leadership.

APPROVAL OF THE AGENDA

CHAIRMAN ADAM NOWALSKY: The first order of business here this morning is the agenda. I would just like to add that at the last meeting we had a motion with regards to illegal unreported harvest, tagging and establishing a committee. I do think before we leave today we do need to have some additional discussion about that. If that matter does not come up during the PID discussion itself, it would be my intention to add that to the end of the agenda and to have some discussion so we continue to move forward with that.

Is there any objection to that change to the agenda or are there any other items to add to the agenda? Seeing none; the agenda is accepted with consent with that change.

APPROVAL OF THE PROCEEDINGS

CHAIRMAN ADAM NOWALSKY: The next order of business is to approve the Proceedings from the May 2015 meeting. Are there any items to be brought up there? Mr. Pierce.

DR. DAVID PIERCE: Mr. Chairman, there is a mistake in the minutes – inconsistency, actually. I draw the board's attention to the Summary Minutes

and the Index of Motions, Motion Number 5 – and that's the motion you just referred to, Mr. Chairman, regarding tagging of tautog. It says that the motion made by me and seconded by Pat Augustine was tabled. It actually passed. The fact that it was passed is referenced and made known in the body of the minutes itself. That should be revised to "passed".

CHAIRMAN NOWALSKY: I appreciate that comment, Dr. Pierce. I actually have that meeting summary in front of me, and it indicates so the motion carries without objection in the summary of motions. Are you referring to the actual minutes themselves that say it was tabled?

DR. PIERCE: Yes; I'm referring to the minutes and then again the Draft Proceedings of the Tautog Management Board, Index of Motions and then Number 5 – the motion is there but it says it was tabled. Then down in the body of the text itself, on Page 27 to 28, it is referenced or it actually indicates that it pass. There was no motion to table.

CHAIRMAN NOWALSKY: We'll refer that to staff to ensure that is reconciled. Any other issues with the Proceedings? Okay, moving on, is there any public comment today for any items that are not on the agenda? We don't have anyone signed up. Seeing no hands from the audience; we will move to the next agenda item, which is to consider the Public Information Document for Amendment; and for that we'll turn to Mike Waive.

PID FOR AMENDEMTN 1 FOR PUBLIC COMMENT

MR. MICHAEL WAINE: I just wanted to inform the board that Ashton sitting next to me did a great job turning this Public Information Document around in a very short amount of time. I'll try not to mess this up through the presentation here. Just to inform everybody, I'm walking through the Public Information Document. This is on Draft Amendment 1.

I'll start with the process and the timeline here. Our amendment process has two rounds of public input. The first is through a Public Information Document, which is more of the scoping round. The board is reviewing this PID and considering it for public comment at this meeting. The timeline that I'm walking through is basically the quickest timeline that this document could take.

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If approved today, it would go out for comment between now and the November meeting. Ashton would bring those comments back for our annual meeting. The board would review those comments and at that point task the plan development team with drafting the amendment document, which would contain specific options that came out of the scoping process.

If it achieves that timeline, the PDT would draft the document for the February meeting of 2016. The board would review that and consider sending the draft amendment out for public comment in February. Hearings would be held in the spring. That comment would be brought back at the May board meeting, at which the board would make final selection of options and decide on an implementation date.

I just want to reiterate that is the quickest timeline this document could take and just note to the board that as you're considering the timeline here the quickest timeline would be done in May of 2016; so think about sort of implementation and when that might occur. I'm going to overview things fairly broadly and discuss what was included in the Public Information Document.

This amendment was initiated at our May board meeting. That was based on the assessment findings that tautog is overfished and overfishing is occurring on a coast-wide scale. Also, through that assessment document there was a proposal for a delineation of separate regional stock units. It was difficult for the technical committee to decide on what the stock unit should be and so the board decided to move forward with an amendment to the plan to look at the different stock units and how that would relate to management of the fishery.

A quick overview of what is in this document; I'll review the purpose and management, the description of the resource and then get into the issues that we're scoping through the PID. The purpose; generally with these public information documents we're asking broader questions to the fishery; basically wondering how they would like it to look in the future. More specifically in this Public Information Document we're looking for input on what the regional breakdowns in management should be for this stock based off of the assessment that I've just talked about.

In terms of management issues, the stock status is overfished and overfishing is occurring on a coast-wide scale. The F estimate, which is a three-year average from 2011 through 2013, is equal to 0.3. The

most recent addenda – there are six of them – tried to reduce F through various harvest reductions.

Included in the PID is just a quick overview of all the addenda that exists for this management plan, and they briefly describe the actions that the board took through those documents. Moving into the description of the resource, tautog are non-migratory and they prefer home sites, which is the life history characteristics that are the basis for separating out these stock units.

This resource has a fishery that is predominantly recreational. Rhode Island's harvest is primarily from Narragansett Bay. Connecticut is primarily from Long Island Sound. There is this dynamic of New York's harvest being split between open water and Long Island Sound and New Jersey is primarily from open water.

This just emphasizes the shared fishery resource between New York and Connecticut that exists in Long Island Sound, which the board has talked about quite a bit. The pie chart in front of you shows recreational landings by state from 1981 to 2014. The take-away message is a lot of the blue shades make up a predominate amount of the harvest.

Historically that is New York and New Jersey accounting for 41.9 percent and Massachusetts has a pretty large percentage at around 18 percent. Then in more recent times, a little bit of shift to New York and Connecticut making up a bulk of the harvest recreationally. As I mentioned, this is a predominantly recreational fishery. The commercial harvest is a lot smaller, around 10 percent.

In terms of management measures, we've got various size limits and possession limits across the states. There are also various open seasons. This fishery is predominantly a fall fishery, and you can see, based on the figure in the bottom right, that there are various season lengths by state through the management unit.

In terms of the commercial management measures, there are size limits and possession limits. There are some quotas in some states and gear restrictions that are also used to manage the commercial fisheries; once again, season length varying throughout the management unit. That sort of wraps up the background.

Moving into the issues specifically that are outlined in the PID, there are four of them with five that encompass the other issues; regional stock

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management areas, as I've talked a little bit about; FMP goals and objectives; management measures; reference points; and rebuilding timeframes; and other issues.

Starting with Issue 1, regional stock management areas, currently the fishery has one stock unit. As I mentioned, that is the way it was originally assessed and then the regional breakdown was what came out of the most recent assessment; so that stock unit that we're currently using, which is status quo, is from Maine to North Carolina.

I did want to note that North Carolina has indicated to the board that they do not have management interest in tautog; so from here in I'll talk about sort of it being Massachusetts through Virginia. The question that we're asking here is basically which regional breakdown does the fishery support; and those regional breakdowns are the ones that came out of the assessment. Option 1 is status quo. As I mentioned, the stock status is overfished and experiencing overfishing.

You can see in these options that I'm going to move through on the slides that it shows both the target and the threshold for SSB and fishing mortality. You'll note that the text that is in red indicates that it is essentially in an overfished or overfishing condition. For spawning stock biomass, that would be below the threshold; and for fishing mortality, that would be above the threshold.

Option 2 is a regional breakdown, which would be Massachusetts, Rhode Island and Connecticut as one region; New York and New Jersey as another; and then Delaware, Maryland and Virginia as a third breakdown. You can see that we have SSB and F estimates for each of these regional stocks. The SSB estimates are below the threshold for all of these regions within Option 2.

In terms of fishing mortality, the New England Region is experiencing overfishing. New York/New Jersey is in between the target and the threshold. The Delaware, Maryland and Virginia, indicated in green, is basically right at the fishing mortality target.

Option 3 is a second regional breakdown. This is Massachusetts and Rhode Island as one region. Connecticut moves to this New York and New Jersey region and then the Delaware, Maryland and Virginia. With this regional breakdown, the first two regions are overfished and experiencing overfishing, and then DelMarVa has not changed from Option 2.

Issue 2 in the document is a review of the goals and objectives of the plan. It has been a while since there has been a review of these goals and objectives as this is the first amendment to the fishery management plan. As part of that, the intent here is to ensure that the goals and objectives of this amendment are appropriate and adequate for how the fishery is being managed and what is involved in that.

The questions that we're scoping in this document; are the goals and objectives still appropriate for the fishery and the resource; what changes need to be made to reflect the current status of things and which five objectives do you feel are the most important? Through the scoping process, there are the goals and objectives included in the document that the public can review and think about and make recommendations.

Moving to management measures, as we talked about during the description of the fishery, we have various management measures throughout the states; bag and size limits, some quotas for the commercial fishery. Some of the questions that we're scoping through this document are is there support of the regional management measures.

That would mean managing with similar measures throughout those regional breakdowns that were outlined in Issue 1. What is the most effective management measures currently in place? We've got quite a bit of flexibility going on across the management unit; so which management measures are most effective?

Can they be improved upon to better achieve what the goals and objectives are of the plan? Are there any additional management efforts that should be included on the FMP? The fourth issue in the PID; it talks about reference points and rebuilding timeframes. Those reference points are essentially the ones that were included in Issue 1 when I talked about the regional breakdowns in addition to the status quo option.

Given that depending on the breakdown the stock is in an overfished and overfishing condition, there would likely be rebuilding timeframes established to get the stock back to a healthy status. Ultimately the questions that we're scoping around that are does the public support the ability to change reference points based on the latest peer-reviewed stock assessment recommendations without the need of a management document?

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Let me just take a minute and explain that question a little bit more. As you observed if you were here for lobster, there were reference points that came out of that stock assessment; and so the Lobster Fishery Management Plan has the flexibility to adopt those reference points if they get peer reviewed and are recommended to be changed through board action instead of through an actual management document.

That is basically what that question is asking; can reference points be adopted from a peer-reviewed assessment without a management document? The other is do you support the regional reference points that Issue 1 talked about? That would be essentially reference points that are specific to a region of states that would implement management measures to achieve whatever the reference points are that the board would like them to achieve like the target reference points?

Then do you support stock rebuilding timeframes that correspond to the needs of each regional management area; so what are the timeframes that the public suggests that we try to end overfishing and bring our spawning stock biomass back to its target levels? That is a quick review of the specific options in the document.

Obviously with an amendment, we're scoping a lot of issues so we've included some other issues for consideration by the public; remembering that basically any issue that deals with the tautog fishery or the resource can be brought up through this Public Information Document process. Some of the other issues that were discussed were the adaptive management sections to achieve the FMP goals and objectives, remembering adaptive management allows for the board to use the addendum process to make changes to the management plan. That addendum process is quicker than the amendment process as it only has one round of public input in drafting of a document.

There is also landings' and biological monitoring requirements being included in that other section; so reporting timeframes, collection of age-and-length samples that would lead to more robust stock assessments and information to conduct those. This has come up quite a bit, illegal fishing of undersized tautog. That is another issue that is brought up in this PID.

The questions that go along with that is do you support use of the adaptive management process? Do you support increased monitoring to help with the stock assessments? There are questions that probe

the undersized and is this a concern, the live fish market, the poaching that has been documented?

Then as a structural-oriented species like we've talked about; are there any habitat recommendations that would go along with this plan to protect the habitat that tautog use throughout their life history or that would aim at protecting the habitat. Then what other changes should be made to the tautog fishery that are not currently covered in the issues that we addressed?

Like I said, because we want to this to be an open and transparent process, we've provided the opportunity for the public to bring up any issues that are not currently scoped in the Public Information Document. That's a brief run through of the document, Mr. Chairman, and I'd be happy to answer any questions.

CHAIRMAN NOWALSKY: Thank you, Mike, for your presentation and thank you and Ashton for your work in putting this document together. To frame the discussion here, what we'll do is first we'll take any questions for staff about the creation of the document or specific questions about the content included therein. We'll then proceed to specific comments about the document.

If there are some minor modifications, text changes, inclusions to a certain section, I'd like to take those by board consensus where possible. If there are substantive changes to the document such as the addition of new issues, then those we will do as motions with a vote. At the conclusion of that, we will decide at the will of the board whether they wish to make a motion to send this out for public comment or if there is some other tact moving forward. With that, I'd like a show of hands for people that have questions about the presentation. We will start at the front of the room and go to the two hands I have for questions for staff about the presentation. Mr. Adler.

MR. WILLIAM A. ADLER: On the live market issue, I see several comments or questions to ask the public about undersized live market. Is there anything in this document – I didn't see it – that had any questions about having a live market for legal-sized fish or is that just not in the document? I'm not trying to put it in here unless you've got something there on that, the live legal-size market.

MR. WAINE: The document just lays out that the preferred size for this live market is below a lot of the current minimum sizes for the states, but that doesn't necessarily mean that there aren't fish of legal size in

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the live market. It just talks about the preference for fish being below the minimum sizes.

MR. ADLER: All right, so we're just talking about the undersized, illegal size live market here?

MR. WAINE: We do address that specifically, but that doesn't preclude the public from talking about the live legal-sized market that exists. It just specifies the size ranges below the current minimum sizes preferred for the live market, but that doesn't exclude legal fish from the live market.

MR. EMERSON C. HASBROUCK, JR.: Thank you, Mike, for a very good presentation. I have two questions and they're both relative to process. Mike, there were a whole list of other issues that you had there. If the public provides input on those additional issues, then if we want we would incorporate those when, in November or February? How does that work? I also have a follow-up question.

CHAIRMAN NOWALSKY: Mike can correct me if I'm wrong. Once the board decides to send this out for public comment, the next step in the process will be for staff to collect those comments and develop a proposed amendment that would come back to the board that we would discuss and could include pretty much any of the information that comes back from the public as part of this process. Maybe, Mike, you could just go back to your earlier slide that had the specific date for when that proposed amendment might come before the board.

MR. WAINE: It is exactly as Adam described. If the board were to approve the Public Information Document for comment at this meeting, we would hold public hearings between now and the November meeting, bring back public comment at the November meeting and present it to the board.

The board would consider that input and essentially task the plan development team with drafting the amendment that includes either the issues scoped in the Public Information Document or any other issue that came out of the public input process. Between November and our next meeting in February of 2016; that is when the plan development team would draft the amendment document that contains those specific options and would bring it back for the board's consideration at that February meeting at which point they would consider sending that document out for public comment, which would be the second round of public input.

CHAIRMAN NOWALSKY: So to summarize that, from the time we send out a Public Information Document we would likely see two meeting cycles later a draft amendment that this board would then potentially take action on for sending out another round of public comment. Does that answer your question?

MR. HASBROUCK: Yes, it does. A follow-up – and it is related to Question 1 – Mike, I believe you said the earliest that this process would be completed would be May of 2016; is that right? If so, the earliest the states would be able to implement any changes will be in the middle of the year. Delaying this process may not have much of an impact on what occurs in terms of implementing regulations in 2016.

CHAIRMAN NOWALSKY: Well, again, let me take a first crack at it and we will turn to Mike. Once the final document is approved; one of the elements of that document will be for this board to include an implementation date at that timeframe. Historically, once the board has approved a management action; that implementation date is not usually that date that we vote on.

It is usually some point in the future. If the board completed action in May, they would go ahead and propose an implementation date for the states, which would likely – I'll simply say and I think most heads would nod in agreement; it would be very difficult even if we implemented the final amendment in May of 2016 to implement changed measures for 2016.

I think a more likely scenario would be whatever was approved some time during Calendar Year 2016 would then have an implementation date probably for the following fishing year. I will turn to staff if they have any other comments.

MR. WAINE: I think Adam summed it up perfectly.

CHAIRMAN NOWALSKY: Another question? Mr. Miller.

MR. ROY MILLER: I'm going to expose my ignorance for just a second. I'm curious why there is not an option similar to what we have for another species that is not subject to management at this particular meeting wherein it was proposed that there be a Delaware Bay specific region. Why do we not have a Long Island Sound specific region that would lump Connecticut and New York?

CHAIRMAN NOWALSKY: Mike, I'll let you touch on that.

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MR. WAINE: From my understanding, Roy, the regional breakdowns come right out of the stock assessment. Because we don't have reference points for that sub-stock that exists in Long Island Sound, it wasn't included in the regional breakdowns that are in this Public Information Document at this point.

CHAIRMAN NOWALSKY: And I do think that's going to be a topic for discussion here as we move forward.

MR. MILLER: Just a quick follow-up, Mr. Chairman. It just seems to me that we would want to take a look at that because it appears to me as an outsider on this particular issues that that seems to be the crux of the controversy is how to treat the catches in Long Island Sound. I think the sooner we tackle that and see if that is a fertile area to explore, I think the better off we'd be.

CHAIRMAN NOWALSKY: Are there additional hands for questions here before we move into discussions. Mr. Luisi.

MR. MICHAEL LUISI: Following up on Emerson's comments regarding implementation; so if we're thinking that we move this forward and we implement in 2017, this current assessment that was done only has – the terminal year is 2012, so we're looking at a pretty significant time period between the terminal year of the assessment and implementation of management measures.

I'm curious as to whether or not there is a planned update of the assessment between now and when management measures would fall into place. The reason I ask is that we've recently made some changes. I think it was in 2014 when states implemented measures for a reduction to protect a growing stock and that we're now at the time period where the protected stock at that time could now be coming into those fish that could be part of the fishery. If you have any thoughts on what those plans are, it would be helpful.

CHAIRMAN NOWALSKY: I'll turn to staff to address potential updates we might get; and based on that answer, also how this board may act to further that process and meet your concerns.

MR. WAINE: Currently there isn't a stock assessment update or a benchmark stock assessment on the schedule. If the board wanted to receive a stock assessment update, they could task that noting that trying to basically fit it into what is an already pretty jam-packed assessment schedule; but directly

to answer your question, Mike, there is no specific date as of right now for an update or a benchmark to occur.

CHAIRMAN NOWALSKY: Okay, seeing no further hands on the topic of questions, let's now proceed to comments, suggestions, motions for how to move forward. I've got a number of hands up. We will turn to Mr. Miller here on the right side of the room and work our way around counterclockwise.

MR. MILLER: I can be very brief. I just wanted to point that on Page 3 of the PID there is an apparent omission. It lists the states from Massachusetts to Virginia, and I don't see Delaware listed among those states. Thank you.

CHAIRMAN NOWALSKY: We're just double-checking that and let you know how best to address that.

MR. WAINE: It wasn't personal; I can promise you that.

CHAIRMAN NOWALSKY: No objection to including Delaware, I wouldn't think. Seeing none; we'll make that correction. Thank you very much. Mr. O'Reilly.

MR. ROB O'REILLY: Mr. Chairman, just a brief comment on the tables. These are going out to the public. I didn't look over all the information, but I do notice that on Page 16, Table 3-B, there is radically different information for Virginia in terms of the open seasons and the gear restrictions. I forwarded a copy of our regulation, which has been in existence since 2013, to Mike Waine just to kind of double-check that, and other states might want to look as well since the public is going to see this. Thank you.

CHAIRMAN NOWALSKY: Okay, we'll double-check to make sure that all those measures included are accurate. Mr. Fote.

MR. THOMAS FOTE: I guess I have two points that we should be discussing. One is, of course, the Long Island Sound Issue. Lumping New Jersey in with Long Island Sound makes no biological sense; and really it makes no habitat sense either. The two bodies that we're talking about have completely different geographical information.

Long Island Sound, in some of the sections is 150 feet deep, 160 feet deep, has a rocky bottom and everything else. When you look at the coast of New Jersey, except from maybe Shark River north, there

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really is no structure like that. As a matter of fact, in Cape May they go out – to find 165 feet of water, you have to go out many miles.

It just doesn't make any biological – and to put it there just because of changing reference points or to basically smooth out mortality just doesn't make any sense, so we need to have a long discussion that. If we're going to start doing regionalization – and that's what I think the future is going to have – we really need to do regionalization on places that have the fish that are regionally the same.

Tautog is a perfect example; they just go in and out; so we should be looking at regions like the Delaware Bay or Raritan Bay and then the rest of the area. We should be looking at Long Island Sound and then we should be looking at the coast of New York and not just regionalization that makes no biological sense.

The other thing is I think we need at least an updated assessment in 2016 if we're going to move forward with a new plan. There are a lot of regulation changes that have gone on in the last couple of years. As we know with tautog, when we change from one size to another size limit and raise that size limit, for two years you have a reduction in mortality but then it catches up. We need to have an assessment to basically look at all those factors. Those are the two points I would like to have further discussion on and hear other people's opinions.

CHAIRMAN NOWALSKY: Well, I think that is a wonderful segue as we recognize Mr. Simpson.

MR. DAVID SIMPSON: Continuing on that theme, yes, as I expressed before, I have concerns about Long Island Sound and the need to recognize that there is a great deal of overlap in the fisheries in Long Island Sound between New York and Connecticut, and the fish themselves move freely between the two states. As others have commented and evidenced by their comments, it is important to the coast; because based on the pie chart that Mike put up earlier, Long Island Sound represents more than 40 percent of coast-wide tautog harvest at this point. It is important on a coast-wide scale.

In the issue statement, I noted that the concern would be that separating the Sound would result in differing management measures for Connecticut and New York within the Sound, and that is not the concern at all. We have different rules now and that is common, so that is not a concern at all. It is that these same fish could be assessed differently and we essentially have two management objectives for this same exact

fish, which can only lead to problems not only for New York and Connecticut but for our neighbor.

I mentioned before and I'll reiterate here the University of Connecticut received a grant from Sea Grant to conduct a stock assessment for Long Island Sound. That assessment we expect to be done in the next several months. New York staff and Connecticut staff along with the UConn researchers met last week in New York to discuss how we might populate the assessment with recreational and commercial data and I think arrived at an understanding of how New York landings could be parsed out to support a Long Island Sound assessment.

I think it is important for multiple states that we take advantage of the information that will be coming on the tautog population within Long Island Sound that this stock assessment will bring. I'm not at all anxious to put off the Public Information Document, but I think you can anticipate the comments you'll get from the public from at least Massachusetts to New Jersey and maybe even Delaware because there can be sort of cascading effects that there is this need.

At this point I am hoping that the board will support holding off, looking for that Long Island Sound assessment. I talked with Bob Beal back in May and he seemed to indicate there would be the ability for the commission to conduct the peer review science so that you'd have the exact same quality of assessment and review to base management on. Then I think we can properly align assessment areas and management areas as the fish are trying to tell us it should be done.

CHAIRMAN NOWALSKY: Thanks, Dave, I appreciate it. Before we recognize Dr. Pierce, let me just go back to Tom Fote for a minute who had suggested an update to the assessment for 2016. I have been informed by staff that the Policy Board had previously approved that; so we are scheduled to see an update which will just take information from the previous couple of years and at least get us past the 2012 terminal year. Any other comments from staff on that?

MS. TONI KERNS: It is not in response to the 2016 schedule but in response to Dave. If we do move forward with utilizing the Long Island Sound assessment, it does have implications for how the rest of the stock has been assessed in that we would have to do another benchmark in order to have reference points for New Jersey south and the other portion of New York because they weren't separated in a way that would give us reference points for those areas. If

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we were to utilize this Long Island Sound assessment, we would still need a benchmark to get reference points for the other areas.

DR. PIERCE: Mr. Chairman, I have a suggestion for two additional questions that can be added to the PID, and they're actually related. These questions focus on the motion that you have already mentioned earlier on in this meeting, the motion made at our last meeting, one that I made and was passed by the board. It is regarding an ASMFC mandated fish-tagging program to minimize the unlawful commerce of tautog and to improve the traceability of all fish in commerce; trace it back to the state or origin and harvester.

My suggestion, Mr. Chairman, is to get that comment that we're going to need regarding this particular issue; that we could add this question. I have not e-mailed it to the staff; I'll just read it. It is relatively brief. The question would be – and this could be in the list of questions on Page 13 of the PID, which is just after the section that deals with illegal fishing of undersized tautog.

The question would be should there be an ASMFC-mandated fish-tagging program to minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin and harvester? The related question would be should the tag be at point of harvest or sale? This gets to the heart of the matter, frankly, regarding what perhaps our major problem is; overfishing caused by too much catch, which very well could be due to illegal harvest. Again, this ties continued discussion with the public to that motion.

CHAIRMAN NOWALSKY: Okay, so I'm hearing you would like to add that under the management questions and not as a whole new issue; and I think that is probably a reasonable place for it. Does staff have that; that we could put up just so everyone could see it?

MR. WAINE: Yes; I think I understand the intent. Ashton and I have talked about this as well; so as long as the board is comfortable with us communicating directly with Dr. Pierce or the subgroup who is going to be working on this issue moving forward, I'm happy with where we are.

CHAIRMAN NOWALSKY: Is there any objection from the board with staff communicating directly with Dr. Pierce to encapsulate that question under management questions for Issue 5? Two hands went

up. We'll go back to Dr. Pierce first and then Jim Gilmore.

DR. PIERCE: Yes; it wouldn't be just with me. It would be with the subcommittee that is going to be established. It involves law enforcement and other individuals. Again, this is a PID, get the question out there, and then the specifics would be worked on in the meantime by the subcommittee as a charge from the board. The charges have already been provided by the board. I just made the motion and now we just get comments from the public regarding whether we should deal with similar to striped bass, for example. It is just not me; it is the board.

CHAIRMAN NOWALSKY: So hearing your reference to the subcommittee that we have not yet completely populated or convened; are you comfortable that staff could craft a question or questions to put in this document at this time?

DR. PIERCE: Yes; I am.

CHAIRMAN NOWALSKY: And staff concurs?

MR. WAINE: Yes.

MS. KERNS: We do have members of law enforcement on the subcommittee that we did establish, and I just wanted to let the board know who those members were. I wasn't under the understanding that we wanted board members on that subcommittee; so if we could get people who are interested for board members, to let Ashton or myself know. We had Pat Moran from Massachusetts, Tim Huss from New York, Doug Messeck from Delaware, Jason Snellbaker from New Jersey. Logan Gregory from NOAA Fisheries can't be on this subcommittee, but he is going to try to get somebody from NOAA on the committee as well. That is the law enforcement members that are going to participate. If we get commissioners, that would be great.

CHAIRMAN NOWALSKY: Great; and once we finish the other items we've got on the agenda, I did put that under other business to come back to, and we can do that. Jim Gilmore.

MR. JAMES J. GILMORE, JR.: Mr. Chairman, wasn't the intent of that subcommittee – and I'm not sure, David, it was yours or the board's – to analyze cost of what this would be to implement?

MS. KERNS: I don't think the law enforcement officers will be able to help us with the cost to

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implement these measures. I can find out maybe the cost for enforcement, but we would need help from the states to let us know what it cost to implement these types of programs. I think we could use things like the Striped Bass Tagging Program to look at estimates, potentially.

MR. RUSS ALLEN: Mr. Chairman, I have a few things I'd like to discuss. First off, on Page 6 in the recreational fishery, the second and third paragraphs, we talk about historical harvest and then recent harvest. Then there is a short paragraph on recent harvest. I think it would be beneficial for just some context there to have some historical harvest numbers; maybe a short paragraph to fit in there also. I think that would be helpful to the public.

Also at the end of that paragraph, it talks about 3,851 fish in Table 4 and Table 4 is in pounds and not fish. That maybe needs a little thought process there. Also on Page 7, under the statement of problem for Issue Number 1, it talks about tagging studies indicate tautog are non-migratory. I think it would be helpful there to have just a short sentence to talk about the inshore/offshore migration. That might be helpful for the public or for those who aren't aware of that.

Also since Rob mentioned Table 3-B, under New Jersey the open season – the third season should be November 9th and not November 1. That is an issue. I also would like to see a little bit more under Issue 1, stock management areas. I know there is a discussion there on Long Island Sound; and I know we're having that discussion. I don't want to get into it too much, but I think there should be some discussion there on how different New Jersey is in regards to the Long Island Sound fishery as other people have already mentioned. I think there needs to be more information in there also. Thank you, Mr. Chairman.

CHAIRMAN NOWALSKY: Okay, so let me go through that laundry list to make sure we've got everything here recorded. On Page 6, where there was the recreational data, you are looking for staff to make some additions to the historical information there as well as to reconcile Maryland's fish with the pounds that are offered elsewhere in the document. Staff is nodding they're okay with that.

The second item you had was for Page 7, a better description or replacement of the word "non-migratory" that reflects the science suggestion about the east/west migration of these fish, primarily north of the Chesapeake Bay. Staff is giving me a thumbs up on that one as well. You brought up another issue

with regards to the commercial regulations. Again, that we will reconcile. Then the final item there was under Issue 1, was it, for Page 9, I believe; just adding some additional information. If you could repeat what you're looking for there again.

MR. ALLEN: It talks about emphasizing the shared fishery between New York and Connecticut, which is nice, but there are options in here that has New Jersey linked in there. The New Jersey fishery is completely different from that fishery. It does have the same type of fishery as the New York open water fishery, but I think that should be in there where there is more discussion.

This makes it look like, okay, this is the best option in my mind; so I think there should be just some break there to talk about how New Jersey has an open water fishery and that they don't link exactly. I think as we have that discussion and depending on how far we're going to wait or not wait for information on Long Island Sound; that might make a big difference to whatever gets in there. Thank you, Mr. Chairman.

MR. MILLER: Mr. Chairman, if I may follow up on Russ' comments and also on Dave Simpson's and Toni's comments, it would appear from their comments that the UConn stock assessment that is planned for – Dave wasn't specific – I guess 2015 or 2016; that information, according to Toni, can't be incorporated for management purposes until a new benchmark is done, which I presume couldn't occur before 2018. Am I correct in that, Toni?

MS. KERNS: I'm not saying that it can't be incorporated. It is just that if we do utilize the Long Island – if the board wanted to take management action on reference points that came out of this Long Island Sound assessment, we would need to do a benchmark assessment to deal with the rest of the southern portion of the stock.

Because the current stock assessment, the regional breakdowns don't match up with pulling Long Island Sound out, because New Jersey was included in the northern portions, not in the southern portions. Then the other half of New York would need to be shifted into one of the areas. If you only use the Long Island Sound landings of New York, we still have other landings included in New York. We wouldn't have reference points for those.

MR. MILLER: Mr. Chairman, I just wanted to make sure I understood what our expectations are with regard to consideration of Long Island Sound as a separate regional management unit. It sounds to me

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like it is unlikely that we will have access to the information we need for a couple more years. I just wanted to make sure that was understood; and if not, what is an alternative?

CHAIRMAN NOWALSKY: I think it is clear from the responses from staff that it is not going to happen tomorrow. I would agree that at some point in the future and that some point being measured in years and not months is probably likely from a management use. Toni, would you care to further respond?

MS. KERNS: I guess the other option is to do regional management but not based on reference points for those specific areas. For summer flounder, let's say, we have a coast-wide set of reference points, but we break down management by regions. You could do regional management but based on not those regional reference points. It is a different tact than the direction this document is going, but it is to the pleasure of the board.

CHAIRMAN NOWALSKY: Dave Simpson.

MR. SIMPSON: As Toni pointed out, if we subset Long Island Sound as a unit stock, which I think there seems to be broad understanding that would be an appropriate scale on the board, anyway. The way to contain the problem is simply working between Connecticut and New Jersey; Connecticut, New York, New Jersey. It is where to subset that; yes, so we're doing the Long Island Sound assessment now. UConn is working on it now.

Then, right, we need to take New Jersey and South Shore, New York, and get an updated assessment on that area, too. That way you don't have any effect on Rhode Island north or Delaware south. As I said, I don't want to delay any kind of management or this process for tautog; but I think it is so fundamental to tautog management what we're trying to achieve, which is appropriately scaled regional management; that I think that is the direction we need to go.

My question is whether there is any value in going ahead with the PID to hear back from the public what you're hearing around the table now that this isn't quite right. We need to refine the Connecticut to New Jersey area or do we just go ahead and say, look, yes, we need – it is either South Shore, New York and New Jersey; or to simplify, we probably should even consider just lumping New York and Connecticut together and assess New Jersey separately.

I think that kind of discussion in the near future is the appropriate way to move forward. I know the options that we have available right now are really problematic from a biological assessment and management perspective; that taking the Connecticut landings and the Long Island Sound wide trawl survey, which as I said before covers both New York and Connecticut waters, and assessing the Narragansett Bay/Buzzard's Bay fishery with that or – and at the same time not counting the Long Island Sound Trawl Survey in New York's – the majority of New York's, not including that same information; that is broken so we need to fix it.

I think the fix is we need two smaller assessments for this area. I do think we are going to have to push off approving the PID today. There is a number of other issues. I hear Russ talking about let's flesh out this difference in New Jersey versus New York and certainly Long Island Sound. We heard the last time from Rhode Island and Massachusetts that the northern grouping was problematic. I do think to move forward with tautog we need these two sub-stocks, if you will, assessed and then we can move forward in this particular three-state area.

CHAIRMAN NOWALSKY: Okay, so let me first do a little cleanup here and going back to Russ' last request, which was for a little bit further development of how the regions utilize the fisheries on Page 9; and is staff comfortable with being able to further differentiate the fisheries of states to the south from the Long Island Sound fishery as it currently exists in the document and is that what you were trying to achieve, Russ? Russ is nodding his head and staff is nodding their heads. Next up I had Rob O'Reilly.

MR. O'REILLY: Mr. Chairman, a couple of things. I wasn't sure about the implementation of the sixth addendum. Did that take place in 2011? Did the states comply in 2011 or was it merely that is when it was established? The only reason I ask is it would make sense if 2011 – if states did implement measures, then on Page 20 you would have something for that time period, 2011 to 2014.

With your pie chart you could note that this corresponds to the implementation of Addendum VI. I'm not positive about that; but as far as when the states all came into compliance, but that would make more sense. The second idea is it is a little bit unusual to see Table 4 and the type of rise and fall inter-annually even with most of the states with the recreational landings; pretty spectacular in some cases.

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I know that is what we have; that is the data; but at the same time would a directed trips help the public a little bit not only from an indicator of effort but also as sort of an economic indicator when you look at the directed trips for tautog. It doesn't have to be extensive. Perhaps you could match it up to whatever exists on Page 20; or if 2011 is part of that Addendum VI regime, you could have the trips for that period. I just think that anyone who looks at Table 4 would really have a lot of questions as to what is going on there. I mean, clearly, year class effects aren't doing that.

CHAIRMAN NOWALSKY: Okay, so let me turn to staff and ask two questions to get clarification on that. Were the Addendum VI regulations implemented in 2012 for most states or not until 2013?

MR. WAINE: I don't have that off the top of my head; but if the board is comfortable with staff working through Rob's characterization of is that change in landings being matched up to implementation of that document and then also an explanation of what the trips look like, let us work a little bit with that, double-check that between now and the November meeting and we will bring back what we can in the next draft of this document if the board is comfortable with that approach.

CHAIRMAN NOWALSKY: Okay, so what I'm hearing you actually suggesting yourself is another draft of this document brought back before the board.

MR. WAINE: Yes, sorry, I didn't mean to be leading there. That's obviously at the board's discretion, but whatever review mechanism gets put in place, whether it needs to come back to the board at the next meeting or if it gets approved for public comment today, we can ensure to communicate with the individuals that made the specific suggestions in the document that we've appropriately and adequately characterized their concerns before it gets released to the public, if that is an acceptable approach. Sorry, I didn't mean to insinuate that this was going to another board meeting unless the board decides that is the case.

CHAIRMAN NOWALSKY: Okay, so Rob will have staff look at adding the directed trips to Table 4 and then will coordinate Figure 2 to make sure that that represents the landings that came post-implementation of Addendum VI. Would those meet your needs; and a nod of the head. Okay, further discussion or action, either moving this ahead or some other course of action? Tom Fote.

MR. FOTE: Mr. Chairman, I think with all the changes we have made; that we need to really hold and bring this back to a full board for discussion and looking at. It has taken a long time to get to this point. The stock is not going to do anything really different in the meantime by changing the information document. I feel uncomfortable basically with all the discussion that has gone on and all the changes going on to say that we'll put a document out and maybe do this over a conference call.

I really would feel more comfortable sitting down around the table and basically going all through it again. There are still a lot of concerns. We're still thinking this through. Tautog has always been the perfect fishery to do actual regionalization. We're handling some of that right now, but truthfully does New Jersey really believe should it be south of Little Egg Harbor into Delaware and then Barnegat north with New York.

I think it is a perfect fishery; and since we're talking so much about regionalization, to actually make sure this plan goes through right. I'm not familiar with the Chesapeake Bay. I don't think there is a lot of fish in Maryland like tautog up in the Upper Bay, but I might be wrong. I don't have any information, but I know Virginia is an important fishery in tautog and basically a lot of that happens by the bridge. I'm just looking at how we do this.

With Maryland, their ocean fishery is more in tune with Virginia, so that is what I'm looking at. This should be the prime example of how to do this afterwards for other species, whether it is summer flounder, whether it is striped bass when we finally get some reference points from the Delaware River and Hudson River that we can start using for that. Anyway, that's just my thoughts.

CHAIRMAN NOWALSKY: Okay, before I get to you, Mark, where we are is we've had a lot of discussion about the document. I've got Mark Gibson I'll recognize in just a moment. The next step would be a motion to take it out or simply the board directing staff to go back, do these changes, possibly get some more information about either the assessment work that is going on for Long Island Sound. We are going to need to populate a PDT moving forward.

We have the issue of the law enforcement, illegal tagging, unreported fish; subcommittee that still needs some further discussion. These would all be

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things that can be ongoing, not moving to take this out today. I don't think anyone is suggesting that we're stopping the process entirely, but these would be some of the ongoing work that would go on. I'll turn to Toni for further clarification and then I'll come back to Mark Gibson.

MS. KERNS: I guess I just have a question. I think a lot of the changes that this board has asked us to do are not significant changes in the document. They can be fairly easily done. There is a couple of pieces in there that we would need to communicate with a couple of commissioners to make sure we have everything correctly.

Now, I haven't heard the board say you want us to change the regional management options in the document yet. If that is the direction that the board wants us to do, then that would be maybe a bigger lift and more substantial because we don't have a stock assessment to base that on, and we don't have a lot of direction from you yet on how to deal with the other portion of New York and New Jersey.

Whether that should be a region on its own, to be mixed into some other area, we would need that direction. If it is just the changes outside of those, it can be pretty easy for staff to make those changes and we could do an e-mail for the board or we could do a conference call for you to look at the document to be able to stay on this timeframe.

It wasn't the intention of the board that I understood from last time to include the working group's information on the illegal harvest for the PID. It was something that we were pulling together for the draft amendment document where it would be thoroughly vetted for options in that document. The PID was just to gather some additional information from the public on the concept of the illegal reporting and fishing. Depending on the direction that you give the staff and PDT, I think you have two different avenues that you can approach this, if that makes sense, Mr. Chairman.

CHAIRMAN NOWALSKY: So if I'm hearing you correctly, if the board so directed you to, staff could include potentially other regional management options in this document, potentially further developing Issue 1 if the board so directed you to do so; is that what I'm hearing?

MS. KERNS: We can do our best to, but again it would not be based on a stock assessment. We would have to come up with an ad hoc way to deal with New York and New Jersey. We wouldn't have

an actual reference point to go off of, so it would have to be something ad hoc. I don't know what the technical committee would come back with in terms of how to deal with that. They may come back and say it is not something we can do. We'd have to get their input.

CHAIRMAN NOWALSKY: All right, let me turn to Mark Gibson; and then I've got a couple of other hands up, and then I think I'm going to ask that we as a board decide how to move forward.

MR. MARK GIBSON: Mr. Chairman, I don't support holding off on taking this out to the public. I think we've had enough discussion here that staff and the appropriate board members can modify this document to be worthwhile for the public to look at. Regardless of how the stock assessment was diced up or aggregated, you have biomass levels substantially below their thresholds.

That is a dangerous place to be for a species like tautog. You don't want to hang around there too long and this assessment is already three years old. I think we're playing with fire a bit by having this extended timeline and then discussions here that would potentially extend it even farther and require additional benchmark calculations and external stock assessments that would need to be blended in. I think we have enough to go on now; and if you're ready for a motion to take this out to the public, I would be happy to make that unless you have some more comments, I guess.

CHAIRMAN NOWALSKY: Let me recognize two more hands and then I will come back for a motion, if that is acceptable. Dave Simpson.

MR. SIMPSON: Well, I was going to make a motion to postpone taking this out to public comment until we can resolve the Connecticut, New York, New Jersey issue. I think it is confined to that. If there is a way that while this PID is out for comment the three of our states can get together and figure out the best way forward to subdivide this area, I'm okay with that, but I think that needs to be done.

I'm willing to investigate facilitating a New York/New Jersey or just a New Jersey assessment. I would be willing to put in state money to do that because I think this issue is important enough to Connecticut. If it took that, I would be willing to do that. I can't envision engaging in management based on the current assessments that are available in Long Island Sound.

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CHAIRMAN NOWALSKY: Tom Fote, did you have any additional comments before I come back to Mark Gibson?

MR. FOTE: Well, I'd probably second Dave's motion just because of the fact that we send a document out like this to public hearings, everything else is going to get lost when people start looking at why are you sticking us up – in New Jersey I'm talking about – why are you sticking us up in Long Island Sound? I mean, that is going to be the whole topic of conversation when I get to public hearings, and that is not what I want.

I want to go to public hearings with a document that I'm looking for the focus of all the parts of the document. I know what is going to happen. As soon as they look at that thing, it basically is going to cloud every part of the discussion. I feel it is going to be a waste of my time to conduct public hearings on this because that's where the public will focus its attention on. We're better off straightening that out before we go to public hearings.

CHAIRMAN NOWALSKY: Mr. Gibson, the floor is yours.

MR. GIBSON: Mr. Chairman, I'm doing some vote counting and listening; and I'm not sensing that the motion I was going to make has enough legs to pass, so I will decline to make it and allow others to make the motions they think have the legs for today. Thank you.

CHAIRMAN NOWALSKY: Okay, if the desire is to take it out for public comment, we'll need that motion. If the desire is to go in some other direction, we don't need a motion to put this off. We just need some direction on how to move forward. Mr. O'Reilly, you had your hand up?

MR. O'REILLY: Yes; this is sort of a delayed response to something I heard earlier, so I'm still on the PID. There were comments made about non-migratory that were changed to some type of migration west for the Chesapeake Bay. I would think overall, from the public's perspective, that they would need several pieces of information as to why the regional management was important.

I'm not sure where else it is captured, but there is certainly on Page 10 the idea of compatible and equitable management measures; but I think the migratory component is pretty important. I just want to make sure that staff checks back with Dr. Cynthia Jones, because what I heard at the last meeting was it

is more than an offshore/inshore component. There is also movement north.

I can't tell you that I know beyond Chesapeake Bay at this point; but I think it ought be certain that there isn't more evidence for some migratory behavior, because the regions, if they can have as much substance as possible as to why they are a better way of management, I think that is what the public needs to really see.

CHAIRMAN NOWALSKY: Staff can work to further develop the migration habits of tautog. Dr. Pierce.

DR. PIERCE: I appreciate the reservations of some board members regarding the PID. There are some very contentious issues in here, of courses, and on top of the list is how the regions will be broken up. I understand the hesitancy to bring the PID out to public comment at this time; but I always am influenced by the fact that it is a PID.

It is a public information document and we're a long way from having a draft amendment that would then be brought to public hearing again. Everything that has been said here today will be said again during and after we get comment on the PID. I just want to move this forward. I think Mark has already highlighted the important points. This assessment is old already. I suspect the fishing mortality is higher than what it is believed to be. I believe there is a tremendous amount of illegal harvest.

I'm convinced that we need not to hesitate but to bring it forward, see what falls out and then continue our discussions later on as to what needs to be done. We will benefit from the work of the subcommittee regarding the tagging program. We will benefit from whatever can be worked out with the Dave Simpson and other states on some other management arrangement. We don't have to bring that other arrangement out to the public now as part of a PID. That will be with the draft amendment. I would make a motion that we approve the PID for public comment.

CHAIRMAN NOWALSKY: Would you include the revisions that were discussed today?

DR. PIERCE: Yes, as revised.

CHAIRMAN NOWALSKY: Okay, so we have a motion to approve the Tautog Public Information Document for public comment as revised today. Motion made by Dr. Pierce; seconded by Mr. Gibson.

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Discussion on the motion? Let me get a list of hands that would like to speak in favor of the motion and a show of hands that would like to speak against it. Before I turn to Mr. Simpson to speak against the motion, Dr. Pierce, do you have anything else you'd like to speak in favor of your motion?

DR. PIERCE: I've already said it, Mr. Chairman, and thanks for the additional opportunity.

CHAIRMAN NOWALSKY: Mr. Adler, did you want to speak in favor or against? In favor; okay, let me go to Mr. Simpson.

MR. SIMPSON: I'm not necessarily opposed because I don't want time to slip; but I think we need something in the PID that clearly articulates the concern for the Connecticut to New Jersey area and the need to take a closer look at a possible subdivision of that area into two stock assessment areas.

I think if we had that we could get together as three states, figure out how we might split that into a couple of assessment areas and get that work done and incorporate it still in a timely fashion. Again, I don't want to delay action that is perceived to be needed with tautog.

MR. ADLER: Yes; I'm in favor of moving it forward because, first of all, you already went through how long it is going to take before anything really gets done as far as final. There were a number of issues today, which staff seemed to say they can incorporate in this PID before it goes out. The biggest issue that I've heard today is the area between Connecticut and New Jersey issues with Long Island Sound.

I don't see why somebody can't work on getting some answers for that or updates while the PID is going. I assume the PID will include do you think Long Island Sound should be separate; and the answer will probably come through, yes. Maybe it won't; but in the meantime it could be prepared that when the PID comes back, if that is a big deal and they want it done that way, there will have been work done that could be put into the draft amendment, which as Dave says, and then goes back out anyway.

I think moving this along rather than looking at 2017, '18, whenever to try to get something done; I think it is appropriate to take this out as corrected or added to and in the meantime do the other work that people want done. Thank you.

CHAIRMAN NOWALSKY: Just to be clear, the document as it stands and with the revisions today does not include an option for discussion for the public about Long Island Sound having its own management. That may come out of the document in the public comment that we receive, but that is not a discussion specifically asked.

I think with the conversation we had earlier, staff could further develop Issue 1 with that. I think it would take some time, if I heard them correctly, and I'll turn to staff to further address the question of whether the document asks and is likely to solicit responses about managing Long Island Sound separately as its own region.

MR. WAINE: Based on the discussion today, I think we can provide some background for that. The way Issue 1 is laid out has specific options that are based on the delineations of the stock units from the assessment. Because we do not have reference points for that Long Island Sound specific stock, that isn't specifically an option within the PID as it is currently written.

I think what the chairman was trying to ask the board is do you want to include an option in there that specifically asks if this is how the public would like that region managed. If we do that, it is with the acknowledgment that we do not have reference points to use for management for that specific stock designation.

CHAIRMAN NOWALSKY: Next up I have Mr. Fote.

MR. FOTE: I will let Russ handle one part of it and I'll do the second part.

MR. ALLEN: After some discussion, we think that there is a possibility of taking the PID out as is. I thought Mr. Simpson had some really good points and also you, Mr. Chairman; and with Mike's suggestions on how to make Issue 1 just have a discussion about the differences between New York, Connecticut and New Jersey; and also bring in some discussion on how we're going to try to do things in the future with a Long Island Sound stock assessment and maybe take New Jersey's data with some of New York's data and develop that over the next six months or so and see if we can't come out and have some sort of regionalization on that.

I think it would be a good idea to just move this forward and also make sure the public understands that these are the issues and that we're working on

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them in the meantime of this PID. I think that is a good way to move this forward. I would be ready to support this motion knowing that we're going to have this discussion amongst these three states and moving that forward. Thank you very much.

CHAIRMAN NOWALSKY: Mike also has a suggested revision that I'll turn to him that he could further inform the board about that would then fall under the "as revised today" with the acknowledgment of the board.

MR. WAINE: Yes; it is kind of reiterating what I just said; but based on Russ' comments, the way Issue 1 is currently laid out in the PID right now is it has options that are specific to the stock delineations in the benchmark – I feel like a broken record – and so ultimately if the board would like, we could add another option that scopes this issue further and specifically allows public input on an option that would be Long Island Sound specific stock delineation in addition to the other options that came right out of the benchmark assessment and noting the caveat that we do not currently have reference points to manage with those delineations; but it is something that is currently in the works and we can explain that in more detail.

CHAIRMAN NOWALSKY: Looking around the room, is there any objection to letting staff further develop Issue 1 and posing that? Okay, seeing none; additional hands to speak on the motion. I had Emerson. Is there anyone else who wants to speak on it?

MR. HASBROUCK: Mike, you actually addressed something that I was going to raise in terms of how we might be able to structure that. In terms of this motion then, the document for public comment as revised today, based on the discussion we just had; that will incorporate a section in, whatever it was, 1A that talks about Long Island Sound; is that correct?

CHAIRMAN NOWALSKY: The revisions that we had today will go back to those people who brought them up. Staff will bring them back for those individuals to review it. As chairman I would review those with the staff; and once we were comfortable with it, that is then the document that would go out. Okay, I've got two more hands and then I think we'll move the question. Tom Fote.

MR. FOTE: My concern was with this straightened out; because if this thing is straightened out, all I'm going to hear is that we should put Connecticut with Rhode Island and Massachusetts. My other point

here is we went out in 2011. I spent a lot of time at public hearings, and the number one problem there, the number one thing discussed at that particular time is how do we deal with the illegal fishery?

We basically were told back then that we should have all these things; so we're just going to go out with this information document with the same thing. It really is up to this board when that information comes back. It came back loud and clear when we went out with the amendment in 2010 that we should have a tagging program, we need to do better to basically address this illegal fishery problem in tautog. At least hopefully this time we will actually do something.

When we went out to public comment, I think it was in every state that we should do something and we just kicked the can down the road. Hopefully this time we will act and hopefully we might not wait until we do the major amendments on this create these regions but do this immediately under an addendum, the existing one, and do a separate addendum to deal with that as soon as the tagging committee basically comes back with their report. That's all I have to say.

CHAIRMAN NOWALSKY: Okay, I'm going to turn to Mr. Simpson and then we're going to move the question.

MR. SIMPSON: I just reframing for the document, Issue 1 right now is characterizing the only difference between Option 2 and 3 is where to put Connecticut. I think it needs to be more of a discussion about within – I was thinking at the time within Option 3; that Connecticut to New Jersey region the issue is how to subdivide.

I think it is something that, Mike, between you and me and the New York and New Jersey if we have an opportunity to help craft that, I think we will be in good shape. Worse case is now it just says where to put Connecticut and the problem is that we might have different management measures between New York and Connecticut. That doesn't capture it.

CHAIRMAN NOWALSKY: Mike has a comment he wants to make before we vote on the question.

MR. WAINE: I think everyone understands the process. Staff will work with the commissioners to ensure that we've addressed the concerns. Dave, I just say that staff is totally welcoming any language that you have to help clarify this. We would love that. Thanks.

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CHAIRMAN NOWALSKY: Okay, we have a motion to approve the Tautog Public Information Document for public comment as revised today. Motion by Dr. Pierce; seconded by Mr. Gibson. We will take 30 seconds to caucus and then take a vote.

(Whereupon, a caucus was held.)

CHAIRMAN NOWALSKY: Okay, all those in favor please raise your right hand; opposed like sign; abstentions; null votes. The motion carries unanimously; and staff will go ahead and make the revisions discussed here today, get back to those individuals with those for review, and we'll move forward. We'll move on to the next order of business – comment from Toni.

MS. KERNS: Just quickly; we're trying to follow the timeframes that are established for the amendment process. The document needs to be out 30 days before we have hearings and then the comment closes 14 days after the last hearing. Because it will be somewhat of a timeframe to do all of this, it is just that for states that we've asked for additional language from and help from, we're going to ask that you do that rather quickly.

Also in responding to Ashton, when she asks for hearings, if we could do that as quickly as possible as well so we stay within these timeframes. We will send out an e-mail this week asking who will want hearings, et cetera, so we can start working on that now. Thank you.

POPULATE ADVISORY PANEL MEMBERSHIP

CHAIRMAN NOWALSKY: The next order of business to come before the board is to review and populate advisory panel membership. Mike.

MR. WAINE: We've received three nominations for the Tautog Advisory Panel. Those were Travis Barao from Rhode Island – he is representing the recreational fishery – Edward Yates from New Jersey for the for-hire charter and Wes Blow from Virginia for the recreational fishery. We would be looking for a motion from the board to approve these members to the Advisory Panel for Tautog.

MR. ADLER: Mr. Chairman, I'll make the motion to accept Travis Barao from Rhode Island, Edward Yates from New Jersey and Wes Blow from Virginia to be added to the Tautog Advisory Panel.

CHAIRMAN NOWALSKY: Seconded by Mr. O'Reilly. Discussion on the motion? Seeing none; I

don't believe there is a need to caucus. Is there any objection to the motion for these members? Seeing none; the motion carries without objection. The next order of business is to just circle back to the motion from the last meeting.

Dr. Pierce had read it earlier: Move to establish a Joint Subcommittee of the Tautog Management Board and the Law Enforcement Committee to study problems of unauthorized harvest and sale of tautog especially in the well-publicized live fish market in local and interstate commerce that likely is contributing to current levels of overfishing. The joint committee is to: (1) determine the feasibility of ASMFC mandating a fish-tagging program for each state that would minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin and harvester, and (2), if feasible, then offer details of such a program to accomplish the two aforementioned objectives.

Toni, I believe that you had mentioned you had members of the Law Enforcement Committee for this subcommittee but that we would still need Tautog Management Board members. Is that something you'd like to get volunteers from here today or would you like to get those after this board meeting concludes?

MS. KERNS: It is the pleasure of the board, Mr. Chairman. If you want to choose people or if people want to volunteer, it is at your discretion. We would have meetings this fall.

CHAIRMAN NOWALSKY: Are there volunteers here today or would the preference be to get back? Okay, I see a couple of hands. I have Dr. Pierce; I have Mr. Simpson. I don't think that would preclude anyone else from coming forward in the next couple of weeks if they have an interest. That would be something probably that I would take part as well on as board chair. Okay, any further discussion on that previous motion from the last board meeting?

Seeing none; let me just also make one additional comment that the board currently does not have a vice-chair, and it is the intention to solicit nominations and elect a vice-chair for this board at the annual meeting. Is there any other business to come before the Tautog Board today? Seeing none; a motion to adjourn. Mr. O'Reilly; seconded by Mr. Adler. Without objection, this board is adjourned.

(Whereupon, the meeting was adjourned at 10:25 o'clock a.m., August 5, 2015.)

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Atlantic States Marine Fisheries Commission

**PUBLIC INFORMATION DOCUMENT FOR
AMENDMENT 1 TO THE INTERSTATE FISHERY
MANAGEMENT PLAN FOR TAUTOG**



*ASMFC Vision:
Sustainably Managing Atlantic Coastal Fisheries*

August 2015

**The Atlantic States Marine Fisheries Commission
Seeks Your Input on Tautog Management**

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until 5:00 PM (EST) on October 23, 2015. Regardless of when they were sent, comments received after that time will not be included in the official record. The Tautog Management Board will consider public comment on this document when developing Draft Amendment 1 to the Interstate Fishery Management Plan for Tautog.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction.
2. Refer comments to your state’s members on the Tautog Management Board or Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Ashton Harp
1050 North Highland St., Suite 200 A-N
Arlington, VA 22201
Fax: (703) 842-0741
aharp@asmfc.org (subject line: Tautog PID)

If you have any questions please call Ashton Harp at (703) 842-0740.

Commission’s Process and Timeline

	February 2015	Board Initiates Plan Amendment and Tasks PDT to Develop Public Information Document (PID)
	August 2015	Board Reviews Draft PID and Considers Approval for Public Comment
Current Step →	September – October 2015	Board Solicits Public Comment on the PID and States Conduct Public Hearings
	November 2015	Board Reviews Submitted Public Comment and Advisory Panel Input and Provides Guidance to PDT on Development of Draft Amendment 1
	February 2016	Management Board Reviews Draft Amendment 1 and Considers Approval for Public Comment
	March – April 2016	Board Solicits Public Comment on Draft Amendment 1 and States Conduct Public Hearings
	May 2016	Board Reviews Submitted Public Comment and Input from its Advisory Panel and the Law Enforcement Committee Full Commission Considers Final Approval of Amendment 1

Atlantic States Marine Fisheries Commission

Public Information Document for Amendment 1 to the Interstate Fishery Management Plan for Tautog

Introduction

The Atlantic States Marine Fisheries Commission (Commission) is developing an amendment to revise the Interstate Fishery Management Plan for Tautog (FMP). The Commission is responsible for managing tautog through the coastal states of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, and Virginia.

This is your opportunity to inform the Commission about changes observed in the fisheries; actions you feel should or should not be taken in terms of management, regulation, enforcement, and research; and any other concerns you have about the resource or the fisheries, as well as the reasons for your concerns.

Management Issues

The Tautog FMP was approved in March 1996. Since the FMP was implemented, the resource has experienced changes in stock status, as well as management measures that are used to control harvest. Based on the 2015 Benchmark Stock Assessment and Peer Review Report, tautog is overfished and overfishing is occurring on a coastwide scale.

The 2015 Benchmark Stock Assessment and Peer Review Report suggested the delineation of separate, regional stock units as management areas. The Tautog Management Board accepted the 2015 assessment for management use, but expressed concern with the proposed stock delineations that would split Long Island Sound into two assessment and management areas, which could present management challenges given the high degree that Connecticut and New York fishermen target the same tautog habitat across state lines in the Sound. In the absence of conclusive biological evidence to delineate the regional boundaries along the Atlantic coast, the Board decided to initiate a plan amendment to consider the management implications of regionalization and delineate regions for future management.

Purpose of the Public Information Document (PID)

The purpose of this document is to inform the public of the Commission's intent to gather information concerning the tautog fishery and to provide an opportunity for the public to identify major issues and alternatives relative to the management of this species. In addition, the document seeks specific input from the public on the selection of regional stock areas for management use. Input received at the start of the amendment development process can have a major influence on the final outcome of the amendment. The PID is intended to draw out observations and suggestions from fishermen, the public, and other interested parties, as well as any supporting documentation and additional data sources.

To facilitate public input, the PID provides a broad overview of the issues already identified for consideration in the amendment; background information on the tautog population, fisheries, and management; and a series of questions for the public to consider about the future management of the species. In general, the primary question on which the Commission is seeking public comment is: **“How would you like the tautog fishery to look in the future? And, more specifically, what do you think is the best regional breakdown for tautog management moving forward?”**

Background on Tautog Management

The FMP for Tautog (*Tautoga onitis*) was approved in 1996 (ASMFC, 1996), with the goals of conserving the resource along the Atlantic coast and maximizing long-term ecological benefits, while maintaining the social and economic benefits of recreational and commercial utilization.

The FMP required a minimum size limit to increase the spawning stock biomass and yield to the fishery. It also included fishing mortality targets intended to prevent overfishing. The FMP established a 14” minimum size limit and a target fishing mortality (F) of $F = 0.15$. The target F was a significant decrease from the 1995 estimate of $F = 0.70$, so a phased in approach to implementing these regulations was established. Northern states (Massachusetts through New Jersey) were to implement the minimum size and achieve an interim target of $F = 0.24$ by 1997, while southern states (Delaware through North Carolina) had until 1998 to do the same. All states were then required to achieve the target $F = 0.15$ by 1999.

Several changes were made to the management program under the FMP’s adaptive management provisions in response to changes in the fishery and the latest stock assessment information, as described below.

Addendum I (1997) delayed implementation of the interim $F_{\text{TARGET}} = 0.24$ until 1998, at which time the states would be required to reduce to $F_{\text{TARGET}} = 0.15$ by 2000. It also established *de minimis* specifications.

Addendum II (1999) further extended the deadline to achieve the $F_{\text{TARGET}} = 0.15$ until 2002. In the interim, data were collected to conduct a stock assessment to determine the extent of reductions needed by each state to meet the F_{TARGET} .

Addendum III (2002) modified the F_{TARGET} to $F_{40\%SSB} = 0.29$ and mandated each state collect a minimum of 200 age samples per year to improve future stock assessments.

Addendum IV (2007) modified the $F_{\text{TARGET}} = 0.20$, and established biomass reference points for the first time as $SSB_{\text{TARGET}} = 59,083,886$ lbs. and 75% of this value as $SSB_{\text{THRESHOLD}} = 44,312,915$ lbs.

Addendum V (2007) allowed states flexibility in achieving the F_{TARGET} through reductions in commercial harvest, recreational harvest, or some combination of both. A Massachusetts-Rhode Island model indicated regional F was lower than the coastwide target, therefore these two states were not required to implement management measures to reduce F.

Addendum VI (2011) established a new $F_{TARGET} = 0.15$. All states adopted higher minimum size limits exceeding the FMP’s minimum requirement of 14” in addition to other measures, such as possession limits, seasonal closures, and gear restrictions (See Table 3A-B). Massachusetts and Rhode Island, again, demonstrated a lower regional F and these states were not required to implement changes to their regulations. States were required to implement regulation requirements on January 1, 2012.

Summary of Stock Status

The 2015 benchmark stock assessment, which considered data through 2012, determined that tautog is overfished and overfishing is occurring on a coastwide basis (Massachusetts – North Carolina). The estimated three-year (2011-2013) fishing mortality is $F = 0.30$, well-above the $F_{TARGET} = 0.10$, see Table 2 on page 9.

Stock Definition

Unlike previous assessments, which assessed the stock on a coastwide basis, the 2015 benchmark stock assessment evaluated stock status regionally to reflect differences in life history characteristics and harvest patterns. The management board is considering three regional alternatives to assess and manage tautog.

Table 1. Alternative stock definitions

Option 1 (Current Stock Definition)	Option 2 (3 stocks)	Option 3 (3 stocks)	Option 4 (4 stocks)
Single Stock: Massachusetts – North Carolina	1) Massachusetts–Connecticut	1) Massachusetts–Rhode Island	1) Massachusetts–Rhode Island
	2) New York–New Jersey	2) Connecticut–New Jersey	2) Long Island Sound (Connecticut–New York)
	3) Delaware–North Carolina	3) Delaware–North Carolina	3) New York–New Jersey (excluding LIS) 4) Delaware–North Carolina

The Peer Review Panel and the Technical Committee support the use of a regional approach since it is most likely to reduce the risk of overfishing and account for tautog’s very limited coastwide movement. Specifically, the Peer Review Panel and Technical Committee endorsed the three-region approach (i.e., Options 2 and 3).

Option 4 was not part of the stock delineations in the 2015 benchmark stock assessment because of challenges associated with splitting harvest in Long Island Sound (LIS) between Connecticut and New York. However, the Board decided to include an option with LIS as its own stock unit because of tautog’s limited north-south migration and the likelihood that recruitment has

minimal overlap with the surrounding area (e.g., Rhode Island and New Jersey). Currently, researchers at the University of Connecticut are working on an appropriate split of the harvest data to complete a stock assessment of the LIS stock. Additionally, the states are exploring options to conduct an assessment of the New York-New Jersey region (excluding LIS). Results of both assessments are expected to be available in the first half of 2016, but until then there are no biological reference points for the LIS and the New York-New Jersey (excluding LIS) stock units of Option 4. More information, and stock status by region can be found in Table 2 on page 9.

Life History and Biological Overview

Age and growth studies indicate tautog are slow-growing, long-lived species that aggregate around structured habitats with a preferred home site. This unique life history makes it vulnerable to overfishing and slow to rebuild.

Tagging data suggest strong site fidelity across years with limited north-south movement, and some seasonal inshore-offshore migrations. In the northern part of their range, adult tautog move from offshore wintering grounds in the spring, to nearshore spawning and feeding areas, where they remain until late fall when the reverse migration occurs as water temperatures drop. Populations in the southern region may undergo shorter distance seasonal migrations, and in the southern-most part of the range may not undergo seasonal migrations at all (Hostetter and Munroe, 1993; Arendt et al., 2001). For example, observations suggest that some localized populations, such as those in the lower Chesapeake Bay, eastern LIS, and Delaware Bay, remain inshore during the winter (Olla and Samet, 1977; Ecklund and Targett, 1990; Hostetter and Munroe, 1993; White, 1996; Arendt et al., 2001).

Fish as old as 30 years have been caught in Rhode Island, Connecticut, and Virginia, but most of the fish caught are four to eight years old. The species exhibits late age at maturity, it is believed to reach sexual maturity between the ages of three and four (Chenoweth, 1963; White, 1996).

Fecundity, which is the number of eggs produced by a female per spawning event, is strongly related to female size, with larger females producing significantly more eggs than smaller females. A 22-year LIS trawl survey demonstrated a decrease in abundance and a shift in the size structure of the population to smaller fish (LaPlante and Schultz, 2007).

Management Unit

Under the FMP, the management unit is defined as all US territorial waters of the northwest Atlantic Ocean (0 – 3 miles from shore) and from US/Canadian border to the southern end of the species range. Currently, all states from Massachusetts through Virginia have a declared interest in the species. While the stock ranges from Massachusetts through North Carolina, North Carolina has such minimal landings it did not declare interest in being part of the management unit. Additionally, Delaware was approved for *de minimus* status in 2015 and therefore is exempt from certain regulatory and monitoring requirements.

Description of the Fishery

Tautog are targeted by both commercial and recreational fisheries, but approximately 90% of the total harvest comes from the recreational fishery (Figure 1). Current management measures for the recreational fishery are presented in Table 3A; regulations for the commercial fishery are in Table 3B.

Recreational Fishery

Recreational harvest estimates are available for 1981-2014 (Table 4A). Recreational catch estimates for tautog are more uncertain than other commonly targeted species along the coast because tautog anglers are not frequently intercepted by the Marine Recreational Information Program (MRIP). Historically, recreational harvest is mostly attributed to New Jersey, New York and Massachusetts which combined account for 60% of total harvest from 1981-2011 (Figure 3). In 1986, anglers harvested a historical high of 16.9 million pounds (lbs.). However, 1986 was a unique year in which recreational harvest in Massachusetts was unusually high. Since then harvest has generally declined. Both 1998 and 2011 had the lowest harvest, at 1.5 million lbs.

Between 2000 and 2014 the recreational harvest averaged 3.3 million lbs. (Figure 2) and on average 90% was harvested within state waters. In 2014, recreational fishermen harvested approximately 970,000 fish weighing a total of 4.2 million lbs., an increase from the 2011-2013 average recreational harvest of approximately 500,000 fish per year across a three year landing average of 1.96 million lbs. (Tables 4A-B). This increase occurred after Addendum VI measures, which were intended to decrease fishing mortality, went into effect on January 1, 2012. Since 2012, the majority of recreational landings are attributed to Connecticut (33%), New York (21%), Rhode Island (16%), and New Jersey (13%) (Figure 4); additionally 94% of the overall harvest came from state waters.

In 2014, Connecticut anglers harvested the most tautog, bringing in 289,829 tautog weighing a total of 1,470,133 lbs. New York harvested the second largest amount with 263,962 fish weighing a total of 1,211,285 lbs. Maryland anglers landed the fewest tautog, with 494 fish (Table 4B).

Commercial Fishery

Commercial landings exist for 1950 to present (Table 5). In 1987, commercial landings peaked at nearly 1.16 million lbs. and steadily declined to a low of 208,000 lbs. in 1999. Since 2000, commercial landings have varied without trend, ranging from approximately 241,000 to 351,000 lbs. Rod and reel are the predominant commercial gear; in addition to bottom otter trawls, and fish pots and traps—collectively they represent the top three commercial gear types for the past two decades. The ex-vessel value for tautog has increased since the historic low of \$0.03/lbs. in 1962, along with the increasing landings trend. In 2012, value surpassed \$3/lbs.

Monthly landings back to 1990 indicate approximately 30% of the annual commercial harvest occurs during May-June, and again during October-November. More recently, since 2010, the fall harvest has extended to September-November. Harvest is lowest during January-March,

when less than 5% of the annual commercial catch occurs. The commercial harvest is roughly evenly split among the remaining months.

Since 1982, commercial landings have been dominated by Massachusetts, Rhode Island, and New York, each averaging more than 20% of coastwide harvest. New Jersey and Connecticut account for the majority of the remaining harvest, averaging 15% and 8%, respectively.

Issues for Public Comment

Public comment is sought on five issues that are being considered in Draft Amendment 1. The issues listed below are intended to focus the public comment and provide the Board input necessary to develop Draft Amendment 1. The public is encouraged to submit comments on the issues listed below as well as other issues that may need to be addressed in Draft Amendment 1.

ISSUE 1: STOCK MANAGEMENT AREAS

Statement of the Problem

Currently, tautog are managed on a coastwide basis, with the management unit consisting of all states from Massachusetts through Virginia (excluding Pennsylvania). Tagging data suggest strong site fidelity (e.g., tautog tend to stay near and return to their “home” reefs) across years with limited north-south movement, although some populations may undergo seasonal inshore-offshore migrations. Further, the 2015 benchmark stock assessment and peer review supported the use of a regional approach since it is most likely to reduce the risk of overfishing and account for tautog’s very limited coastwide movement. This would also allow the inclusion of biological and harvest data at a finer regional scale. Managers are seeking input on how the stock management areas should be defined in the new amendment. Meaning, what should the boundaries be for each regional area?

Management Options

In order to streamline the amendment process, managers are seeking public comment on a stock delineation approach through the PID, with the intention of using these comments to choose one of the below options for the development of draft Amendment. Comments are encouraged on the following stock management area options (Table 2).

Table 2. Stock status for the proposed stock management area options.

Stock Region	Stock Status	SSB Target (lbs.)	SSB Threshold (lbs.)	SSB** 2013 (lbs.)	F Target	F Threshold	F** 2011-13 Average
OPTION 1 (STATUS QUO)							
Coastwide (Massachusetts to Virginia)	Overfished Experiencing Overfishing	45,441,681	34,081,261	10,762,968	0.10	0.13	0.30
OPTION 2							
Massachusetts, Rhode Island, Connecticut	Overfished Experiencing Overfishing	8,560,550	6,419,861	3,999,185	0.15	0.20	0.48
New York, New Jersey	Overfished Not Experiencing Overfishing	7,870,503	5,820,204	4,854,579	0.17	0.26	0.24
Delaware, Maryland, Virginia*	Overfished Not Experiencing Overfishing	4,607,661	3,483,304	3,377,482	0.16	0.24	0.16
OPTION 3							
Massachusetts, Rhode Island	Overfished Experiencing Overfishing	5,804,771	4,354,130	3,553,852	0.16	0.19	0.38
Connecticut, New York, New Jersey	Overfished Experiencing Overfishing	11,375,853	8,642,121	5,200,705	0.17	0.24	0.34
Delaware, Maryland, Virginia*	Overfished Not Experiencing Overfishing	4,607,661	3,483,304	3,377,482	0.16	0.24	0.16
OPTION 4							
Massachusetts, Rhode Island	Overfished Experiencing Overfishing	5,804,771	4,354,130	3,553,852	0.16	0.19	0.38
Long Island Sound (CT, NY)^	Status Unknown		Unknown			Unknown	
New York, New Jersey (excluding LIS)^	Status Unknown		Unknown			Unknown	
Delaware, Maryland, Virginia	Overfished Not Experiencing Overfishing	4,607,661	3,483,304	3,377,482	0.16	0.24	0.16

* North Carolina is also considered part of the Delaware, Maryland and Virginia stock unit, but it has not declared interest in the management of tautog.

** Red numbers indicate the stock is overfished or overfishing is occurring; yellow is cautionary; green is within management limits.

^Stock status information for these areas are not available at this time. Assessments should be completed by the first half of 2016, and subsequently followed by a peer review.

**ISSUE 1: STOCK
MANAGEMENT
AREAS (Cont.)**

There is no clear biological evidence to determine where stock boundaries should be drawn. As discussed previously, LIS presents a unique challenge to regional management for this species. The difference between Option 2 and Option 3 is the placement of Connecticut landings and the information on stock condition provided by the LIS Trawl Survey.

Option 2 places Connecticut with Massachusetts and Rhode Island because growth information suggested tautog landed in Connecticut were more similar to Massachusetts and Rhode Island fish than to New Jersey fish, and the Technical Committee felt there was little biological connectivity between Connecticut and New Jersey. However, by grouping Connecticut landings with the Southern New England states under Option 2, tautog found in LIS are divided into two separate stock units. Subsequently, the LIS Trawl Survey which collects data in Connecticut and New York waters will be used to inform the Massachusetts, Rhode Island and Connecticut assessment area, but not the New York-New Jersey assessment area because the survey data cannot be used in more than one region.

Option 3 recognizes the LIS as a shared resource for Connecticut and New York, and groups Connecticut with New York and New Jersey. New York and New Jersey fish on a shared stock in the ocean south of Long Island, and New York and Connecticut fish on a shared stock in LIS. This meta-complex of stocks provides improvement in assessment and management over the status quo coastwide scale. However, this regional breakdown groups Connecticut and New Jersey, which do not fish on the same tautog stocks.

Option 4 was developed to create separate LIS and New York-New Jersey (excluding LIS) management areas. It was not part of the 2015 peer-reviewed assessment and will need additional analysis, review, and discussion. It takes into account the overlap in fishing areas between New York and Connecticut and the likelihood that tautog found in LIS represent a population for assessment and management purposes with minimal overlap in fisheries or tautog movements between adjacent jurisdictions (e.g., RI, NJ). In recent years, harvest from LIS has accounted for 29% of coastwide landings. For these reasons, the Technical Committee acknowledges managing LIS as a discrete area may be appropriate. However, reference points do not

currently exist for the LIS or the New York-New Jersey (excluding LIS) stocks. As a result, management under Option 4 would have to use an ad hoc approach for the LIS and New York-New Jersey (excluding LIS) regions in any management action taking place for 2016. This may include a percent reduction from recent catch within the LIS or New York-New Jersey (excluding LIS) regions, or estimating the reduction needed to achieve F_{TARGET} in Option 3 (Connecticut/New York/New Jersey region) and splitting that reduction in some way between LIS and New York-New Jersey (excluding LIS). It is expected that peer reviewed stock assessment advice for both LIS and the NY-NJ (excluding LIS) assessment areas will be available to support management decisions affecting 2017 and later.

Management Question

- Which management area approach do you support: Option 1 (status quo), Option 2, Option 3 or Option 4?

ISSUE 2: FISHERY MANAGEMENT PLAN GOALS AND OBJECTIVES

Statement of the Problem

The goals and objectives for this management program are being reviewed to ensure they are consistent with the needs of the tautog fishery and resource. Should the goals and objectives of the FMP be revised?

The current goals and objectives as outlined in the FMP:

GOALS

- A. To perpetuate and enhance stocks of tautog through interstate fishery management so as to allow a recreational and commercial harvest consistent with the long-term maintenance of self-sustaining spawning stocks
- B. To maintain recent (i.e. 1982-1991) utilization patterns and proportions of catch taken by commercial and recreational harvesters
- C. To provide for the conservation, restoration, and enhancement of tautog critical habitat for all life history stages
- D. To maintain a healthy age structure
- E. To conserve the tautog resource along the Atlantic coast to preserve ecological benefits such as biodiversity and reef

community stability, while maintaining the social and economic benefits of commercial and recreational utilization

OBJECTIVES

- A. To establish criteria, standards, and procedures for plan implementation as well as determination of state compliance with FMP provisions
- B. To allow harvest that maintains spawning stock biomass (SSB) in a condition that provides for perpetuation of self-sustaining spawning stocks in each spawning area, based on maintain young-of-the-year indices, SSB, size and age structure, or other measures of spawning success at or above historical levels as established in the plan
- C. To achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit
- D. To enact management recommendations which apply to fish landed in each state, so that regulations apply to fish caught both inside and outside of state waters
- E. To promote cooperative interstate biological, social, and economic research, monitoring and law enforcement
- F. To encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program. Effective stock assessment and population dynamics modeling require more information on the status of the resource and the biology/community/ecology of tautog than is currently available, in particular to facilitate calculation of F and stock trends
- G. To identify critical habitats and environmental factors that support or limit long-term maintenance and productivity of sustainable tautog populations
- H. To adopt and promote standards of environmental quality necessary to the long-term maintenance and productivity of tautog throughout their range
- I. To develop strategies that reduce fishing mortality, restore stock size composition and the historical recreational/commercial split, consider ecological and socio-economic impacts and identify problems associated with the

offshore fishery. Compatible regulations between the states and the EEZ are essential

**ISSUE 2: FISHERY
MANAGEMENT
PLAN GOALS AND
OBJECTIVES
(Cont.)**

Management Questions

- Are these goals and objectives still appropriate for the tautog fishery and resource?
- What changes to the goals and objectives need to be made to reflect the needs of the fishery and the resource?
- Which five objectives do you feel are the most important?

**ISSUE 3:
MANAGEMENT
MEASURES**

Background

Current management measures for the recreational fishery are presented in Table 3A; regulations for the commercial fishery are in Table 3B. The recreational fishery is managed with minimum size limits (15-16" depending on the state), possession limits (3-6 fish/person/day depending on the state and season), and seasonal closures. The commercial fishery is managed with quotas, gear restrictions, minimum size limits, possession limits and seasonal closures.

Management Questions

- Do you support the use of regional management measures?
- What are the most effective management measures in place?
- Are there management measures that can be improved upon to better achieve management goals and objectives?
- Are there additional state management efforts that should be included in the FMP?

**ISSUE 4:
REFERENCE
POINTS AND
REBUILDING
TIMEFRAMES**

Statement of the Problem

Based on the 2015 stock assessment, tautog is overfished and overfishing is occurring on a coastwide basis. To increase spawning stock biomass and yield to the fishery, the Draft Amendment will consider new reference points and stock rebuilding timeframes to guide management within regional stock management areas (outlined previously in issue 1).

Management Questions

- Do you support the ability to change reference points based on the latest peer-reviewed stock assessment recommendations without the need of a management document?
- Do you support the use of regional reference points?
- Do you support stock rebuilding timeframes that correspond to the needs of each regional management area (i.e. timeframes that are based upon respective stock condition relative to their regional reference points)?

ISSUE 5: OTHER ISSUES

As stated earlier in this document, the intent of the PID is to solicit comments on a broad range of issues for consideration in Draft Amendment 1. The public comment should generally focus on **“How would you like the tautog fishery and resource to look in the future?”** The Board is interested in hearing from the public on all issues associated with the fishery and resource. Comments should not be limited to issues included in this document.

Issues that have been discussed by stakeholders, scientists, and managers regarding the future of the fishery, include:

A. Adaptive management to achieve the goals and objectives

- a. Adaptive management provides the Board with the ability to make timely changes to the management program based on changes to the fishery or resource. These changes could be addressed through the addendum process, which typically takes 3-6 months to finalize versus the amendment process, which typically takes 12-16 months to finalize. Examples of issues addressed under adaptive management are: size limits, possession limits, seasonal closures, area closures, and creation of special management zones (to name a few).

B. Landings and biological monitoring requirements

- a. The 2015 benchmark stock assessment made a number of monitoring recommendations to improve understanding of tautog life history and stock dynamics, as well as aid in development of future stock

assessments. High priority needs include improved biological sampling of the commercial and recreational catch, better sampling of the smallest and largest fish, improved characterization of the lengths of discarded or released fish, and development of a comprehensive fishery-independent survey that is more appropriate for a reef-oriented species, such as a pot or trap survey.

C. Illegal fishing of undersized tautog

a. Commercial demand

- i. There is demand for undersized live tautog in seafood restaurant businesses, primarily Asian markets in large cities, with a premium price for those who can manage to catch and transport these fish to a retailer alive. The preferred fish size is 12", well below the minimum legal size for most states (i.e., 15-16" depending on the state).

b. Recreational demand

- i. Law enforcement has noted a significant number of hook and line fisherman using tautog (almost always undersize) as live bait for species such as striped bass.

***ISSUE 5: OTHER
ISSUES (Cont.)***

Management Questions

- Do you support the use of adaptive management to meet the goals and objectives of the fishery?
- Do you support increased monitoring to improve our understanding of tautog life history and stock dynamics as well as aid in development of future stock assessments?
- Are undersized tautog harvested for recreational bait or the live fish market in your state? If so, is this a concern to you?
- Should there be an ASMFC mandated commercial fish tagging program to minimize the unlawful commerce of tautog and provide traceability of all fish in commerce back to the state of origin. Should the point of tagging be the point of harvest and/or the point of sale?

- As a structure-oriented species, do you have regional habitat recommendations, recognizing that the Commission and the state marine fishery agencies have limited regulatory authority for habitat?
- What other changes should be made to the tautog fishery that are not covered by the topics included in this document?

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Table 3A. Recreational regulations for tautog by state

STATE	SIZE LIMIT (inches)	POSSESSION LIMITS (number of fish/person/day)	OPEN SEASONS
Massachusetts	16"	3	Jan 1 – Dec 31
Rhode Island	16"	3 3 6 (up to 10 per vessel)	Apr 15 – May 31 Aug 1 – Oct 15 Oct 16- Dec 15 (private)
Connecticut	16"	2 2 4	Apr 1-Apr 30 July 1 – Aug 31 Oct 10 – Dec 6
New York	16"	4	Oct 5 – Dec 14
New Jersey	15"	4 4 1 6	Jan 1 – Feb 28 Apr 1 – Apr 30 Jul 17 – Nov 15 Nov 16 – Dec 31
Delaware	15"	5 3 5 5	Jan 1 – Mar 31 Apr 1 – May 11 July 17 – Aug 31 Sept 29 – Dec 31
Maryland	16"	4 2 4	Jan 1- May 15 May 16 – Oct 31 Nov 1 – 26
Virginia	16"	3	Jan 1 – April 30 Sept 20 – Dec 31
North Carolina	-	-	-

Table 3B. Commercial regulations for tautog by state

STATE	SIZE LIMIT	POSSESSION LIMITS (number of fish/vessel/day)	OPEN SEASONS	2015 QUOTA (lbs.)	GEAR RESTRICTIONS*
Massachusetts	16"	40	Apr 16 - May 23 Sept 1 - Oct 31	54,984	Yes
Rhode Island	16"	10	Apr 15 - May 31 Aug 1 - Sept 15 Oct 15 - Dec 31	17,116 13,390 17,116	Yes
Connecticut	16"	10	Apr 1 - Apr 30 Jul 1 - Aug 31 Oct 8 - Dec 24	-	Yes
New York	15"	25 (except, 10 per vessel when fishing lobster pot gear and more than six lobsters are in possession)	Jan 1 – Feb 28 Apr 8 – Dec 31	-	Yes**
New Jersey	15"	> 100 lbs requires directed fishery permit	Jan 1 - 15 June 11 - 30 Nov 9 - Dec 31	103,000	Yes
Delaware	15"	5 3 5 5	Jan 1 - Mar 31 Apr 1 - May 11 July 17 - Aug 31 Sept 29 - Dec 31	-	Yes
Maryland	16"	4 2 4	Jan 1 - May 15 May 16 - Oct 31 Nov 1 - 26	-	Yes
Virginia	15"	-	Jan 1 – Jan 21 Mar 1 – Apr 30 Nov 1 – Dec 31	-	Yes
North Carolina	-	-	-	-	Yes

* FMP regulations: A pot and trap used to catch tautog shall have hinges or fasteners on one panel or door made of one of the following degradable materials: 1) Untreated hemp or jute string of 3/16 inch in diameter or smaller; 2) Magnesium alloy fasteners; or 3) Ungalvanized or uncoated iron wire of 0.094-inch diameter or smaller.

** New York: In addition to other fish pot or trap requirements, it is unlawful to take or possess tautog using fish pots or traps, unless there is one circular vent measuring in 3 1/8 inch opening diameter.

Table 4A. Recreational harvest in tautog in pounds, 1981-2014 (MRIP)

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1981	790,610	664,568	242,337	1,496,039	161,423	6,584	10,296	742,653	536	4,115,046
1982	3,226,868	777,930	610,608	1,674,949	1,241,155	428,036	90,645	271,919	15,849	8,337,959
1983	1,837,262	615,595	458,582	1,124,844	414,957	4,437	6,551	1,267,165	20,144	5,749,537
1984	733,876	1,809,822	733,710	541,805	717,261	95,740	79,110	669,869	NA	5,381,193
1985	328,041	277,384	471,185	2,034,903	741,656	144,859	1,107	298,797	7,154	4,305,086
1986	7,862,584	2,042,584	838,346	2,833,208	2,132,571	264,744	10,049	918,138	4,173	16,906,397
1987	1,751,372	507,424	1,106,606	2,288,076	2,130,955	387,075	266,094	442,751	8,430	8,888,783
1988	2,255,930	612,123	610,171	2,380,285	1,331,833	249,803	446,947	1,410,003	4,605	9,301,700
1989	1,076,366	296,889	1,038,217	1,018,015	1,289,185	743,339	78,391	806,336	31,012	6,377,750
1990	895,327	389,579	200,000	1,980,289	1,256,488	142,627	59,720	229,442	2,703	5,156,175
1991	798,889	1,007,549	648,634	2,352,646	2,189,144	354,498	106,223	619,214	24,645	8,101,422
1992	1,668,485	656,712	1,048,639	1,199,558	2,485,693	183,854	159,730	255,995	12,559	7,671,225
1993	752,598	389,733	531,023	1,800,794	1,361,612	217,881	105,231	758,410	9,738	5,927,020
1994	373,189	328,668	417,438	585,037	330,551	152,033	177,358	1,101,130	2,708	3,468,112
1995	309,224	237,093	402,616	369,643	1,722,713	793,339	115,993	613,348	3,405	4,567,374
1996	397,284	248,840	245,816	193,045	1,123,174	158,751	26,483	778,315	13,191	3,184,899
1997	166,042	301,109	84,297	331,529	483,639	204,419	182,995	391,258	58,751	2,204,039
1998	96,695	316,339	231,622	208,743	41,431	257,348	27,648	273,515	26,420	1,479,761
1999	363,471	223,763	61,142	761,446	511,673	358,328	37,677	203,249	11,940	2,532,689
2000	442,816	203,602	58,475	258,100	1,812,960	373,581	56,126	188,187	4,502	3,398,349
2001	502,247	165,380	63,157	171,927	1,482,613	159,961	72,357	127,555	4,503	2,749,700
2002	521,611	265,116	447,140	2,135,221	1,184,560	652,007	104,246	116,797	4,448	5,431,146
2003	221,843	479,345	603,861	315,384	164,327	200,618	43,212	308,838	20,512	2,357,940
2004	107,905	698,737	77,219	966,022	283,109	240,288	21,633	524,251	31,226	2,950,390
2005	382,866	807,715	145,342	314,691	144,423	220,642	84,538	242,650	30,277	2,373,144
2006	294,785	380,009	842,213	793,999	726,554	406,499	47,484	468,246	3,204	3,962,993
2007	333,668	621,747	1,384,528	823,257	1,064,250	298,500	137,026	246,802	58,480	4,968,258
2008	109,932	491,953	720,575	1,081,693	520,100	380,729	69,331	222,485	1,535	3,598,333
2009	85,414	323,717	303,047	1,431,273	408,567	387,643	108,297	268,102	18,006	3,334,066
2010	162,488	923,690	412,775	502,526	1,067,379	146,044	201,753	479,462	9,389	3,905,506
2011	129,669	80,300	88,728	450,171	381,449	152,895	33,859	173,871	1,555	1,492,497
2012	94,699	534,716	982,891	252,745	133,048	171,329	17,670	49,988	11,687	2,248,773
2013	197,775	593,304	392,146	355,232	395,539	138,051	18,681	23,836	9,636	2,124,200
2014	399,812	297,955	1,470,133	1,211,285	579,934	187,915	3,004	121,352	9,472	4,280,862

Table 4B. Recreational harvest in tautog in number of fish, 1981-2014 (MRIP)

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC	Total
1981	228,736	233,508	100,308	721,062	132,271	3,457	4,670	236,768	3,072	1,663,852
1982	1,051,022	214,938	231,187	646,693	583,550	137,328	35,105	71,599	15,062	2,986,484
1983	670,508	245,796	200,676	612,163	344,580	4,350	2,126	579,795	36,549	2,696,543
1984	258,256	490,128	287,470	286,077	516,086	28,388	42,835	207,192	NA	2,116,432
1985	100,941	115,404	182,318	1,105,234	840,627	62,001	486	91,957	8,252	2,507,220
1986	1,980,719	671,592	333,396	1,183,114	2,369,852	141,290	5,476	322,905	12,660	7,021,004
1987	617,068	130,729	312,430	929,887	1,015,123	99,706	90,523	126,783	3,698	3,325,947
1988	621,679	207,799	234,198	828,183	564,286	94,491	107,570	368,320	4,462	3,030,988
1989	250,077	116,506	303,782	562,549	710,958	249,928	34,709	284,477	11,354	2,524,340
1990	233,444	153,433	75,871	953,622	841,770	61,526	45,467	111,998	3,428	2,480,559
1991	176,905	291,946	191,137	871,221	1,067,283	128,985	26,770	168,068	6,804	2,929,119
1992	357,949	193,786	319,221	413,236	1,018,205	68,769	106,255	100,952	5,249	2,583,622
1993	216,553	118,775	180,055	505,632	773,213	82,475	60,231	300,484	4,785	2,242,203
1994	78,483	82,304	150,109	196,937	208,003	65,837	157,260	231,740	2,271	1,172,944
1995	72,461	54,570	120,259	118,006	707,963	300,303	43,542	222,186	3,178	1,642,468
1996	79,798	55,528	72,558	82,826	470,431	57,751	9,695	224,447	6,605	1,059,639
1997	39,075	70,628	32,200	92,907	196,724	65,133	85,682	106,678	11,432	700,459
1998	25,034	56,084	66,797	68,887	11,667	62,584	6,512	50,923	9,487	357,975
1999	91,476	52,136	15,701	196,564	165,505	95,309	20,180	42,880	8,437	688,188
2000	87,552	38,687	10,648	79,245	462,371	113,686	20,129	34,725	5,555	852,598
2001	115,658	39,993	16,579	45,913	467,728	50,541	23,715	28,985	2,418	791,530
2002	102,662	62,423	100,240	629,772	347,831	185,684	42,038	25,987	4,514	1,501,151
2003	46,808	120,061	167,875	128,729	102,593	63,181	13,555	76,236	12,185	731,223
2004	21,816	124,419	16,464	278,749	90,214	70,608	8,690	150,703	9,137	770,800
2005	72,038	160,524	35,699	84,280	43,055	60,831	28,129	60,484	13,707	558,747
2006	79,639	81,611	200,708	246,882	200,725	111,028	14,894	105,137	1,234	1,041,858
2007	91,304	125,233	352,819	223,798	300,179	99,605	43,308	60,992	15,250	1,312,488
2008	34,237	103,760	167,179	318,899	172,518	101,735	19,128	56,384	734	974,574
2009	24,879	85,416	85,915	346,276	127,403	119,941	37,963	60,470	2,895	891,158
2010	45,743	197,062	116,058	145,663	374,599	56,505	57,338	127,221	3,720	1,123,909
2011	32,828	19,304	25,823	111,406	136,674	45,483	11,853	46,441	981	430,793
2012	24,796	104,425	194,101	58,127	30,705	44,807	5,216	13,918	9,936	486,031
2013	57,736	126,897	104,982	76,797	111,377	38,368	3,851	5,976	5,963	531,947
2014	100,297	68,768	289,829	263,962	169,879	50,467	494	25,917	3,997	973,610

Table 4C. Recreational directed trips that targeted or harvested tautog, 1981-2014 (MRIP)

Year	MA	RI	CT	NY	NJ	DE	MD	VA	TOTAL
1981	133,401	113,268	100,158	305,359	75,729	3,458	4,247	98,806	834,426
1982	338,751	129,894	99,704	257,979	222,095	31,316	56,032	75,156	1,210,927
1983	292,435	137,334	98,572	277,585	119,430	5,952	2,002	92,059	1,025,369
1984	139,603	284,909	222,862	327,674	210,892	18,655	22,313	122,676	1,349,584
1985	79,242	137,830	241,500	479,055	134,101	12,759	1,698	75,046	1,161,231
1986	500,757	183,928	209,639	527,990	647,480	83,942	12,561	88,408	2,254,705
1987	128,967	83,415	153,383	483,605	321,539	27,979	15,454	51,524	1,265,866
1988	179,568	129,705	238,297	429,959	256,390	25,742	53,934	175,868	1,489,463
1989	109,844	105,036	257,835	334,236	280,680	60,240	32,067	95,024	1,274,962
1990	87,222	205,761	158,510	462,868	409,608	27,480	76,019	53,532	1,481,000
1991	86,113	154,934	205,139	547,079	410,306	43,359	27,220	120,923	1,595,073
1992	78,528	164,841	225,713	365,216	313,109	60,858	35,941	66,909	1,311,115
1993	115,604	172,215	155,736	354,960	312,372	72,008	57,044	113,382	1,353,321
1994	96,991	126,616	118,351	169,566	134,154	63,220	87,748	101,967	898,613
1995	85,063	81,618	121,986	178,920	202,828	110,419	66,906	76,822	924,562
1996	88,602	68,555	82,982	121,014	182,100	45,048	18,313	75,662	682,276
1997	47,660	83,477	52,967	79,916	129,478	55,318	49,478	55,296	553,590
1998	41,741	73,252	73,776	99,419	36,079	46,318	20,757	29,750	421,092
1999	79,840	72,504	29,596	176,028	102,933	43,632	59,779	44,639	608,951
2000	64,447	50,857	15,394	143,471	192,234	66,246	58,863	33,070	624,582
2001	42,012	67,239	39,749	89,702	230,465	73,028	52,744	36,687	631,626
2002	52,716	60,250	101,715	305,883	274,477	82,107	53,730	25,158	956,036
2003	80,506	89,821	130,892	145,223	104,869	65,453	39,789	59,878	716,431
2004	36,969	124,730	112,825	301,279	153,908	106,624	15,408	95,428	947,171
2005	59,652	106,102	70,479	119,876	110,640	65,826	73,241	75,139	680,955
2006	53,194	89,647	122,904	300,377	312,887	90,718	57,236	102,037	1,129,000
2007	63,552	114,747	147,098	202,800	328,041	94,342	130,086	41,044	1,121,710
2008	37,114	149,914	131,014	291,760	254,881	97,416	50,755	34,005	1,046,859
2009	74,253	104,936	36,879	247,184	259,026	53,905	125,790	39,320	941,293
2010	79,224	151,867	112,678	239,711	373,784	65,978	175,025	107,397	1,305,664
2011	108,688	81,796	107,558	253,610	188,938	66,894	73,526	68,635	949,645
2012	31,952	87,289	97,726	101,582	97,260	43,015	58,540	13,616	530,980
2013	69,341	59,910	62,538	122,535	109,137	31,368	33,571	13,004	501,404
2014	81,213	61,531	115,557	265,484	92,399	31,190	6,296	31,877	685,547

Table 5. Commercial landings for tautog in pounds, by region, 1981-2012. Landings have been combined to protect confidentiality at the state level. States were combined based on how landings were reported in the 2015 benchmark stock assessment.

(2015 Benchmark Stock Assessment, NOAA Fisheries and ACCSP Data Warehouse)

Year	MA, RI, CT Combined	NY-NJ Combined	DelMarVa + North Carolina Combined	Total (Coastwide)
1981	193,200	135,800	2,900	331,900
1982	176,800	238,600	4,156	419,556
1983	233,700	189,000	2,819	425,519
1984	435,500	232,200	9,915	677,615
1985	516,600	210,000	7,770	734,370
1986	633,100	302,000	5,706	940,806
1987	829,700	320,400	7,080	1,157,180
1988	718,100	343,000	9,714	1,070,814
1989	666,600	337,300	12,531	1,016,431
1990	582,166	280,655	10,684	873,505
1991	779,943	319,435	10,733	1,110,111
1992	717,758	285,343	9,071	1,012,172
1993	447,993	242,941	7,506	698,440
1994	210,781	234,016	14,693	459,490
1995	150,753	188,849	35,965	375,567
1996	130,723	194,901	31,810	357,434
1997	118,360	127,954	34,598	280,912
1998	118,528	111,318	24,340	254,186
1999	114,670	65,193	28,962	208,825
2000	148,224	79,589	19,636	247,449
2001	162,654	122,947	19,879	305,480
2002	224,861	97,410	29,178	351,449
2003	181,639	139,030	19,832	340,501
2004	150,810	127,663	22,276	300,749
2005	166,235	113,688	12,271	292,194
2006	211,477	123,964	14,424	349,865
2007	189,263	136,777	14,886	340,925
2008	142,054	152,529	16,357	310,940
2009	126,817	101,880	14,947	243,644
2010	136,318	142,366	9,170	287,855
2011	120,000	128,626	17,758	266,384
2012	124,229	97,257	16,581	238,067
2013	129,479	118,512	15,829	263,820
2014	121,740	109,591	9,817	241,148

Figure 1. Total tautog harvest in pounds (1981-2014)

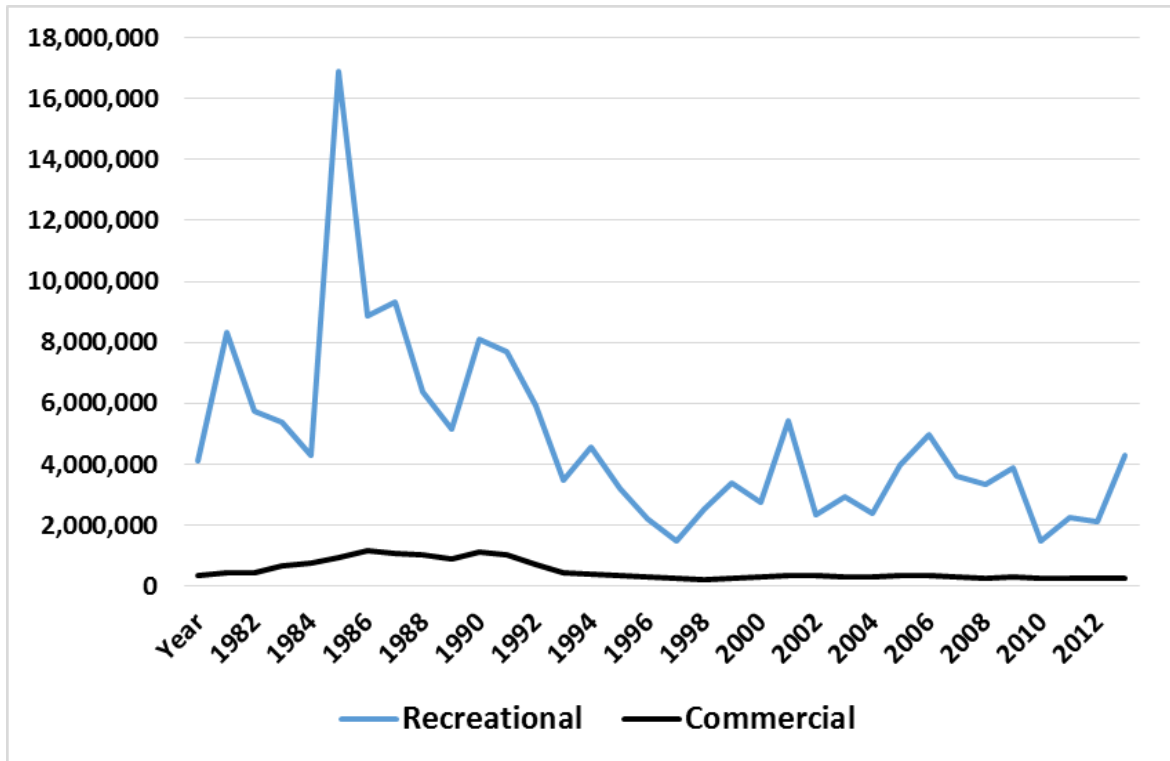


Figure 2. Total tautog harvest in pounds (2000-2014)

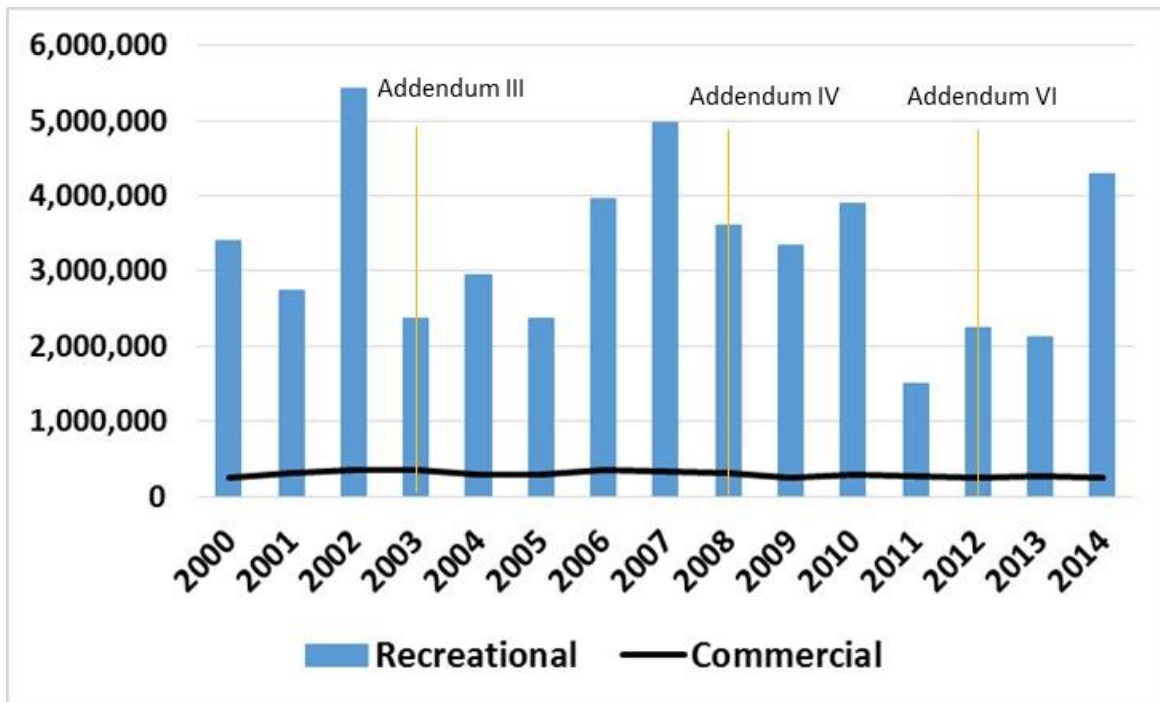


Figure 3. Recreational landings for tautog by state (1981-2014 average landings, MRIP)

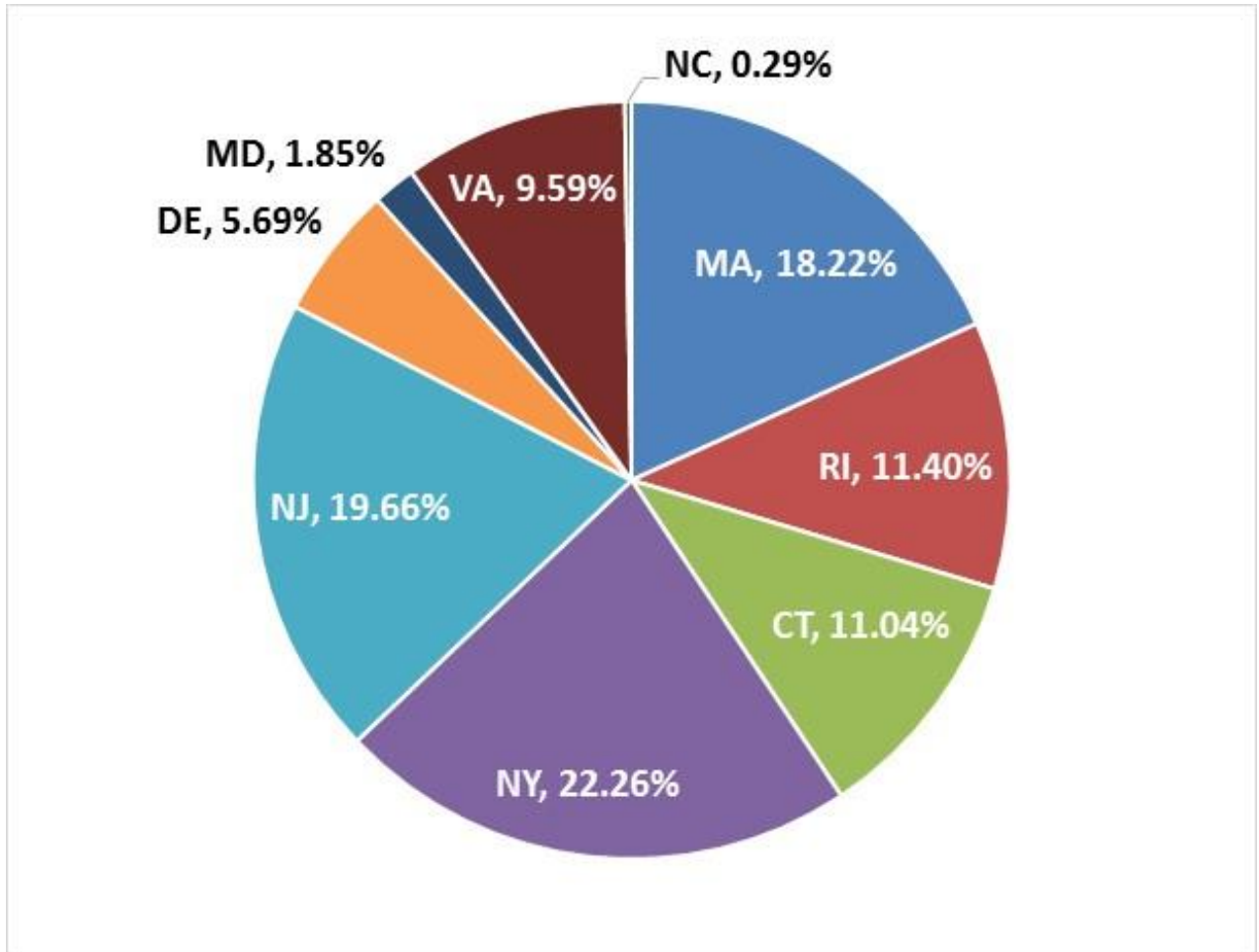
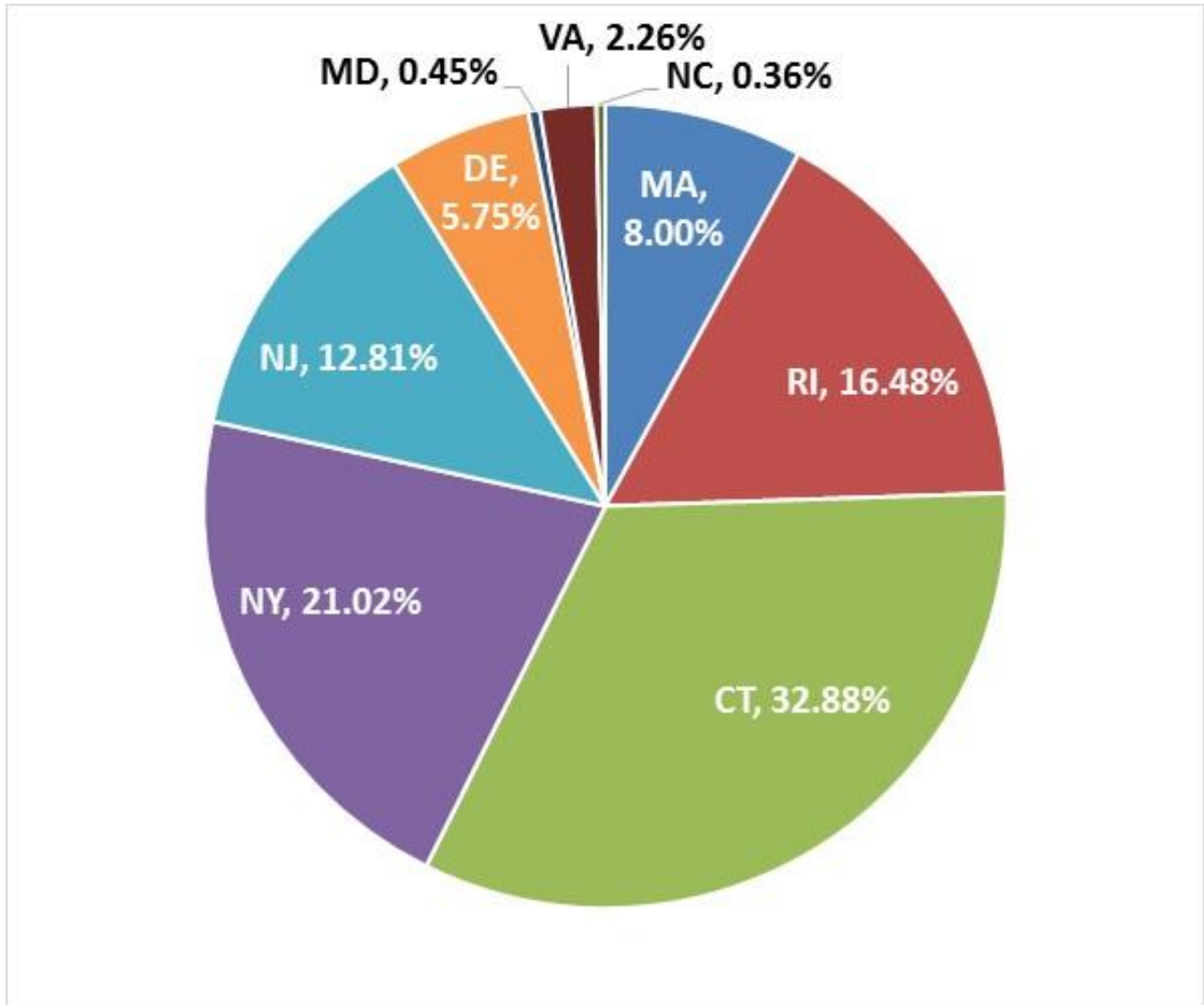


Figure 4. Recreational landings for tautog by state (2012-2014 average landings, represents landings after Addendum VI went into effect, MRIP)





Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

Tautog Advisory Panel

October 5, 2015

9 Total Attendees

Meeting Staff (2): Ashton Harp (ASMFC), Katie Drew (ASMFC)

Meeting Participants (7): John Mihale (NY), Jack Conway (CT), Denise Wagner (NJ), Jim Dawson (VA), Wes Blow (VA), Travis Barao (RI), Edward Yates (NJ)

Issue 1: Regional Management

The AP could not come to a consensus for a regional management breakdown. However all could agree that they did not want any option that resulted in severe cuts. Specific comments:

- **Option 3 or 4: Jim Dawson (VA) Wes Blow (VA), Travis Barao (RI)** are strongly in favor of regional management, they believe status quo will mean more restrictions.
- **Option 1 (status quo): John Mihale (NY)** is not completely against regionalization he just thinks the fishery needs more time (until 2017-2018) to adjust to the Addendum VI management measures that became effective in 2012. Because the fish protected under these regulations are just entering the reproductive phase of their lives.
- **No Decision: Denise Wagner (NJ)** doesn't want to commit to any option now, she wants to see the numbers for Option 4. Although she is hesitant to be lumped into a region with New York because southern New Jersey and New York have different bathymetry and fish.
- **No Decision: Edward Yates (NJ)** is concerned regionalization will look similar to the regional quota system that is being used for black sea bass. Although it was explained that the regional management being put forth from tautog is different that the regional quota system for black sea bass.

Issue 2: FMP Goals and Objectives

No comment

Issue 3: Management Measures

General consensus, for those in favor of regional management, that states should have the flexibility to manage their own fishery within a regional management area (i.e. state by state conservation equivalency). Additional issues that had a general consensus:

- A uniform size limit for the coast (or across regional management areas) should not be implemented
- A uniform possession limit cap for the coast (or across regional management areas) should not be implemented. All possession limits for the recreational fishery should be per person, not per boat.

Regulatory suggestions:

- Spawning regulations should match the spawning timeframes, for example the spawning timeframes are changing in certain regions due to climate induced water temperature changes and the regulations should be updated as appropriate.
- States should prohibit the use of roller rig gear
- Incorporate water temperature into stock assessments

Issue 4: Reference Points and Rebuilding Timeframes

For those in favor of regional management, there was a general consensus that regional reference points and regional rebuilding timeframes are appropriate.

Issue 5: Other Issues

Unlicensed, recreational fishermen are taking **undersized tautog for the live market**; this includes people in row boats at night (who understand, but do not follow the regulations in place) and those fishing on jetties and bridges (who don't understand the regulations). The black market is in direct competition with commercial fishermen; and as the value of the fish continues to increase illegal fishing will only rise in the future.

The AP believes a two-prong approach is necessary to combat the black market:

1. Fines/penalties need to be higher/stricter, which should include fines >\$1,000 and jail time (taking away gear or licenses is not strict enough)
2. Law enforcement needs to visit restaurants and fish markets to monitor fish length, in addition to being more widely seen on docks, jetties and on the water.

Additional solutions: (Note: the AP did not collectively agree on every suggestion below)

- The fishery should have state and federal regulations
- There should be a federal permit to fish for tautog
- There is a Pennsylvania loop hole; Pennsylvania fishermen are fishing on the Delaware River and selling live tautog to the Philadelphia market. Pennsylvania should be added to the tautog management unit.
- Regulatory signs should be in multiple languages including Chinese, Spanish and English

The AP is concerned that the recreational fishery as a whole harvests a lot of tautog for **recreational bait** (e.g. ~ 10-12 tautog per person).

AP commercial fishermen are against a **commercial tagging program**, they believe the two-prong approach (above) has a higher degree of success than a commercial tagging program. Concerns include tampering with the tag at the restaurant, for example a tag could be removed from a legal sized fish and placed on an undersized fillet. They also believe more research is needed on this topic, however even if a tag can be placed on a fish without killing it in the long run they still believe a tagging program is too costly and places an unnecessary burden on commercial fishermen.

Denise Wagner (NJ) is not in favor of additional **artificial reefs** because New Jersey commercial fishermen are not allowed to fish on them; additional artificial reefs equates to less fishing ground for commercial fishermen in New Jersey.

Jim Dawson (VA) wants **improved recreational data** in the tautog fishery, he suggests a pilot program where all tautog recreational fishermen have to submit a landing report, similar to a VTR.

Tautog Public Hearing Summaries
September-October 2015
Draft Amendment 1

New Bedford, Massachusetts
September 29, 2015
16 Total Attendees

Meeting Staff (7): Ashton Harp (ASMFC), Dan McKiernan (MA DMF), Nichola Meserve (MA DMF), Mike Bedwaski (MA DMF), Bob Glenn (MA DMF), Teresa Burnham (MA DMF), Bill Adler

Meeting participants (9): Stan Bazyclu, Drew Kelek (Dartmouth Salt Water Anglers), Mike Bouvier (Dartmouth Salt Water Anglers), Paul Tomisik (Dartmouth Salt Water Anglers), Abel Noyevia (Dartmouth Salt Water Anglers), John Amaral (Dartmouth Salt Water Anglers), Fred Stowell (F/U Jim Dandy), Chris Stowell (F/U Jim Dandy), Edward Nasser

Issue 1: Regional Management

Six participants supported Option 4 (4 regions), two supported Option 3 or Option 4. There was general consensus that Massachusetts should be in a smaller grouping (i.e. Option 3 or 4) and an understanding of the challenges imposed if Long Island Sound was split among two regions. One participant commented that they would like more data to be made available to explore state options in the future.

Issue 2: FMP Goals and Objectives

Revision of Goal B, suggested text should focus on creating more equity in the fishery. There was general consensus that there is a disparity between the commercial and recreational fishery. For example, the commercial fishermen in Massachusetts are limited by a quota, whereas the recreational sector is not. The commercial fishermen want to make up a bigger slice of the total harvest (i.e. more than 10%).

Issue 3: Management Measures

There was a general consensus that all states and all fishermen should have the same minimum size limits; the desired minimum size limit by participants is 16 inches. A uniform minimum size limit of 16 inches will make it easier for law enforcement, regardless of state affiliation, to size the fish and hold fishermen or restaurants responsible for undersized, illegal fish. Other comment include:

- If regulations are put in place to further restrict the fishery, the commercial fishermen think it is unfair and likely to have little effect because they make up such a small percentage of the total harvest.
- Two participants support a prohibition of fishing on spawning aggregations, which would close the spring fishery (MA allocates 28% of the commercial quota to the spring fishery)
 - Subsequently two commercial fishermen are against this action because they target tautog for two weeks in the spring and will negatively affect their business.

They throw back spawning females, although they cannot say this is the practice of all commercial fishermen in the spring.

- The states currently uses weekly dealer reports to monitor the quota, participants would like a daily catch report to be used when the quota is close to being harvested.

Issue 4: Reference Points and Rebuilding Timeframes

There was general consensus against question 1, should the board be able to change reference points based on the latest stock assessment without the need of a management document. Fishermen would like to be involved, via public hearings, in future decision-making that affects the fishery.

There was general consensus in favor of regional reference points and rebuilding timeframes.

Issue 5: Other Issues

There was general consensus in favor of **adaptive management**.

All of the fishermen voiced negative comments regarding how the **data** is collected for stock assessments, they feel as though trawl surveys do not provide an adequate description of the stock. There were multiple offers for scientists to board their vessels to take samples. There were interested in knowing that Massachusetts and Rhode Island have incorporated ventless lobster trap and fish pot surveys into the data collection process. One participant noted that trawl and pot surveys are indiscriminate collection devices and asked for scientists to directly target tautog (preferably on a fisherman's boat) for data assessments.

There was general consensus that **poaching** of live tautog is an issue and it is common. They do not think the fish is harvested as a bait fish, rather it is going to New York's live market. They voiced a two-fold approach to solve the problem, 1) change how the fish is purchased and 2) uniform minimum size limit. Other comments include:

- Law enforcement should go to restaurants to check the size of live fish
- Restrict the areas where people can harvest fish
- Tagging is a waste of time and resources, it is too costly
- There would need to be a tagging study to see how the fish is affected by the tag, it is very important that the fish lives given this a live market

As a structure orientated species, **habitat** conservation and artificial reefs should be placed in areas that already support the species. The structure that holds the fish should be studied intensively prior to the creation and placement of artificial structures. Massachusetts has 30-40 artificial reefs along the coast.

Other

There should be a license for tautog, potentially a controlled date for people to go back to, to obtain this license (like striped bass)

Narraganset, Rhode Island
September 30, 2015
10 Total Participants

Meeting Staff (2): Ashton Harp (ASMFC), Jason McNamee (RI DFW)

Meeting participants (8): Pat Heaney (City by Theresa Charters), Paul Johnson (RIPCBA), Marshall Youmens (RIPCBA), Michael Buchanan (Recreational), Andrew J (Charter/RIMFC), Stephen Medeiros (RISAA), Travis Barao (RISAA), one unnamed fisherman

Issue 1: Regional Management

There was general consensus for Rhode Island to be grouped with Massachusetts as it has informally done in the past—all were opposed to any grouping that included Connecticut. Three participants supported Option 3 or 4, two participants supported option 4 (and Option 3 as a back-up).

Issue 2: FMP Goals and Objectives

One participant noted that he agreed with the current FMP goals and objectives.

Issue 3: Management Measures

Two participants supported the current de facto regional management measures between Rhode Island and Massachusetts, noting the management measures are different between the states but are working. Other comments include:

- If regional management is chosen, then states within a region should come together to decide if A) they want flexibility to manage their fishery individually or B) if states should have the same management measures.
- There should be a coastwide regulation that caps the possession limit at 10 fish per private vessel, as Rhode Island has done.
- Consider adding slot limits

Issue 4: Reference Points and Rebuilding Timeframes

In regard to questions #1, one participant suggested the Board could consider implementing interim reference points without going out for public comment. The effects of the interim reference points could be reviewed for effectiveness and then go out for public comment under the addendum process. This would allow public participation and give managers the ability to manage in real time.

One participant suggested regional reference points make the most sense given limited fish movement.

Issue 5: Other Issues

There was general consensus that improved **monitoring and data** collection of the resource is needed, overall there should be more investment in this species. Other comments include:

- There should be studies about the effects artificial reefs and rebuilding existing habitats have on the resource
- There should be more artificial reefs and rebuilding efforts within state waters

There is general agreement that **poaching** is a problem, but it is not for bait, it is for the live market. Other comments include:

- Regulations or a tagging program will have little effect on the health of the fishery because the commercial sector represents such a small portion
- There are concerns a tag will kill the fish
- One participant suggested fin clips and another was opposed to this action because any individual could cut the fins
- They do not think fish from Rhode Island are being shipped to New York
- This is an enforcement issue, you can have more regulations but without proper enforcement the poaching will not stop

Old Lyme, Connecticut
September 24, 2015
19 Total Attendees

Meeting staff (4): Ashton Harp (ASMFC), Mike Waine (ASMFC), Dave Simpson (CT DMF), Marc Alexander (CT DMF)

Meeting participants (15): Amanda Caskenette (UConn), Eric Schultz (UConn), Lyle Wolsinger (UConn), Adam Czepiel (fisherman), TJ Karowski (Rock and Roll Charters), Jordon May (Rock and Roll Charters), Alison Vaion (Harbor/Shellfish), Tony Notaro (Cucky Hock), Mink Kralmish (fisherman), Larry McLoughlin (LIS Lobster Association – NY), Preston Glas (Helen), Marc Berger (Lucky Strike), Richard Rizzitello (fisherman), Garth Cologne (fisherman), Bob Shea (fisherman)

Issue 1: Regional Management

Three recreational fishermen support Option 4 (4 regions)—it was perceived as the most realistic option due to the shared fishery between Connecticut and New York. One participant noted that they do not want to be lumped into a region with New Jersey.

Issue 2: FMP Goals and Objectives

One participant wanted to encourage efficient monitoring of the stock, which might entail using other types of gear (i.e. not trawls) for the fall and spring survey. Given habitat considerations, trawls are one way to keep track of the species, but may not be the best way to gather an indices of abundance. This comment most closely aligns with Objective F, which may need to be re-worded.

Issue 3: Management Measures

One recreational fishermen wants to impose regulations on processing tautog at sea—racks should be brought back to the dock to prove minimum size compliance. There was hesitation to provide further management suggestions—fishermen would like to see the proposed management measures and then comment on them.

Issue 4: Reference Points and Rebuilding Timeframes

One recreational fishermen supported regional management for reference points and rebuilding timeframes. In addition there was support for the addendum process when changing reference

points, public hearings were seen as an important step to maintain transparency.

Issue 5: Other Issues

One fisherman supported increased monitoring of tautog, specifically to illustrate the perceived cause and effect relationship between management measure and biomass. For example, did increased size limits positively affect the stock? Can we show this positive trend overtime?

There was general concern about poaching of illegal (undersized) live tautog. Comments include:

- Perception that tautog is poached more than any other fish because people are not worried about being caught, the high value for live fish and they are relatively easy to find.
- Poaching happens in the Central Sound with multiple trips per day
- Recreational fishermen are poaching and selling live, illegal fish
- Commercial tagging should occur at point of harvest.
- Black sea bass have invaded reefs during the tautog open season. The increase in size limits from 14" to 16" has made it difficult for charters or recreational fishermen to find tautog of that size. Fishermen have to catch a lot of tautog, in order to find a 16" fish. To reduce discard mortality, the minimum fish size should be reduced to 15".
- There should be no spring fishery. The fishery should start on October 10 through December 31.
- Fines should be large (and severe enough) to deter poaching—fishermen and restaurants should be penalized.

East Setauket, New York
September 29, 2015
23 Total Attendees

Meeting staff (4): Ashton Harp (ASMFC), Jim Gilmore (NY DEC), John Maniscalco (NY DEC), Sandy Dumais (NY DEC)

Meeting participants (19): Willie Young (NY Coalition for Recreational Fishing), Ronald Turbin (C.C.A.-NY/Gateway), John Mihale (NY State Commercial HTL Association), Reed Riemer (NY Sport Fishing Federation), Larry McLoughlin (LIS LA), Richard Jensen (North Fork Captains), David Bornemann (LISLA), Edward Liotta, Philip Kess (North Fork Captains), Ralph Viamostad (NY Coalition for Recreational Fishing), Tom Gariepy (NY Commercial), Ron Sineo (NYSCC), Ed Rodman (LIS Lob), Arnold Leo (Town of East Hampton), John German (LISLA), Jim (James Joseph), Milo Wild (James Joseph)

Issue 1: Regional Management

Thirteen recreational and commercial fishermen support Option 1 (status quo), the majority specifically stating they are in favor of “status quo for now”. One participant did not choose a regional option, rather voted against option 4 due to the fact that it would create separate regulations within New York. There was general consensus to not split Long Island Sound into two separate regions.

Comments include:

- This is a law enforcement problem, it is not a recreational problem or a commercial problem
- Stock assessments for tautog should not use trawl data
- There are concerns about the accuracy of data, specifically calling attention to the commercial data
 - Fishermen want to see the VTR reports for New York and New Jersey
- A participant stated new regulations were implemented in 2012, via Addendum VI, and therefore patience is needed to see the effects on the resource
- The fishery varies from state to state (i.e. spawning seasons, habitat, etc.), a regional approach will cause individual states to lose their voice on fishery management in their state

Issue 2: FMP Goals and Objectives

No public comment

Issue 3: Management Measures

As noted under Issue 1, one participant commented on the differences in the fishery across states. For example, southern states have earlier spawning seasons and northern states have later spawning seasons. These kind of differences need to be taken into consideration for coastwide or

regional management. States should have the flexibility to manage their fishery according to these differences.

A recreational fisherman wants to prohibit the use of roller rig gear in the tautog fishery (specifically within New York and New Jersey waters).

Issue 4: Reference Points and Rebuilding Timeframes

No public comment

Issue 5: Other Issues

Five fishermen commented on the illegal harvest of tautog. Comments include:

- Poaching is astronomical, worse than striped bass
- Poaching for the live market is most often done by recreational fishermen who fish at night and do not have a license—live, illegal fish are sold for lower prices. The unlicensed recreational fishermen are now in competition with commercial fishermen.
- There should be more law enforcement dedicated to preventing the illegal, live market. Eliminating the illegal market will increase the price of live, legal tautog.

Two commercial fishermen voted against a **tagging program**. They believe a tag will increase the mortality of the fish, which is unfavorable given the market is for live fish. Participants noted the fishery is largely recreational and the poaching issue is also attributed to recreational fishermen, therefore proper enforcement not a tagging program is needed.

A recreational fisherman is in support of a commercial tagging program so there can be a better idea of how many fish commercial fishermen are catching—this relates back to comments under Issue 1 about a perceived inaccuracy in the commercial data.

Prior to the start of a tagging program there should be a study on the type of tag that should be used, where it should be placed on the fish and if/how the tag affects mortality.

Tom's River, New Jersey
September 22, 2015
16 Attendees

Meeting Staff (7): Ashton Harp (ASMFC), Mike Waine (ASMFC), Russ Allen (NJ DFW), Tom Fote (JCAA), Brandon Muffley (NJ DFW), Adam Nowalsky (Board Chair), Lindy Barry (NJ DFW)

Meeting participants (9): Ron McClelland, Tom Daffin, Bob Greenlin, Denise Wagner, Jim Wagner, Jack Fullmer (NJ Council on Diving Clubs), Phil C., Paul Huetel (JCAA), fisherman

Issue 1: Regional Management

Meeting participants were generally weary of any regional management measure that would pair New Jersey with New York. Two participants displayed support for option 1 (status quo), 1 for option 4 (4 regions) and 1 could not make a decision due to a perceived lack of available data.

Comments include:

- States within regional grouping would need to work together to have the same or similar regulations
- NY and NJ have notable differences in management measures (i.e. fishing seasons, possession limits, quotas) and it would be difficult to embark on regional management approach
- There is a perceived lack of enforcement within NY waters in regard to poaching and a fear that if the illegal landings were to be counted then that it impose further fishing restrictions on the regional grouping that includes NY
- The live market is the most profitable avenue, and it is most profitable when NJ doesn't have to compete with NY (i.e. during the period of time when the NY season is closed)
- NJ sells dead fish for about \$4 per pound, whereas live, legal fish can sell for \$8-11 per pound
- The current recreational season in NY is far shorter than the recreational season in NJ, in addition NY has larger size limits. If the states are combined then that could liberalize NY fishing.
- Each state should manage its own fishery, irrespective of neighboring state regulations

Issue 2: FMP Goals and Objectives

One participant voiced that maintaining spawning stock biomass and critical habitat as the most important goals. In regard to habitat, there is concern that beach/sand replenishment is not only destroying the habitat where the sand originates but also covering important reef habitat nearshore.

Issue 3: Management Measures

Echoing earlier comments under Issue 2, participants voiced the need for habitat protection and rebuilding and protection for spawners.

- The current beach/sand replenishment rebuilding projects are projected to source sand from five (5) ‘lumps’, similar to a seamount, which will damage prime fish areas.
- There should be efforts to restore or rebuild nearshore reefs.
- There should be protection for spawners given larger fish are prolific breeders. A participant suggested using ‘slots’ similar to what is used in Florida to achieve this goal.
- A commercial fishermen said they can’t catch 100,000 pound NJ quota, and the commercial fishery should get more days to catch the quota.

Issue 4: Reference Points and Rebuilding Timeframes

One participant said managers should not rush to change reference points as a result of the most recent stock assessment. The stock rebuilding timeframes should be flexible and realistic.

Issue 5: Other Issues

Related to the comment in Issue 4, a participant supported adaptive management but also said managers should hesitate before changing regulations because some states require more time than others to implement.

There was general concern about poaching of illegal (undersized) live tautog. Participants believe proper enforcement can deter illegal fishing, not a commercial tagging program. Comments include:

- Party boat captains often have bags of live tautog over the side of the boats which is intended for the oriental market. This occurs in and out of season.
- Fines should be large (and severe enough) to deter poaching—fishermen and restaurants should be penalized. The fines could be a revenue source for enforcement moving forward.
- Concern that people fishing on jettis do not know the regulations in place—proper signage which includes a picture of the fish, minimum size limits, seasonal and possession limit information should be displayed at prime fishing areas.
- There was mention of an example where NJ enforcement caught one charter boat and the rest of the boats stopped illegally harvesting after one boat was penalized.
- Concern that a tagging program will not deter illegal fishing, it will only place a heavier burden on those that are fishing legally.
- Tagging would only work on dead fish not alive. And the dead ones are only worth \$4/pound whereas the live market gets \$8/pound.

Other comments

- There were comments made that management decisions were being decided prior to public comment in the past.

Dover, Delaware
October 8, 2015
4 Total Participants

Meeting Staff (2): Ashton Harp (ASMFC), John Clark (DE DFW)

Meeting Participants (2): Captain Brian Wazlavek (Delaware Family Fishing), Rodney A. Jones (Fish Whisperer Charters)

Issue 1: Regional Management

Two participants supported Option 3, they specifically voiced concern regarding Option 4 because it does not have complete reference points and they do not think it can go through peer review prior to Spring 2016. In addition, striped bass set a precedent that states should not be divided into separate management groups.

Issue 2: FMP Goals and Objectives

No public comment

Issue 3: Management Measures

General consensus supports regional management, suggesting a regional quota for the commercial fishery and recreational fishery that allows states the flexibility to manage their own fishery (state by state conservation equivalency).

Issue 4: Reference Points and Rebuilding Timeframes

Two participants supported using the addendum process to change reference points. This ensures transparency and alleviate back door deals. They support regional reference points and rebuilding timeframes.

Issue 5: Other Issues

General consensus to continue using the addendum process for **adaptive management** issues.

With the knowledge that the only **monitoring** that Delaware does is aging on the racks that are brought back to the dock, a participants suggested a stock assessment be completed no more than 3 years after new management measures become effective.

Recreational fishermen contribute to a small portion of **illegal fishing** when they hide fillets, however the majority of illegal fishing is attributed to Chinese fishermen that actively catch undersized tautog for the live market – the fish are stored in coolers with small generators to circulate oxygen. This level of illegal fishing is beyond poaching, it is a black market. Comments to suppress the black market include:

- There should be federal money geared toward tautog regulations
- Higher fines
- Increased enforcement at restaurants and fish markets

A participant supported a **commercial tagging program**, “every tautog in a restaurant should have a tag in it”. There should be enforcement going into restaurants in Pennsylvania, New York, Washington DC and New Jersey. The tagging should be at the point of harvest. The participant noted that more research will need to be done to make sure the fish can survive with a tag.

There should be more money from the federal government for the creation **habitat**, specifically artificial reefs (at least a 5-1 match, right now it is a 3-1 match). One fisherman is concerned that artificial reefs work so well at creating habitat for tautog and other reef dwelling fish that they might be turned into marine sanctuaries.

Ocean Pines, Maryland
October 7, 2015
15 Total Attendees

Meeting staff (3): Ashton Harp (ASMFC), Craig Weedon (MD DNR), Steve Doctor (MD DNR)

Meeting Participants (12): Rich Puchahski (VA commercial), Sandra Puchahski (VA commercial), Chris Mizurul (angler boat captain), San Stauffer (charter boat), Buddy (Allen) Seigel (OP Anglers-MSSA-ACC), John McHalls (OP Anglers/MSSA), Victor Bunting (Party Boat Captain), Monty Hawkins (Party Boat Captain), Richard Comly, Toni Comly, Frank Watkins (OP Anglers/MSSA), Merrill Campbell (SCOC Fishing)

Issue 1: Regional Management

General consensus to move forward with regional management, as the DelMarVa region. There was a preference for Option 4 if a specific regional choice was needed. One participant specifically supported Option 4.

Issue 2: FMP Goals and Objectives

Given this is a largely recreational fishery, a participant supported more advanced recreational data collection than what is currently being used to monitor state landings.

A participant supported an objective that focuses on gathering a better understanding of habitat for this species, as well the effect increased habitat has on recruitment.

Issue 3: Management Measures

General consensus supports regional management, suggesting a regional quota for the commercial fishery and recreational fishery that allows states the flexibility to manage their own fishery (i.e., state by state conservation equivalency).

Issue 4: Reference Points and Rebuilding Timeframes

General consensus in support of regional reference points and rebuilding timeframes.

Issue 5: Other Issues

General consensus in favor of adaptive management and increased data and monitoring efforts, with a focus on habitat.

Commercial fisherman says he has not seen **poaching** in Maryland waters. A VA fisherman says it is practically nill in VA waters, but is starting to increase as the value of the fish escalates. Recreational fishermen reported seeing illegal activity near bridges and jettis (i.e. people taking undersized fish and over the possession limit), unsure if these fish are intended for the live market.

Commercial fishermen are against **tagging**, it penalizes the honest fisherman. In support of recreational fishermen not being allowed to bring live fish back to the dock.

Hampton, Virginia
October 6, 2015
8 Total Attendees

Meeting Staff (2): Ashton Harp (ASMFC), Joe Cimino (VMRC)

Meeting Participants (6): Jeff Deem (Finfish Management Advisory Committee, FMAC), Will Bransom (Norfolk Anglers Club), David Agee (Peninsula Salt Water Sport Fisherman's Association Inc, PSWSFA), Mike Avery (Virginia Saltwater Sportsman Assoc, VSSA), Bob Allen (PSWSFA), Jim Ellis

Issue 1: Regional Management

Two participants supported any option, except Option 1 (status quo). Two participants supported Option 4 because they believe it best represents the fishing pressure and stock dynamics.

Issue 2: FMP Goals and Objectives

A participant would like an objective that focuses on fisheries management performance, specifically to analyze the effect addendums/changes to management have on the stock, on a state basis. Other comments include:

- An objective that incorporates the need to manage based on a changing climate; changing water temperatures are effecting the spawning seasons and seasonal closures should be reflective of this.
- Support for Objective B

Issue 3: Management Measures

General consensus that each states, regardless of region, should have the flexibility to manage their fishery based on their individual needs. There was also a general consensus for the Amendment 1 to set a minimum size limit of 16 inches for all management areas and all fisheries (commercial and recreational), similar to how the original FMP set a 14 inch minimum size limit. Other comments include:

- An alternative to seasonal closures, states set a target removal number (quota) and manage to that each year.
 - This was emphasized after a comment that changing weather patterns make it difficult for fishermen to fish in open seasons, therefore regulations and weather are shortening the season.
 - A participant supported a state's ability to adjust seasonal closure dates based on spawning periods and weather, for example if weather prohibits fishermen from fishing for two weeks at the start of the season, can the season then be extended by two weeks? Currently it would require an addendum to make a change.

Issue 4: Reference Points and Rebuilding Timeframes

General consensus that regions should apply reference points and set rebuilding timeframes, good or bad, that reflect the needs of that regional fishery.

One participant supported the ability for managers to change reference points without a management document. One participant supported using the addendum process to change reference points.

Issue 5: Other Issues

General consensus from fishermen that more **data and monitoring** in general is needed for this fishery. Given the DelMarVa region is data poor, there is a need for a person/organization to help develop and provide guidance on survey methods that would be appropriate for this species (VA staff comment).

Poaching for the live market or recreational bait is not an issue in Virginia.

Three participants supported a **commercial tagging program**, they believe it will not halt all poaching up north, but it is a first step. General consensus that a tagging program should be region specific, therefore the DelMarVa region will most likely not need a tagging program. Tagging should be at the point of harvest.

All recreational fishermen are in support of **artificial reefs** in areas where reefs have been destroyed.



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

October 21, 2015

To: Tautog Management Board
From: Tina Berger, Director of Communications
RE: Advisory Panel Nomination

Please find attached nominations to the Tautog Advisory Panel – Captain Mel True, a Massachusetts fisherman who has experience in commercial, recreational and for-hire fisheries. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or tberger@asmfc.org.

Enc.

cc: Ashton Harp

M15-65

TAUTOG ADVISORY PANEL

Bolded names await approval by the Tautog Management Board

Bolded and italicized name denotes Advisory Panel Chair

October 21, 2015

Massachusetts

Captain Mel True (comm/for-hire/rec)

124 Braley Road

East Greetown, MA 02717

Phone: 508.951.9991

Capt.meltrue@gmail.com

Email: hugapuck@potononline.net

Appt. Confirmed 11/18/02

Appt Reconfirmed 11/06

Appt Reconfirmed 5/10

Appt Reconfirmed 8/15

Vacancy (rec)

Rhode Island

Travis Barao (rec)

15 Gibbs Street

Rumford, RI 02916

Phone (day): 401.301.7944

Phone (eve): 401.270.7161

travisbarao@gmail.com

Appt. Confirmed 8/5/15

New Jersey

Denise Wagner (comm trap)

130 Woodbine Ocean View Road

Ocean View, New Jersey 08230

Phone: (609)624-0848

Email: wagnerfishingone@yahoo.com

Appt. Confirmed 11/18/02

Appt Reconfirmed 8/15

1 Vacancy (comm/otter trawl)

Connecticut

Lauren Griffith (partyboat captain)

214 Rowayton Avenue

Rowayton, CT 06853

Phone: (203)853-2556

FAX: (203)655-0860

Email: captgriff55@aol.com

Appt Confirmed 2/25/03

Appt Reconfirmed 2/07

Appt Reconfirmed 8/15

Edward K. Yates (for-hire)

33 Magnolia Road

Manahawkin, NJ 08050

Phone (day): 609.713.6918

Phone (eve): 609.597.8739

hunter.fishing@hotmail.com

Appt. Confirmed 8/5/15

John David Conway, Jr. (rec)

34 Edward Road

North Branford, CT 06471

Phone (day): (203)386-7965

Phone (eve): (203)484-9455

FAX: (203)386-6039

Email: jconway@sikovsky.com

Appt Confirmed 2/25/03

Appt Reconfirmed 2/07

Appt Reconfirmed 8/15

Delaware

Greg Jackson (comm/hook & line)

132 Crescent Drive

Dover, DE 19904

Email: gregory.jackson.1@us.af.mil

Phone (day): (302)677-6846

Phone (eve): (302)734-9724

FAX: (302)677-6837

Appt. Confirmed 4/24/95

Appt. Reconfirmed 7/27/99

Appt. Reconfirmed 7/6/03

Appt Reconfirmed 6/10

Appt Reconfirmed 8/15

New York

John G. Mihale (comm rod & reel)

153 California Place North

Island Park, NY 11558

Phone: (516)432-3592

Carey Evans (for-hire)

34614 Bookhammer Landing Road

Lewes, DE 19958

Phone (day): 302/245-9776

Phone (eve): 302/947-9271

Email: CBEvansDE@aol.com

TAUTOG ADVISORY PANEL

Bolded names await approval by the Tautog Management Board
Bolded and italicized name denotes Advisory Panel Chair

October 21, 2015

Appt. Confirmed 8/3/10
Appt Reconfirmed 8/15

Maryland

Victor Bunting Jr. (rec)
11123 Bell Road
Whaleyville, Md 21872
Phone: (443) 614-6484
Email: Victorbunting@rocketmail.com
Appt. Confirmed 8/3/10
Appt Reconfirmed 8/15

Vacancy (processor/comm)

Virginia

Jim Dawson (comm.)
3008 Ridge Road
Chincoteague, VA 23336-1221
Phone: (757) 336-6590
Jimdawson1@verizon.net
Appt Confirmed 2/25/03
Appt Reconfirmed 2/07
Appt Reconfirmed 8/15

Wes Blow (rec)
56 Cedar Lane
Newport News, VA 23601
Phone (day):757-880-4269
Phone (evening): 757-880-4269
wesamy2000@cox.net
Appt. Confirmed 8/5/15
Appt Reconfirmed 8/15



ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Dan McKiernan State: MA
(your name)

Name of Nominee: Captain Mel True

Address: 124 Brater Rd

City, State, Zip: EAST FREETOWN, MA 02717

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): X- 508-951-9991 Phone (evening): SAME

FAX: _____ Email: capt.meltrue@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

- 1. Tautog
- 2. _____
- 3. _____
- 4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

yes _____ no X

3. Is the nominee a member of any fishermen's organizations or clubs?

yes X no _____

If "yes," please list them below by name.

RISSA

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Striper
Scup
TUNA

SEA BASS
Bluefish
Tautog

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

N/A

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 15 years
2. Is the nominee employed only in commercial fishing? yes _____ no X
3. What is the predominant gear type used by the nominee? Rod & Reel
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? Inshore - Buzzards Bay, Cape Cod Bay

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 4 years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no X
If "no," please list other type(s) of business(es) and/occupation(s): Owner of Wicked Cooler
Owner of True Image Photography, Owner Custom Rods CMTSS
3. How many years has the nominee lived in the home port community? 15 years

If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? 40 years
2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes no

If "yes," please explain.

Commercial Rod & Reel Fisherman, Cooler Company
Wicked Cooler sold to fisherman, Custom Fishing Rods.
Outdoor writer for several fishing magazines

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____ years
2. Is the nominee employed only in the business of seafood processing/dealing?
yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

3. How many years has the nominee lived in the home port community? _____ years
If less than five years, please indicate the nominee's previous home port community.

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years
2. Is the nominee employed in the fishing business or the field of fisheries management?
yes _____ no _____

If "no," please list other type(s) of business(es) and/or occupation(s):

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

As A fulltime Charter Captain here in New England
it is in my best interest that we maintain a
healthy fish population. Proper Management will
ensure that the Fisheries are properly
maintained.

Nominee Signature: Capt. Mel True

Date: 8-2-15

Name: Mel TRUE
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

David J McKernan for David Pierce
State Director

State Legislator

Governor's Appointee

Atlantic States Marine Fisheries Commission

Business Session

*November 4, 2015
1:45 – 2:45 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Introductions (*L. Daniel*) 1:30 p.m.
2. Board Consent 1:35 p.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2015
3. Public Comment 1:40 p.m.
4. Election of Commission Chair and Vice Chair (*R. Beal*) **Action** 1:45 p.m.
5. Review 2015 Action Plan Update 2:00 p.m.
6. Review and Consider Approval of the 2016 ASMFC Action Plan **Action** 2:15 p.m.
7. Other Business/Adjourn 2:45 p.m.

The meeting will be held at:
World Golf Village Renaissance Saint Augustine Resort, 500 South Legacy Trail, St. Augustine, Florida

Atlantic States Marine Fisheries Commission

Business Session

*November 5, 2015
11:15 – 11:45 a.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

- | | |
|--|------------|
| 1. Welcome/Introductions (<i>L. Daniel</i>) | 11:15 a.m. |
| 2. Board Consent | 11:20 a.m. |
| • Approval of Agenda | |
| 3. Public Comment | 11:25 a.m. |
| 4. Resolutions Committee Report | 11:30 a.m. |
| 5. Review Non-Compliance Findings (if necessary) | 11:40 a.m. |
| 6. Other Business/Adjourn | 11:45 a.m. |

The meeting will be held at:
World Golf Village Renaissance Saint Augustine Resort, 500 South Legacy Trail, St. Augustine, Florida

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
BUSINESS SESSION**

**The Westin Alexandria
Alexandria, Virginia
August 6, 2015**

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INDEX OF MOTIONS

1. **On behalf of the ISFMP Policy Board, I move the Commission find the State of Delaware out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel. Delaware has not implemented the following regulations required by Addendum III:**
 - **9" minimum size for yellow eel recreational and commercial fisheries**
 - **½" x ½" min mesh size for yellow eel pots**
 - **Allowance of 4x4" escape panel in pots of ½" x ½" mesh for 3 years (beginning on January 1, 2014)**
 - **Recreational 25 fish bag limit per day per angler**
 - **Crew and Captain involved in for-hire are exempt and allowed 50 fish bag limit per day**

The implementation of these regulations is necessary to achieve the conservation goals and objectives of the FMP to rebuild the depleted American eel stock. In order to come back into compliance the State of Delaware must implement all measures listed above as contained in Addendum III to the Fishery Management Plan for American Eel. Motion by Dr. Daniel on behalf of the ISFMP Policy Board. Motion carries unanimously (Roll Call Vote: In favor – ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, PRFC, VA, NC, SC, GA, FL) (Page 1).

2. **Move to request NOAA Fisheries implement the provisions of Sections 3 and 4 of the Jonah Crab FMP in federal waters pursuant to the authority of the Atlantic Coastal Act.** Motion made by Mr. Grout and seconded by Mr. Adler. Motion carries unanimously (Page 2).
3. **On behalf of the American Lobster Board, I move that the full Commission accept the Jonah Crab Interstate Fishery Management Plan.** Motion by Mr. McKiernan on behalf of the American Lobster Board. Motion carries unanimously (Page 2).
4. **Motion to adjourn by Consent** (Page 4).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)
Doug Grout, NH (AA)
Ritchie White, NH (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)
Dr. David Pierce, MA (AA)
Bill Adler, MA (GA)
Robert Ballou, RI (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
David Simpson, CT (AA)
Craig Miner, CT (GA)
Lance Stewart, CT (GA)
Katherine Heinlein, NY, proxy for Sen. Boyle (LA)
Jim Gilmore, NY (AA)
Emerson Hasbrouck, NY (GA)
Brandon Muffley, NJ, proxy for D. Chanda (AA)
Tom Fote, NJ (GA)
Adam Nowalsky, NJ, proxy for Rep. Andrzejczak (LA)
Loren Lustig, PA (GA)

Leroy Young, PA, proxy for J. Arway (AA)
Thomas Moore, PA, proxy for Rep. Vereb (LA)
John Clark, DE, proxy for D. Saveikis (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Lynn Gegley, MD, proxy for D. Goshorn (AA)
Bill Goldsborough, MD (GA)
David Sikorski, MD, proxy for Del. Stein (LA)
John Bull, VA, (AA)
Kathryn Davenport, VA (GA)
Louis Daniel, NC (AA)
Robert Boyles, Jr., SC (AA)
Ross Self, SC, proxy for R. Cromer (LA)
Patrick Geer, GA, proxy for Rep. Burns (LA)
Spud Woodward, AA (GA)
Jim Estes, FL, proxy for J. McCawley (AA)
Sen. Thad Altman, FL (LA)

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Staff

Bob Beal
Toni Kerns

Pat Campfield
Mike Waive

Guests

Wilson Laney, USFWS
Kelly Denit, NMFS

Martin Gary, PRFC

The Business Session of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 6, 2015, and was called to order at 10:15 o'clock a.m. by Chairman Louis B. Daniel, III.

CALL TO ORDER

APPROVAL OF AGENDA

APPROVAL OF PRECEEDINGS SUMMER 2015

PUBLIC COMMENT

REVIEW NONCOMPLIANCE FINDINGS

CHAIRMAN LOUIS B. DANIEL, III: Welcome to the business meeting of the full commission. We have an agenda in our briefing books. I don't have with me, but we're dealing with the Jonah Crab FMP and we're dealing with the compliance finding of Delaware. We have an agenda and our proceedings from October. As long as everyone is comfortable with the agenda and minutes, they will stand approved by consensus. Not having seen public interest in speaking or nobody has signed up, I'm going to move first to the non-compliance finding on Delaware. Dave.

MR. DAVID SIMPSON: Just one brief thing to add to other business and that would be compliance reports. Is that appropriate for this session or should I have done it 30 seconds ago?

CHAIRMAN DANIEL: On behalf of the ISFMP Policy Board I move the commission find the State of Delaware out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel. Delaware has not implemented the following regulations required by Addendum III: the nine-inch

minimum size for yellow eel recreational and commercial fisheries; half by half inch minimum mesh size for yellow eel pots; allowance of four inch by four inch escape panel in pots of half inch by half inch mesh for 3 years (beginning on January 1, 2014); recreational 25 fish bag limit per day per angler; crew and captain involved in for-hire are exempt and allowed 50 fish bag limit per day.

The implementation of these regulations is necessary to achieve the conservation goals and objectives of the FMP to rebuild the depleted American eel stock. In order to come back into compliance, the State of Delaware must implement all measures listed above as contained in Addendum III to the Fishery Management Plan for American Eel.

Just for the record, we had several folks provide additional information on the need for implementing these actions in the state of Delaware to the satisfaction of the Service. That is the motion in front of the full commission. Is there any discussion on the motion? All right, we will need to do this by roll call vote as well.

MS. KERNS: MS. KERNS: Maine.

MAINE: Yes.

MS. KERNS: New Hampshire.

NEW HAMPSHIRE: Yes.

MS. KERNS: Rhode Island.

RHODE ISLAND: Yes.

MS. KERNS: Massachusetts.

MASSACHUSETTS: Yes.

MS. KERNS: Connecticut.

CONNECTICUT: Yes.

MS. KERNS: New York.

NEW YORK: Yes.

MS. KERNS: New Jersey.

NEW JERSEY: Yes.

MS. KERNS: Pennsylvania.

PENNSYLVANIA: Yes.

MS. KERNS: Delaware.

DELAWARE: Yes.

MS. KERNS: Maryland.

MARYLAND: Yes.

MS. KERNS: Virginia.

VIRGINIA: Yes.

MS. KERNS: North Carolina.

NORTH CAROLINA: Yes.

MS. KERNS: South Carolina.

SOUTH CAROLINA: Yes.

MS. KERNS: Georgia.

GEORGIA: Yes.

MS. KERNS: Florida.

FLORIDA: Yes.

CHAIRMAN DANIEL: All right, the motion carries unanimously.

**CONSIDER FINAL APPROVAL OF JONAH CRAB
FISHERY MANAGEMENT PLAN**

MS. KERNS: For the Jonah Crab FMP, the Lobster Board forgot to discuss whether or not

we wanted to make any recommendations to NOAA Fisheries on the items that were approved through the Lobster Board's recommendations, anyway, before the full commission discusses whether or not they want to approve the full FMP. I'm going to turn to our Lobster Board Chair to bring this up.

MR. DOUGLAS E. GROUT: I'm not the Lobster Board Chair, but I'll be glad to make a motion. I move to request NOAA Fisheries implement the provisions of Sections 3 and 4 of the Jonah Crab FMP in federal waters pursuant to the authority of the Atlantic Coastal Act.

MS. KERNS: And those provisions are the monitoring requirements as well as the management measures that are contained in the document. The management measures include things such as permit requirements, size limits, trip limits for non-directed gears, recreational limits. I think that covers the majority of them.

CHAIRMAN DANIEL: We have a motion from Mr. Grout; second from Mr. Adler. Any discussion on the motion? Is there any objection to this motion? Seeing none; the motion carries unanimously. Dan, would you care to make the motion to accept the full FMP for Jonah Crab?

MR. DAN MCKIERNAN: Do you want me to read the motion on the board?

CHAIRMAN DANIEL: No, that one we've already done. That was just a housekeeping item from the Lobster Board.

MR. MCKIERNAN: I'll move that the ASMFC Policy Board accept the Jonah Crab Fishery Management Plan as approved today by the board.

MS. KERNS: Dan, to help you perfect, on behalf of the Lobster Board you would recommend the full commission.

MR. McKIERNAN: On behalf of the American Lobster Board, I move that the full Commission accept the Jonah Crab Interstate Fishery Management Plan.

CHAIRMAN DANIEL: The motion is on the floor and it does not need a second as it comes from our Lobster Board. Is there any discussion on the motion? Is there any objection to the motion? Seeing none; the motion carries unanimously. Is there any other business to come before the full commission? Dave.

OTHER BUSINESS

MR. SIMPSON: Related to my misunderstanding before, for a number of years I've expressed my frustration with compliance reports and how they aren't really effective at demonstrating compliance and it has more to do with reporting landings and other information. For example, our eel report that is due September 1, I think, is probably 30-some pages long. That causes me and staff to miss the fact that we weren't in compliance with the plan, which I thought we were.

Again, I'd urge that we rethink our compliance reports and have a very simple compliance report for states that when the commission or a board passes an addendum or an amendment that requires changes; that a letter go out from the commission that says you need to do this, this, and this; and that a letter comes back demonstrating that this, this and this was done with a copy of the statute, regulation, declaration, whatever it is that demonstrates that it was done; nice, simple, distinct from any of the other work that my staff and your staffs do to report on landings, report on trawl survey indices, all of that other stuff that isn't relevant and is also not timed with implementation or the time table for compliance. I just make that request one more time.

MS. KERNS: Dave, we'll definitely do that. We have revised the format for compliance reports and staff does their best to send memos out 90

days prior to the date that the compliance reports are due. I fully admit that sometimes those are late. We do in that memo outline the information that is needed under that plan.

A lot staff even go as far as to sort of have a fill-in-the-blank table that states need to fill out. Some states still are just filling in their last year's compliance reports; so they're just going back and refilling in the numbers and some of that information we're no longer asking for so if states could be careful to pay attention to those memos when we send them out.

I'll make my plug as I normally do. When there is confidential data in your compliance report, it needs to be on the cover highlighted so that staff realizes that there is confidential data in there and that the confidential data is highlighted within the report. Otherwise, it can be very difficult for us to find and then it could be released to the public; and we do not want to do that.

MR. SIMPSON: But still those reports that we put together in fact have very little to do with compliance. They're summaries of our trawl survey indices; they're summaries of our landings that are already available on the website. It is a very frustrating, time-consuming process for us that we're getting to a point where we can't afford that time anymore.

Our staff is diminished enough that I've got trawl survey people in the middle of 50-hour weeks that are having to write a compliance report that is a summary of National Marine Fisheries Service data that is on the website or the MRIP Site and trawl survey indices. We can provide those when they're needed for the assessment; but this is just the greatest example of I missed something and everyone else did, too, because it is lost in all this other stuff we provide that has nothing to do compliance.

MS. KERNS: Dave, in some cases that is required by the plan for the state to report, so

maybe we can sit down and look at the FMPs that have those types of compliance reports and then bring that up to each of those species' management boards and the species' management boards can decide whether or not they want to include it as part of the compliance report or as potentially part of submission of data for data updates or the stock assessments. Somehow we would need to have an indication that information is being collected and accounted for each year because the plan does require us to collect that information.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I think the point David is making is right on, which is that we wait a long time to submit the compliance reports because we're waiting data to be available on landings and other things; but that delays the review of the state regulations to make sure they're consistent with the FMP.

We've had that conversation in the past; and we said, well, if we do two reports per year per plan, that might be better; and a lot of sort of technical-level folks rolled their eyes and they go two reports, I don't want to do two reports. Maybe we do need two reports every time we change management through an addendum or an amendment, something like that; so maybe on sort of a case-by-case basis we have to do special reports that allow us to review compliance.

Once an FMP is up and running and really no states are changing regulations, we probably don't need the two reports and we can wait later in the year until the landings' data is available. It may be on a case-by-case basis, but we can report out something and sort of research it and see where we are.

MR. SIMPSON: Yes; I think that's it. You know, summer flounder, fluke, scup, every year by some date, February/March/April we need to be in compliance; so a quick this is what it is, what did you do when an addendum is passed. You don't need to revisit it every year, but my

staff has to go through and find a copy of the regulation and paste it in and it is five years old.

Again, we're required to report our recreational data. I've offered I'll do all the states because it is no more work do all the states than one. I get it off the website and I could put it on a table and I could do for you. Another state could do the commercial. We're not adding anything except for a provisional number which is a mistake to publish anyway.

CHAIRMAN DANIEL: Okay, any other business. I have one just quick update on an issue that has been of interest to a lot of you, which is the lawsuit that was filed by the North Carolina Fisheries Association against the recreational fishery for turtle interactions that had the potential of actually enjoining the recreational fisheries possibly all the way into the Gulf of Mexico.

That lawsuit was dismissed on all parties for lack of standing by the Fisheries Association in that case. The decision by the judge is very interesting and one that certainly you would want to get a hold of a copy of and read, because it has got some very interesting findings in there that could impact case law for some time. Very good news from our perspective.

The document does make it look like there is much of a chance for an appeal to be successful but you never know; and whether or not they're going to file an appeal or not, we don't know at this time. Just for the commission's information, that case is out there and it is a good one to read. Anything else? If not, we'll adjourn the full commission.

ADJOURN

(Whereupon, the meeting was adjourned at 10:35 o'clock a.m., August 6, 2015.)

— — —

ATLANTIC STATES MARINE FISHERIES COMMISSION

Draft 2016 Action Plan For Business Session Review



October 14, 2015

Goal 1 - Rebuild, maintain and fairly allocate Atlantic coastal fisheries

Goal 1 focuses on the responsibility of the states to conserve and manage Atlantic coastal fishery resources for sustainable use. Commission members will advocate decisions to achieve the long-term benefits of conservation, while balancing the socio-economic interests of coastal communities. Inherent in this is the recognition that healthy and vibrant resources mean more jobs and more opportunity for those that live along the coast. The states are committed to proactive management, with a focus on integrating ecosystem services, socio-economic impacts, habitat issues, bycatch and discard reduction measures, and protected species interactions into well-defined fishery management plans. Fishery management plans will also address fair (equitable) allocation of fishery resources among the states. Understanding global climate change and its impact on fishery productivity and distribution is an elevated priority. Improving cooperation and coordination with federal partners and stakeholders can streamline efficiency, transparency, and, ultimately, success. In the next five years, the Commission is committed to making significant progress on rebuilding overfished or depleted Atlantic fish stocks.

Strategies to Achieve Goal

- 1.1 Manage interstate resources that provide for productive, sustainable fisheries using sound science.

American Eel

Task 1.1.1 – Monitor and implement Addendum IV (changes to the glass, silver and yellow eel fisheries). Assist states in implementing and monitoring yellow eel quotas in 2016 if triggered.

Task 1.1.2 – Continue to work with Law Enforcement Committee (LEC) on monitoring poaching and illegal sale of glass eels (see Task 3.1.2).

Task 1.1.3 – Develop Memorandum of Understanding on management and scientific collaboration with Great Lakes Fishery Commission, U.S Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Canada Department of Fisheries and Oceans (DFO). **Explore collaboration with DFO on the next Benchmark Stock Assessment.**

Task 1.1.4 – Monitor and respond if necessary to the classification of eel under the Convention on the International Trade of Endangered Species (CITES) and the International Union of Conservation of Nature (IUCN) Red List.

Task 1.1.5 – Monitor fishery for consistency with management program and state compliance.

Task 1.1.7 – Work with the Technical Committee to finalize and implement a life cycle survey in the State of Maine to estimate incremental survival across life stages. Review any additional life cycle survey proposals if submitted by a state. Update the young of the year surveys with 2015 data.

Task 1.1.8 – Work with the Technical Committee and the Fish Passage Work Group to annually update the board on fish passage improvements and current issues including hydropower dam issues. States can use this information when leveraging partnerships to reduce passage impacts on eel and other anadromous species. (See Task 2.2.13)

American Lobster and Jonah Crab

American Lobster

Task 1.1.9 – Develop an addendum for Southern New England to respond to the results of the 2015 benchmark stock assessment in Lobster Conservation Management Areas 2, 3, 4, 5, and 6.

Task 1.1.10 – Monitor the New England Fishery Management Council (NEFMC) actions on habitat area closures for impacts to the lobster fishery, respond if necessary.

Task 1.1.11 – Address lobster trap design, focusing on improvement to escapement of lobster from derelict traps. (See Task 2.4.5)

Task 1.1.12 – Monitor the implementation of the lobster trap database to track trap tag transfers.

Task 1.1.13 – Update the Atlantic Coastal Cooperative Statistics Program (ACCSP) Data Warehouse with landings information and monitor landings patterns in both the trap and non-trap fisheries.

Task 1.1.14 – Continue to monitor progress towards implementing more complete catch reporting as recommended by the stock assessment peer review panel.

Task 1.1.15 – Monitor trap tag production and distribution.

Task 1.1.16 – Monitor fishery for consistency with management program and state compliance. Continue to work with the federal government to ensure consistency between regulations in state and federal waters.

Jonah Crab

Task 1.1.17 – Implement Jonah Crab FMP and work with NOAA Fisheries to ensure consistent regulations between state and federal waters.

Task 1.1.18 – Monitor the NEFMC actions on habitat area closures for impacts to the lobster fishery, respond if necessary.

Task 1.1.19 – Monitor NEFMC actions regarding a possible development of a federal Jonah Crab FMP.

Task 1.1.20 – Develop a Jonah crab addendum to address crab-only pot-only fishermen.

Task 1.1.21 – Monitor fishery for consistency with management program and state compliance. Continue to work with the federal government to ensure consistency between regulations in state and federal waters.

Atlantic Herring

Task 1.1.22 – Review operational assessment results and consider management response. Set specifications for 2016-2018.

Task 1.1.23 – Monitor activities of the NEFMC and the Mid-Atlantic Fishery Management Council (MAFMC) regarding complementary FMP actions, including but not limited to ecosystem-based fisheries management (EBFM), Amendment 8 issues and, river herring bycatch avoidance program. Consider complementary action where necessary.

Task 1.1.24 – Hold meetings as necessary to establish state effort control (days-out) programs for Areas 1A and 1B.

Task 1.1.25 – Continue development, finalize and implement measures included in Amendment 3, which proposes management options for spawning area efficacy, fixed gear rollover provision, and empty fish hold provision.

Task 1.1.26 – Monitor fishery for consistency with management program and state compliance.

Atlantic Menhaden

Task 1.1.27 – Continue work with the Technical Committee and Ecological Reference Points Working Group to develop ecosystem reference points based on Board-defined goals and objectives. (See Task 2.4.1).

Task 1.1.28 – Develop draft Amendment 3 to revisit quota allocation and address ecosystem-based reference points.

Task 1.1.29 – Participate on the NEFMC EBFM Plan Development Team to draft a Fishery Ecosystem Plan.

Task 1.1.30 – Monitor fishery for consistency with management program and state compliance.

Atlantic Striped Bass

Task 1.1.31 – Continue the development of fleet-specific reference points and consider management response to findings.

Task 1.1.32 – Consider management response to 2015 stock assessment update, if necessary.

Task 1.1.33 – Monitor fishery for consistency with management program and state compliance.

Atlantic Sturgeon

Task 1.1.34 – Continue development of the 2017 benchmark stock assessment. Collaborate with federal agencies to analyze bycatch data and prioritize/process genetic samples for use in the assessment.

Task 1.1.35 – Monitor state and federal activities in response to ESA listing of Atlantic sturgeon.

Task 1.1.36 – Monitor fishery for consistency with management program and state compliance.

Bluefish

Task 1.1.37 – Work in collaboration with Northeast Fisheries Science Center (NEFSC) to complete a stock assessment update. Consider management response to the update findings in conjunction with MAFMC, if necessary.

Task 1.1.38 – Review specifications for 2017-2018 in cooperation with the MAFMC.

Task 1.1.39 – Monitor fishery for consistency with management program and state compliance.

Coastal Sharks

Task 1.1.40 – Establish specifications for 2017 and later.

Task 1.1.41 – Determine appropriate Commission management response to Highly Migratory Species (HMS) Amendment 6. Monitor and engage in the development of Amendment 9 (smoothhound management) and Amendment 5b (dusky shark management).

Task 1.1.42 – Review and consider dusky shark benchmark stock assessment for management and consider management response to the assessment findings.

Task 1.1.43 – Monitor activities of NMFS and HMS with regards to coastal shark management actions for consistency.

Task 1.1.44 – Monitor fishery for consistency with management program and state compliance.

Horseshoe Crab

Task 1.1.45 – Review and modify the Adaptive Resource Management (ARM) Framework methodology, as necessary. Establish the 2017 specifications using the ARM Framework and quota allocation methodology.

Task 1.1.46 – Engage federal stakeholders, the biomedical community, and shorebird interest groups to secure long-term funding to support data collection for use in the ARM Framework, including the Horseshoe Crab Benthic Trawl Survey. (Task 6.2.3)

Task 1.1.47 – Engage the biomedical community toward finding a solution regarding confidential data use in order to enhance stock assessments and scientific advice for management.

Task 1.1.48 – Initiate development of 2017 benchmark stock assessment.

Task 1.1.49 – Monitor fishery for consistency with management program and state compliance for both the bait and biomedical industries.

Northern Shrimp

Task 1.1.50 – Continue development of new assessment approaches in response to 2014 benchmark assessment results.

Task 1.1.51 – Continue development of measures to be included in draft Amendment 3, which proposes limited entry in the northern shrimp fishery

Task 1.1.52 – Establish specifications for the 2016/2017 season. Consider industry test tows to collect biological data as resources allow.

Task 1.1.53 – Work with the states and industry to conduct test tows collecting biological data.

Task 1.1.54 – Monitor fishery for consistency with management program and state compliance.

Shad and River Herring

Task 1.1.55 – Initiate development of the 2017 river herring benchmark stock assessment.

Task 1.1.56 – Monitor activities of the NEFMC and the MAFMC management actions including but not limited to shad and river herring catch caps and bycatch avoidance programs (see Task 1.2.5).

Task 1.1.57 – Review products of the River Herring Technical Expert Working Group and consider for management use.

Task 1.1.58 – Review and update sustainable fisheries plans and/or habitat plans as required by Amendment 3, if necessary.

Task 1.1.59 – Monitor fishery for consistency with management program and state compliance.

South Atlantic Species

Atlantic Croaker

Task 1.1.60 – Complete the 2016 benchmark stock assessment and consider management response to the assessment findings.

Task 1.1.61 – Monitor fishery for consistency with management program and state compliance.

Black Drum

Task 1.1.62 – Monitor fishery for consistency with management program and state compliance.

Red Drum

Task 1.1.63 – Complete the 2016 benchmark stock assessment and consider management response to the assessment findings.

Task 1.1.64 – Monitor fishery for consistency with management program and state compliance.

Spanish Mackerel

Task 1.1.65 – Review annual report from North Carolina concerning Addendum I to the FMP. Consider changes to the management program, if necessary.

Task 1.1.66 – Monitor activities of the SAFMC to ensure consistency between state and federal management programs.

Task 1.1.67 – Monitor fishery for consistency with management program and state compliance.

Spot

Task 1.1.68 – Complete the 2016 benchmark stock assessment and consider management response to the assessment findings.

Task 1.1.69 – Monitor fishery for consistency with management program and state compliance.

Spotted Seatrout

Task 1.1.70 – Evaluate applicability of interstate management approach given the localized nature of spotted seatrout.

Task 1.1.71 – Monitor fishery for consistency with management program and state compliance.

Spiny Dogfish

Task 1.1.72 – Review recent assessment information and establish specifications beginning in 2017/2018.

Task 1.1.73 – Participate in annual stock status update, as needed.

Task 1.1.74 – Monitor fishery for consistency with management program and state compliance.

Summer Flounder, Scup, and Black Sea Bass

Summer Flounder

Task 1.1.75 – Continue development of the comprehensive summer flounder amendment, considering changes to both commercial and recreational management in coordination with MAFMC. Consider technical committee recommendations on climate change impacts on species distribution and allocation.

Task 1.1.76 – Finalize regulations for 2016 recreational fishery.

Task 1.1.77 – Review 2017-2018 specifications in collaboration with the MAFMC.

Task 1.1.78 – Work in collaboration with NMFS and NEFSC to complete a stock status update.

Task 1.1.79 – Work in collaboration with the MAFMC, NMFS, NEFSC and industry to determine the viability of a sex-specific modeling approach.

Task 1.1.80 – Monitor fishery for consistency with management program and state compliance.

Scup

Task 1.1.81 – Collaborate with MAFMC to initiate an amendment to address recreational/commercial allocation as well as commercial winter/summer allocation considering the results of the completed economic study.

Task 1.1.82 – Collaborate with NEFSC to complete a stock status update.

Task 1.1.83 – Finalize regulations for 2016 recreational fishery.

Task 1.1.84 – Review 2017-2018 specifications in collaboration with the MAFMC.

Task 1.1.85 – Monitor fishery for consistency with management program and state compliance.

Black Sea Bass

Task 1.1.86 – Finalize regulations for 2016 recreational fishery.

Task 1.1.85 – Review 2017-2018 specifications in collaboration with the MAFMC.

Task 1.1.87 – Collaborate with the MAFMC and NEFSC to complete the 2016 benchmark stock assessment.

Task 1.1.88 – Monitor fishery for consistency with management program and state compliance.

Tautog

Task 1.1.89 – Finalize and implement Amendment 2, which proposes regional stock areas, increased monitoring and a commercial tagging program to address illegal harvest.

Task 1.1.90 – Review Long Island Sound Stock Assessment. Develop New York-New Jersey coastal stock assessment. Consider management response to the assessment findings.

Task 1.1.91 – Monitor fishery for consistency with management program and state compliance.

Weakfish

Task 1.1.92 – Complete the 2016 benchmark stock assessment and consider management response to the assessment findings.

Task 1.1.93 – Review bycatch reduction requirements in shrimp trawls.

Task 1.1.94 – Monitor fishery for consistency with management program and state compliance.

Winter Flounder

Task 1.1.95 – Consider management response to the GARM stock assessment for both SNE/MA and GOM stock assessment findings.

Task 1.1.96 – Monitor NEFSC stock assessment activities for inshore winter flounder stocks and review specifications for 2017-2018.

Task 1.1.97 – Continue to monitor federal common pool landings and regulations. Review state landings and make changes to fishery specifications if necessary.

Task 1.1.98 – Work through the Northeast Regional Coordinating Council (NRCC) to improve communication between ASMFC, NEFMC, GARFO and the NEFSC to identify stock rebuilding opportunities.

Task 1.1.99 – Monitor fishery for consistency with management program and state compliance.

1.2 Strengthen state and federal partnerships to improve comprehensive management of shared fishery resources.

Task 1.2.1 – Participate as a non-voting member and liaison between the East Coast Regional Fishery Management Councils and the Commission on matters of mutual interest.

Task 1.2.2 – Participate on the NRCC and SouthEast Data, Assessment and Review (SEDAR) Steering Committee to set state/federal management and assessment priorities

Task 1.2.3 – Work with the Regional Fishery Management Councils and NMFS to improve alignment between state and federal fishery management programs.

Task 1.2.4 – Work with NOAA Headquarters and regional leadership to improve alignment of state/federal budget priorities.

Task 1.2.5 – Continue to work with NEFMC and MAFMC on evaluating and mitigating shad and river herring bycatch. (See Task 1.1.55)

Task 1.2.6 – Continue to work with NEFMC and MAFMC on habitat amendments and impacts to the American lobster fishery.

1.3 Adapt management to address emerging issues.

Task 1.3.1 – Continue to monitor developments related to climate change, ocean acidification, stock distributions, ocean planning and potential fisheries reallocations.

Task 1.3.2 – Identify common resource issues – protected species interactions, bycatch/discards, shifting population distributions, ecosystem services – that are cross-cutting among the Commission’s interstate fishery management plans.

1.4 Practice efficient, transparent, and accountable management processes.

Task 1.4.1 – Continue to track status of stocks relative to biological reference points to evaluate and drive improvement and results in the Commission’s fisheries management process.

Task 1.4.2 – Continue the use of decision documents and working groups to structure Board discussion on complex management decisions and increase transparency of pending board action.

Task 1.4.3 – Continue to focus Board attention on developing clear problem statements prior to initiating management changes.

Task 1.4.4 – Continue to use roll call voting procedures for Commission final actions.

Task 1.4.5 – Revise ASMFC guiding documents to reflect current operations and decision-making procedures.

1.5 Evaluate progress towards rebuilding fisheries.

Task 1.5.1 – Conduct annual Commissioner assessment of progress towards achieving the Commission’s mission, vision, and goals using an on-line survey. Report findings to the ISFMP Policy Board.

Task 1.5.2 – Continue the use of the annual performance of the stock to evaluate species rebuilding progress. Report findings to the ISFMP Policy Board.

1.6 Strengthen interactions and input among stakeholders, technical, advisory, and management groups.

Task 1.6.1 – Engage American lobster, Jonah crab, striped bass, weakfish, summer flounder, scup, red drum, tautog, menhaden and northern shrimp advisory panels (APs) in the development of FMPs and Amendments. Solicit state membership of current active APs and appoint new membership where necessary.

Task 1.6.2 – Continue communication with non-active advisory panels (species in the maintenance mode).

Task 1.6.3 – Integrate non-traditional constituents into Advisory Panels (See Task 5.2.3).

Goal 2 – Provide the scientific foundation for and conduct stock assessments to support informed management actions

Sustainable management of fisheries relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed by a vast network of fisheries scientists at state, federal, and academic institutions along the coast. The goal encompasses the development of new, innovative scientific research and methodology, and the enhancement of the states' stock assessment capabilities. It provides for the administration, coordination, and expansion of collaborative research and data collection programs. Achieving the goal will ensure sound science is available to serve as the foundation for the Commission's evaluation of stock status and adaptive management actions.

Strategies to Achieve Goal

- 2.1 Conduct stock assessments based on comprehensive data sources and rigorous technical analysis.

Task 2.1.1 – Address data deficiencies and priorities for stocks with limited data or stocks of unknown status. Collect more comprehensive information for data poor stocks in order to transition from problematic to more certain assessment models. Focal areas include sciaenid bycatch data, black sea bass fishery-independent data, menhaden fishery-independent data, river herring at-sea and in-river monitoring, horseshoe crab trawl survey, improved tautog indices, black drum biological sampling and fishery-independent monitoring of mature fish, American eel surveys covering all life stages, and **red drum recreational discard size composition. Conduct Jonah crab tagging study to evaluate migration, stock connectivity and growth. (Supported by NOAA Cooperative Agreement).**

Task 2.1.2 – Complete benchmark stock assessments for red drum, weakfish, **black sea bass, spot, and croaker. Complete assessment updates for bluefish, horseshoe crab, northern shrimp, and tautog.** Continue development of the Atlantic sturgeon stock assessment.

Task 2.1.3 – Conduct independent peer reviews of the weakfish, **spot, and croaker** stock assessments; **coordinate with NEFSC on the SARC review of black sea bass.**

Task 2.1.4 – Conduct a workshop with North Carolina, South Carolina, Georgia, and Florida to review the North Carolina Southern Flounder Stock Assessment and compile available data to determine feasibility of a regional stock assessment.

Task 2.1.5 – Through the Assessment Science Committee (ASC) and Management and Science Committee (MSC), develop the long-term stock assessment and peer review

schedule to prioritize stocks by management need; present tradeoffs to the Policy Board when assessment scheduling changes are requested.

Task 2.1.6 – Track assessment scientists’ workloads in order to complete 2016-2017 stock assessments; using the guidance of the ASC, develop new policies and approaches to better match assessment demand with assessment scientists’ capacity.

Task 2.1.7 – Maintain Fishery-Independent Survey Database to promote efficient assessment report compilation.

Task 2.1.8 – Serve as members of the Weakfish, Atlantic Sturgeon, Multispecies, Northern Shrimp, Tautog, Bluefish, Horseshoe Crab, Red Drum, Spot, and Atlantic Croaker Technical Committees and Stock Assessment Subcommittees to assist in completion of benchmark assessments and annual assessment updates. Utilize the ASC for guidance with assessment methods as necessary.

Task 2.1.9 – Continue to work with state and federal stock assessment scientists and staff of the ACCSP to increase use of ACCSP data in the Commission’s technical work.

Task 2.1.10 – Through the MSC, and using ASC guidance, develop a Commission policy regarding risk and uncertainty, in consideration of Council approaches, and provide to the ISFMP Policy Board for consideration.

Task 2.1.11 – MSC review and update the conservation equivalency policy to reflect current practices.

2.2 Proactively address research priorities through cooperative state and regional data collection programs and collaborative research projects

Task 2.2.1 – Maintain the master list of ASMFC Research Priorities by species as benchmark assessments are completed and new priorities emerge.

Task 2.2.2 – Participate in proposal reviews for MARFIN, MARMAP, NMFS Cooperative Research Programs, Saltonstall-Kennedy, and ACCSP, when requested, to evaluate projects and monitor new research activities to promote the states’ needs.

Subtask 2.2.2.1 – Develop and communicate research priorities for review and approval by species management boards, and provide to funding programs.

Subtask 2.2.2.2 – Work closely with federal partners to ensure completed funded projects are reviewed and transmitted to appropriate technical committees and boards.

Subtask 2.2.2.3 – Monitor and participate in the MAFMC redesign of the Research Set-Aside Program (RSA) to ensure state interests are incorporated.

Task 2.2.3 – Communicate with the National Fish and Wildlife Foundation (NFWF) to review research priorities and funding opportunities (e.g., fish passage, catch shares). Participate in NFWF proposal reviews for the Fisheries Innovation Fund.

Task 2.2.4 – Participate on the ACCSP’s Coordinating Council, Operations Committee, Bycatch Prioritization Committee, Biological Review Panel, Recreational and Commercial Technical Committees, Outreach Committee and the Computer Technical Committee.

Subtask 2.2.4.1 – Submit ASMFC changes to the ACCSP Bycatch Prioritization Listing. Consult Fishing Gear Technology Work Group regarding ASMFC input to Bycatch Prioritization.

Task 2.2.5 – Coordinate and implement the Northeast Area Monitoring and Assessment Program (NEAMAP).

Subtask 2.2.5.1 – Administer funding to conduct 2016 NEAMAP Nearshore Trawl Surveys.

Subtask 2.2.5.2 – Support continuation of the NEAMAP Nearshore Trawl Surveys through coordination with survey leads and all NEAMAP committees: NEAMAP Board, Operations, Data Management, Analytical, and Trawl Technical Committees

Subtask 2.2.5.3 – Conduct NEAMAP Summit to improve coordination among the committees, assess need for changes in program structure and committee functions.

Subtask 2.2.5.4 – Develop the 2017 NEAMAP Operations Plan.

Subtask 2.2.5.5 – Provide NEAMAP data to coastwide stock assessments; track and demonstrate data use, and report to the ISFMP Policy Board, NEFSC, and Congress; maintain the NEAMAP website as a tool for distributing program information and requesting data.

Task 2.2.6 – Coordinate the South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP).

Subtask 2.2.6.1 – Coordinate all research components of SEAMAP-South Atlantic: Coastal Trawl Survey, Coastal Longline Surveys, Pamlico Sound Survey, Reef Fish Survey, Southeast Regional Taxonomic Center, and the Cooperative Winter Tagging Cruise. Coordinate all current workgroups including the Bottom Mapping, Fish Habitat Characterization and Assessment Data Management, Crustacean, Coastal Trawl Survey, and the Coastal Longline Survey Workgroups.

Subtask 2.2.6.2 – **Implement the new 5-year SEAMAP Management Plan (2016-2020)**; track and demonstrate data use for coastwide stock assessments, and report

to the South Atlantic Board and Congress; maintain the SEAMAP website hosted by ASMFC.

Subtask 2.2.6.3 – Participate in the expansion of SEAMAP-South Atlantic fishery-independent data coordination and mapping, as resources allow.

Subtask 2.2.6.4 – Coordinate South Atlantic activities with the Gulf and Caribbean components of SEAMAP.

Subtask 2.2.6.5 – Purchase and deploy new electronic measuring boards for the Coastal Trawl Survey and the Pamlico Sound Survey. (Supported by NOAA Cooperative Agreement).

Task 2.2.7 – Continue the Tagging Certification Program and support the use of tagging data in ASMFC stock assessments. Develop tagging registration programs, update and maintain the tagging resource website, link acoustic tagging information to the Atlantic Coastal Tagging (ACT) network website to improve the efficiency and quality of tagging efforts along the coast; **secure telemetry tagging data for use in assessments.**

Task 2.2.8 – Develop long-term strategy for collecting striped bass tagging data, including funding, administration, and at-sea support. **Initiate a multi-estuary striped bass telemetry study to determine migration rates and relative contributions to the coast wide stock. (Supported by NOAA Cooperative Agreement).**

Task 2.2.9 – Continue to participate in the development and implementation of the Marine Recreational Information Program (MRIP), with ASMFC staff serving on Executive Steering Committee, Operations Team, Transition Team, and Angler Registry Team. Report progress to the ISFMP Policy Board, and scientific oversight committees (MSC, ASC).

Task 2.2.10 – Coordinate fish ageing activities among Atlantic coast states and university laboratories in order to provide consistent, accurate age data to stock assessments.

Subtask 2.2.10.1 – Conduct age sample exchanges and an ageing workshop for **American eel** to prepare ageing laboratories for providing new age data consistent with historical age data.

Subtask 2.2.10.2 – Conduct an annual ageing quality control workshop using age sample reference collections for multiple species to maintain consistency among state and university ageing technicians.

Subtask 2.2.10.3 – Continue cooperative angler carcass donation programs with the states to collect age samples toward improving age data for assessments.

Subtask 2.2.10.4 – Initiate a coast wide black drum age sampling plan to address deficiency in age data from older fish, for use in future stock assessments. (Supported by NOAA Cooperative Agreement)

Subtask 2.2.10.5 – Distribute to all ageing labs the finalized Atlantic and Gulf coasts fish ageing manual with fish ageing protocols.

Task 2.2.11 – Continue coordination of the ASMFC Observer Program for Mid-Atlantic small-mesh otter trawl fisheries through the Northeast Fishery Observer Program. **Evaluate Observer Program impacts in collaboration with target species’ assessment scientists and NEFOP on a long-term sample size analysis. Adjust program according to evaluation to maximize sampling effort. Identify a long-term funding source.**

Task 2.2.12 – Coordinate the activities of the Committee on Economics and Social Sciences (CESS).

Subtask 2.2.12.1 – Develop and provide basic socioeconomic information for inclusion in fishery management plans, amendments, and addenda.

Subtask 2.2.12.2 – Provide technical recommendations to the social and economic data collection and data management programs of the ASMFC and ACCSP.

Subtask 2.2.12.3 – Serve as a steering committee for ASMFC socioeconomic studies. Develop and distribute socioeconomic Requests for Proposals, evaluate proposals, and select a contract research team; conduct Atlantic menhaden socioeconomic study in 2016.

Task 2.2.13 – Coordinate the activities of the Fish Passage Working Group (FPWG) to carry out priority tasks as defined by the ISFMP Policy Board. Promote development of effective fish passage approaches and projects through state and federal collaboration.

Subtask 2.2.13.1 – Maintain a coastwide database of dams, dam removals, fishways, and passage efficiency studies. Collaborate with NGOs to incorporate the database in their passage prioritization tools.

Subtask 2.2.13.2 – Implement the fish passage prioritization protocol, maintain a coastwide list of passage project priorities, and develop performance criteria to evaluate passage projects’ success.

Subtask 2.2.13.3 – Establish coastwide fish passage targets and add to diadromous species FMPs as amendments/addenda are developed; **assist in developing targets for the Federal Energy and Regulatory Commission (FERC) relicensing on the Santee-Cooper River system.**

Subtask 2.2.13.4 – Monitor and participate in upcoming FERC relicensing projects; develop guidance for state staff for navigating the FERC dam relicensing process, in order to more effectively improve passage in relicensing prescriptions.

Subtask 2.2.13.5 – Develop an East Coast Fish Passage Plan.

Subtask 2.2.13.6 – Summarize and distribute results of survey describing positive and negative consequences of providing fish passage through consultation with the diadromous technical committees.

Subtask 2.2.13.7 – Respond to state requests for information on fish passage, including FERC relicensing issues, fishway design, and restoration/escapement guidelines.

2.3 Facilitate stakeholder involvement in research initiatives and the stock assessment process.

Task 2.3.1 – Seek stakeholder input at data workshops during development of stock assessments.

Task 2.3.2 – Promote scientifically sound tagging practices and certification of angler-based tagging programs through the Interstate Tagging Committee.

Task 2.3.3 – Develop outreach materials that highlight opportunities for public engagement in the Commission’s fisheries management and stock assessment processes. (See Task 5.2.4)

2.4 Promote data collection and research to support ecosystem-based management

Task 2.4.1 – Ecological Reference Points Workgroup will continue to develop and present options for board consideration on ecosystem-based reference points that **align with Board-approved management objectives for Atlantic menhaden**. (See Task 1.1.27)

Task 2.4.2 – Continue to improve multispecies modeling efforts to support single-species assessments, including development of a new multispecies statistical catch-at-age model. Examine ecosystem-based reference points as an alternative to single species reference points, **through the development of Amendment 3 for Atlantic menhaden**.

Task 2.4.3 – Identify opportunities to collaborate with state, federal, and university researchers to use existing data collection platforms to advance ASMFC ecosystem models (e.g. diet studies, surveys of spawning and nursery habitats).

Task 2.4.4 – Identify common resource issues - protected species interactions, bycatch/discards, shifting population distributions, ecosystem services – that are cross-cutting among the Commission’s interstate fishery management plans. Develop recommendations for ISFMP Policy Board consideration to address common issues while maintaining sustainable fisheries in state waters.

Task 2.4.5 – Convene the Fishing Gear Technology Work Group (FGTWG) to evaluate the efficacy of bycatch reduction devices in southern shrimp trawl fisheries to reduce Sciaenid bycatch; **conduct FGTWG evaluation of the efficacy of lobster trap design to ensure escapement from derelict gear. (See Task 1.1.11)**

Task 2.4.6 – Participate as members of the Chesapeake Bay Sustainable Fisheries Goal Implementation Team and Forage Fish Workgroup.

2.5 Provide stock assessment training to improve the expertise and involvement of state and staff scientists.

Task 2.5.1 – Conduct intermediate and advanced stock assessment methods training workshops.

Task 2.5.2 – Conduct a Commissioner workshop on management risk and uncertainty.

Task 2.5.2 – Support external stock assessment training opportunities for staff and state scientists.

Goal 3 – Promote compliance with fishery management plans to ensure sustainable use of Atlantic coast fisheries

Fisheries managers, law enforcement personnel, and stakeholders have a shared responsibility to promote compliance with fisheries management measures. Activities under the goal seek to increase and improve compliance with fishery management plans. This requires the successful coordination of both management and enforcement activities among state and federal agencies. Commission members recognize that adequate and consistent enforcement of fisheries rules is required to keep pace with increasingly complex management activity and emerging technologies. Achieving the goal will improve the effectiveness of the Commission’s fishery management plans.

Strategies to Achieve Goal

3.1 Develop practical compliance requirements that foster stakeholder buy-in.

Task 3.1.1 – Identify and explore fishery management measures that maximize stakeholder buy-in.

Task 3.1.2 – Evaluate and report on compliance issues associated with newly implemented regulatory measures for Atlantic striped bass, American eel, and Jonah crab.

Task 3.1.3 – Assist MAFMC in identifying strategies to address violations and illegal harvest involved in RSA programs.

3.2 Evaluate the enforceability of management measures and the effectiveness of law enforcement programs.

Task 3.2.1 – Work with LEC Coordinator to ensure the input of the LEC throughout the management process on the enforceability of management options proposed in FMPs, amendments, addenda and conservation equivalency proposals.

Task 3.2.2 – Incorporate and reference the revised “Guidelines for Resource Managers” in reviews and evaluations of proposed changes to management programs.

Task 3.2.3 – Report on the enforceability of existing FMPs as part of the annual compliance review for each species.

Task 3.2.4 – Engage and support NMFS and USFWS Offices of Law Enforcement, **U.S. Department of Justice** and U.S. Coast Guard to **facilitate the enforceability of Commission FMPs.**

Task 3.2.5 – Evaluate the effectiveness of current case-tracking systems for monitoring and responding to evolving enforcement needs.

Task 3.2.6 – Exchange information and best practices related to the enforcement of protected and endangered species regulations.

Task 3.2.7 – Annually review and comment on (as needed) NMFS enforcement priorities to ensure they support the enforceability and effectiveness of Commission management programs.

Task 3.2.8 – Develop an enforcement strategy to ensure compliance with efforts controls in offshore Lobster Conservation Management Areas.

3.3 Promote coordination and expand existing partnerships with state and federal natural resource law enforcement agencies.

Task 3.3.1 – Provide a forum to promote and facilitate interjurisdictional enforcement operations targeting specific fishery resources (e.g. Atlantic striped bass, tautog, American eel). (See Task 1.1.2)

Task 3.3.2 – Maintain communications with the law enforcement advisory committees of the regional fishery management councils, interstate commissions, and other conservation organizations to seek opportunities for collaboration and ensure consistent law enforcement strategies.

Task 3.3.3 – Develop strategies to improve communications among state and federal enforcement agencies prior to regional enforcement activities.

Task 3.3.4 – **Exchange information regarding** enforcement actions and facilitate discussions on joint efforts that can assist in fisheries enforcement.

Task 3.3.5 – Share enforcement techniques and law enforcement success stories and provide regional training sessions (if resources allow) to enhance law enforcement efficiency along the Atlantic coast.

Task 3.3.6 – Share information and resources for locating and obtaining enforcement related grants.

3.4 Enhance stakeholder awareness of management measures through education and outreach.

Task 3.4.1 – Continue to highlight the outcomes of law enforcement investigations (penalties and fines) through various outreach tools (website, social media, press releases, fact sheets).

3.5 Use emerging communication platforms to deliver real time information regarding regulations and the outcomes of law enforcement investigations.

Task 3.5.1 – Report on enforcement issues associated with differing federal, interstate, and state regulations using social media and timely press releases.

Task 3.5.2 – Provide forum for enforcement agencies to display successful development and use of enforcement technologies.

Goal 4 – Protect and enhance fish habitat and ecosystem health through partnerships and education

Goal 4 aims to conserve and improve coastal, marine, and riverine habitat to enhance the benefits of sustainable Atlantic coastal fisheries and resilient coastal communities in the face of changing ecosystems. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability and productivity of our nation’s fisheries. The Commission’s Habitat Program develops objectives, sets priorities, and produces tools to guide fisheries habitat conservation efforts directed towards ecosystem-based management.

The challenge for the Commission and its state members is maintaining fish habitat in the absence of specific regulatory authority for habitat protection or enhancement. Therefore, the Commission will work cooperatively with state, federal, and stakeholder partnerships to achieve this goal. The Commission and its Habitat Program endorses the National Fish Habitat Partnership, and will continue to work cooperatively with the program to improve aquatic habitat along the Atlantic coast. Since 2008, the Commission has invested considerable resources, as both a partner and administrative home, to the Atlantic Coastal Fish Habitat Partnership (ACFHP), a coastwide collaborative effort to accelerate the conservation and restoration of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes.

Strategies to Achieve Goal

4.1 Identify critical habitat through fisheries management programs and partnerships.

Task 4.1.1 – Finalize the sciaenid habitat source document working closely with technical committees, other species experts, and staff.

Task 4.1.2 – Prioritize and publicize important habitat types for Commission-managed species as identified in the ACFHP Strategic Plan and Habitat Committee Guidance Document.

Task 4.1.3 – Update species habitat factsheets for publishing in early 2016.

Task 4.1.4 – Coordinate artificial reef activities among the Atlantic coast states, and between the Atlantic and Gulf States Marine Fisheries Commissions.

4.2 Educate Commissioners, stakeholders, and the general public about the importance of habitat to healthy fisheries and ecosystems.

Task 4.2.1 – Facilitate coordination and distribution of information for ecosystem-based management and marine protected area activities, and the potential consequences of significant anthropogenic activities on habitats of concern.

Task 4.2.2 – Participate in regional and national habitat meetings and scientific conferences to facilitate increased communication with agencies and programs that have jurisdiction over habitat.

Task 4.2.3 – Publish annual issue of *Habitat Hotline Atlantic*.

Task 4.2.4 – Develop next installment of the **Habitat Management Series: *Climate Change Impacts on Fish Habitats*** for ISFMP Policy Board review and acceptance. Identify a subsequent topic (e.g. sand mining, power plant impingement).

4.3 Engage local, state and regional governments in mutually beneficial habitat protection and enhancement programs through partnerships

Task 4.3.1 – Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals.

Task 4.3.2 – Provide stakeholders with the tools to effectively communicate, promote and accomplish habitat protection, restoration, and enhancement programs at the local level.

Task 4.3.3 – Serve as a point of contact and information conduit at the Commission for energy-related issues affecting fish habitat.

Task 4.3.4 – Continue to provide coordination support for ACFHP, under the direction of the National Fish Habitat Action Plan (NFHAP) Board.

Subtask 4.3.4.1 – Facilitate communication and outreach with ACFHP partners, overlapping partnerships, and new partners. Develop outreach materials and maintain the ACFHP website.

Subtask 4.3.4.2 – Coordinate the implementation of the 5-year ACFHP Conservation Strategic Plan, including development of an Implementation Plan outlining tasks by year to achieve the goals, objectives, and actions in the Strategic Plan.

Subtask 4.3.4.3 – Support the completion of priority ACFHP Science and Data projects - acquire and analyze fish population, habitat, and human impact data; complete winter flounder GIS habitat assessment and initiate river herring habitat assessment; make results available to Partners for the purpose of strategic coastal habitat conservation.

Subtask 4.3.4.4 – Through ACFHP, and in cooperation with other Fish Habitat Partnerships and the National Fish Habitat Board, work with partners to develop monitoring and data standards for assessment of coastal habitat condition and fishery resource status prior to and following alteration projects.

4.4 Foster partnerships with management agencies, researchers, and habitat stakeholders to leverage regulatory, political, and financial support.

Task 4.4.1 – Provide information or comment on Atlantic coast projects and permits in accordance with ASMFC project review protocol.

Task 4.4.2 – Facilitate funding and partnership opportunities to promote habitat research in the states.

Task 4.4.3 – Identify partnership opportunities and forge additional relationships with organizations – such as non-governmental organizations and the recreational fishing community – to facilitate the promotion of fish habitat through a collaboration of strengths of different stakeholder groups.

Task 4.4.5 – Maintain habitat managers network to disseminate information about important habitat areas identified in Habitat Committee products. Use social media to connect with regional and local decision makers.

4.5 Identify mechanisms to evaluate ecosystem health.

Task 4.5.1 – Review habitat program goals and evaluate accomplishments annually.

Task 4.5.2 – Work with state and federal agencies, the Councils, and non-governmental organizations to build on existing efforts to populate coastwide GIS databases of fish habitat resources, to identify important fish habitats for Commission managed species as defined in the ACFHP Species-Habitat matrix.

4.6 Engage in state and federal agency efforts to ensure climate change response strategies are included in habitat conservation efforts.

Task 4.6.1 – As revisions to habitat sections of FMPs are made include recommendations to mitigate climate change impacts on habitat.

Task 4.6.2 – Identify inconsistencies in state coastal regulatory planning programs and develop recommendations for improvements to the ISFMP Board.

Goal 5 – Strengthen stakeholder and public support for the Commission

Stakeholder and public acceptance of Commission decisions are critical to our ultimate success. For the Commission to be effective, these groups must have a clear understanding of our mission, vision, and decision-making processes. The goal seeks to do so through expanded outreach and education efforts about Commission programs, decision-making processes, and its management successes and challenges. It aims to engage stakeholders in the process of fisheries management, and promote the activities and accomplishments of the Commission. Achieving the goal will increase stakeholder participation, understanding, and acceptance of Commission activities.

Strategies to Achieve Goal

5.1 Increase public understanding and support of activities through expanded outreach at the local, state, and federal levels.

Task 5.1.1 – Publish bi-monthly issues of *Fisheries Focus*. Continue to reduce mailing/printing costs through greater electronic distribution.

Task 5.1.2 – Use website to promote ASMFC activities to state and federal partners and stakeholders.

Task 5.1.3 – Promote ASMFC through attendance at fisheries-related trade shows and conferences.

Task 5.1.4 – Promote Commission activities regarding recently assessed and/or high profile species, habitat and law enforcement activities, as well as emerging issues such as fishery allocations and shifting populations due to climate change, to a broader constituency through mechanisms such as targeted press releases, informational brochures, webpage highlights and conference/trade show participation.

Task 5.1.5 – Develop and distribute youth-based educational materials designed to increase awareness of fisheries science and understating of fisheries management to key venues (e.g., teacher kits, Eco-camps, charter boat operations, aquatic educators) to help promote marine stewardship and ocean literacy.

Task 5.1.6 – Collaborate with East Coast Aquaria (New England, Baltimore, North Carolina) and relevant partners to promote interstate fisheries management and science activities at the aquaria.

Task 5.1.7 – Promote Commission’s mission and programs through outreach meetings with various marine policy and marine science graduate programs.

Task 5.1.8 – Participate in the Mid-Atlantic and New England Fishery Management Councils Marine Resource Education Program.

Task 5.1.9 – Prepare benchmark stock assessment board presentations (weakfish, black sea bass, Atlantic croaker, red drum, spot) for posting on YouTube and ASMFC Fisheries Science 101 webpage.

Task 5.1.10 – Conduct Fisheries Science 101 webinars to increase stakeholder and public understanding of basic fisheries science principles and concepts.

5.2 Clearly define Commission processes to facilitate stakeholder participation, as well as transparency and accountability.

Task 5.2.1 – Publish and distribute **2015 Annual Report** to Congress, state legislators, and stakeholders to provide overview of our activities and progress in carrying out the Commission’s mission and public trust responsibilities.

Task 5.2.2 – Prepare Stock Assessment Briefs (in layman’s terms) for major benchmark stock assessments to facilitate stakeholder understanding of the science behind our management decisions. **Focal species for 2016 are weakfish, black sea bass, Atlantic croaker, red drum, spot.**

Task 5.2.3 – Enhance engagement in advisory panels and through solicitation of new members and increased participation of existing members (See Tasks 1.6.1 and 1.6.3).

Task 5.2.4 – Develop outreach materials that highlight opportunities for public engagement in the Commission’s fisheries management and stock assessment processes. (See Task 2.3.3)

Task 5.2.5 – Develop a guide to fisheries management entities along the Atlantic coast.

5.3 Strengthen national, regional, and local media relations to increase coverage of Commission actions.

Task 5.3.1 – Track media communications and coverage through ASMFC-related news clippings and media tracking sheet.

Task 5.3.2 – Conduct media training workshop for science and ISFMP staff to improve communication skills and strengthen promotion of Commission key messages.

Task 5.3.3 – Conduct annual meeting of Atlantic Coast Fisheries Communication Group, comprised of Public Information Officers from the Councils, states and federal agencies, to share successful tools, identify key media contacts and work cooperatively on joint projects.

5.4 Use new technologies and communication platforms to more fully engage the broader public in the Commission’s activities and actions.

Task 5.4.1 – Use social media tools to increase ASMFC visibility and improve stakeholder engagement.

Task 5.4.2. – Use website capabilities (e.g., video clips) to promote Fisheries Science 101 webinars, videos of fisheries surveys and state on-the-ground projects.

Task 5.4.3 – Monitor the success of website and social media platforms in reaching broader constituency and effectively communicating ASMFC mission, programs and activities.

Goal 6 – Advance Commission and member states’ priorities through a proactive legislative policy agenda

Although states are positioned to achieve many of the national goals for marine fisheries through cooperative efforts, state fisheries interests are often underrepresented at the national level. This is due, in part, to the fact that policy formulation is often disconnected from the processes that provide the support, organization, and resources necessary to implement the policies. The capabilities and input of the states are an important aspect of developing national fisheries policy, and the goal seeks to increase the states’ role in national policy formulation. Additionally, the goal emphasizes the importance of achieving management goals consistent with productive commercial and recreational fisheries and healthy ecosystems.

The Commission recognizes the need to work with Congress in all phases of policy formulation. Several important fishery-related laws will be reauthorized over the next couple of years (i.e., Atlantic Coastal Act, Magnuson-Stevens Fishery Conservation and Management Act, Interjurisdictional Fisheries Act, Atlantic Striped Bass Conservation Act, and Anadromous Fish Conservation Act). The Commission will be vigilant in advocating the states' interests to Congress as these laws are reauthorized and other fishery-related pieces of legislation are considered.

Strategies to Achieve Goal

6.1 Increase the Commission's profile and support in the U.S. Congress by developing relationships between Members and their staff and Commissioners, the Executive Director, and Commission staff.

Task 6.1.1 – Provide opportunities for in person Commissioner interactions with Members and congressional staff at our Winter and Spring Meetings.

Task 6.1.2 – Provide opportunities for the Executive Director to meet with congressional staff on a regular basis.

Task 6.1.3 – Focus interactions on Members of Congress from Atlantic coast states that serve on committees of importance to the Commission:

- House and Senate Commerce Justice, Science Appropriations Subcommittees
- House Fisheries, Wildlife, Oceans and Insular Affairs Subcommittee of the Natural Resources Committee
- Senate Oceans, Atmosphere, Fisheries and Coast Guard Subcommittee of the Commerce, Science, and Transportation Committee

6.2 Communicate the Commission's federal funding needs to Congress and advocate for sufficient appropriations.

Task 6.2.1 – Clearly convey our funding needs as part of our communication with congressional staff.

Task 6.2.2 – Justify the need for federal dollars by the Commission through demonstrating the social, economic, and ecological benefits of Commission activities.

Task 6.2.3 – Work with Commissioners **and the Federal Funding Working Group** to identify funding needs and develop a strategy to secure funding for priority programs (Atlantic Striped Bass Conservation Act, Atlantic Coastal Fisheries Cooperative Management Act, Interjurisdictional Fisheries Act Grants, Stock Assessments line item, Federal Aid in Sport Fish Restoration, and Atlantic Coastal Fish Habitat Partnership).

Seek funding for long-term monitoring surveys including Horseshoe Crab Benthic Trawl, NEAMAP, and SEAMAP. (See Task 1.1.46)

Task 6.2.4 – Demonstrate the value of the Commission as an effective management entity and resource to Members of Congress and their staffs.

Task 6.2.5 – Provide state-specific perspectives to staff and Members in meetings, especially management successes and challenges.

Task 6.2.6 – Contact home state Commissioners before communicating with Members or Congressional staff to get a local perspective.

Task 6.2.7 – Coordinate with the Gulf, Pacific, and Great Lakes Commissions on policy items of mutual interest including federal funding for fisheries programs. Executive Directors should continue providing unified positions on funding and legislative priorities to lawmakers and federal agencies, where appropriate.

Task 6.2.8 – Communicate Commission funding needs to NMFS.

6.3 Engage Congress on fishery-related legislation affecting the Atlantic coast.

Task 6.3.1 – Monitor federal legislation affecting the Commission, including policy and annual appropriations bills and develop Commission positions on pending federal legislation, including the **Atlantic Coastal Fisheries Cooperative Management Act, Interjurisdictional Fisheries Act , Anadromous Fish Conservation Act , Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Federal Aid in Fish Restoration Act**, in addition to new legislation addressing emerging issues such as **marine national monuments** and **hydropower**.

Task 6.3.2 – Update Commissioners on pending congressional actions that may affect fisheries management as appropriate.

Task 6.3.3 – Coordinate with the Legislative Committee and Government Relations firm to identify relevant policy and legislative issues.

Task 6.3.4 – Monitor congressional hearings related to fisheries issues, and testify or provide statements for the record when appropriate.

Task 6.3.5 – Engage Commissioners in the formulation of the Commission’s position on federal legislative policy.

6.4 Promote member states’ collective interests at the regional and national levels

Task 6.4.1 – Communicate member states’ needs to Congress and our management partners.

Subtask 6.4.1.1 – Contact Commissioners before and after congressional meetings.

Subtask 6.4.1.2 – Facilitate opportunities for Commissioners to communicate directly with their Legislators and staff.

Task 6.4.2 – Participate with national organizations and management partners to address issues of mutual interest.

Subtask 6.4.2.1 – Conduct interagency coordination meetings (Memorandum of Understanding) under ACFCMA to improve state-federal partnerships.

Subtask 6.4.2.2 – Continue to serve as an advisor to Marine Fisheries Advisory Committee (MAFAC).

Subtask 6.4.2.3 – Continue to participate as a member on the Marine Fisheries Initiative (MARFIN) panel.

Subtask 6.4.2.4 – Increase participation with the Association of Fish and Wildlife Agencies.

6.5 Promote economic benefits of the Commission’s actions (return on investment).

Task 6.5.1 – Provide state-specific economic and jobs statistics related to commercial and recreational marine fishing to lawmakers and staff.

Task 6.5.2 – Use specific examples to show successful management can be linked to economic success and increased jobs.

Task 6.5.3 – Demonstrate the differences between federal and state fishery management tools and the economic benefits of the state management approach (flexibility, closer to stakeholders, quicker response time).

Goal 7 – Ensure the fiscal stability & efficient administration of the Commission

Goal 7 will ensure that the business affairs of the Commission are managed effectively and efficiently, including workload balancing through the development of annual action plans to support the Commission’s management process. It also highlights the need for the Commission to efficiently manage its resources. The goal promotes the efficient use of legal advice to proactively review policies and react to litigation as necessary. It also promotes human resource policies that attract talented and committed individuals to conduct the work of the Commission. The goal highlights the need for the Commission as an organization to continually expand its skill set through training and educational opportunities. It calls for Commissioners and Commission staff to maintain and increase the institutional knowledge of the Commission

through periods of transition. Achieving this goal will build core strengths, enabling the Commission to respond to increasingly difficult and complex fisheries management issues.

Strategies to Achieve Goal

7.1 Conservatively manage the Commission's operations and budgets to ensure fiscal stability.

Task 7.1.1 – Monitor and update as necessary guidelines for cost effective meeting locations and meeting attendee travel policies.

Task 7.1.2 – Responsibly manage and review as necessary the Commission's reserve fund according to the approved investment policy. Review investments annually with AOC.

Task 7.1.3 – Submit a Certification of Indirect Cost to the Department of Commerce.

Task 7.1.4 – Monitor expenditures on a monthly basis and project variances to ensure complete and timely use of available funds relative to grant cycles. Distribute monthly financial report to Senior Staff.

Task. 7.1.5 – Respond to recommendations from 2015 audit regarding improvements to Commission travel documentation, management of staff leave balances, and linking staff salaries to source grants.

Task 7.1.6 – Identify new CPA firm to conduct annual audit. Prepare for and work cooperatively with CPA firm to conduct annual audit.

Task 7.1.7 – Maintain catalogue of physical inventory.

Task 7.1.8 – Provide administrative support to MRIP Dockside Survey (APAIS), including human resources and meeting management, grant and financial monitoring and office space. **Finalize hiring of new APAIS staff and update state agreements as funding becomes available.**

Task 7.1.9 – Provide administrative support to NMFS At-Sea Observer Program.

Task 7.1.10 – Provide administrative support to the ACCSP, including human resource and meeting management, grant and financial monitoring and office space. **Incorporate new ACCSP governance structure into existing Commission structure and update guiding documents and procedures (if necessary).**

Task 7.1.11 – Continue to provide administrative support to the Atlantic Coastal Fish Habitat Partnership (ACFHP), including logistical support for committee meetings and other Partnership activities. Assist in obtaining future funding to support ACFHP operations and fish habitat conservation projects.

Task 7.1.12 – Explore costs to the Commission of providing a health insurance benefit to retired Commission staff. Provide options to the Executive Committee for consideration.

Task 7.1.13 – Ensure adequate administrative staff support, including new hires if necessary, to manage significant additional workload associated with increased contracts and cooperative agreements.

7.2 Utilize new information technology to improve meeting and workload efficiencies, and enhance communications.

Task 7.2.1 – Attend information technology seminars/trade shows to remain abreast of current and future technologies.

Task 7.2.2 – Ensure consistency of software across the Commission and continue to cross-train administrative staff.

Task 7.2.3 – Provide targeted staff training for full use of office equipment and software.

Task 7.2.4 – Document standards for electronic record retention and develop site map of Commission electronic filing system for internal use.

Task 7.2.5 – Continue to document standard operating practices and procedures (SOPPs).

Task 7.2.6 – Continue to live stream Commission meetings and seek improvements to process.

7.3 Refine strategies to recruit professional staff, and enhance growth and learning opportunities for Commission and state personnel.

Task 7.3.1 – Promote Commission’s programs and activities and recruit new talent by conducting seminars to graduate level marine programs.

Task 7.3.2 – Provide opportunities for undergraduate and graduate students to participate in internships at the Commission.

Task 7.3.3 – Review and revise position descriptions as necessary.

Task 7.3.4 – Review vacancy announcement distribution list and update as necessary.

Task 7.3.5 – Conduct stock assessment methods training workshops. (See Task 2.5.1)

Task 7.3.6 – Conduct Commissioner workshops on management risk and uncertainty and meeting management skills. (See Task 2.5.2)

Task 7.3.7 – Conduct meeting management training for committee chairs.

Task 7.3.8 – Facilitate staff participation at national and regional conferences; provide professional training opportunities.

Task 7.3.9 – Facilitate educational opportunities targeted to specific staff based on job responsibilities.

Task 7.3.10 – Conduct annual meeting with financial advisor to review retirement program performance with staff and provide opportunities for staff to meet individually with financial advisor to match financial goals with investment choices for retirement.

7.4 Fully engage new Commissioners in the Commission process and document institutional knowledge.

Task 7.4.1 – Work with Executive Committee to determine the appropriate transition and orientation program for new Commissioners.

Task 7.4.2 – Update and distribute, as necessary, the Commissioner Manual.

Task 7.4.3 – Continue to provide orientation materials for new members of Commission supporting committees.

Task 7.4.4 – Revise *Forging Knowledge into Change* for distribution at the Commission's 75th Annual Meeting.

7.5 Utilize legal advice on new management strategies and policies, and respond to litigation as necessary.

Task 7.5.1 – Respond as needed to litigation regarding challenges to Commission FMPs, and assist states with fisheries litigation as appropriate.

Task 7.5.2 – Work with Commission attorney to develop a potential information request policy for consideration by full Commission (FOIA equivalent).

Task 7.5.3 – Ensure annual submission of Financial Disclosure and Conflict of Interest forms by Legislative and Governor Appointee Commissioners and their proxies.

Task 7.5.4 – Consult human resources attorney to ensure liability is addressed for Commission employees working in our member states; address benefit requirements for part-time and seasonal employees; and seek guidance on requirements for hiring contract employees.

Atlantic States Marine Fisheries Commission Proposed 2016 Action Plan Budget (Programmable Funds)

Budget Overview

NOTE: Detailed budgets for each task can be found following this overview.

Goal 1: Regulatory Planning		ACFCMA	IJF	W/B	SEAMAP	FHP	Total
Task 1.1	Meeting Weeks	\$ 275,000	\$ 50,000				\$ 325,000
	Contingency Fund	\$ 10,000					\$ 10,000
Task 1.1.1-7	American Eel	\$ 6,525					\$ 6,525
Task 1.1.8-17	American Lobster	\$ 23,900					\$ 23,900
Task 1.1.18-23	Atlantic Herring	\$ 8,900					\$ 8,900
Task 1.1.24-26	Atlantic Menhaden	\$ 5,900					\$ 5,900
Task 1.1.27-29	Atlantic Striped Bass	\$ 8,950					\$ 8,950
Task 1.1.30-32	Atlantic Sturgeon	\$ 24,800					\$ 24,800
Task 1.1.33-35	Bluefish	\$ 1,800					\$ 1,800
Task 1.1.36-41	Coastal Sharks	\$ 2,925					\$ 2,925
Task 1.1.42-48	Horseshoe Crab	\$ 7,525					\$ 7,525
Task 1.1.49-52	Northern Shrimp	\$ 21,400					\$ 21,400
Task 1.1.53-57	Shad and River Herring	\$ 13,675					\$ 13,675
Task 1.1.58-60	Atlantic Croaker	\$ 16,250					\$ 16,250
Task 1.1.61-62	Black Drum	\$ 25					\$ 25
Task 1.1.63-64	Red Drum	\$ 1,650					\$ 1,650
Task 1.1.65-66	Spanish Mackerel	\$ 525					\$ 525
Task 1.1.67-69	Spot	\$ 11,925					\$ 11,925
Task 1.1.70	Spotted Sea Trout	\$ 25					\$ 25
Task 1.1.71-73	Spiny Dogfish	\$ 900					\$ 900
Task 1.1.74-87	Summer Flounder/Scup/Black Sea Bass	\$ 44,950					\$ 44,950
Task 1.1.88-89	Tautog	\$ 9,850					\$ 9,850
Task 1.1.90-92	Weakfish	\$ 6,225					\$ 6,225
Task 1.1.93-95	Winter Flounder	\$ 2,650					\$ 2,650
Task 1.2	NRCC/SEDAR	\$ 2,000					\$ 2,000
	ISFMP staff conference registrations	\$ 5,000					\$ 5,000
Goal 2: Cooperative Research		ACFCMA	IJF	W/B	SEAMAP	FHP	Total
Task 2.1	Stock Assessment Support	\$ 9,170					\$ 9,170
Task 2.1.4	Stock Assessment Reviews	\$ 66,925					\$ 66,925
Task 2.2.5	NEAMAP	\$ 17,050					\$ 17,050

10/21/2015

Task 2.2.6	SEAMAP		\$ 14,800	\$ 14,800
Task 2.2.7	Tagging Program	\$ 100		\$ 100
Task 2.2.10	Fish Ageing	\$ 15,300		\$ 15,300
Task 2.2.13	Fisheries Economics & Social Sciences	\$ 23,350		\$ 23,350
Task 2.2.14	Fish Passage Working Group	\$ 8,550		\$ 8,550
Task 2.4.1	Multispecies/Ecological Ref Pts	\$ 13,300		\$ 13,300
Task 2.4.5	Fishing Gear Technology	\$ 2,650		\$ 2,650
Task 2.5.1	Stock Assessment Training	\$ 47,700		\$ 47,700
Task 2.5.2	Scientist Training/Conferences	\$ 5,000		\$ 5,000

Goal 3: Compliance

Task 3.1-3.2	Law Enforcement Coordinator	\$20,000		\$20,000
Task 3.3.4	Monitor IAFWA and CLECA	\$ 1,000		\$ 1,000

Goal 4: Habitat

Task 4.3.4	Fish Habitat Partnership		\$ 29,300	\$ 29,300
Task 4.1.4	Artificial Reef Committee		\$ 10,000	\$ 10,000
Task 4.2	Coordinate Coastwide Habitat Activities	\$ 12,000		\$ 12,000
Task 4.2.3-4	Develop & Distribute Habitat Information	\$ 800		\$ 800

Goal 5: Outreach

Task 5.1	Information & Education	\$ 10,000		\$ 21,000
Task 5.1.5	Printing Materials	\$ 5,000		
Task 5.3.2	Media Training Workshop	\$ 6,000		

Goal 7: Administration and Finance

Task 7.3.6	Commissioner Training	\$ 8,000		\$ 8,000
Task 7.3.7	Meeting Management Training for TC Chairs	\$ 11,750		\$ 11,750

Budget Overview Totals:	\$ 796,920	\$ 50,000	\$ 10,000	\$ 14,800	\$ 29,300	\$ 901,020
Executive Directorate	\$ 308,000	\$ 50,000				\$ 358,000
ISFMP	\$ 260,075	\$ -	\$ 10,000			\$ 270,075
Science	\$ 209,095	\$ -	\$ -	\$ 14,800	\$ 29,300	\$ 253,195
Finance & Administration	\$ 19,750	\$ -	\$ -	\$ -	\$ -	\$ 19,750

Budget Details

2016 ISFMP Budget Details		ACFCMA	IJF	W/B	SEAMAP	FHP	Total
Goal 1: Regulatory Planning							
Task 1.1.1-8	Board (3 meetings in meeting weeks)						\$ 6,525
American Eel	Technical Committee (22 members; 1-1 day meeting, 4 conference calls)	\$ 5,900					
	Advisory Panel (15 members; 1 conference call)	\$ 100					
	Plan Review Team (3 members; 1 conference call)	\$ 25					
	Staff travel (ESA meetings)	\$ 500					
Task 1.1.9-21	Board (4 meetings in meeting weeks)						\$ 23,900
American Lobster	Technical Committee (10 members; 2-1 day and 1-2 day meetings, 4 conference calls)	\$ 8,300					
(Includes Jonah Crab)	Advisory Panel (16 members; 1-1 day meeting; 2 conference calls)	\$ 4,150					
	Plan Review Team (5 members; 3 conference call)	\$ 75					
	Plan Development Team (5 members; 2-2 day meetings 4 conference calls)	\$ 4,100					
	Trap Tag and database calls	\$ 100					
	LCMT and Trade Meetings (staff travel to 1 mtgs)	\$ 600					
	Public Hearings (5 hearings)	\$ 1,500					
	Subcommittee (15 members; 1-1 day meeting; 3 conference calls)	\$ 3,075					
Jonah Crab	Public Hearings (5 hearings)	\$1,500					
	Staff travel to NEFMC	\$500					
Task 1.1.22-26							\$ 8,900
Atlantic Herring	Section (3 meetings in meeting weeks, 1 outside)	\$ 700					
	Technical Committee (5 members; 1 day meeting; 3 conference calls)	\$ 1,325					
	Plan Development Team (6 members; 1 meeting; 3 conference calls)	\$ 825					
	Advisory Panel (10 members; 1 meeting; 3 conf calls)	\$ 2,575					
	Plan Review Team (4 members; 2 conference calls)	\$ 50					
	Staff travel (coord w/ NEFMC)	\$ 800					
	"Days Out" Meetings (10 members; 2 Meetings; 5 calls)	\$ 1,125					
	Public Hearings (6 hearings)	\$1,500					

Task 1.1.27-30	Board (4 meetings in meeting weeks)		\$	5,900
Atlantic Menhaden	Technical Committee (15 members x 1-1 day meetings, 3 conference calls)	\$	3,575	
	Advisory Panel (19 members; 1 conference calls)	\$	75	
	Plan Review Team (5 members; 1 conference calls)	\$	25	
	Plan Development Team (5 members; 1 meeting; 4 conference calls)	\$	1,225	
	Staff Travel (NEFMC EBFM)		\$1,000	
Task 1.1.31-33	Board (4 meetings in meeting weeks)		\$	8,950
Atlantic Striped Bass	Technical Committee (20 members; 1 meetings, 4 conference calls)	\$	4,150	
	SASC (8 members; 2 confernce calls)	\$	75	
	Advisory Panel (23 members; 2 conference calls)	\$	50	
	Plan Development Team (5 members; 5 conf calls)	\$	125	
	Plan Review Team (2 conference call)	\$	50	
	staff travel striped bass tagging	\$	1,000	
	Public Hearings (11 Hearings)	\$	3,500	
Task 1.1.34-36	Board (1 meeting in meeting weeks)		\$	24,800
Atlantic Sturgeon	Technical Committee (26 members x 1 meeting, 8 conference calls)	\$	4,600	
	Stock assessment subcommittee (16 members x 1-4 day meetings, 9 conference calls)	\$	20,150	
	Plan Review Team (2 conference calls)	\$	50	
Task 1.1.37-39	Board (1 outside)	\$	1,500	\$
Bluefish	Technical Committee (16 member; 2 conference calls)	\$	50	1,800
	Advisory Panel (20 members; 2 conf call)	\$	50	
	Plan Review Team (1 conference call)	\$	25	
	Plan Development Team (1 conference calls)	\$	25	
	SSC meeting	\$	150	
Task 1.1.40-44	Board (2 meeting in meeting weeks)			\$
Coastal Sharks	Technical Committee (13 members; 1 1 day meeting; 2 confernce calls)	\$	2,075	2,925
	HMS Advisory Panel (staff travel)	\$	50	
	Plan Review Team (1 call)	\$	25	
	Plan Development Team (6 members; 2 conf calls)	\$	50	
	Staff travel Sedar (1 3 day meeting)	\$	675	
	Staff travel ICCAT	\$	50	

Task 1.1.45-49	Board (2 meetings in meeting weeks)		\$	7,525
Horseshoe Crab	HSC Technical Committee (16 members x1-1 day meetings and 3 conf calls)	\$	3,575	
	ARM Subcomm. (8 members, 1 meeting; 3 conf call)	\$	1,825	
	HSC Advisory Panel (15 members; 2 conference calls)	\$	50	
	Shorebird Advisory Panel (1 conference calls)	\$	25	
	Plan Review Team (1 conference call)	\$	25	
	SASC (7 members; 1-2 day meeting; 3 conference calls)	\$	1,825	
	Staff travel (survey)	\$	200	
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Task 1.1.50-54				
Northern Shrimp	Section (3 meetings 1 conf calls)	\$	5,450	\$ 21,400
	Technical Committee (6 members x 1 meetings, 5 conference calls)	\$	2,800	
	Advisory Panel (10 members x 2 meetings, 1 conference call)	\$	1,225	
	Plan Review Team (1conference call)	\$	25	
	Plan Development Team (4 conference calls)	\$	100	
	Public Hearings (3 hearings)	\$	1,000	
	Staff Travel (survey cruise and Maine Fish. Forum)	\$	800	
	Conduct Test Tows	\$	10,000	
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Task 1.1.55-59				
Shad and River Herring	Board (1 meetings in meeting weeks)			\$ 13,675
	Technical Committee (20 members; 1-2 day meetings, 4 conference calls)	\$	9,075	
	SASC (8 members;1-2 daymeeting, 3 conference calls)	\$	4,075	
	Plan Review Team (1 conference call)	\$	25	
	Staff Travel (2 Meetings)	\$	500	
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Task 1.1.60-71: South Atlantic Species				
Atlantic Croaker	Board (4 meetings in meeting weeks)			\$ 16,250
	Technical Committee (10 members; 1 -2 day meeting; 4 conference calls)	\$	5,100	
	Stock Assessment Committee (8 members; 1-4 day meeting; 5 conference calls)	\$	8,125	

	South Atlantic Advisory Panel (12 members; 1 day meeting)	\$	3,000	
	Plan Review Team (1 conference call)	\$	25	
Black Drum	Board (budgeted under Atlantic croaker)			\$ 25
	Advisory Panel (budgeted under Atlantic croaker)			
	Plan Review Team (1 conference call)	\$	25	
Red Drum	Board (budgeted under Atlantic croaker)			\$ 1,650
	Technical Committee (11 members; 3 conf calls)	\$	75	
	Public Hearings (5 Hearings)	\$	1,500	
	Plan Review Team (1 conference call)	\$	25	
	Plan Development Team (2 Conference Calls)	\$	50	
	Advisory Panel (budgeted under Atlantic croaker)	\$	-	
Spanish Mackerel	Board (budgeted under Atlantic croaker)			\$ 525
	Plan Review Team (3 members x 1 conference call)	\$	25	
	Advisory Panel (budgeted under Atlantic croaker)			
	Staff travel to SAFMC	\$	500	
Spot	Board (budgeted under Atlantic croaker)	\$	-	\$ 11,925
	Technical Committee (8 members; 1- 4 day meeting; 2 conference calls)	\$	4,600	
	Stock Assessment Committee (8 members; 1-4 day meeting; 4 conference calls)	\$	7,300	
	Plan Review Team (1 conference call)	\$	25	
	Advisory Panel (budgeted under Atlantic croaker)	\$	-	
Spotted Seatrout	Board (budgeted under Atlantic croaker)	\$	-	\$ 25
	Plan Review Team (1 conference call)	\$	25	
	Advisory Panel (budgeted under Atlantic croaker)	\$	-	
Task 1.1.72-74	Board (2 meetings in meeting week)			\$ 900
Spiny Dogfish	Technical Committee (17 members x 2 conference calls)	\$	50	
	Advisory Panel (8 member 1 conference call)	\$	25	
	Plan Review Team (1 conference calls)	\$	25	
	Staff Travel to NEFMC/MAFMC/HMS AP/SSC	\$	800	

Task 1.1.75-88	Board (2 meetings in meeting week, 2 outside)	\$	2,700	\$	44,950
Summer	Technical Committee (12 members x 1-3 day and 1-				
Flounder	2day meetings, 7 conference calls)	\$	12,675		
(Includes Black	Advisory Panel (10 members x 1 meetings, 2	\$	3,050		
sea bass and	conference calls)	\$	100		
scup)	Plan Development Team (4 conference call)	\$	75		
	Plan Review Team (3 conference call)	\$	1,500		
	Staff Travel (6 meetings) (MAFMC/FMAT)	\$	3,500		
	Public Hearings (10 hearings)	\$	17,850		
	Stock Assessment Committee (6 members; 3-3 day	\$	1,000		
	and 2-2day meetings; 12 calls)	\$	2,000		
	FMAT	\$	500		
	Public Hearings				
	SSC				
Scup	Budget combined with Summer Flounder	\$	-	\$	-
Black Sea Bass	Budget combined with Summer Flounder	\$	-	\$	-
Task 1.1.89-91	Board (3 meetings in meeting week)			\$	9,850
Tautog	Technical Committee (12 members; 2 meetings; 4	\$	4,600		
	conference calls)	\$	2,000		
	Public Hearings (7 Hearings)	\$	1,625		
	Advisory Panel (8 members x 1 meeting, 2 conf call)	\$	25		
	Plan Review Team (1 conference calls)	\$	100		
	Plan Development Team (4 conf calls)	\$	1,500		
	Enforcement Subcommittee (6 members)				
Task 1.1.92-94	Board (2 meetings in meeting weeks)			\$	6,225
Weakfish	Technical Committee (14 members; 1-2 day meeting;	\$	4,575		
	3 conference calls)	\$	50		
	SASC (8 members; 2 calls)	\$	25		
	Advisory Panel (19 members; 1 conference call)	\$	25		
	Plan Review Team (1 conference call)	\$	50		
	Plan Development Team (2 confrence calls)	\$	1,500		
	Public Hearings (5 hearings)				
Task 1.1.95-99	Board (2 meetings in meeting weeks)			\$	2,650
Winter Flounder	Technical Committee (11 members; 4 conference calls)	\$	100		
	Advisory Panel (8 members; 1 meeting; 1 conf call)	\$	2,025		

	Plan Review Team (1 conference call)	\$	25		
	Staff travel (NEFMC)	\$	500		
Task 1.2	ISFMP staff conference registrations	\$	5,000		\$ 7,000
	NRCC/SEDAR	\$	2,000		
Goal 3 LEC					
	Law Enforcement Coordinator	\$	20,000		\$20,000
	Monitor AFWA and CLECA	\$	1,000		\$ 1,000
Goal 4 Habitat					
	Artificial Reef Committee (1- 2 day meeting; AR conference; 2 calls)			\$ 10,000	\$ 10,000
	Coordinate Coastwide Habitat Activities (2 meetings; 5 calls; contract work)	\$	12,000		\$ 12,000
	Develop & Distribute Habitat Information	\$	800		\$ 800
Subtotal:		\$	262,075	\$ -	\$ 10,000
					\$ 272,075

2016 Fisheries Science Budget Details		ACFCMA	IJF	W/B	SEAMAP	FHP	Total
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Goal 2: Fisheries Research & Stock Assessment							
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Task 2.1.4	Stock Assessment Reviews						\$ 66,925
	<i>Weakfish</i>	\$	22,850				
	<i>Spot & Croaker</i>	\$	24,275				
	<i>SEDAR/SARC (Black Sea Bass)</i>	\$	4,000				
	<i>Southern Flounder Assessment Collaboration Workshop</i>	\$	15,800				
Task 2.1.5-6	Assessment Science Committee	\$	9,170				\$ 9,170
Task 2.2.4	Tagging Program	\$	100				\$ 100
Task 2.2.5	NEAMAP						\$ 17,050
	<i>NEAMAP Board</i>	\$	4,050				
	<i>Analytical Committee</i>	\$	3,050				
	<i>Operations Committee</i>	\$	3,150				
	<i>Trawl Technical Workshop</i>	\$	6,800				
Task 2.2.6	SEAMAP						\$ 14,800
	<i>SEAMAP South Atlantic Committee</i>				\$	6,900	
	<i>Longline Survey Workgroup</i>				\$	100	
	<i>Data Management Workgroup</i>				\$	200	
	<i>Bottom Mapping Workgroup</i>				\$	5,050	
	<i>Crustacean Workgroup</i>				\$	2,550	
Task 2.2.10	Fish Ageing Exchanges and Workshop	\$	15,300				\$ 15,300
Task 2.2.13	Fisheries Economics & Social Sciences						\$ 23,350
	<i>Committee on Economics & Social Sciences</i>	\$	3,350				
	<i>Menhaden Bait Fishery Socioeconomic Study</i>	\$	20,000				

			10/21/2015
Task 2.2.14	Fish Passage Working Group	\$ 8,550	\$ 8,550
Task 2.4.1	Multispecies TC / Ecological Ref Pts WG	\$ 13,300	\$ 13,300
Task 2.4.5	Fishing Gear Technology	\$ 2,650	\$ 2,650
Task 2.5.1	Stock Assessment Training	\$ 47,700	\$ 47,700
	Scientist Training/Conferences	\$ 5,000	\$ 5,000
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Goal 4: Habitat			
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Task 4.1.2	Fish Habitat Partnership		\$ 29,300
	<i>Steering Committee</i>	\$ 21,500	
	<i>Work Groups</i>	\$ 6,650	
	<i>National and Regional Initiatives</i>	\$ 1,150	

Atlantic States Marine Fisheries Commission

Coastal Sharks Management Board

*November 4, 2015
3:00 p.m. – 4:00 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*A. Nowalsky*) 3:00 p.m.
2. Board Consent 3:00 p.m.
 - Approval of Agenda
 - Approval of Proceedings from November 2014
3. Public Comment 3:05 p.m.
4. Update from NOAA Fisheries Highly Migratory Species (*K. Brewster-Geisz*) 3:15 p.m.
 - Amendment 6 Final Rule
 - Proposed 2016 Specifications
 - Amendment 9 Proposed Rule
5. Set 2016 Coastal Shark Specifications **Final Action** 3:35 p.m.
 - Variable Commercial Retention Limits/ Possession Limits (*A. Harp*)
6. Other Business/Adjourn 4:00 p.m.

The meeting will be held at the World Golf Village Renaissance, 500 South Legacy Trail, St. Augustine, FL

Vision: Sustainably Managing Atlantic Coastal Fisheries

MEETING OVERVIEW

Coastal Sharks Management Board Meeting

November 4, 2015

3:00 – 4:00 p.m.

St. Augustine, Florida

Chair: Adam Nowalsky (NJ) Assumed Chairmanship: 10/14	Vice Chair: Louis Daniel (NC)	Law Enforcement Committee Representative: Frampton
Coastal Shark Technical Committee Chair: Carolyn Belcher (GA)	Coastal Shark Advisory Panel Chair: Lewis Gillingham (VA)	Previous Board Meeting: October 30, 2014
Voting Members: ME, MA, RI, CT, NY, NJ, DE, MD, VA, NC, SC, GA, FL, NMFS, USFWS (15 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2014

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Update from NOAA Fisheries Highly Migratory Species (3:15 – 3:35 p.m.)

Background

- Final rule for Amendment 6 became effective on August 18, 2015, final measures focus on commercial shark retention limits, Atlantic regional quotas, commercial vessel upgrading and permit stacking
- There is a proposed rule to establish the specifications for the 2016 Atlantic Shark fishing season, the comment period ended September 17, 2015.
- The proposed rule for Amendment 9 focuses on smoothhound sharks, the public comment period ended November 2014.

(Technical Committee Briefing Document and Meeting Summary; HMS Amendment 6 final rule, Amendment 9 proposed rule, 2016 specifications proposed rule in Briefing Materials)

Presentations

- Amendment 6 final rule, Proposed 2016 specifications, Amendment 9 proposed rule by K. Brewster-Geisz)

5. Set 2014 Coastal Sharks Specifications (3:35 – 4:00 p.m.) Final Action

Background

- Proposed 2016 specifications include:
- Open all shark management groups on or about January 1, 2015
- Start the 2016 shark fishing season with a retention limit of 45 LCS other than sandbar sharks per vessel per trip for directed permit holders.
- Adjust the retention limit inseason as needed.
- Decrease the Atlantic blacknose quota over a 5 year timeframe based on an overharvest in 2012 and further decrease the quota over a 3 year timeframe based on an additional overharvest in 2015.

(Memo on Variable Commercial Retention Limits in Briefing Materials)

Board actions for consideration at this meeting

- Approve 2016 coastal shark specifications

6. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
COASTAL SHARKS MANAGEMENT BOARD**

Hilton Mystic
Mystic, Connecticut
October 30, 2014

These minutes are draft and subject to approval by the Coastal Sharks Management Board.
The Board will review the minutes during its next meeting.

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INDEX OF MOTIONS

1. **Approval of agenda by consent** (Page 1).
2. **Approval of proceedings of May 2014 by consent** (Page 1).
3. **Move to open the large coastal sharks fishery on July 1, 2015** (Page 2). Motion by Dr. Daniel; second by Mr. O'Reilly. Motion carried (Page 3).
4. **Move to open other coastal shark groups (small coastal sharks, hammerhead, pelagic, blacknose) consistent with NOAA Fisheries for the 2015 season** (Page 7). Motion by Louis Daniel; second by Malcolm Rhodes. Motion carried (Page 7).
5. **Move to elect Dr. Daniel as the Vice Chair** (Page 10). Motion by Mr. Gilmore; second by Mr. Boyles. Motion carried (Page 10).
6. **Motion to adjourn** by consent (Page 10).

*** ATTENDANCE**

Board Members

Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Tom O'Connell, MD (AA)
David Pierce, MA, proxy for P. Diodati (AA)	Bill Goldsborough, MD (GA)
Bill Adler, MA (GA)	John Clark, DE, proxy for D. Saveikis (AA)
Bob Ballou, RI (AA)	Roy Miller, DE (GA)
Rick Bellavance, RI, proxy for Sen. Sosnowski (LA)	Tom O'Connell, MD (AA)
Lance Stewart, CT (GA)	Bill Goldsborough, MD (GA)
James Gilmore, NY (AA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Emerson Hasbrouck, NY (GA)	Louis Daniel, NC (AA)
Tony Rios, NY, proxy for Sen. Boyle (LA)	Robert Boyles, Jr., SC (AA)
Tom Baum, NJ, proxy for D. Chanda (AA)	Malcolm Rhodes, SC (GA)
Adam Nowalsky, NJ, proxy for Asm. Sgt. Andrzejczak (LA)	Spud Woodward, GA (AA)
John Clark, DE, proxy for D. Saveikis (AA)	Pat Geer, GA, proxy for Rep. Burns (LA)
Roy Miller, DE (GA)	James Estes, FL, proxy for J. McCawley (AA)
	Sherry White, USFWS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Staff

Robert Beal
Toni Kerns

Marin Hawk

Guests

*** Sign-In Sheet not distributed to section of table attended by SC, GA & FL Commissioners and guest section**

The Coastal Sharks Management Board of the Atlantic States Marine Fisheries Commission convened in the Grand Ballroom of The Mystic Hilton, Mystic, Connecticut, October 30, 2014, and was called to order at 11:50 o'clock a.m. by Chairman Adam Nowalsky.

CALL TO ORDER

CHAIRMAN ADAM NOWALSKY: I would like to welcome everyone to the inaugural meeting of the Coastal Sharks Management Board Meeting. I am Adam Nowalsky. I was the vice-chair of the Spiny Dogfish Board; and when the board split, I became chair of this board. One of the action items today will be to elect a vice-chair.

APPROVAL OF AGENDA

CHAIRMAN NOWALSKY: Moving forward, let's begin with approval of the agenda. Are there any changes or additions to the agenda as written? Seeing none; is there any objection to approving the agenda? Seeing none; the agenda is approved.

PROCEEDINGS

CHAIRMAN NOWALSKY: There are no Proceedings to review since this board has not formally met before; so that is not an item on our agenda.

PUBLIC COMMENT

Moving on, we'll turn to the public for any comment for items that are not on the agenda. Is there anyone in the public who would like to comment on an item not on the agenda? Seeing none, we will continue moving forward. Our next action item will be to set the 2015 coastal shark specifications; and we will turn to a presentation now.

SET 2015 COASTAL SHARK SPECIFICATIONS

MS. MARIN HAWK: Our technical committee chair couldn't make it; so I will be giving the presentation. This is the coastal sharks' specifications for 2015; and it is a very brief presentation. As you know, the board follows

NOAA Fisheries for openings and closures as well as quotas. The board may specify a trip limit for the large coastal sharks, small coastal sharks, pelagic, hammerhead and blacknose shark groups.

NOAA Fisheries has proposed a rule that suggests that the trip limit may change during the season; and the current trip limit is 36. These are the proposed opening dates for the different coastal shark groups.

The technical committee has reviewed the proposed specifications from NOAA Fisheries. Their only concern with the proposed specifications for 2015 is the continued quota linkage between the blacknose and the non-blacknose small coastal sharks because it continues to hinder shark fishing opportunities. When the blacknose closes, it forces a closure of the small coastals. With that; that concludes my presentation.

CHAIRMAN NOWALSKY: Questions about the presentation? Rob.

MR. ROB O'REILLY: I think at a previous meeting where we were already started with the 2014 timing of the openings, Louis Daniel had made a motion for July 1. That was talked about around the board and pretty much accepted; so I'm wondering what about the June 1 we see now?

DR. LOUIS B. DANIEL, III: I don't know why it says June 1 because we had all agreed last year that July 15th provides us with the access that we need. I know that they had done some work trying to – NOAA Fisheries had done some work to try to make there be parity with the southern areas, particularly off of Florida. If it would be appropriate, I would like to make a motion that we support a proposed opening date of July 15th to move forward in perpetuity.

CHAIRMAN NOWALSKY: Well, we certainly are going to need a motion moving forward here today. It certainly brings up the issue of the inconsistency with the federal regulations; but it is at the board's discretion how to proceed and whether they want to accept the implications of those inconsistencies. Would there be any

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The Board will review the minutes during its next meeting

discussion that we could hear from the Service about such implications? Karyl.

MS. KARYL K. BREWSTER-GEISZ: We went with the June 1, which is the same as what right now. We opened June 1 this past year. The fishery is still open. It looks like it may continue to be open for the rest of the year. We did receive a comment from this board during the comment period, which closed a couple weeks ago requesting an opening date of July 1. We are considering that as part of the comment; but just to note that if we not open until July 1 and this year we remain open until December 31st, then it is possible that next year with the July 1 you will not fully harvest the quota.

CHAIRMAN NOWALSKY: Let me turn to Marin for a minute for a clarification.

MS. HAWK: Louis, the ability to set multiyear specifications is not in the document. It is on an annual basis; so the “in perpetuity” part of that you might want to modify.

CHAIRMAN NOWALSKY: Rob, I saw you with your hand raised again.

MR. O'REILLY: I think July 15th would be wonderful since Virginia is closed up until that date; but I have to say last time around – I think it was the spring meeting of 2014 when this came up; but I had been talking about July 1, frankly. Certainly, I understand the comments that Karyl just proposed; but some of the history shows that there has been an exclusion in the Mid-Atlantic a little bit in the past. That may not be occurring now; that may not occur in 2015; but certainly the track record says it can happen. That was why the July 1 was mentioned a year ago May, I think.

CHAIRMAN NOWALSKY: Jim, I saw you had your hand up; do you still have a comment you'd like to make or a question? Well, we're at the point here where it is at the discretion of the board how they would like to proceed. We do need a motion to move forward; a motion either for regulations in kind or something different. Louis.

DR. DANIEL: I make a make a motion for July 1; opening date of July 1 for the large coastal sharks.

CHAIRMAN NOWALSKY: Okay, we have a motion that we're going to have a second from Mr. O'Reilly. I'll read that as move to open the large coastal sharks' fishery on July 1, 2015. Motion by Dr. Daniel and seconded by Mr. O'Reilly. Is that correct, Louis?

DR. DANIEL: Yes, sir.

CHAIRMAN NOWALSKY: All right, and I'll turn to you for comment.

DR. DANIEL: Well, just echoing what Rob said and the potential – you know, we're closed still and I know we're going to talk about that I think in six and nine, the closure off of North Carolina. I believe that is in there. That could give some more flexibility down the road when North Carolina and Virginia; they have more flexibility in when they can open their fishery.

There is the potential of a lot of quota being caught in June. I'm glad to hear that we're looking good right now; but the other option, if we have quota left over, that goes to the resource; and so that's probably not a bad move either. I would urge everyone to support the July 1 opening for parity and not be too worried about leaving some of these sharks on the table if that is what happens.

CHAIRMAN NOWALSKY: Are there any additional comments about the motion? Seeing none; I'll give a moment to caucus and then we will vote.

(Whereupon, a caucus was held.)

CHAIRMAN NOWALSKY: All right, we have the motion before us to move to open the large coastal sharks' fishery on July 1, 2015. All those in favor please raise your hand. All right, despite some earlier conversation, we're now going to do this with a roll call as a final action. All right, seeing that from the show of hands that it was not unanimous at the time, we will go ahead and do the roll call vote on this; so I will

Draft Proceedings of the Coastal Sharks Management Board Meeting October 2014

ask Marin to go ahead and call the roll at this point.

MS. HAWK: Maine. (No response)
Massachusetts.

MASSACHUSETTS: Yes.

MS. HAWK: Rhode Island.

RHODE ISLAND: Abstain.

MS. HAWK: Connecticut.

CONNECTICUT: Yes.

MS. HAWK: New York.

NEW YORK: Yes.

MS. HAWK: New Jersey.

NEW JERSEY: Yes.

MS. HAWK: Delaware.

DELAWARE: Yes.

MS. HAWK: Maryland.

MARYLAND: Yes. .

MS. HAWK: Virginia.

VIRGINIA: Yes.

MS. HAWK: North Carolina.

NORTH CAROLINA: Yes.

MS. HAWK: South Carolina.

SOUTH CAROLINA: Yes.

MS. HAWK: Georgia.

GEORGIA: Yes.

MS. HAWK: Florida.

FLORIDA: Yes.

MS. HAWK: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE:
Abstain.

MS. HAWK: National Marine Fisheries
Service.

NATIONAL MARINE FISHERIES SERVICE:
Abstain.

CHAIRMAN NOWALSKY: **The motion carries; 11 yes votes; 3 abstentions.** Okay, that addresses the large coastal sharks. We need to address the non-large coastal sharks. Do I have a motion from the board for the non-large coastal sharks?

MS. HAWK: That includes the hammerhead sharks, pelagic sharks, non-blacknose small coastal sharks and blacknose shark species groups.

DR. DANIEL: Well, just a concern and maybe Karyl can help me out here on the issue with the blacknose. I don't want to do something that is going to mess you up too badly; but at the same we've lost tremendous opportunity in the small coastal shark fishery because of the blacknose coupling. Are we going to talk about that here in a minute, too?

MS. BREWSTER-GEISZ: The blacknose and non-blacknose small coastal shark linkage is something that we can only change through an amendment. We are working on Amendment 6, which we hope to have out proposed later this year and final next year, in the middle of the year some time. A lot of the measures in that we're hoping would solve North Carolina's concerns about the blacknose and non-blacknose small coastal linkage. I will have a very quick update on Amendment 6 later when I give my presentation; but I don't have any solution for you right at this moment.

CHAIRMAN NOWALSKY: Follow-up, Dr. Daniel?

DR. DANIEL: Not so much a follow-up; just a quandary as to whether – I mean, if we approve the specifications as listed on the board; then

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The Board will review the minutes during its next meeting

we're going to have that same loss again this year. But if I make a motion, then it is going to be completely contrary to the Service's management approach that would allow us to continue to fish for small coastal sharks despite your closure. Most of those fish are occurring in state waters, anyway. I'm reluctant to do that at this time; so I'm not going to make a motion.

CHAIRMAN NOWALSKY: Well, I'm not seeing much will of the board here. Can we get any comment from the Service about the implications of not moving forward with specifications here today? All right, so what I'm hearing is that without a specific motion by the board, state water fisheries would be constrained by the federal waters measures by default. Dr. Daniel.

DR. DANIEL: I guess this might be a question for Bob. If that is the case and a state were to elect not to follow the federal regulations; that would result in a non-compliance finding by this board?

MS. TONI KERNS: For a state-water-only fishery?

DR. DANIEL: Correct.

MS. KERNS: Louis, I'd need to read the plan to see if we qualified a default if states waters did not set measures. There are portions of the plan that say we default to the federal water regulations. I'd have to read the fine print on the lack of specifications. If you give me five minutes, I will get back to you.

MR. ROBERT H. BOYLES, JR.: Mr. Chairman, I think that is what I recall about the plan development. The whole purpose was to promote consistency among state and federal waters; and so absent specifications, I think that would be a non-compliance.

MR. WILLIAM A. ADLER: Mr. Chairman, right off the top, how can a state be out of compliance if we didn't set anything that they had to be compliant about? If it is in the plan and I'm not sure that it defaults to the feds' rule; still I don't see where, okay, we're going to find

you out of compliance if we didn't make a decision. I don't know.

CHAIRMAN NOWALSKY: Dr. Daniel, we're working at the front here to try to get an answer to that question and make a determination if it is something we can determine in short order or whether a break is going to be required. Go ahead, Dr. Daniel.

DR. DANIEL: Okay; I'm fine; I'll wait.

CHAIRMAN NOWALSKY: We will give staff a moment to see if they can come up with something in short order to answer the question that is before us.

MS. HAWK: The FMP specifies that the Coastal Sharks Board will not actively set quotas but will follow NOAA Fisheries when they close them in federal waters.

CHAIRMAN NOWALSKY: So, from the advice I'm hearing up here, if we do not set regulations otherwise here today, the specifications that would go into place and the states would be required to follow would be the federal waters specifications; being constrained by their dates of opening and closing or any other subsequent action that was taken in federal waters.

DR. DANIEL: Thank you for that clarification.

MS. HAWK: I can read that section to the board: "The Coastal Shark Board will not actively set quotas for any species contained in the non-blacknose small coastals; blacknose aggregated large coastals; hammerhead or pelagic species groups, but will close the fishery for any species in these groups when NOAA Fisheries closes the fishery in federal waters."

DR. DANIEL: Pretty clear.

CHAIRMAN NOWALSKY: Well, the question still before staff here is with regards to differentiating between open dates and quotas on that matter; so we will give them another moment. Bill.

MR. ADLER: So does it become a compliance issue in the plan if the state has to go with the feds; and does the state plan then say we've got to go with the feds and you can be out of compliance; is that in the wording?

CHAIRMAN NOWALSKY: Well, I think it is implicit within the wording. The wording states that the measures to be followed would be the federal waters measures; and if a state fishes outside of those regulations, the board could take compliance actions at that point. Rob.

MR. O'REILLY: I suppose more than anything, it is the current closure that really is at issue, at least the way I'm looking at it, and I think Karyl had mentioned that the Service was in the middle of a process to perhaps make changes. I'm putting words in the Service's mouth; but I'd like to know a little more detail about what is going on there.

MS. BREWSTER-GEISZ: A lot is going on in Amendment 6. We are looking at a number of things. We are taking action to resetting total allowable catches for non-blacknose small coastal sharks based on the new assessments we have for sharpnose and bonnethead. We are looking at sub-regional quotas.

We are looking closely at when we do the sub-regional quotas, particularly along the east coast, what would that mean for the quotas. Some of the things we have found so far, which is part of what Louis is raising, is that North Carolina north, they don't really catch any blacknose at all; whereas, south of that they catch a mix of blacknose and small coastals.

It is because of that mix and because blacknose is overfished that we have that linkage; so when we close, there are not a lot of discards for blacknose and non-blacknose small coastals. Under Amendment 6, we do sub-regionals, there would be different opening and closing dates for those sub-regions. There are different quotas; there could potentially be different linkages. That is what we're looking at.

CHAIRMAN NOWALSKY: Karyl, do you believe it would be helpful to the board to move

into your presentation right now while we seek clarification on the issue for specifications?

MS. BREWSTER-GEISZ: Most of the presentation is in regard to Amendment 9. I only have a few slides on Amendment 6; so I could do those few slides first. Then we could come back to this and I could answer any questions about Amendment 6 at that time.

CHAIRMAN NOWALSKY: That would be great. Unless there is any objection from the board, we will review the Amendment 6 slides to help fully answer Rob's question. Seeing no objection, we'll go ahead and review those slides.

MS. BREWSTER-GEISZ: While we move forward to the slides that I'm on, I'll just give you a little bit of the background. Amendment 6 is an action we started back in 2010. We had an ANPR, or an Advance Notice for Proposed Rulemaking, where we looked at things like quota stacking, how we would change the permit structure, and whether or not we should move forward with catch shares. We had a lot of comments at that point.

We actually received a proposal from Gulf of Mexico fishermen to move forward with catch shares. In 2011 we went out with a Notice of Intent saying, okay, we are really seriously considering catch shares; here are all the measures we need to think about if we're moving forward with catch shares.

At that point most of the shark fishermen looked at us and said, "No, we don't want catch shares; we're not sure what this is; we would need to see more details before we decided we wanted to move forward with catch shares." Between that time and now, a lot has happened to the shark fishery. There have been changes in stock status. There have been a lot of states that have adopted a fin possession ban.

The fishery as a whole has changed tremendously; and so at this point we have changed Amendment 6 to be more short-term measures that we feel can help stabilize the shark fishery and adjust for some of these issues

that keep coming up; Louis keeps raising but other people raise a lot as well.

Within Amendment 6; last year we also had the results of two stock assessments. These stock assessments were for small coastal sharks. They were for the bonnethead and Atlantic sharpnose stock. Those species were previously considered one stock across the Atlantic and Gulf of Mexico. Both of them were not overfished with no overfishing.

In the 2013 stock assessment the scientists looked at the data and determined these should really be two different stocks; so now we have an Atlantic sharpnose stock, a Gulf of Mexico/Atlantic sharpnose stock and Atlantic bonnethead stock and Gulf of Mexico bonnethead stock.

For sharpnose, looking at the results, we have determined that for the Atlantic they are not overfished with no overfishing occurring; good news! For bonnethead sharks in the Atlantic, unfortunately it came out to be an unknown status. Because of the structure, the scientists were not able to consider Atlantic-only catches; so at this point we really don't what their status us. That changes things for small coastals as whole because right now we had split for blacknose but not necessarily for the others. We are taking all of that into consideration in Amendment 6.

We're looking at the small coastals, how do we set the total allowable catches now split completely between the Atlantic and Gulf of Mexico and what kind of commercial quotas we should set. We're still looking at permit stacking though we have had a lot of comments that permit stacking is not what we should be looking at.

Instead we should be looking at increasing the commercial shark retention limits; so we are looking at ways to increase commercial shark retention limits and accordingly reduce the shark research fishery quota for sandbar sharks. We are also looking at regional and sub-regional quotas. Right now we have an Atlantic Coast quota for the aggregated large coastals and

hammerheads, setting that up, splitting that between sub-regions.

We are currently considering two different lines; one which is around the northern part of South Carolina and one which is at the southern part of North Carolina. Those would be the sub-regions. We're looking at those sub-regions as well for the small coastals. When we've split them out and looked at the landings – and we've talked about this with our advisory panel and there are a lot of questions.

As I mentioned to Rob earlier, we aren't seeing a lot of blacknose at all in the northern area. It comes out to 0.2 metric tons or something like that. We're actually considering prohibiting blacknose in that northern area; so there would no longer be a linkage to small coastals; and that northern sub-region would open and close on its own.

The southern region, where there is a really good mix of the blacknose and the non-blacknose small coastals, those would continue to be linked and opened and closed together. We looked at change in the retention limits in the Caribbean, which I won't really touch on because that doesn't affect you. Caribbean is currently in the Gulf of Mexico Region.

We're also looking at modifying the upgrading restrictions for the directed shark permit holders so that they could upgrade to different size vessels that are much larger and much safer than what they have now; if they wanted to; they wouldn't have to. That is pretty much Amendment 6 and where we are in a nutshell. We are really hoping to have a proposed rule out either by the end of this year or beginning of next year. We're really, really pushing for that and then really pushing for effect next summer; mid-season.

CHAIRMAN NOWALSKY: Thank you, Karyl. Dr. Daniel.

DR. DANIEL: Just to comment that is very encouraging. Thank you.

CHAIRMAN NOWALSKY: Okay, seeing questions or comments; it brings us back to the

small coastal shark specifications. Do you want to give yourselves some time to make that determination?

CHAIRMAN ROBERT E. BEAL: Well, Toni and I have been reading through the FMP, which is always enjoyable, and it is not crystal clear. There is a little bit of internal conflict between the specification-setting sections where it talks about quotas and the Section 4.3.5 where it talks about seasons. In the specifications and quota-setting section, it clearly says that the states will follow the federal openings and closures. When the federal government closes, the states will close; and the states will only open when the federal government reopens the fishery. That part locks us in.

Under the season section, it does say that the board is able to set seasonal periods. I think what that means is if there is a federal opening, we can subdivide that quota available during that opening to try to spread it out or have the fishing occur differently within that quota period. The quota section is very clear that the states open and close when the federal government does. That leads me to believe that the intent is for the state fisheries not to be open when the federal waters fisheries are not open. Does that make sense?

DR. DANIEL: With that explanation and recognizing that we are moving in a good direction on this, **I would move to concur with the opening dates for the hammerheads, pelagics and small coastals** – I lost it when you went away.

CHAIRMAN NOWALSKY: I think we've got something that will help you here.

DR. DANIEL: There you go.

CHAIRMAN NOWALSKY: **So your motion, Dr. Daniel, is to move to open other coastal shark groups, including small coastal sharks, hammerhead, pelagic, blacknose, consistent with NOAA Fisheries?**

DR. DANIEL: That is correct, Mr. Chairman.

CHAIRMAN NOWALSKY: Would you like to add for the 2015 year?

DR. DANIEL: Please.

CHAIRMAN NOWALSKY: Okay, with that addition, we have a second from Malcolm Rhodes. Any discussion on the motion? **Okay, the board has before us move to open other coastal shark groups, including small coastal sharks, hammerhead, pelagic and blacknose, consistent with NOAA Fisheries for the 2015 season. Motion by Dr. Daniel; seconded by Dr. Rhodes.** I'll give the board a moment to caucus before we vote on that.

(Whereupon, a caucus was held.)

CHAIRMAN NOWALSKY: Okay, before proceeding with a roll vote on this, I will ask is there any objection to the motion? **Seeing no objection; the motion is approved.**

UPDATE ON NOAA FISHERIES' AMENDMENTS 6 AND 9

CHAIRMAN NOWALSKY: All right, everybody up here seems to be on board with pushing through with the Amendment 9 presentation; so again I'll turn to Karyl for that.

MS. BREWSTER-GEISZ: I will try to make this quick so you can all go to lunch. If I'm going too quick, slow me down; if I'm going too slowly, just feel free to motion to speed it up. Thank you again for having me. In the back there is also Stephen Durkee. He is working with me; so if you have any questions that aren't answered through this, feel free to contact one of us; and we will gladly answer them.

Amendment 9 proposes five different things, which I will go forward and discuss. Most of the measures in Amendment 9 have to do with smoothhound sharks. There are at least three species of smoothhound sharks in U.S. waters. Those are smooth dogfish, Florida smoothhound and Gulf smoothhound. These are Mustelus.

They are not related at all scientifically to spiny dogfish, so please do not confuse smooth dogfish with spiny dogfish. Almost all of the measures affect the smoothhound fishery. There

are two exceptions. One is for the Shark Conservation Act that deals only with smooth dogfish. There are also two different measures that we propose that affect all of our gillnet fisheries; so not just the smoothhound fishermen but all of our shark gillnet fishermen.

At this time we are working through SEDAR to complete a smoothhound stock assessment. In the Atlantic the scientists have determined that the smoothhound stock assessment would only look at smooth dogfish. They felt fairly confident that Florida smoothhound and Gulf smoothhound were not found in the Atlantic; but it is good for you to remember that these species are out there because it does affect one of the Shark Conservation Act proposed measures.

The final assessment should be done in March of next year. In Amendment 9 the first thing it does is it establishes an effective date for the Amendment 3 and the 2011 Trawl Rule Measures. These measures were ones that would bring the smoothhound fishery into federal management; so they establish permit requirements; for dealers they establish reporting requirements; they establish a quota; pretty much everything you expect for federal management is what these two rules would do.

One of the things Amendment 3 did that we are proposing to change in Amendment 9 is the quota. If you look at this graph, up on the Y-axis you have the landings; along the X you have the year. The blue line is the landings over time. Pretty much right when we implemented or finalized Amendment 3, we never actually implemented the smoothhound measures.

We had a huge spike in landings; so the quota that we finalized in Amendment 3, which is the Alternative B-1, obviously was not going to work. We had a lot of concerns coming from fishermen and this body – Louis, I remember all of your concerns on this – saying we’re going to be closing the fishery as soon as we open it under that quota. We are relooking at the quota.

Alternative B-2 is something that came from this board. It is looking at a rolling quota, maximizing it adding two standard deviations. Alternative B-3 is what we are proposing. It is a

static quota based on the last ten years of data. We also looked at another alternative, which is not on the slide but is very much under consideration; and that is to take the quota from what comes out of the stock assessment.

I couldn’t put on the slide because we don’t have a quota from the stock assessment yet. We are hearing from pretty much everybody that they want that quota. Whatever it is, they want the quota from the stock assessment. They don’t want us to move forward with what we’ve proposed. The Shark Conservation Act; this is something this body has discussed a lot; has requested from us to move forward on a lot.

For regulatory purposes, it requires fins naturally attached to all sharks; but there is this exception for smooth dogfish. We took a look at this paragraph and we found five phrases that we felt we really needed to interpret before implementing. The first phrase is “an individual engaged in commercial fishing for smooth dogfish”. It is really those words “engaged in commercial fishing for smooth dogfish”.

We thought does this mean somebody who is landing monkfish and just happens to catch a smooth dogfish; can they remove the fins from that one smooth dogfish or does this mean somebody who is out there fishing for smooth dogfish and catching pretty much only smooth dogfish; are they going to be allowed remove the fins from the smooth dogfish?

We looked at four alternatives ranging from it doesn’t matter what the catch composition is to 100 percent smooth dogfish; you can only remove the fins if it is all smooth dogfish. We are proposing a 75 percent catch composition. Another part of this measure is that there would be no other sharks on board; that this would apply only to non-sharks and smooth dogfish.

The second phrase is “an individual holds a valid state commercial fishing license”. We looked at two alternatives for this; the first one being a general state commercial fishing license that happens to allow for smooth dogfish to be taken. The second variation is a smooth dogfish specific state commercial fishing license. We are really looking for comments particularly

from this board on whether or not that is what that phrase means.

The second phrase is the word “state”. The Act is very specific. It defines the state to be Maine through Florida. The problem is Florida has an eastern part and a western part; so we looked at two alternatives here. That hatched line going along the coast goes out to 50 nautical miles, which is part of the Act. We looked at the alternative where it continues along the west coast of Florida and one where it cuts off along the Atlantic Region for sharks.

We are proposing keeping it along the Atlantic Region; and this is because of the species’ identification area in the Gulf. There are those three species; they are very difficult to tell apart. Even scientists can’t always agree on it without genetic testing; and we are concerned that fishermen could be catching sharks, finning them illegally – or not finning them, but removing the fins from something they think is a smooth dogfish and it turns out to be a Florida smoothhound.

The other two phrases we decided to take at face value. That is the 50 nautical miles and the 12 percent that this board has already discussed and finalize. In sum, if you want to, under this proposed rule, remove the fins from smooth dogfish, you need to have at least 75 percent of smooth dogfish on board your vessel, no other sharks on board.

You need to be within 50 nautical miles of the eastern shore from Maine through Florida. You need to have a carcass weight of fins that does not exceed 12 percent – I’m sorry, the fins cannot exceed 12 percent of the carcass weight on board. I think that’s it. Really quickly through the next three measures; because we’re adding smoothhounds into federal management, we need to do a biological opinion.

That had one measure that we felt needed regulatory action; and that was net checks at least two hours or a 24-hour limit on soak time. Currently anyone with a shark permit has to follow the net checks. We looked at a number of different alternatives and preferred the alternative that would really be on how they

fished the gillnet. If they are using a sink gillnet, they are limited to a 24-hour soak time.

If they are using a drift gillnet, they need to do a net check and check for marine mammals and sea turtles and remove them every two hours. The last measure that we did in Amendment 9 or proposed has to do with the gillnet requirement for sharks. Currently everybody with a shark gillnet from November through April must have VMS up and working.

We are proposing to change that so that it would be off that small area off of Florida consistent with the Atlantic Large Whale Take Reduction Team. The comment period for Amendment 9 ends November 14th. There are plenty of ways to submit comments. That is all I have on Amendment 9.

The only other thing I wanted to touch on is some people have asked about Amendment 5B. This is the amendment regarding dusky sharks. We are still actively working on that amendment. I don’t have a time frame for you. I just wanted to make sure you knew that we were still working on that. That’s it if anyone has any questions.

CHAIRMAN NOWALSKY: Questions from the board? Okay, Dr. Daniel.

DR. DANIEL: I was trying to give somebody else a chance. It is a very good report and we will submit comments on this. Smooth dogs are very ubiquitous in the small coastal shark fishery; and that is going to create a real problem. The 75 percent is better than 100 percent; but there is going to be a lot of problems going with the 75 percent.

If you don’t have the 75 percent and trying to get rid of all that processing is awful; so trying to get that, you’ll have to take that back offshore. They’re going to have to do something with that, and that is going to be an increased expense for the industry to try do away because it can’t go to a landfill. That is going to create a problem.

I just don’t understand if the quota is open for small coastals why they wouldn’t be allowed to

land small coastals with their smooth dogs because that will happen. My biggest fear is that they're going to have to discard; not release but discard the small coastal sharks in that fishery, because they will catch them. That is just going to be another discard component that we can't really quantify.

MS. BREWSTER-GEISZ: We have heard that comment a lot. We have heard from North Carolina that they're concerned particularly with the sharpnose. We have heard mostly from New Jersey fishermen, although there have been a couple of North Carolina fishermen, about thrasher sharks that they would like the opportunity to keep thrasher sharks when they are fishing for smooth dogfish. It is something we're hearing and we are taking a look at all those comment.

CHAIRMAN NOWALSKY: Louis, I had heard you say we will submit comments. I'm assuming you were referring to your own state with that particular comment; but were you requesting or is there the will of the board to submit comments as a whole here – if so, we would need some direction on that – or if the individual states are satisfied with going back and crafting their individual comments, they could do that. Did you want to make any other comment on that, Louis?

DR. DANIEL: Well, our issues are so complex that it would take me a long time to go through them all what I would want in a letter. I think if there is a specific issue that the board wants to discuss, then that would be great. They have moved forward with the 12 percent; that's good. It is just the amount of fish. The South Atlantic proposed in their letter to NMFS that does not allow – they did not agree with not allowing any other species of sharks. I think that is what their support was. Karyl can correct me if I'm wrong. The council supports Alternative A2-1A.

This alternative allows for smooth dogfish to make up any portion of the retained catch; but it does not allow you to keep sharks. That is their position. I think they should be allowed to keep at least the small coastal sharks that have been identified, which is the sharpnose shark and the

thrasher shark. If the board is interested in making those comments; I know a lot of folks don't know a whole lot about this fishery, so I'm hesitant to ask for the board to endorse a letter unless others feel comfortable with it.

CHAIRMAN NOWALSKY: Is there any other board comment on the Amendment 9 presentation? All right, seeing none, then we won't go ahead with any specific comment letter here today and would encourage the individual states to make comments as appropriate. Okay, thank you very much, Karyl.

ELECTION OF VICE-CHAIR

CHAIRMAN NOWALSKY: Our final order of business on the agenda today is to elect a vice-chair. Do we have a nomination? Mr. Gilmore.

MR. JAMES J. GILMORE, JR.: Mr. Chairman, I would like to nominate Dr. Louis Daniel for vice-chairman of the board.

CHAIRMAN NOWALSKY: Given Dr. Daniel's interest in this species; do we have a second for that? Mr. Boyles.

MR. BOYLES: Mr. Chairman, I would make the motion that we close the floor to nominations and cast a single vote for Dr. Daniel as vice-chair.

CHAIRMAN NOWALSKY: **That motion is so accepted; and without objection.** Seeing none, Dr. Daniel, congratulations as vice-chair of the Coastal Sharks Board.

ADJOURNMENT

Is there any other business to come before this board today? Okay, seeing none, this board stands adjourned.

(Whereupon, the meeting was adjourned at 12:40 o'clock p.m., October 30, 2014.)

These minutes are draft and subject to approval by the Coastal Sharks Management Board.
The Board will review the minutes during its next meeting



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

Dr. Louis B. Daniel, III, (NC), Chair Douglas E. Grout (NH), Vice-Chair Robert E. Beal, Executive Director

MEMORANDUM

October 15, 2015

To: Coastal Sharks Management Board
From: Ashton Harp, FMP Coordinator
Subject: States ability to adjust commercial retention limits within a fishing season

The recent final rule for Amendment 6 to the Atlantic Highly Migratory Species (HMS) Fishery Management Plan (effective August 18, 2015) implemented adjustable commercial retention limits (CRL). Previously, the CRL for federal and state waters was set at 36 large coastal sharks (LCS) other than sandbar sharks per trip for directed permit holders. Amendment 6 created a default CRL of 45 (and a maximum of 55) LCS other than sandbar sharks per trip for directed permit holders.

The intent is to increase management flexibility to adapt to the changing needs of the Atlantic shark fishery. As part of the flexibility measures NOAA Fisheries plans to increase or decrease the LCS CRL anywhere from 55 LCS to 0 LCS to ensure equitable distribution of the resource throughout the fishing season (the proposed opening date next year is January 1, 2016). Landings will be monitored on a weekly basis and an adjustment to the LCS CRL will be evaluated when 30% of the quota is harvested, thereby controlling the quota to ensure equitable fishing opportunities for all fishermen and regions.

At the September Coastal Sharks Technical Committee meeting, states had administrative concerns regarding the implementation of variable commercial retention limits for LCS. In some cases, states have proclamation authority which allows them to amend regulations within 48 hours, but in other states it would likely take 2-3 months to amend the commercial retention limits. Overall, the TC supports increased management flexibility and complementing the federal regulations.

This topic warrants further discussion at the Board meeting. Specific questions include, what are the potential impacts of variable CRLs for each state? How quickly can each state respond to federal adjustments to the CRL? How much time should HMS give ASMFC prior to the adjustment of a CRL?

Please contact Ashton Harp at (703) 842-0740 or aharp@asmfc.org if you have questions.

M15-86



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Robert E. Beal, Executive Director

Vision: Sustainably Managing Atlantic Coastal Fisheries

Coastal Sharks Technical Committee Meeting Summary Conference Call September 16, 2015

Technical Committee Members: Angel Willey (MD), Brent Winner (FL), Bryan Frazier (SC), Eric Schneider (RI), Greg Hinks (NJ), Holly White (NC), Jack Musick (VA), Scott Newlin (DE), Julie Neer (SAFMC), Enric Cortes (NOAA), Karyl Brewster-Geisz (NOAA)

ASMFC Staff: Ashton Harp, Kristen Anstead

Guest Presenter: Dean Courtney (NOAA)

The Coastal Sharks Technical Committee (TC) held a conference call to discuss the proposed 2016 fishery specifications, the final rule for Amendment 6 to the Atlantic Highly Migratory Species (HMS) Fishery Management Plan, review the Atlantic smooth dogfish (smoothhound shark) stock assessment, review the proposed rule on HMS Amendment 9, and recommend a species for the 2018 SEDAR benchmark stock assessment.

The [proposed 2016 fishery specifications](#) were released on August 18, 2015. There was TC discussion regarding the proposed opening date of January 1, 2016 for the fishery (Table 1). There was concern an early LCS opening date would result in a shortened LCS season. The group discussed two recent opening date examples:

- In 2013, the fishery opened on January 1, 2013 and the season lasted nine months (closing on September 30, 2015)—the longest fishing season in recent years.
- Whereas, in 2014, the aggregated large coastal shark and hammerhead commercial group fishing seasons opened on June 1, 2014 and lasted through November 26, 2014 (six months).

NOAA Fisheries noted its intent as specified in both the proposed specifications and the [final rule for Amendment 6](#) (published on August 18, 2015) is to increase management flexibility to adapt to the changing needs of the Atlantic shark fishery. For example, the commercial retention limit (CRL) prior to Amendment 6 was set at 36 LCS other than sandbar sharks per trip for directed permit holders. Amendment 6 created a default CRL of 45 (and a maximum of 55) LCS other than sandbar sharks per trip for directed permit holders. As part of the flexibility measures NOAA Fisheries plans to increase or decrease the LCS CRL anywhere from 55 LCS to 0 LCS to ensure equitable distribution of the resource throughout the fishing season.

Landings will be monitored on a weekly basis and an adjustment to the LCS CRL will be evaluated when 30% of the quota is harvested, thereby controlling the quota to ensure equitable fishing opportunities for all fishermen and regions.

South Carolina is considering a delayed opening date, possibly March 1, for the SCS fishery to prevent the blacknose quota from being harvested too quickly. North Carolina supports the January 1 opening date due to Atlantic sharpnose landings in January and the desire for a year round fishery above the 34° 00' N. latitude management boundary.

States have concerns about implementing a variable commercial retention limits for LCS. In some cases, states have proclamation authority which allows them to amend regulations within 48 hours, but in other states it would likely take 2-3 months to amend the commercial retention limits. Overall, the TC supports increased management flexibility and complementing the federal regulations. **ACTION: ASMFC to consider the potential impacts of variable commercial retention limits within a season and draft text complimenting the federal regulations or an agreed upon alternative. How much times does HMS need to give ASMFC prior to a CRL being adjusted?**

NOAA Fisheries presented the 2015 benchmark stock assessment for the Atlantic smooth dogfish (smoothhound) and the related proposed rule for Amendment 9. The TC reviewed the assessment results that indicated the stock was not overfished and overfishing was not occurring.

The TC reviewed the schedule for the upcoming stock assessments (Table 2) and discussed select species that should be considered for the 2018 benchmark stock assessment. NOAA Fisheries would prefer sandbar or Atlantic blacktip based in part on constituent requests; however, there was no overall TC consensus on which species should be chosen. There were 3 votes for Atlantic blacktip given the previous assessment (SEDAR 11) in 2006 resulted in an unknown stock status. There was 1 vote for the sandbar shark given the last assessment was in 2010 (SEDAR 21). The next assessment for a sandbar shark will be a benchmark stock assessment because a new assessment model is necessary; an update assessment is not an option. In general, most sharks need a benchmark assessment due to changing data, changing information on stocks, and changing assessment methodologies.

There was discussion about additional species of sharks that ought to be assessed. NOAA Fisheries noted there are only two stock assessment scientists available to conduct assessments for 45 known stocks. To date, 17 stocks have been assessed domestically (via SEDAR) or internationally (via ICCAT). An update stock assessment takes less than a year to complete, whereas a benchmark stock assessment takes approximately two years.

Once a shark has an initial benchmark stock assessment then there is a subsequent need for assessment updates. Time and resource constraints make it difficult for unassessed sharks (28 stocks), which will require an initial benchmark stock assessment, to be a practical option for the 2018 benchmark stock assessment. Based on a request raised at its Advisory Panel meeting, NOAA Fisheries is considering options including the possibility of hiring a contractor to help

conduct assessments. There is less flexibility in choosing which species are chosen for the ICCAT stock assessments because species are chosen by international negotiation.

Table 1. Proposed 2016 quota and opening dates for Atlantic sharks

Region	Management Group	2016 Proposed Annual Quota	Difference from the 2015 Annual Quota	Proposed Season Opening Dates
Atlantic	Aggregated Large Coastal Sharks	168.9 mt dw (372,552 lb dw)	-	January 1, 2016
	Hammerhead Sharks	27.1 mt dw (59,736 lb dw)	-	
	Non-Blacknose Small Coastal Sharks	264.1 mt dw (582,333 lb dw)	+88 mt dw	
	Blacknose Sharks (South of 34° N. lat only)	15.7 mt dw (34,700 lb dw)	-1.8 mt dw	
No Regional Quotas	Non-Sandbar LCS Research	50.0 mt dw (110,230 lb dw)	-	January 1, 2016
	Sandbar Shark Research	90.7 mt dw (199,943 lb dw)	-25.9 mt dw	
	Blue Sharks	273.0 mt dw (601,856 lb dw)	-	
	Porbeagle Sharks	1.7 mt dw (3,748 lb dw)	+1.7 mt dw	
	Pelagic Sharks Other than Porbeagle or Blue	488.0 mt dw (1,075,856 lb dw)	-	

Table 2. Upcoming Stock Assessments

YEAR	SPECIES	ICCAT	SEDAR
2015	Blue	X	
	Smoothhound (2 stocks)		X Benchmark
2016	Shortfin mako	X	
	Dusky		X Update
2017	Porbeagle	X	
	Blacktip (GOM)		X Update
2018	OPEN		X Benchmark, finalized in 2019



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Vision: Sustainably Managing Atlantic Coastal Fisheries

Coastal Sharks Technical Committee Meeting September 16, 2015 10:00 AM AGENDA

1. Call to Order/Introductions (*C. Belcher*)
2. Review and Approve Agenda (*C. Belcher*)
3. Smooth Dogfish Stock Assessment Presentation (*D. Courtney*)
4. Proposed Rule for Amendment 9, Smoothhound (*K. Brewster-Geisz*)
5. Final Rule for Amendment 6 (*K. Brewster-Geisz*)
6. Proposed 2016 Specifications (*K. Brewster-Geisz*)
7. Draft TC specification recommendation for Board meeting (*A. Harp*)
 - a. Items that can be determined by Board action and can have a TC recommendation:
 - i. Smoothhound quota (not previously set)
 - ii. Trip limits (not previously set)
 - iii. Possession limits - Currently set at: SCS (none), pelagic (none), hammerhead (none), LCS (36), smoothhound (none)
8. Proposed Rule for Amendment 5b, Dusky (*K. Brewster-Geisz*)
9. Stock Assessment Update (*K. Brewster-Geisz*)
10. Other Business
11. Adjourn

Details to join the TC meeting:

- Webinar link: <https://attendee.gotowebinar.com/register/8174181027011131649>
- Call in info: 1-888-394-8197, passcode: 499811

Amendment 6: Shark Management (Final Rule, published on August 18)

Final measures include:

- *Commercial Shark Retention Limits*
 - Default of 45 LCS other than sandbar sharks per trip for directed permit holders
 - Maximum of 55 LCS other than sandbar sharks per trip for directed permit holders
 - Adjust the sandbar shark fishery quota to 90.7 mt dw (from 116 mt dw in 2015)
- *Atlantic Regional Quotas*
 - No sub-regional quotas in the Atlantic region
 - Establish a management boundary in the Atlantic region along 34° 00' N. lat (approximately at Wilmington, NC) for the SCS fishery
 - Maintain SCS quota linkages between blacknose and non-blacknose SCS fishery south of the 34° 00' N. lat management boundary
 - Both will close when either reaches 80% of the quota
 - Prohibit harvest and landings of blacknose sharks north of the 34° 00' N. lat mgt boundary
 - Establish a non-blacknose SCS TAC of 489.9 mt dw and increase the commercial SCS quota to 264.1 mt dw
 - Atlantic sharpnose comprises the majority of SCS landings; stock assessment projections state the stock can withstand increased harvest levels
- *Commercial Vessel Upgrading Restrictions*
 - Remove current upgrading restrictions for shark limited access permit holders
- *Permit stacking*
 - Do not implement permit stacking

2016 Specifications (Proposed Rule, published on August 18, comment period closes on September 17)

- Open all shark management groups on or about January 1, 2016
- Start the 2016 shark fishing season with a retention limit of 45 LCS other than sandbar sharks per vessel per trip for directed permit holders.
 - Adjust the retention limit as needed; up to a maximum of 55 LCS/trip or down to 0 LCS/trip
- The Atlantic blacknose quota will decrease over a 5 year timeframe based on an overharvest in 2012 and further decrease the quota over a 3 year timeframe based on an additional overharvest in 2015.

Table 1. Proposed quota and opening dates for Atlantic sharks

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	Non-Blacknose Small Coastal Sharks	264.1 mt dw (582,333 lb dw)	+88 mt dw	
	Blacknose Sharks (South of 34° N. lat only)	15.7 mt dw (34,700 lb dw)	-1.8 mt dw	
No Regional Quotas	Non-Sandbar LCS Research	50.0 mt dw (110,230 lb dw)	-	January 1, 2016
	Sandbar Shark Research	90.7 mt dw (199,943 lb dw)	-25.9 mt dw	
	Blue Sharks	273.0 mt dw (601,856 lb dw)	-	
	Porbeagle Sharks	1.7 mt dw (3,748 lb dw)	+1.7 mt dw	
	Pelagic Sharks Other than Porbeagle or Blue	488.0 mt dw (1,075,856 lb dw)	-	

Amendment 9: Smoothhound Sharks (Proposed rule)

Proposed measures:

- Allow at fin removal of smooth dogfish if:
 - Smooth dogfish makes up at least 75% of catch
 - No other sharks are retained
 - Vessel/fisherman holds a state commercial permit valid for smooth dogfish
 - Fishing within 50 nm of the Atlantic Coast from Maine – Florida
 - Fin weight does not exceed 12% of the carcass weight
- Quota based on SEDAR 39 stock assessment or historical landings
- Establish a soak time of 24 hours for sink gillnet gear and a 2 hour net check requirement for drift gillnet gear in the Atlantic shark and smoothhound shark fisheries
- Require federal directed shark permit holders with gillnet gear on board to use VMS only in the SE U.S. Monitoring Area
- Final rule will be published in late fall or early Winter

Amendment 5b: Dusky Sharks (Proposed rule)

- Stock assessment: 2006 and 2011 stock assessment indicate dusky sharks are not overfished and overfishing is not occurring
 - New rebuilding timeline = 100 years
 - Need to reduce fishing mortality by 58% (as shown in Table 2 and Figure 1)
 - 2011 stock assessment used data through 2009
- Proposed measures include:
 - *Recreational fishery:*
 - Increase min size to 96 inches fork length
 - Require permit holders to obtain a 'shark endorsement' in order to retain sharks (e.g. quiz)
 - Require permit holders to have a NMFS approved shark ID placard on board
 - Prohibit retention of all ridgebacks (including oceanic whitetip, tiger and smoothhound)
 - Catch and release only
 - *Commercial fishery:*
 - Dusky hotspot closure areas for pelagic longline fishing gear
 - Pelagic longlines limited to 750 hooks
 - PLL fishermen must release all sharks not being retained using a dehooker or cutting the gangion less than 3 feet from the hook
 - Dusky shark training for those vessels that report the most dusky shark interactions
 - Require dusky shark fleet communication and relocation protocol in hotspots
 - NJ, DE, MD, VA extend shark closure to July 31
 - Close Atlantic PLL fishery
- Dusky Shark Mortality Analysis (Table 2 and Figure 1) (MRFSS and MRIP Raw Data)
 - Number of dusky sharks intercepted or reported to the survey as harvested from 2003-2014: **20**
 - Range of regional estimates when a dusky was reported as harvested: **16 – 5,482**
 - Range of PSE for these estimates: **53.8 – 104.1**

Table 2. Total Dusky Shark Mortality

Year	Dead discards within research fishery	Estimated dead discards on directed LCS Trips	Dead discards on pelagic long line gear	Total observed gillnet discards	Discards from snapper/grouper and tilefish BLL fisheries	Estimated recreational landings	Total Dusky Dead Discards
2003	0	726	124	0	0	2777	3,627
2004	0	291	142	0	0	36	469
2005	0	285	43	0	0	3040	3,368
2006	0	515	76	21	0	194	806
2007	0	124	89	0	0	112	325
2008	21	26	36	3	0	1559	1,645
2009	54	36	68	1	0	546	705
2010	124	32	35	1	0	91	283
2011	60	39	12	0	0	148	259
2012	211	41	114	1	0	57	424
2013	8	50	38	0	0	36	132
2014	34	46	11	0	0	599	690

Figure 1. Total Dusky Shark Mortality

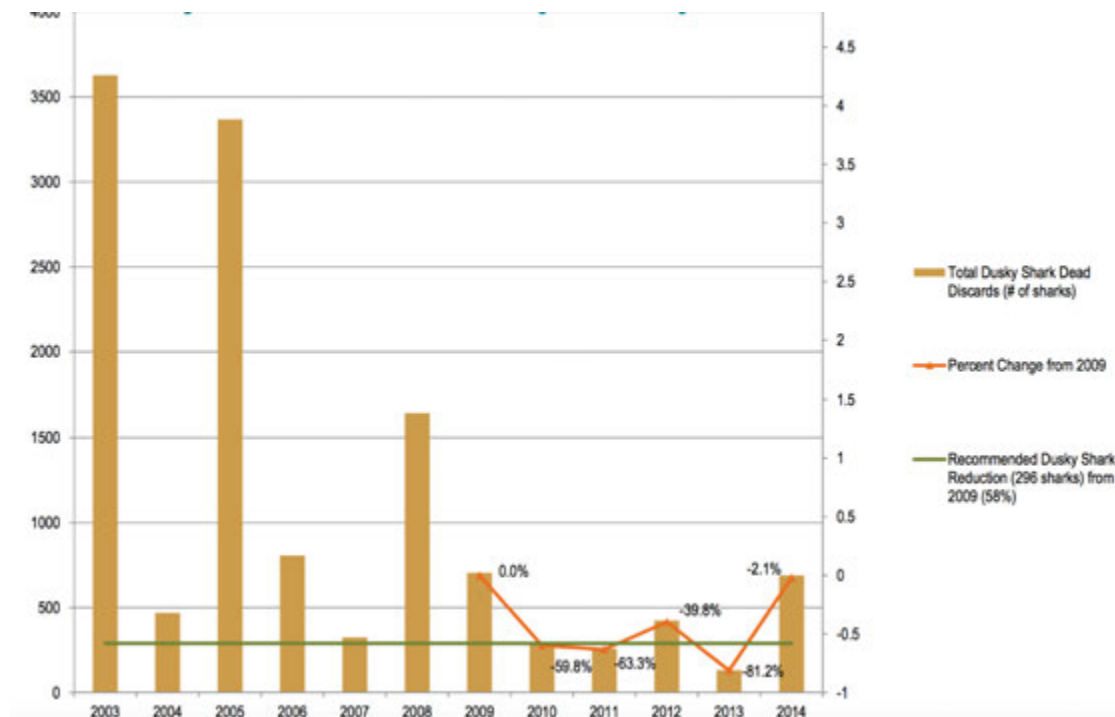
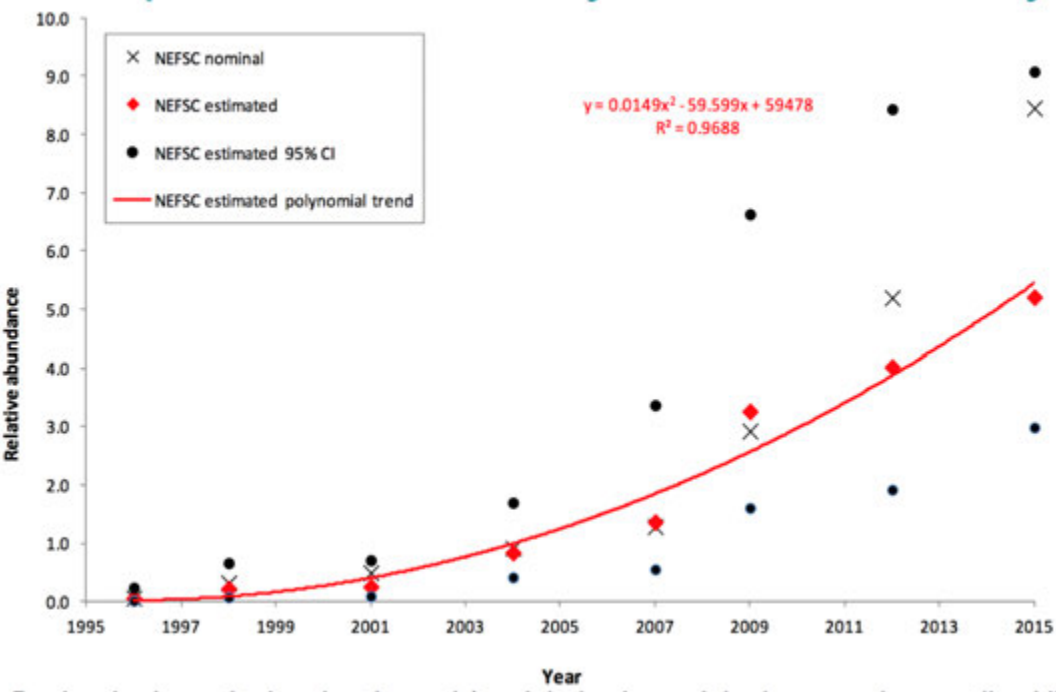


Figure 2. 2015 Apex Shark Survey Results for Dusky



Coastal Shark Stock Assessments

Table 3. Coastal Shark Stock Status

Species or Complex Name	Stock Status		References/Comments
	Overfished	Overfishing is Occurring	
Pelagic			
Porbeagle	Yes	No	Porbeagle Stock Assessment, ICCAT Standing Committee on Research and Statistics Report (2009); Rebuilding ends in 2108 (HMS Am. 2)
Blue	No	No	ICCAT Standing Committee on Research and Statistics Report (2008)
Shortfin mako	No	No	ICCAT Standing Committee on Research and Statistics Report (2012)
All other pelagic sharks	Unknown	Unknown	
Large Coastal Sharks (LCS)			
Blacktip	Unknown	Unknown	SEDAR 11 (2006)
Aggregated Large Coastal Sharks - Atlantic Region	Unknown	Unknown	SEDAR 11 (2006); difficult to assess as a species complex due to various life history characteristics/ lack of available data
Non-Blacknose Small Coastal Sharks (SCS)			
Atlantic Sharpnose	No	No	SEDAR 34 (2013)
Bonnethead	Unknown	Unknown	SEDAR 34 (2013)
Finetooth	No	No	SEDAR 13 (2007)
Hammerhead			
Scalloped	Yes	Yes	SEFSC Scientific Review by Hayes, et al. (2009): Rebuilding ends in 2023 (HMS Am. 5a)
Blacknose			
Blacknose	Yes	Yes	SEDAR 21 (2010); Rebuilding ends in 2043 (HMS Am. 5a)
Smoothhound			
Smooth Dogfish	No	No	SEDAR 39 (2015)
Research			
Sandbar	Yes	No	SEDAR 21 (2010)
Prohibited			
Dusky	Yes	Yes	SEDAR 21 (2010); Rebuilding ends in 2108 (HMS Am. 2)
All other prohibited sharks	Unknown	Unknown	

Table 4. Upcoming Stock Assessments

YEAR	SPECIES	ICCAT	SEDAR
2015	Blue	X	
	Smoothhound (2 stocks)		X Benchmark
2016	Shortfin mako	X	
	Dusky		X Update
2017	Porbeagle	X	
	Blacktip (GOM)		X Update
2018	OPEN		X Benchmark, finalized in 2019

Federal Register entitled “Medicare and Medicaid Programs; CY 2016 Home Health Prospective Payment System Rate Update; Home Health Value-Based Purchasing Model; and Home Health Quality Reporting Requirements.”

DATES: The comment due date for the proposed rule published in the **Federal Register** on July 10, 2015 (80 FR 39839) remains September 4, 2015.

FOR FURTHER INFORMATION CONTACT: Michelle Brazil, (410) 786–1648.

SUPPLEMENTARY INFORMATION:

I. Background

In FR Doc. 2015–16790, published in the **Federal Register** on July 10, 2015 (80 FR 39839), there were technical errors that are identified and corrected in the Correction of Errors section of this correcting document.

II. Summary of Errors

On page 39898, in our discussion of collection of OASIS data, we inadvertently provided an incorrect Web address for a Web site.

On page 39898, in our discussion concerning the specifications and data for NQF #0678, we inadvertently provided an incorrect Web address for a Web site.

III. Correction of Errors

In proposed rule FR Doc. 2015–16790, beginning on page 39840 in the issue of July 10, 2015, make the following corrections in the **SUPPLEMENTARY INFORMATION:**

1. On page 39898, in the first column, in the second full paragraph, the reference to the Web site beginning on line 25, “OASIS Manual <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/>” is corrected to read “downloads section <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/HHQIQualityMeasures.html>”.

2. On page 39898, in the second column, in the first full paragraph, the Web site in line 11, “<http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/PAC-Quality-Initiatives.html>” is corrected to read “<https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/HHQIQualityMeasures.html>”.

Dated: August 12, 2015.

Madhura Valverde,
*Executive Secretary to the Department,
 Department of Health and Human Services.*
 [FR Doc. 2015–20336 Filed 8–14–15; 11:15 am]
BILLING CODE 4120–01–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 635

[Docket No. 150413357–5667–01]

RIN 0648–XD898

**Atlantic Highly Migratory Species;
 2016 Atlantic Shark Commercial
 Fishing Season**

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: This proposed rule would establish opening dates and adjust quotas for the 2016 fishing season for the Atlantic commercial shark fisheries. Quotas would be adjusted as allowable based on any over- and/or underharvests experienced during 2015 and previous fishing seasons. In addition, NMFS proposes season openings based on adaptive management measures to provide, to the extent practicable, fishing opportunities for commercial shark fishermen in all regions and areas. The proposed measures could affect fishing opportunities for commercial shark fishermen in the northwestern Atlantic Ocean, including the Gulf of Mexico and Caribbean Sea.

DATES: Written comments must be received by September 17, 2015.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2015–0068, by any of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to www.regulations.gov/ #!docketDetail;D=NOAA-NMFS-2015-0068, click the “Comment Now!” icon, complete the required fields, and enter or attach your comments.
 - *Mail:* Submit written comments to Margo Schulze-Haugen, NMFS/SF1, 1315 East-West Highway, National Marine Fisheries Service, SSMC3, Silver Spring, MD 20910.
- Instructions:* Comments sent by any other method, to any other address or

individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on www.regulations.gov without change. All personal identifying information (*e.g.*, name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter “N/A” in the required fields if you wish to remain anonymous).

FOR FURTHER INFORMATION CONTACT: Guý DuBeck or Karyl Brewster-Geisz at 301–427–8503.

SUPPLEMENTARY INFORMATION:

Background

The Atlantic commercial shark fisheries are managed under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The 2006 Consolidated Highly Migratory Species (HMS) Fishery Management Plan (FMP) and its amendments are implemented by regulations at 50 CFR part 635. For the Atlantic commercial shark fisheries, the 2006 Consolidated HMS FMP and its amendments established, among other things, commercial shark retention limits, commercial quotas for species and management groups, accounting measures for under- and overharvests for the shark fisheries, and adaptive management measures such as flexible opening dates for the fishing season and inseason adjustments to shark trip limits, which provide management flexibility in furtherance of equitable fishing opportunities, to the extent practicable, for commercial shark fishermen in all regions and areas.

This proposed rule would establish quotas and opening dates for the 2016 Atlantic shark commercial fishing season based in part on the management measures in the recently published final rule for Amendment 6 to the 2006 Consolidated HMS FMP. In Amendment 6 to the 2006 Consolidated HMS FMP, NMFS established, among other things, an adjusted commercial shark retention limit for large coastal sharks (LCS) other than sandbar sharks, revised sandbar shark quota within the shark research fishery, sub-regional quotas in the Gulf of Mexico region for LCS, revised total allowable catches (TACs) and commercial quotas for the non-blacknose small coastal shark (SCS) fisheries in the Atlantic and Gulf of Mexico regions, and revised management measures for blacknose sharks.

2016 Proposed Quotas

This proposed rule would adjust the quota levels for the different shark stocks and management groups for the 2016 Atlantic commercial shark fishing season based on over- and underharvests that occurred during 2015 and previous fishing seasons, consistent with existing regulations at 50 CFR 635.27(b)(2). Over- and underharvests are accounted for in the same region, sub-region, and/or fishery in which they occurred the following year, except that large overharvests may be spread over a number of subsequent fishing years to a maximum of 5 years. Shark stocks or management groups that contain one or more stocks that are overfished, have overfishing occurring, or have an unknown status, will not have underharvest carried over in the following year. Stocks that are not overfished and have no overfishing occurring may have any underharvest carried over in the following year, up to 50 percent of the base quota.

The quotas in this proposed rule are based on dealer reports received as of July 17, 2015. In the final rule, NMFS will adjust the quotas based on dealer reports received as of a date in mid-October or mid-November 2015. For prior shark quota rules, NMFS has used information from dealer reports received as of October 15 through November 26, depending on the timing of the final rule. Thus, all of the 2016 proposed quotas for the respective stocks and management groups will be subject to further adjustment after NMFS considers the October/November dealer reports. All dealer reports that are received after the October or November date will be used to adjust the 2017 quotas, as appropriate.

For the sandbar shark, aggregated LCS, hammerhead shark, non-blacknose SCS, blacknose shark, blue shark, porbeagle shark, and pelagic shark (other than porbeagle or blue sharks) management groups, the 2015 underharvests cannot be carried over to

the 2016 fishing season because those stocks or management groups have been determined to be overfished, overfished with overfishing occurring, or have an unknown status. Thus, for all of these management groups, the 2016 proposed quotas would be equal to the applicable base quota minus any overharvests that occurred in 2015 and previous fishing seasons, as applicable.

For the Gulf of Mexico blacktip shark management group, which has been determined not to be overfished and to have no overfishing occurring, available underharvest (up to 50 percent of the base quota) from the 2015 fishing season may be applied to the 2016 quota, and NMFS proposes to do so.

Regarding the blacknose shark management group, in the final rule establishing quotas for the 2014 shark season (78 FR 70500; November 26, 2013), NMFS decided to spread out the 2012 overharvest of the blacknose shark quota across 5 years (2014 through 2018) in both the Atlantic and Gulf of Mexico regions. In the final rule for Amendment 6 to the 2006 Consolidated HMS FMP, NMFS modified the regulations for blacknose shark fisheries in the Atlantic and Gulf of Mexico regions. In the Gulf of Mexico region and north of 34° N. latitude in the Atlantic region, NMFS has prohibited the retention of blacknose sharks. Thus, in this proposed rule, NMFS is not proposing any quotas for blacknose sharks in those areas. However, NMFS is proposing to reduce the blacknose shark quota for fishermen operating south of 34° N. latitude in the Atlantic region by 0.5 mt dw to account for the 2012 overharvest. Thus, before accounting for any landings from 2015, the 2016 adjusted annual quota for the Atlantic blacknose shark management group would be 16.7 mt dw (36,818 lb dw).

Based on current landings, the 2015 blacknose shark management group in the Atlantic region was overharvested by 2.9 mt dw (6,328 lb dw). NMFS is

proposing to spread out the overharvest accounting over 3 years from 2016 through 2018, the same time period remaining for accounting for the 2012 overharvest, and NMFS is specifically requesting comments on whether NMFS should adjust the quotas over three or more (four or five) years or simply account for the entire overharvest in 2016. In the Atlantic region, accounting for the overharvest over 3 years would result in an overharvest reduction of 1.0 mt dw for 2016 and 2017, and 0.9 mt dw for 2018. This reduction combined with the 0.5 mt dw 2012 overharvest reduction represents 9 percent of the Atlantic region blacknose quota and thus would have both minimal economic impacts on the fishermen and minimal ecological impacts on the stocks. If NMFS reduced the 2016 quota by the full overharvest amount combined with the 2012 overharvest reduction (3.4 mt dw) in one year, this would result in a 20 percent reduction from the base quota, which could negatively impact fishermen and data collection, since the reduced quota would be below regional landings from past fishing seasons and could result in closing the non-blacknose SCS fishery in the Atlantic region south of 34° N. latitude earlier than it has in recent years. NMFS does not believe that accounting for the overharvests over time (1.0 mt dw for 2016 and 2017, and 0.9 mt dw for 2018) would affect the status of the Atlantic blacknose stock because fishing mortality levels would be maintained below levels established in the rebuilding plan. Thus, NMFS is proposing to reduce the 2016 base annual quota for the blacknose shark management group in the Atlantic region based on overharvests from 2012 and 2015.

The proposed 2016 quotas by species and management group are summarized in Table 1; the description of the calculations for each stock and management group can be found below.

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Table 1. 2016 Proposed Quotas and Opening Dates for the Atlantic Shark Management Groups. All quotas and landings are dressed weight (dw), in metric tons (mt), unless specified otherwise. Table includes landings data as of July 17, 2015; final quotas are subject to change based on landings as of October or November 2015. 1 mt = 2,204.6 lb.

Region or Sub-region	Management Group	2015 Annual Quota (A)	Preliminary 2015 Landings ¹ (B)	Adjustments (C)	2016 Base Annual Quota (D)	2016 Proposed Annual Quota (D+C)	Season Opening Dates
Eastern Gulf of Mexico	Blacktip Sharks	25.1 mt dw (55,439 lb dw)	21.4 mt dw (47,351 lb dw) ²	3.8 mt dw (8,396 lb dw) ³	25.1 mt dw (55,439 lb dw)	28.9 mt dw (63,835 lb dw)	January 1, 2016
	Aggregated Large Coastal Sharks	85.5 mt dw (188,593 lb dw)	82.2 mt dw (181,262 lb dw) ²	-	85.5 mt dw (188,593 lb dw)	85.5 mt dw (188,593 lb dw)	
	Hammerhead Sharks	13.4 mt dw (29,421 lb dw)	7.3 mt dw (16,012 lb dw) ²	-	13.4 mt dw (29,421 lb dw)	13.4 mt dw (29,421 lb dw)	
Blacktip Sharks	231.5 mt dw (510,261 lb dw)	197.4 mt dw (435,818 lb dw) ²	35.1 mt dw (77,277 lb dw) ³	231.5 mt dw (510,261 lb dw)	266.6 mt dw (587,538 lb dw)		
Aggregated Large Coastal Sharks	72.0 mt dw (158,724 lb dw)	69.2 mt dw (152,554 lb dw) ²	-	72.0 mt dw (158,724 lb dw)	72.0 mt dw (158,724 lb dw)		
Hammerhead Sharks	11.9 mt dw (23,301 lb dw)	6.5 mt dw (11,314 lb dw) ²	-	11.9 mt dw (23,301 lb dw)	11.9 mt dw (23,301 lb dw)		
Western Gulf of Mexico	Non-Blacknose Small Coastal Sharks	45.5 mt dw (100,317 lb dw)	46.2 mt dw (101,948 lb dw)	-5.3 mt dw (-11,612 lb dw) ⁴	112.6 mt dw (248,215 lb dw)	107.3 mt dw (236,603 lb dw)	
	Blacknose Sharks	1.8 mt dw (4,076 lb dw)	1.0 mt dw (2,096 lb dw)	-	0.0 mt dw (0 lb dw)	0.0 mt dw (0 lb dw)	

		Atlantic					No regional quotas				
		January 1, 2016					January 1, 2016				
Atlantic	Aggregated Large Coastal Sharks	168.9 mt dw (372,552 lb dw)	12.3 mt dw (27,100 lb dw)	-	168.9 mt dw (372,552 lb dw)	168.9 mt dw (372,552 lb dw)					
	Hammerhead Sharks	27.1 mt dw (59,736 lb dw)	0.7 mt dw (1,476 lb dw)	-	27.1 mt dw (59,736 lb dw)	27.1 mt dw (59,736 lb dw)					
	Non-Blacknose Small Coastal Sharks	176.1 mt dw (388,222 lb dw)	98.6 mt dw (217,360 lb dw)	-	264.1 mt dw (582,333 lb dw)	264.1 mt dw (582,333 lb dw)					
Atlantic	Blacknose Sharks (South of 34° N. lat. only)	17.5 mt dw (38,638 lb dw)	20.4 mt dw (44,966 lb dw)	-1.5 mt dw (-3,221 lb dw) ⁵	17.2 mt dw (37,921 lb dw)	15.7 mt dw (34,700 lb dw)					
	Non-Sandbar LCS Research	50.0 mt dw (110,230 lb dw)	14.8 mt dw (32,593 lb dw)	-	50.0 mt dw (110,230 lb dw)	50.0 mt dw (110,230 lb dw)					
	Sandbar Shark Research	116.6 mt dw (257,056 lb dw)	60.6 mt dw (133,496 lb dw)	-	90.7 mt dw (199,943 lb dw)	90.7 mt dw (199,943 lb dw)					
No regional quotas	Blue Sharks	273.0 mt dw (601,856 lb dw)	0.5 mt dw (1,114 lb dw)	-	273.0 mt dw (601,856 lb dw)	273.0 mt dw (601,856 lb dw)					
	Porbeagle Sharks	0 mt dw (0 lb dw)	0 mt dw (0 lb dw)	-	1.7 mt dw (3,748 lb dw)	1.7 mt dw (3,748 lb dw)					
	Pelagic Sharks Other Than Porbeagle or Blue	488.0 mt dw (1,075,856 lb dw)	50.7 mt dw (111,701 lb dw)	-	488.0 mt dw (1,075,856 lb dw)	488.0 mt dw (1,075,856 lb dw)					

¹ Landings are from January 1, 2015, through July 17, 2015, and are subject to change.

² The blacktip, aggregated LCS, and hammerhead shark management group preliminary 2015 landings were split based on the sub-regional quota percentage splits established in Amendment 6 to the 2006 Consolidated HMS FMP.

³ This adjustment accounts for underharvest in 2014 and 2015. In the final rule establishing the 2015 quotas (79 FR 71331; December 2, 2014), the 2014 Gulf of Mexico blacktip shark quota was underharvested by 72.0 mt dw (158,692 lb dw). After the final rule establishing the 2015 quotas published, late dealer reports indicated the quota was

underharvested by an additional 1.4 mt dw (3,142 lb dw), for a total underharvest of 73.4 mt dw (161,744 lb dw). In 2015, the Gulf of Mexico blacktip shark quota was underharvested by 37.5 mt (82,531 lb dw). Therefore, this proposed rule would increase the Gulf of Mexico blacktip shark quota by 38.9 mt dw (37.5 mt dw underharvest in 2015 + 1.4 mt dw underharvest from 2014). Recently, NMFS implemented Amendment 6 to the 2006 Consolidated HMS FMP which, among other things, established sub-regional quotas for the Gulf of Mexico blacktip shark management group. NMFS would account for underharvest based on the sub-regional quota percentage split. Thus, the eastern Gulf of Mexico blacktip shark quota would be increased by 3.8 mt dw, or 9.8 percent of the underharvest, while the western Gulf of Mexico blacktip shark quota would be increased by 35.1 mt dw, or 90.2 percent of the underharvest.

⁴This adjustment accounts for overharvests from 2014. In the final rule establishing the 2015 quotas (79 FR 71331; December 2, 2014), the 2014 Gulf of Mexico non-blacknose SCS quota was not overharvested. After the final rule establishing the 2015 quotas published, late dealer reports indicated the quota was overharvested by 5.3 mt dw (11,612 lb dw) due to landings by state-water fishermen fishing in state-waters after the federal closure. NMFS will decrease the 2016 base annual quota based on the overharvest estimate of 5.3 mt from 2014. Based on the original 2015 annual commercial quota, the 2015 annual quota was overharvested by 0.7 mt dw (1,631 lb dw) as of July 17, 2015. In Amendment 6 to the 2006 Consolidated HMS FMP, NMFS increased the commercial Gulf of Mexico non-blacknose SCS quota to 112.6 mt dw (248,215 lb dw) and reopened the fishery. Based on the revised annual commercial quota, reported landings have not exceeded the revised 2015 base quota to date.

⁵This adjustment accounts for overharvest in 2012 and 2015. After the final rule establishing the 2012 quotas published, late dealer reports indicated the blacknose shark quota was overharvested by 3.5 mt dw (7,742 lb dw). In the final rule establishing the 2014 quotas, NMFS implemented a 5-year adjustment of the overharvest amount by the percentage of landings in 2012. Thus, NMFS will reduce the Atlantic blacknose sharks by 0.5 mt dw (1,111 lb dw) each year for 5 years from 2014-2018. In 2015, the Atlantic blacknose shark quota was overharvested by 2.9 (6,328 lb dw). NMFS is proposing an additional 3-year adjustment of the overharvest amount in 2015. NMFS would reduce the quota by 1.0 mt dw (2,110 lb dw) each year for 2016 and 2017 and 0.9 mt dw (2,108 lb dw) for 2018. Therefore, this proposed rule would decrease the Atlantic blacknose shark quota by 1.5 mt dw (1,0 mt dw overharvest in 2015 + 0.5 mt dw overharvest from 2012).

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1. Proposed 2016 Quotas for the Blacktip Sharks in the Gulf of Mexico Region

The 2016 proposed commercial quota for blacktip sharks in the eastern Gulf of Mexico sub-region is 28.9 mt dw (63,835 lb dw) and the western Gulf of Mexico sub-region is 266.6 mt dw (587,538 lb dw). As of July 17, 2015, preliminary reported landings for blacktip sharks in the Gulf of Mexico region were at 89 percent (291.1 mt dw) of their 2015 quota levels. Reported landings have not exceeded the 2015 quota to date, and the fishery was closed on May 3, 2015 (80 FR 24836). Gulf of Mexico blacktip sharks have not been declared to be overfished, to have overfishing occurring, or to have an unknown status. Pursuant to § 635.27(b)(2)(ii), underharvests for blacktip sharks within the Gulf of Mexico region therefore could be applied to the 2015 quotas up to 50 percent of the base quota. In the final rule establishing the 2015 quotas (79 FR 71331; December 2, 2014), the 2014 Gulf of Mexico blacktip shark quota was underharvested by 72.0 mt dw (158,602 lb dw). After the final rule establishing the 2015 quotas published, late dealer reports indicated the quota was underharvested by an additional 1.4 mt dw (3,142 lb dw), for a total underharvest of 73.4 mt dw (161,744 lb dw). During the 2015 fishing season to date, the regional Gulf of Mexico blacktip shark quota has been underharvested by 37.5 mt (82,531 lb dw). Accordingly, NMFS proposes to increase the 2016 Gulf of Mexico blacktip shark quota by 38.9 mt dw (37.5 mt dw underharvest in 2015 + 1.4 mt dw additional underharvest from 2014), which is less than the 50 percent limit (128.3 mt dw) allowed pursuant to the regulations. Thus, the proposed commercial regional Gulf of Mexico blacktip shark quota is 295.5 mt dw.

Recently, NMFS implemented Amendment 6 to the 2006 Consolidated HMS FMP, which, among other things, established sub-regional quotas for the Gulf of Mexico blacktip shark management group. Under these regulations, the eastern sub-region receives 9.8 percent of the regional Gulf of Mexico quota and the western sub-region receives 90.2 percent. Thus, the proposed eastern sub-regional Gulf of Mexico blacktip shark commercial quota is 28.9 mt dw and the proposed western sub-regional Gulf of Mexico blacktip shark commercial quota is 266.6 mt dw.

2. Proposed 2016 Quotas for the Aggregated LCS in the Gulf of Mexico Region

The 2016 proposed commercial quota for aggregated LCS in the eastern Gulf of Mexico sub-region is 85.5 mt dw (188,593 lb dw) and the western Gulf of Mexico sub-region is 72.0 mt dw (158,724 lb dw). As of July 17, 2015, preliminary reported landings for aggregated LCS in the Gulf of Mexico region were at 96 percent (150.4 mt dw) of their 2015 quota levels. Reported landings have not exceeded the 2015 quota to date, and the fishery was closed on May 3, 2015 (80 FR 24836). Given the unknown status of some of the shark species within the Gulf of Mexico aggregated LCS management group, underharvests cannot be carried over pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), NMFS is not proposing to adjust 2016 quotas for aggregated LCS in the eastern Gulf of Mexico and western Gulf of Mexico sub-regions, because there have not been any overharvests and because underharvests cannot be carried over due to stock status.

3. Proposed 2016 Quota for the Aggregated LCS in the Atlantic Region

The 2016 proposed commercial quota for aggregated LCS in the Atlantic region is 168.9 mt dw (372,552 lb dw). As of July 17, 2015, the aggregated LCS fishery in the Atlantic region is still open and preliminary landings indicate 93 percent of the quota is still available. Given the unknown status of some of the shark species within the Atlantic aggregated LCS management group, underharvests cannot be carried over pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates and consistent with current regulations at § 635.27(b)(2), NMFS is not proposing to adjust the 2016 quota for aggregated LCS in the Atlantic region, because there has not been any overharvests and underharvests cannot be carried over due to stock status.

4. Proposed 2016 Quotas for Hammerhead Sharks in the Gulf of Mexico and Atlantic Regions

The 2016 proposed commercial quotas for hammerhead sharks in the eastern Gulf of Mexico sub-region, western Gulf of Mexico sub-region, and Atlantic region are 13.4 mt dw (29,421 lb dw), 11.9 mt dw (23,301 lb dw), and 27.1 mt dw (59,736 lb dw), respectively. As of July 17, 2015, preliminary reported landings for hammerhead sharks were at 54 percent (13.8 mt dw)

of their 2015 quota levels in the Gulf of Mexico region. Reported landings have not exceeded the 2015 quota to date, and the fishery was closed on May 3, 2015 (80 FR 24836). Currently, the hammerhead shark fishery in the Atlantic region is still open and preliminary landings indicate 98 percent of the quota is still available. Given the overfished status of hammerhead sharks, underharvests cannot be carried forward pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), NMFS is not proposing to adjust 2016 quotas for hammerhead sharks in the eastern Gulf of Mexico sub-region, western Gulf of Mexico sub-region, and Atlantic region, because there have not been any overharvests and because underharvests cannot be carried over due to stock status.

5. Proposed 2016 Quotas for Research LCS and Sandbar Sharks Within the Shark Research Fishery

The 2016 proposed commercial quotas within the shark research fishery are 50.0 mt dw (110,230 lb dw) for research LCS and 90.7 mt dw (199,943 lb dw) for sandbar sharks. Within the shark research fishery, as of July 17, 2015, preliminary reported landings of research LCS were at 30 percent (14.8 mt dw) of their 2015 quota levels, and sandbar shark reported landings were at 52 percent (60.6 mt dw) of their 2015 quota levels. Reported landings have not exceeded the 2015 quotas to date. Under § 635.27(b)(2)(ii), because sandbar sharks and scalloped hammerhead sharks within the research LCS management group have been determined to be either overfished or overfished with overfishing occurring, underharvests for these management groups cannot be carried forward to the 2016 quotas. Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), NMFS is not proposing to adjust 2016 quotas in the shark research fishery because there have not been any overharvests and because underharvests cannot be carried over due to stock status.

6. Proposed 2016 Quota for the Non-Blacknose SCS in the Gulf of Mexico Region

The 2016 proposed commercial quota for non-blacknose SCS in the Gulf of Mexico region is 107.3 mt dw (236,603 lb dw). As of July 17, 2015, preliminary reported landings of non-blacknose SCS were at 102 percent (46.2 mt dw) of their 2015 quota levels in the Gulf of Mexico region. Because reported

landings had exceeded the 2015 quota, the fishery was closed on July 4, 2015 (80 FR 38016). In Amendment 6 to the 2006 Consolidated HMS FMP, NMFS increased the commercial Gulf of Mexico non-blacknose SCS quota to 112.6 mt dw (248,215 lb dw). Based on the current landings at that time, NMFS re-opened the non-blacknose SCS fishery and the reported landings have not exceeded the revised 2015 base quota to date. In the final rule establishing the 2015 quotas (79 FR 71331; December 2, 2014), the 2015 Gulf of Mexico non-blacknose SCS quota was not overharvested. However, after the final rule establishing the 2015 quotas published, late dealer reports indicated the quota was overharvested by 5.3 mt dw (11,612 lb dw) in 2014. Pursuant to § 635.27(b)(2)(i), overharvest of non-blacknose sharks would be applied to the regional quota over a maximum of 5 years. NMFS is proposing to apply the entire 2014 overharvest to the 2016 regional quota, because the overharvest is relatively small compared to the overall regional quota, and therefore NMFS anticipates minimal impacts from applying the overharvest in a single year. Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), NMFS proposes to reduce the 2016 Gulf of Mexico non-blacknose SCS quota to 107.3 mt dw (112.6 mt dw annual base quota – 5.3 mt dw 2014 overharvest = 107.3 mt dw 2016 adjusted annual quota).

7. Proposed 2016 Quota for the Non-Blacknose SCS in the Atlantic Region

The 2016 proposed commercial quota for non-blacknose SCS in the Atlantic region is 264.1 mt dw (582,333 lb dw). As of July 17, 2015, preliminary reported landings of non-blacknose SCS were at 56 percent (98.6 mt dw) of their 2015 quota levels in the Atlantic region. Though reported landings had not yet reached or exceeded the 2015 quota, the fishery was closed on June 7, 2015 (80 FR 32040), due to the quota linkage with blacknose sharks in the Atlantic region. In Amendment 6 to the 2006 Consolidated HMS FMP, NMFS increased the commercial Atlantic non-blacknose SCS quota to 264.1 mt dw (582,333 lb dw), removed the quota linkage between non-blacknose SCS and blacknose sharks for fishermen fishing north of 34° N. latitude, and re-opened the non-blacknose SCS fishery north of 34° N. latitude. Non-blacknose SCS fishing south of 34° N. latitude remained closed in 2015. Given the unknown status of bonnethead sharks within the Atlantic non-blacknose SCS management group, underharvests

cannot be carried forward pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), NMFS is not proposing to adjust the 2016 quota for non-blacknose SCS in the Atlantic region, because there have not been any overharvests and because underharvests cannot be carried over due to stock status.

8. Proposed 2016 Quota for the Blacknose Sharks in the Atlantic Region

The 2016 proposed commercial quota for blacknose sharks in the Atlantic region is 15.7 mt dw (34,700 lb dw). As of July 17, 2015, preliminary reported landings of blacknose sharks were at 116 percent (20.4 mt dw) of their 2015 quota levels in the Atlantic region. Reported landings have exceeded the 2015 quota to date, and the fishery was closed on June 7, 2015 (80 FR 32040). In Amendment 6 to the 2006 Consolidated HMS FMP, NMFS removed the quota linkage between non-blacknose SCS and blacknose sharks for fishermen fishing north of 34° N. latitude, but the blacknose shark management group south of 34° N. latitude remained closed, since the quota had been landed. Blacknose sharks have been declared to be overfished with overfishing occurring in the Atlantic region. Pursuant to § 635.27(b)(2)(i), overharvests of blacknose sharks would be applied to the regional quota over a maximum of 5 years. As described above, the 2012 blacknose quota was overharvested and NMFS decided to adjust the regional quotas over 5 years from 2014 through 2018 to mitigate the impacts of adjusting for the overharvest in a single year. In 2015, the Atlantic blacknose shark quota was overharvested by 2.9 mt dw (6,328 lb dw). NMFS is proposing to spread the 2015 overharvest over 3 years to mitigate the impacts of adjusting for the overharvest in a single year. Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), the 2016 proposed commercial adjusted base quota for blacknose sharks in the Atlantic region is 15.7 mt dw (34,700 lb dw) (17.2 mt dw annual base quota – 0.5 mt dw 2012 adjusted 5-year overharvest – 1.0 mt dw 2015 adjusted 3-year overharvest = 15.7 mt dw 2016 adjusted annual quota). Note, the blacknose shark quota is available in the Atlantic region only for those vessels operating south of 34° N. latitude; north of 34° N. latitude; retention, landing, and sale of blacknose sharks is prohibited.

9. Proposed 2019 Quotas for Pelagic Sharks

The 2016 proposed commercial quotas for blue sharks, porbeagle sharks, and pelagic sharks (other than porbeagle or blue sharks) are 273 mt dw (601,856 lb dw), 1.7 mt dw (3,748 lb dw), and 488 mt dw (1,075,856 lb dw), respectively. The porbeagle shark fishery was closed in 2015 due to overharvest in 2014. As of July 17, 2015, preliminary reported landings of blue sharks and pelagic sharks (other than porbeagle and blue sharks) were at less than 1 percent (0.5 mt dw) and 10 percent (50.7 mt dw) of their 2015 quota levels, respectively. Given these pelagic species are overfished, have overfishing occurring, or have an unknown status, underharvests cannot be carried forward pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates and consistent with the current regulations at § 635.27(b)(2), NMFS is not proposing to adjust 2016 quotas for blue sharks and pelagic sharks (other than porbeagle and blue sharks), because there have not been any overharvests and because underharvests cannot be carried over due to stock status.

Proposed Fishing Season Notification for the 2015 Atlantic Commercial Shark Fishing Season

For each fishery, NMFS considered the seven “Opening Commercial Fishing Season Criteria” listed at § 635.27(b)(3). The “Opening Fishing Season” criteria consider factors such as the available annual quotas for the current fishing season, estimated season length and average weekly catch rates from previous years, length of the season and fishermen participation in past years, impacts to accomplishing objectives of the 2006 Consolidated HMS FMP and its amendments, temporal variation in behavior or biology target species (e.g., seasonal distribution or abundance), impact of catch rates in one region on another, and effects of delayed season openings.

Specifically, NMFS examined the 2015 and previous fishing years’ over- and/or underharvests of the different management groups to determine the effects of the 2016 proposed commercial quotas on fishermen across regional and sub-regional fishing areas. NMFS also examined the potential season length and previous catch rates to ensure that equitable fishing opportunities would be provided to fishermen in all areas. Lastly, NMFS examined the seasonal variation of the different species/management groups and the effects on fishing opportunities.

In addition to considering the seven "Opening Commercial Fishing Season Criteria," NMFS is also considering the revised commercial shark retention limit and other management measures in the final rule for Amendment 6 to the 2006 Consolidated HMS FMP in determining the proposed opening dates for 2016.

NMFS is proposing that the 2016 Atlantic commercial shark fishing season for all shark management groups in the northwestern Atlantic Ocean, including the Gulf of Mexico and the Caribbean Sea, open on or about January 1, 2016, after the publication of the final rule for this action. NMFS is also proposing to start the 2016 commercial shark fishing season with the default retention limit of 45 LCS other than sandbar sharks per vessel per trip.

In the Atlantic region, NMFS proposes opening the aggregated LCS and hammerhead shark management groups on or about January 1, 2016. This opening date takes into account all the criteria listed in § 635.27(b)(3), and particularly the criterion that NMFS consider the effects of catch rates in one part of a region precluding vessels in another part of that region from having a reasonable opportunity to harvest a portion of the different species and/or management quotas. In addition, during the comment periods for the 2015 shark season proposed rule (79 FR 54252; September 11, 2014) and proposed rule for Amendment 6 to the 2006 Consolidated HMS FMP (80 FR 2648; January 20, 2015), NMFS received comments from fishermen from all areas of the Atlantic requesting that the aggregated LCS and hammerhead shark management groups open in January. In public comments during Amendment 6 to the 2006 Consolidated HMS FMP, constituents suggested a January opening date such that a portion of the quota could be harvested in the beginning of the year and then the trip limits be reduced such that the rest of the quota could be harvested at the end of the fishing year. As such, NMFS is intending to use the inseason trip limit adjustment criteria in the regulations per § 635.24(a)(8) for the first time in 2016. The inseason trip limit adjustment criteria would allow more equitable fishing opportunities across the fishery. The proposed opening date with the default retention limit of 45 LCS other than sandbar sharks per vessel per trip should allow fishermen to harvest some of the 2016 quota at the beginning of the year, when sharks are more prevalent in the South Atlantic area. If it appears that the quota is being harvested too quickly to allow fishermen throughout the entire region an opportunity to fish, NMFS

would reduce the commercial retention limits taking into account § 635.27(b)(3) and the inseason trip limit adjustment criteria listed in § 635.24(a)(8), particularly the consideration of whether catch rates in one part of a region or sub-region are precluding vessels in another part of that region or sub-region from having a reasonable opportunity to harvest a portion of the relevant quota (§ 635.24(a)(8)(vi)). If that occurs, NMFS would file with the Office of the Federal Register for publication notification of any inseason adjustments of the retention limit to an appropriate limit between 0 and 55 sharks per trip. NMFS would increase the commercial retention limits per trip at a later date to provide fishermen in the northern portion of the Atlantic region an opportunity to retain non-sandbar LCS.

For example, the aggregated LCS and hammerhead shark management groups could open in January and NMFS could allow approximately 30 percent of the quota to be retained. Once the quota reaches about 30 percent, NMFS could reduce the retention limit to incidental levels (3 LCS other than sandbar sharks per vessel per trip) or another level calculated to reduce the harvest of LCS. If the quota continues to be harvested quickly, NMFS could reduce the retention limit to 0 LCS other than sandbar sharks per vessel per trip to ensure enough quota remains until later in the year. At some point later in the year, potentially equivalent to recent fishing season opening dates (e.g., July 1 or July 15), NMFS could increase the retention limit to the default level (45 LCS other than sandbar sharks per vessel per trip) or another amount, as deemed appropriate after considering the inseason trip limit adjustment criteria. If the quota is being harvested too fast or too slow, NMFS could adjust the retention limit appropriately to ensure the fishery remains open most of the rest of the year.

In the Gulf of Mexico region, opening the fishing season on or about January 1, 2016, for aggregated LCS, blacktip sharks, and hammerhead sharks with the default retention limit of 45 LCS other than sandbar sharks per vessel per trip would provide, to the extent practicable, equitable opportunities across the fisheries management sub-regions. This opening date takes into account all the criteria listed in § 635.27(b)(3), and particularly the criterion that NMFS consider the length of the season for the different species and/or management group in the previous years and whether fishermen were able to participate in the fishery in those years. Similar to the retention limit adjustment process described for

the Atlantic region, NMFS may consider adjusting the retention limit in the Gulf of Mexico region throughout the season to ensure fishermen in all parts of the region have an opportunity to harvest aggregated LCS, blacktip sharks, and hammerhead sharks.

All of the shark management groups would remain open until December 31, 2016, or until NMFS determines that the fishing season landings for any shark management group has reached, or is projected to reach, 80 percent of the available quota. In the final rule for Amendment 6 to the 2006 Consolidated HMS FMP, NMFS revised non-linked and linked quotas and explained that the linked quotas are explicitly designed to concurrently close multiple shark management groups that are caught together to prevent incidental catch mortality from causing total allowable catch to be exceeded. If NMFS determines that a non-linked shark species or management group must be closed, then, consistent with § 635.28(b)(2) for non-linked quotas (e.g., eastern Gulf of Mexico blacktip, western Gulf of Mexico blacktip, Gulf of Mexico non-blacknose SCS, or pelagic sharks), NMFS will file for publication with the Office of the Federal Register a notice of closure for that shark species, shark management group, region, and/or sub-region that will be effective no fewer than 5 days from date of filing. From the effective date and time of the closure until NMFS announces, via the publication of a notice in the **Federal Register**, that additional quota is available and the season is reopened, the fisheries for the shark species or management group are closed, even across fishing years.

If NMFS determines that a linked shark species or management group must be closed, then, consistent with § 635.28(b)(3) for linked quotas, NMFS will file for publication with the Office of the Federal Register a notice of closure for all of the species and/or management groups in a linked group that will be effective no fewer than 5 days from date of filing. From the effective date and time of the closure until NMFS announces, via the publication of a notice in the **Federal Register**, that additional quota is available and the season is reopened, the fisheries for all linked species and/or management groups are closed, even across fishing years. The linked quotas of the species and/or management groups are Atlantic hammerhead sharks and Atlantic aggregated LCS; eastern Gulf of Mexico hammerhead sharks and eastern Gulf of Mexico aggregated LCS; western Gulf of Mexico hammerhead sharks and western Gulf of Mexico

aggregated LCS; and Atlantic blacknose and Atlantic non-blacknose SCS south of 34° N. latitude. NMFS may close the fishery for the Gulf of Mexico blacktip shark before landings reach, or are expected to reach, 80 percent of the quota, after considering the criteria listed at § 635.28(b)(5).

NMFS determined that the final rules to implement Amendment 2 to the 2006 Consolidated HMS FMP (June 24, 2008, 73 FR 35778; corrected on July 15, 2008, 73 FR 40658), Amendment 5a to the 2006 Consolidated HMS FMP (78 FR 40318; July 3, 2013), and Amendment 6 to the 2006 Consolidated HMS FMP are consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of coastal states on the Atlantic including the Gulf of Mexico and the Caribbean Sea. Pursuant to 15 CFR 930.41(a), NMFS provided the Coastal Zone Management Program of each coastal state a 60-day period to review the consistency determination and to advise the Agency of their concurrence. NMFS received concurrence with the consistency determinations from several states and inferred consistency from those states that did not respond within the 60-day time period. This proposed action to establish opening dates and adjust quotas for the 2016 fishing season for the Atlantic commercial shark fisheries does not change the framework previously consulted upon; therefore, no additional consultation is required.

Request for Comments

Comments on this proposed rule may be submitted via <http://www.regulations.gov> and mail. NMFS solicits comments on this proposed rule by September 17, 2015 (see **DATES** and **ADDRESSES**). In addition to comments on the entire rule, NMFS is specifically requesting comments on the proposed 3-year adjustment for the blacknose shark quota in the Atlantic Region to account for the overharvest of blacknose sharks in 2015. NMFS is proposing to spread the overharvested amount over a 3-year period (2016 to 2018) to reduce impacts on the blacknose shark and non-blacknose SCS fisheries, which are linked fisheries in the Atlantic region south of 34° N. latitude. Since the overharvested quota would be spread over 3 years in addition to the 2012 overharvest reduction which continues through 2018, the Atlantic blacknose shark quota would be reduced by 1.5 mt dw (3,221 lb dw) in 2016 and the adjusted quota would be 15.7 mt dw (34,700 lb dw). If additional overharvest occurs, the adjusted blacknose shark quota could be further reduced to account for this potential overharvest. If

NMFS accounted for the full 2015 overharvest amount in the 2016 quota in addition to the 2012 overharvest reduction, the blacknose shark quota would be reduced by 3.4 mt dw (7,439 lb dw) and the adjusted quota would be 13.8 mt dw (30,482 lb dw), which could result in an early fishery closure in the Atlantic region south of 34° N. latitude and have adverse impacts for blacknose and non-blacknose fishermen and dealers. This second scenario would not have any 2015 overharvest impacts beyond 2016.

Public Hearings

Public hearings on this proposed rule are not currently scheduled. If you would like to request a public hearing, please contact Guý DuBeck or Karyl Brewster-Geisz by phone at 301-427-8503.

Classification

The NMFS Assistant Administrator has determined that the proposed rule is consistent with the 2006 Consolidated HMS FMP and its amendments, the Magnuson-Stevens Act, and other applicable law, subject to further consideration after public comment.

These proposed specifications are exempt from review under Executive Order 12866.

An initial regulatory flexibility analysis (IRFA) was prepared, as required by section 603 of the Regulatory Flexibility Act (RFA). The IRFA describes the economic impact this proposed rule, if adopted, would have on small entities. The IRFA analysis follows.

Section 603(b)(1) of the RFA requires Agencies to explain the purpose of the rule. This rule, consistent with the Magnuson-Stevens Act and the 2006 Consolidated HMS FMP and its amendments, is being proposed to establish the 2016 commercial shark fishing quotas and fishing seasons. Without this rule, the commercial shark fisheries would close on December 31, 2015, and would not open until another action was taken. This proposed rule would be implemented according to the regulations implementing the 2006 Consolidated HMS FMP and its amendments. Thus, NMFS expects few, if any, economic impacts to fishermen other than those already analyzed in the 2006 Consolidated HMS FMP and its amendments, based on the quota adjustments.

Section 603(b)(2) of the RFA requires Agencies to explain the rule's objectives. The objectives of this rule are to: Adjust the baseline quotas for all Atlantic shark management groups based on any over- and/or

underharvests from the previous fishing year(s) and to establish the opening dates of the various management groups in order to provide, to the extent practicable, equitable opportunities across the fishing management regions and/or sub-regions while also considering the ecological needs of the different shark species.

Section 603(b)(3) of the RFA requires Federal agencies to provide an estimate of the number of small entities to which the rule would apply. The Small Business Administration (SBA) has established size criteria for all major industry sectors in the United States, including fish harvesters. The SBA size standards are \$20.5 million for finfish fishing, \$5.5 million for shellfish fishing, and \$7.5 million for other marine fishing, for-hire businesses, and marinas (79 FR 33467; June 12, 2014). NMFS considers all HMS permit holders to be small entities because they had average annual receipts of less than \$20.5 million for finfish-harvesting. The commercial shark fisheries are comprised of fishermen who hold shark directed or incidental limited access permits and the related shark dealers, all of which NMFS considers to be small entities according to the size standards set by the SBA. The proposed rule would apply to the approximately 208 directed commercial shark permit holders, 255 incidental commercial shark permit holders, and 100 commercial shark dealers as of July 2015. NMFS solicits public comment on the IRFA.

This proposed rule does not contain any new reporting, recordkeeping, or other compliance requirements (5 U.S.C. 603(b)(4)). Similarly, this proposed rule would not conflict, duplicate, or overlap with other relevant Federal rules (5 U.S.C. 603(b)(5)). Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements as domestically implemented, domestic laws, and FMPs. These include, but are not limited to, the Magnuson-Stevens Act, the Atlantic Tunas Convention Act, the High Seas Fishing Compliance Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Environmental Policy Act, the Paperwork Reduction Act, and the Coastal Zone Management Act.

Section 603(c) of the RFA requires each IRFA to contain a description of any significant alternatives to the proposed rule which would accomplish the stated objectives of applicable statutes and minimize any significant economic impact of the proposed rule on small entities. Additionally, the RFA (5 U.S.C. 603 (c)(1)-(4)) lists four general

categories of significant alternatives that would assist an agency in the development of significant alternatives. These categories of alternatives are: (1) Establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) use of performance rather than design standards; and, (4) exemptions from coverage of the rule for small entities. In order to meet the objectives of this proposed rule, consistent with the Magnuson-Stevens Act, NMFS cannot exempt small entities or change the reporting requirements only for small entities because all the entities affected are considered small entities; therefore, there are no alternatives discussed that fall under the first, third, and fourth categories described above. NMFS does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, complying with the Magnuson-Stevens Act; therefore, there are no alternatives considered under the third category.

This rulemaking does not establish management measures to be

implemented, but rather implements previously adopted and analyzed measures with adjustments, as specified in the 2006 Consolidated HMS FMP and its amendments and the Environmental Assessment (EA) that accompanied the 2011 shark quota specifications rule (75 FR 76302; December 8, 2010). Thus, NMFS proposes to adjust quotas established and analyzed in the 2006 Consolidated HMS FMP and its amendments by subtracting the underharvest or adding the overharvest as allowable. Thus, NMFS has limited flexibility to modify the quotas in this rule, the impacts of which were analyzed in previous regulatory flexibility analyses.

Based on the 2014 ex-vessel price, fully harvesting the unadjusted 2016 Atlantic shark commercial baseline quotas could result in total fleet revenues of \$4,583,514 (see Table 2). For the Gulf of Mexico blacktip shark management group, NMFS is proposing to increase the baseline sub-regional quotas due to the underharvests in 2015. The increase for the eastern Gulf of Mexico blacktip shark management group could result in a \$8,413 gain in total revenues for fishermen in that sub-region, while the increase for the western Gulf of Mexico blacktip shark management group could result in a

\$77,432 gain in total revenues for fishermen in that sub-region. For the Gulf of Mexico non-blacknose SCS management group, NMFS is proposing to reduce the baseline quota due to the overharvest in 2014. This would cause a potential loss in revenue of \$7,571 for the fleet in the Gulf of Mexico region. For the Atlantic blacknose shark management group, NMFS will continue to reduce the baseline quota through 2018 to account for overharvest in 2012 and is proposing to reduce the baseline quota for the next 3 years to account for overharvest in 2015. These reductions would cause a potential loss in revenue of \$3,157 for the fleet in the Atlantic region.

All of these changes in gross revenues are similar to the changes in gross revenues analyzed in the 2006 Consolidated HMS FMP and its amendments. The FRFAs for those amendments concluded that the economic impacts on these small entities are expected to be minimal. In the 2006 Consolidated HMS FMP and its amendments and the EA for the 2011 shark quota specifications rule, NMFS stated it would be conducting annual rulemakings and considering the potential economic impacts of adjusting the quotas for under- and overharvests at that time.

TABLE 2—AVERAGE EX-VESSEL PRICES PER LB DW FOR EACH SHARK MANAGEMENT GROUP, 2014

Region	Species	Average ex-vessel meat price	Average ex-vessel fin price
Gulf of Mexico	Blacktip Shark	\$0.50	\$9.53
	Aggregated LCS	0.54	10.04
	Hammerhead Shark	0.48	10.21
	Non-Blacknose SCS	0.36	5.84
Atlantic	Blacknose Shark	0.86	5.84
	Aggregated LCS	0.75	4.19
	Hammerhead Shark	0.57	2.33
	Non-Blacknose SCS	0.74	4.00
No Region	Blacknose Shark	0.78	4.00
	Shark Research Fishery (Aggregated LCS)	0.58	7.68
	Shark Research Fishery (Sandbar only)	0.69	10.12
	Blue shark	0.67	2.34
	Porbeagle shark	1.41	2.34
	Other Pelagic sharks	1.41	2.34

For this rule, NMFS also reviewed the criteria at § 635.27(b)(3) to determine when opening each fishery would provide equitable opportunities for fishermen while also considering the ecological needs of the different species. The opening of the fishing season could vary depending upon the available annual quota, catch rates, and number of fishing participants during the year. For the 2016 fishing season, NMFS is proposing to open all of the shark management groups on the effective

date of the final rule for this action (expected to be on or about January 1). The direct and indirect economic impacts would be neutral on a short- and long-term basis, because NMFS is not proposing to change the opening dates of these fisheries from the status quo, except for aggregated LCS and hammerhead sharks in the Atlantic.

Opening the aggregated LCS and hammerhead shark management groups in the Atlantic region on the effective date of the final rule for this action

(expected to be on or about January 1) would result in short-term, direct, moderate, beneficial economic impacts, as fishermen and dealers in the southern portion of the Atlantic region would be able to fish for aggregated LCS and hammerhead sharks starting on or about January. These fishermen would be able to fish earlier in the 2016 fishing season compared to the 2010, 2011, 2012, 2014, and 2015 fishing seasons, which did not start until June or July. These fishermen commented during the public comment

period for the past shark specification rulemakings and Amendment 6 to the 2006 Consolidated HMS FMP that they felt that opening the fishery in July was not fair to them because, by July, the sharks have migrated north and are no longer available. With the implementation of the HMS electronic reporting system in 2013, NMFS now monitors the quota on a more real-time basis compared to the paper reporting system that was in place before 2013. This ability, along with the inseason adjustment criteria in § 635.24(a)(8), should allow NMFS the flexibility to further provide equitable fishing opportunities for fishermen across all regions, to the extent practicable. Depending on how quickly the quota is being harvested, NMFS could reduce the retention limits to ensure that fishermen farther north have sufficient quota for a fishery later in the 2016 fishing season. The direct impacts to shark fishermen in the Atlantic region of reducing the trip limit would depend on

the needed reduction in the trip limit and the timing of such a reduction. Therefore, such a reduction in the trip limit is only anticipated to have minor adverse direct economic impacts to fishermen in the short-term; long-term impacts are not anticipated as these reductions would not be permanent.

In the northern portion of the Atlantic region, a potential January 1 opening for the aggregated LCS and hammerhead shark management groups, with inseason trip limit adjustments to ensure quota is available later in the season, would have direct, minor, beneficial economic impacts in the short-term for fishermen as they would potentially have access to the aggregated LCS and hammerhead shark quotas earlier than in past seasons. Fishermen in this area have stated that, depending on the weather, some aggregated LCS species might be available to retain in January. Thus, fishermen would be able to target or retain aggregated LCS while targeting non-blacknose SCS. There would be indirect, minor, beneficial

economic impacts in the short- and long-term for shark dealers and other entities that deal with shark products in this region as they would also have access to aggregated LCS products earlier than in past seasons. Thus, opening the aggregated LCS and hammerhead shark management groups in January and using inseason trip limit adjustments to ensure a fishery later in the year in 2016 would cause beneficial cumulative economic impacts, since it would allow for a more equitable distribution of the quotas among constituents in this region, which was the original intent of Amendments 2 and 6.

Authority: 16 U.S.C. 971 *et seq.*; 16 U.S.C. 1801 *et seq.*

Dated: August 6, 2015.

Samuel D. Rauch III,
*Deputy Assistant Administrator for
Regulatory Programs, National Marine
Fisheries Service.*

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National Oceanic and Atmospheric Administration

50 CFR Part 635

Atlantic Highly Migratory Species; Large Coastal and Small Coastal Atlantic
Shark Management Measures; Final Rule

DEPARTMENT OF COMMERCE**National Oceanic and Atmospheric Administration****50 CFR Part 635**

[Docket No. 100825390–5664–03]

RIN 0648–BA17

Atlantic Highly Migratory Species; Large Coastal and Small Coastal Atlantic Shark Management Measures

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule; fishery re-opening.

SUMMARY: This final rule implements Amendment 6 to the 2006 Consolidated Highly Migratory Species (HMS) Fishery Management Plan (FMP) (Amendment 6) to increase management flexibility to adapt to the changing needs of the Atlantic shark fisheries; prevent overfishing while achieving on a continuing basis optimum yield; and rebuild overfished shark stocks. Specifically, this final rule increases the large coastal shark (LCS) retention limit for directed shark permit holders to a maximum of 55 LCS per trip, with a default limit of 45 LCS per trip, and reduces the sandbar shark research fishery quota to account for dead discards of sandbar sharks during LCS trips; establishes a management boundary in the Atlantic region along 34°00' N. latitude for the small coastal shark (SCS) fishery, north of which harvest and landings of blacknose sharks is prohibited and south of which the quota linkage between blacknose sharks and non-blacknose SCS is maintained; implements a non-blacknose SCS total allowable catch (TAC) of 489.3 mt dw and a commercial quota of 264.1 mt dw in the Atlantic region; apportions the Gulf of Mexico (GOM) regional commercial quotas for aggregated LCS, blacktip, and hammerhead sharks into western and eastern sub-regional quotas along 88°00' W. longitude; implements a non-blacknose SCS TAC of 999.0 mt dw, increases the commercial non-blacknose SCS quota to 112.6 mt dw, and prohibits retention of blacknose sharks in the GOM; and removes the current upgrading restrictions for shark directed limited access permit (LAP) holders.

DATES: Effective August 18, 2015.

ADDRESSES: Copies of Amendment 6, including the Final Environmental Assessment (EA), and other relevant documents, are available from the HMS Management Division Web site at [http://](http://www.nmfs.noaa.gov/sfa/hms/)

www.nmfs.noaa.gov/sfa/hms/. Copies of the 2013 Atlantic sharpnose and bonnethead shark stock assessment results are available on the Southeast Data Assessment and Review Web site at <http://sedarweb.org/sedar-34>.

FOR FURTHER INFORMATION CONTACT:

LeAnn Hogan, Guý DuBeck, Delisse Ortiz, or Karyl Brewster-Geisz by phone: 301–427–8503, or by fax: 301–713–1917.

SUPPLEMENTARY INFORMATION: Atlantic sharks are managed under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and the authority to issue regulations has been delegated from the Secretary to the Assistant Administrator (AA) for Fisheries, NOAA. On October 2, 2006, NMFS published in the **Federal Register** (71 FR 58058) final regulations, effective November 1, 2006, which detail management measures for Atlantic HMS fisheries, including for the Atlantic shark fisheries. The implementing regulations for the 2006 Consolidated HMS FMP and its amendments are at 50 CFR part 635. This final rule implements Amendment 6.

Background

A brief summary of the background of this final rule is provided below. A more detailed history of the development of these regulations and the alternatives considered are described in the Final Environmental Assessment (EA) for Amendment 6, which can be found online on the HMS Web site (see **ADDRESSES**).

NMFS published a proposed rule on January 20, 2015 (80 FR 2648), which outlined the preferred alternatives analyzed in the Draft EA and solicited public comments on the measures, which were designed to address the objectives of increasing management flexibility to adapt to the changing needs of the Atlantic shark fisheries, prevent overfishing while achieving on a continuing basis optimum yield, and rebuild overfished shark stocks. Specifically, the action proposed to adjust the commercial LCS retention limit for shark directed LAP holders; create sub-regional quotas in the Atlantic and Gulf of Mexico regions for LCS and SCS; modify the LCS and SCS quota linkages; establish TACs and adjust the commercial quotas for non-blacknose SCS in the Atlantic and Gulf of Mexico regions based on the results of the 2013 stock assessments for Atlantic sharpnose and bonnethead sharks; and modify upgrading restrictions for shark permit holders. The full description of the management

and conservation measures considered are included in the Final EA for Amendment 6 and the proposed rule and are not repeated here.

The comment period for the Draft EA and proposed rule for Amendment 6 ended on April 3, 2015. The comments received, and responses to those comments, are summarized below in the section labeled “Response to Comments.”

Management measures in Amendment 6 are designed to respond to the problems facing Atlantic commercial shark fisheries, such as commercial landings that exceed the quotas, declining numbers of fishing permits since limited access was implemented, complex regulations, derby fishing conditions due to small quotas and short seasons, increasing numbers of regulatory discards, and declining market prices. This rule finalizes most of the management measures, and modifies others, that were contained in the Draft EA and proposed rule for Amendment 6. This section provides a summary of the final management measures being implemented by Amendment 6 and notes changes from the proposed rule to this final rule that may be of particular interest to the regulated community. Measures that are different from the proposed rule, or measures that were proposed but not implemented, are described in detail in the section titled, “Changes from the Proposed Rule.”

This final rule increases the LCS retention limit for shark directed LAP holders to a maximum of 55 LCS other than sandbar sharks per trip and sets the default LCS retention limit for shark directed LAP holders to 45 LCS other than sandbar sharks per trip. NMFS may adjust the commercial LCS retention limit before the start of or during a fishing season, based on the fishing rates from the current or previous years, among other factors. In order to increase the commercial LCS retention limit, NMFS is using a portion of the unharvested sandbar shark research fishery quota to account for any dead discards of sandbar sharks that might occur with a higher commercial LCS retention limit. As such, the sandbar shark research fishery quota has been reduced accordingly.

Regarding the SCS fishery in the Atlantic region, this final rule establishes a management boundary in the Atlantic region along 34°00' N. lat. for the SCS fishery and adjusts the SCS quotas. Specifically, retention of blacknose sharks will be prohibited north of 34°00' N. lat., necessitating the removal of the quota linkage between blacknose and non-blacknose SCS north

of 34°00' N. lat. However, NMFS is maintaining the quota linkage between non-blacknose SCS and blacknose sharks south of 34°00' N. lat. With these changes, fishermen operating north of 34°00' N. lat. will be able to continue to fish for non-blacknose SCS once the blacknose quota is harvested, provided that non-blacknose SCS quota is available. Fishermen operating south of 34°00' N. lat. will not be able to fish for non-blacknose SCS or blacknose sharks once either quota is harvested. Furthermore, in order to account for any blacknose shark discard mortality north of 34°00' N. lat., NMFS is reducing the Atlantic blacknose shark quota from 18 mt dw (39,749 lb dw) to 17.2 mt dw (37,921 lb dw). This final rule also establishes a non-blacknose SCS TAC of 489.3 mt dw (1,078,711 lb dw) and increases the commercial quota to 264.1 mt dw (582,333 lb dw). Results of the 2013 stock assessments for Atlantic sharpnose and bonnethead sharks showed that both species would not become overfished or experience overfishing at these harvest levels. As described below, these measures in the final rule have been modified from the proposed rule based on additional data analyses and public comment on sub-regional quotas and the non-blacknose SCS TAC and commercial quota.

This final rule also modifies the LCS and SCS commercial quotas in the GOM region. Specifically, this final rule apportions the GOM regional commercial quotas for aggregated LCS, blacktip, and hammerhead sharks into western and eastern sub-regional quotas along 88°00' W. long. West of 88°00' W. long., the sub-regional quotas are as follows: 231.5 mt dw for blacktip shark, 72.0 mt dw for aggregated LCS, and 11.9 mt dw for hammerhead shark. East of 88°00' W. long., the sub-regional quotas are as follows: 25.1 mt dw for blacktip shark, 85.5 mt dw for aggregated LCS, and 13.4 mt dw for hammerhead shark. This final rule also implements a non-blacknose SCS TAC of 999.0 mt dw (2,202,395 lb dw), increases the non-blacknose SCS commercial quota to 112.6 mt dw (248,215 lb dw), prohibits retention of blacknose sharks in the GOM region, and removes the linkage between blacknose and non-blacknose SCS quotas. These non-blacknose SCS TAC and commercial quota levels would account for all blacknose shark mortality, including blacknose shark discards that were previously landed. As described below, the GOM management measures in the final rule have been modified from the proposed rule based on additional data analyses and public comment.

This final rule also removes the upgrading restrictions for shark directed LAP holders. Before this rule, an owner could upgrade a vessel with a shark directed LAP or transfer the shark directed LAP to another vessel only if the upgrade or transfer did not result in an increase in horsepower of more than 20 percent or an increase of more than 10 percent in length overall, gross registered tonnage, or net tonnage from the vessel baseline specifications. Removing these restrictions allows shark directed LAP holders to upgrade their vessel or transfer the shark directed LAP to another vessel without restrictions related to an increase in horsepower, length overall, or tonnage.

All management measures in Amendment 6 will be effective upon publication of the final rule in the **Federal Register**.

Response to Comments

During the proposed rule stage, NMFS received approximately 30 written comments from fishermen, States, environmental groups, academia and scientists, and other interested parties. NMFS also received feedback from the HMS Advisory Panel, constituents who attended the four public hearings held from February to March 2015 in St. Petersburg, FL, Melbourne, FL, Belle Chasse, LA, and Manteo, NC, and constituents who attended the conference call/webinar held on March 25, 2015. Additionally, NMFS consulted with the five Atlantic Regional Fishery Management Councils, along with the Atlantic States and Gulf States Marine Fisheries Commissions. A summary of the comments received on the proposed rule during the public comment period is provided below with NMFS' responses. All written comments submitted during the comment period can be found at <http://www.regulations.gov> by searching for NOAA-NMFS-2010-0188.

Permit Stacking

Comment 1: NMFS received overall support for not implementing permit stacking under Alternative A1, including from the North Carolina Division of Marine Fisheries (NCDMF), South Carolina Department of Natural Resources (SCDNR), Virginia Marine Resources Commission (VAMRC), the Mid-Atlantic Fishery Management Council (MAFMC), and the Florida Fish and Wildlife Conservation Commission (FWC).

Response: NMFS preferred the No Action alternative in the proposed rule for Amendment 6, which would not implement permit stacking and continue to allow only one directed

limited access permit per vessel and thus one retention limit. All the comments received supported the No Action alternative and agreed with NMFS' rationale that while permit stacking may have beneficial socioeconomic impacts for those fishermen that already have multiple directed shark permits or that can afford to buy additional permits, it would disadvantage those fishermen unable to buy additional permits. Permit stacking would create inequitable fishing opportunities among directed permit holders if those fishermen that currently have multiple directed permits or that could afford to buy additional directed permits gain an economic advantage from the higher retention limit resultant from permit stacking. Therefore, based on these comments, NMFS is maintaining the status quo in this action and is not implementing permit stacking.

Commercial Shark Retention Limit

Comment 2: Commenters, including the NCDMF, SCDNR, and VAMRC, supported NMFS' proposal to increase the commercial retention limit to 55 LCS per trip, while other commenters preferred a lower retention limit of 45 LCS per trip. Those commenters were concerned that the higher retention limit would increase participation in the fishery and cause the quotas to be harvested faster, especially since the quotas were not increasing. NMFS also received comments that the increased retention limit would only help state-water fishermen and not federally-permitted fishermen, because the state-water fishermen have shorter travel times to fishing grounds and fewer fishing restrictions than the federally-permitted shark fishermen.

Response: NMFS agrees with the comments that an increased LCS retention limit could cause the quotas to be harvested faster and could result in permit holders who have not participated in recent years re-entering the commercial shark fishery or selling their permits to fishermen who want to enter the commercial shark fishery. Because new or returning fishermen do not have the same experience as current fishermen in avoiding sandbar sharks while also avoiding other prohibited species such as dusky sharks, NMFS believes that increasing the retention limit too much could potentially have negative impacts such as increased sandbar shark discards. NMFS' goal with the preferred LCS retention limit of 55 LCS per trip is to increase the profitability of shark trips within current LCS quotas. Thus, as described in Chapters 2 and 4 in the Final EA,

NMFS continues to prefer to increase the commercial retention limit to a maximum of 55 LCS other than sandbar sharks per trip. However, based on public comment and due to concerns that new or returning shark fishermen may not have the experience needed to avoid certain shark species, NMFS is establishing a default commercial retention limit of 45 LCS other than sandbar sharks per trip. If the quotas are being harvested too slowly or too quickly, NMFS may use current regulations to adjust the trip limit inseason to account for spatial and temporal differences in the shark fishery. Adjusting the commercial LCS retention limit on an inseason basis will allow NMFS the ability to ensure equitable fishing opportunities throughout a region or sub-region. With regard to state-water shark fishermen, many states do not have species-specific commercial fishing permits, and instead rely on a general commercial fishing permit. In other words, a state commercial fishing permit allows fishermen to fish commercially for any species of fish, not just sharks. Fishermen who fish in state waters must comply with the state fishing regulations. Fishermen that have a directed or incidental federal shark commercial permit must abide by federal regulations, including retention limits, and must sell to a federally permitted dealer when fishing in federal or state waters. Overall, NMFS believes that establishing a default commercial retention limit of 45 LCS other than sandbar sharks per trip would benefit federally-permitted fishermen by providing increased profitability of shark trips within current LCS quotas, and increasing management flexibility to adapt to the changing needs of the Atlantic shark fisheries.

Comment 3: Some commenters were concerned that the ratios of LCS to sandbar shark used for calculating the commercial retention limits and the adjusted sandbar shark research fishery quota were incorrect. In addition, some commenters expressed concern that NMFS does not know the catch composition of state-water fishermen and therefore could not accurately estimate what impact an increased retention limit would have on the sandbar shark research fishery quota.

Response: NMFS used observer data from 2008 through 2013 to calculate the ratio of LCS to sandbar shark to analyze the impacts of modifying the commercial retention limit and adjusting the shark research fishery sandbar shark quota. While most of these data are from federal waters and not state waters, these data are the best

data available to determine the catch composition ratio of LCS to sandbar sharks in the fishery. As described in this final rule, based on public comment and discussions with the SEFSC, NMFS revised the calculations slightly, resulting in adjustments to the sandbar shark research fishery quota. Specifically, in the Draft EA, NMFS calculated the number of directed trips where directed shark permit holders reported landing at least one LCS in their vessel logbook report from 2008 through 2012. Using this definition of a directed trip overestimated the number of directed shark trips taken every year. In the Final EA, NMFS calculated the number of directed trips when LCS accounted for at least two-thirds of the landings in vessel logbook reports from 2008 through 2013; this is the same approach the observer program uses to determine which vessels should be observed in the LCS fishery. Based on the variability in the directed shark trips by region and year, and the fact that the increased retention limit might result in fewer trips, NMFS decided to use the average number of directed shark trips in the calculations for the adjusted sandbar shark research fishery quota. Using the revised directed shark trips calculations, NMFS is adjusting the sandbar shark fishery quota in Alternative B2 from 75.7 mt dw in the proposed rule to 90.7 mt dw in the final rule. The increased sandbar shark fishery quota should not impact the research fishery at current funding levels, since the sandbar shark fishery quota under Amendment 6 would still be less than the current quota of 116.6 mt dw, and should ensure that a sufficient amount of sandbar quota is available for the sandbar shark research fishery while accounting for sandbar shark interactions in the LCS fishery under a higher retention limit.

Comment 4: NMFS received a comment to change the commercial shark retention limit back to a weight limit. The commenter would prefer a 2,000 lb trip limit rather than a number trip limit. The commenter believes that it would be easier to enforce trip tickets and dealer landings if it was a weight limit since the weight of 36 LCS per trip can vary and it is easier for fishermen to land more than the current trip limit.

Response: Currently, the commercial retention limit is 36 LCS other than sandbar sharks per trip, which was implemented in 2008 under Amendment 2 to the 2006 Consolidated HMS FMP (Amendment 2). Before 2008, the commercial retention limit was 4,000 lb dw LCS per trip. NMFS changed the commercial retention limit from a weight based trip limit to a

number of sharks per trip because the 4,000 lb dw LCS trip limit would have caused the sandbar shark TAC and blacktip shark quotas that were implemented in Amendment 2 to be exceeded. NMFS believes that a retention limit that is based on number of sharks per trip is easier to monitor and makes compliance with these regulations easier for fishermen. In addition, a retention limit based on number of sharks per trip eases at-sea and at-port enforcement of retention limit regulations. Thus, for these reasons, NMFS did not consider changing the retention limit from a number of sharks back to weight based retention limits in this rulemaking.

Comment 5: NMFS received comments to establish the commercial shark retention limit by gear type. Specifically, the commenters suggested a limit of 55 LCS per trip for fishermen using bottom longline gear and a limit of 105 LCS per trip for fishermen using gillnet gear. The commenters stated that with one retention limit for all gear types, bottom longline fishermen would always have a greater profit per trip than gillnet fishermen because bottom longline fishermen catch larger sharks than gillnet fishermen.

Response: As described in the Draft EA for Amendment 6 under Alternative G, NMFS considered separate retention limits by gear type, but did not further analyze this alternative. Observer data from 2008–2013 confirms that gillnet fishermen are catching smaller LCS than fishermen using bottom longline gear. These smaller LCS are likely juvenile sharks. If NMFS were to separate the retention limits for LCS by gear type and increase the limit for gillnet fishermen, gillnet fishermen would be landing a higher number of juvenile LCS. Given the susceptibility of many shark species to overfishing and the number of LCS that have either an unknown or overfished status, NMFS does not want to increase mortality on one particular life stage of any shark species without stock assessment analyses indicating that the species and/or stock can withstand that level of fishing pressure. In addition, setting different retention limits for bottom longline and gillnet gears could complicate enforcement of the regulations. It is for these reasons that NMFS did not further analyze the impacts of setting retention limits based on gear types in the proposed or final rule for Amendment 6.

Atlantic and Gulf of Mexico Regional and Sub-Regional Quotas

Overall

Comment 6: Some commenters, including NCDMF, noted that the fishing season opening dates have a direct impact on fishing effort and participation from any particular region and expressed concern regarding the years chosen to calculate the sub-regional quotas based on landing history. Specifically, commenters were concerned that some of the years chosen may have disadvantaged their area.

Response: In this rulemaking, because of similar concerns expressed at the Predraft stage, NMFS took into consideration how the seasonal opening dates have impacted fishing effort and participation. For example, in the alternatives where NMFS considered apportioning the Atlantic blacknose and non-blacknose SCS quotas into sub-regions, NMFS used data from 2011 through 2012 since these were the only years that the blacknose shark quota linkage did not affect fishing effort for non-blacknose SCS. In the Gulf of Mexico region, NMFS used the range of data from 2008 through 2013 in the sub-regional data calculations for the blacktip and aggregated LCS quotas since the seasonal opening dates did not impact the fishing effort and participation in those years. However, as explained in response to comment 8 below, based on public comments opposed to implementing sub-regional quotas in the Atlantic region, NMFS changed the preferred alternative in this final rule and is not implementing sub-regional LCS and SCS quotas in the Atlantic region. This change is aligned with one of the objectives of Amendment 6, which is intended to respond to the changing needs of the Atlantic shark fisheries.

Comment 7: Some commenters expressed concern regarding how NMFS plans to count the landings for each sub-regional quota. Commenters are concerned that fishermen near the boundary lines will change where they fish or just state that they were fishing in the other sub-region when quota in their sub-region is close to 80 percent. In addition, commenters have expressed concern that NMFS will not be able to enforce where the sharks are caught and which sub-regional quota the landings are counted towards. Instead, commenters preferred that NMFS count the landings where the shark is landed instead of where it is caught.

Response: When NMFS started managing shark quotas regionally, NMFS also began monitoring shark quotas based on where the shark was

landed. NMFS found this approach did not work for the shark fishery for a variety of reasons. NMFS found there are a number of shark fishermen who land their sharks at private docks or at docks that are not owned by the dealer purchasing the sharks. Once landed, the fisherman transports the sharks to the dealer via truck or other methods. At that time, the “landings” were counted against where the dealer was located and not where the fish were actually landed. When the dealer is located in a different region from the fisherman, it causes problems—particularly if the management of the shark species was split into regions based on the results of stock assessments. Additionally, fishermen do not always fish for sharks and land those sharks in the same region. With the implementation of the HMS electronic reporting system (eDealer) in 2013, NMFS began monitoring shark quotas based on where the sharks were reported to be caught. NMFS has found few problems with this approach since the implementation of eDealer and has not experienced any problems with managing landings reported on either side of an established management boundary (e.g., the Miami-Dade line which separates the Atlantic and Gulf of Mexico regions). NMFS will continue to monitor landings via eDealer and count shark landings based on where they are caught instead of where they are landed. This approach should allow NMFS to count shark landings more accurately against the appropriate regional and sub-regional shark quotas. eDealer will incorporate the new sub-regional quota areas in the GOM to ensure that shark landings in the Gulf are counted against the appropriate GOM sub-regional quota. However, if in the future NMFS notices discrepancies regarding where sharks are caught versus landed (e.g., in a comparison between observer data and dealer data), NMFS may reconsider this issue.

Comment 8: NMFS received multiple comments to revise or remove all quota linkages between the SCS and LCS management groups in both the Atlantic and Gulf of Mexico regions. In the Atlantic region, commenters requested that all quota linkages be removed. In the Gulf of Mexico region, commenters requested that the non-blacknose SCS and blacknose linkage be removed, and that the blacktip shark management group be linked to the aggregated LCS and hammerhead shark management groups in each sub-region.

Response: The current LCS and SCS quota linkages were created for shark species that are in separate management groups, but that have the potential to be

caught together on the same shark fishing trip (e.g., non-blacknose SCS and blacknose sharks). If the quota for one management group has been filled and the management group is closed, that species could still be caught as bycatch by fishermen targeting other shark species, possibly resulting in excess mortality and negating some of the conservation benefit of management group closures. In addition, shark quota linkages were put into place as part of the rebuilding plans for shark species that are overfished in order to reduce excess mortality of the overfished species during commercial fishing for other shark species. Thus, NMFS closes the linked shark management groups together. However, based on public comment and additional analyses, NMFS is adjusting the quota linkage changes that were proposed in Draft Amendment 6. Specifically, in the Atlantic region, NMFS is establishing a management boundary at 34°00' N. latitude for the SCS fishery. NMFS is prohibiting landings of blacknose sharks and removing the quota linkage between the non-blacknose SCS and blacknose sharks north of 34°00' N. latitude. NMFS is keeping the quota linkage between non-blacknose SCS and blacknose sharks south of 34°00' N. latitude, since fishermen would still be allowed to land blacknose sharks in this area and most of the blacknose sharks are landed there. NMFS is also maintaining the current quota linkages between the aggregated LCS and hammerhead shark management groups in the Atlantic region. In the Gulf of Mexico, based on public comment and additional analyses, NMFS is removing the quota linkage between the non-blacknose SCS and blacknose sharks in the Gulf of Mexico region and prohibiting the retention and landings of blacknose sharks. In order to account for regulatory discards from the prohibition of blacknose sharks, NMFS is adjusting the Gulf of Mexico non-blacknose SCS commercial quota, taking into account the Gulf of Mexico blacknose shark TAC. As for the blacktip, aggregated LCS, and hammerhead shark management groups, NMFS is maintaining the current quota linkages for these management groups in the Gulf of Mexico because of the unknown status of aggregated LCS and the overfished and overfishing status of the hammerhead shark complex.

Comment 9: NMFS received a comment suggesting consideration of the International Commission for the Conservation of Atlantic Tunas (ICCAT) rule that prohibited landings of hammerhead sharks with pelagic

longline gear in the sub-regional quota calculations. The commenter believes that landing percentages by sub-region would be different pre- and post-rulemaking, and should not include the range of years since the fishery has changed due to the rulemaking.

Response: To comply with ICCAT Recommendations 10–07 and 10–08, NMFS implemented a final rule (76 FR 53652; August 29, 2011) prohibiting the retention, transshipping, landing, storing, or selling of hammerhead sharks (except bonnethead sharks) and oceanic whitetip sharks caught in association with ICCAT fisheries. This rule affected the commercial HMS pelagic longline fishery and recreational fisheries for tunas, swordfish, and billfish in the Atlantic Ocean, including the Caribbean Sea and Gulf of Mexico. In the proposed rule for Amendment 6, NMFS did not modify the landings from pelagic longline fishermen to account for that rule change, as few hammerhead sharks were landed by pelagic longline fishermen between 2008 and 2011. Thus, including these calculations would not have impacted the sub-regional quota calculations or NMFS' decision regarding measures adopted in this final rule. In the Atlantic region, NMFS is not implementing sub-regional quotas for the hammerhead shark management group at this time. Instead, NMFS is maintaining the overall hammerhead quota in the Atlantic region. In the Gulf of Mexico region, NMFS is establishing sub-regional quotas for the hammerhead shark management group, but NMFS revised the data used for the sub-regional quota calculation using 2014 eDealer landings data to determine the sub-regional quotas. Since this data is well after the implementation of the ICCAT rule in 2011, the sub-regional quota calculations are based on landings after the rule was in place.

Atlantic Regional and Sub-Regional Quotas

Comment 10: NMFS received some support for sub-regional quotas in the Atlantic region, including from the NCDMF, SCDNR, VAMRC, and MAFMC. Both the SCDNR and VAMRC supported the preferred Alternative C4 for the LCS and SCS fishery management groups, but expressed concern for equitable fishing opportunities when the opening date for the LCS management groups is chosen. The NCDMF, MAFMC, and other constituents supported the preferred Alternative C4, but for only the SCS management group. They did not support implementation of sub-regional quotas for the aggregated LCS and

hammerhead shark management groups, requesting that NMFS examine other options for these groups. The NCDMF and MAFMC requested that NMFS implement seasons for the aggregated LCS fishery with 50 percent of the quota being available on January 1 and 50 percent of the quota being available on July 1 or July 15. Other commenters requested that NMFS use inseason trip limit adjustments for the LCS fishery instead of sub-regional quotas. The FWC did not support any of the sub-regional quota alternatives as proposed, but the FWC consulted with Florida fishery participants and FWC supports dividing the Atlantic at 34°00' N latitude if NMFS establishes sub-regions for either the SCS or LCS fisheries.

Response: Based on public comment and additional analyses, NMFS developed a new preferred alternative, Alternative C8, which maintains the status quo for the LCS and SCS regional commercial quotas and does not apportion these quotas into sub-regions. NMFS will continue to determine season opening dates and adjust the LCS retention limits inseason in order to provide equitable fishing opportunities to fishermen throughout the Atlantic region.

In addition, NMFS is establishing a management boundary line in the Atlantic region along 34°00' N. latitude for the SCS fishery. South of 34°00' N. latitude, NMFS is maintaining the quota linkage between non-blacknose SCS and blacknose sharks. North of 34°00' N. latitude, NMFS is prohibiting the commercial retention of blacknose sharks and removing the quota linkage between non-blacknose SCS and blacknose sharks. Additionally, in order to account for blacknose shark discard mortality north of 34°00' N. latitude, NMFS is reducing the Atlantic blacknose shark quota from 18 mt to 17.2 mt dw, based on historical landings of blacknose sharks in that area. In establishing this management boundary, as long as quota is available, fishermen south of 34°00' N. latitude could fish for, land, and sell both blacknose and non-blacknose SCS. However, as soon as either quota is harvested, the entire commercial SCS fishery south of 34°00' N. latitude will close. For fishermen south of 34°00' N. latitude, this is status quo. However, in a change from status quo, fishermen north of 34°00' N. latitude could fish for, land, and sell non-blacknose SCS as long as quota is available, but would not be allowed to land or possess blacknose sharks. Overall, establishing this management boundary could result in commercial fishermen north of 34°00' N. latitude possessing and landing non-blacknose

SCS if non-blacknose SCS quota is available at the same time as commercial fishermen south of 34°00' N. latitude cannot possess or land any SCS because of the quota linkage between blacknose and non-blacknose SCS. Prohibiting blacknose sharks and removing quota linkages north of 34°00' N. latitude could have beneficial social and economic impacts for those fishermen, as fishermen in the area above 34°00' N. latitude would be able to continue fishing for non-blacknose SCS without being constrained by the fishing activities south of 34°00' N. latitude, where the majority of blacknose sharks are landed. Additionally, these management measures will not hinder blacknose shark rebuilding or have negative impacts on any other SCS because fishermen above and below the management boundary will still be fishing under quotas that are consistent with the most recent stock assessments. However, fishermen south of 34°00' N. latitude will likely not see any short- and long-term social or economic benefits and will need to continue to avoid blacknose sharks, consistent with the rebuilding plan, in order to land non-blacknose SCS.

Comment 11: The SCDNR did not support Alternative C3, which would create sub-regional quotas at 33°00' N. latitude, since the sub-regional quota line would split the State of South Carolina and cause confusion with the fishermen and dealers in the area.

Response: As discussed above, NMFS is not implementing sub-regional quotas in the Atlantic based on comments received and additional analyses. NMFS created a new preferred alternative, Alternative C8, which maintains the status quo for the LCS and SCS regional commercial quotas and creates a new management boundary at 34°00' N. lat. for the blacknose and non-blacknose SCS management groups in the Atlantic region.

Comment 12: NMFS received overall comments on the opening and closing of the LCS and SCS management groups in the Atlantic region. The comments ranged from opening the LCS management group on January 1 or March 1 to maintaining a consistent season opening date every year for the LCS management groups to opening and closing the LCS and SCS management groups together.

Response: NMFS will evaluate several "Opening Commercial Fishing Season" criteria (§ 635.27(b)(3)) as well as the new management measures in this final action when determining the opening dates for the Atlantic shark fisheries. The "Opening Fishing Season" criteria

consider factors such as the available annual quotas for the current fishing season, estimated season length and average weekly catch rates from previous years, length of the season and fishermen participation in past years, impacts to accomplishing objectives of the 2006 Consolidated HMS FMP and its amendments, temporal variation in behavior or biology of target species (e.g., seasonal distribution or abundance), impact of catch rates in one region on another, and effects of delayed season openings. NMFS will publish the season opening dates of the Atlantic shark fishery and the shark fishery quotas in the 2016 Atlantic shark season specifications proposed and final rules.

Comment 13: NMFS received a number of requests, including from the NCDMF, SCDNR, VAMRC, and MAFMC, to change the Atlantic non-blacknose SCS TAC and quota from Alternative C6 to Alternative C7, to increase the non-blacknose SCS TAC and quota to the highest amount analyzed, because the fishery should not be limited by the bonnethead shark stock assessment, since bonnethead sharks do not comprise a large portion of landings.

Response: After consulting with the HMS Advisory Panel and other constituents and re-reviewing the data from the stock assessments, NMFS is preferring Alternative C7 and implementing a non-blacknose SCS TAC of 489.3 mt dw and a commercial quota of 264.1 mt dw (which is the current adjusted quota). This represents a higher non-blacknose SCS TAC and commercial quota than those preferred in the proposed rule under Alternative C6, likely resulting in shark fishermen taking more trips, in order to land the larger number of non-blacknose SCS allowed. NMFS does not believe that a higher non-blacknose SCS TAC and commercial quota would have a negative impact on the non-blacknose SCS management group, given the results of the SEDAR 34. The projections that were run for Atlantic sharpnose and bonnethead sharks in SEDAR 34 indicated that there was a 70 percent chance that both species would not become overfished or experience overfishing at current harvest levels and could withstand harvest above current levels. NMFS preferred Alternative C6 in the proposed rule to be cautious regarding the “unknown” status of bonnethead sharks. However, based on public comments and after reviewing the combined Gulf of Mexico and Atlantic non-blacknose SCS landings in 2014, NMFS found that bonnethead sharks represented only 6 percent of landings, and therefore, limiting the

quota based on bonnethead sharks would be overly conservative. Thus, the higher non-blacknose SCS commercial quota under Alternative C7 would continue to allow fishermen to land these species at current levels, while maintaining the Atlantic sharpnose and bonnethead stocks at sustainable levels, without unnecessarily limiting the quota, and thus limiting economic gains, due to bonnethead sharks. Regarding finetooth sharks, while results from the SEDAR 13 stock assessment for finetooth sharks should be viewed cautiously, NMFS does not anticipate that this quota would negatively impact the finetooth shark stock. The quota under Alternative C7 is significantly lower than the maximum non-blacknose SCS quota put in place (332.4 mt dw), which still provided for sustainable harvest of non-blacknose SCS. This combined with the fact that finetooth sharks represented only 21 percent of combined Gulf of Mexico and Atlantic non-blacknose SCS landings in 2014, compared to Atlantic sharpnose representing 73 percent, further supports that this quota would have minimal impacts on the finetooth shark stock. The higher non-blacknose SCS commercial quota under the new preferred Alternative C7 will continue to allow fishermen to land these species at current levels, while maintaining the Atlantic sharpnose, bonnethead, and finetooth shark stocks at sustainable levels.

Comment 14: NMFS received a comment stating that NMFS should implement a commercial retention limit for blacknose sharks that ranged from 100–200 lb dw per trip or establish an incidental SCS retention limit of 16 blacknose sharks per trip to directed and incidental shark limited access permit holders in the Atlantic Region.

Response: In the Final EIS for Amendment 5a to the 2006 Consolidated HMS FMP, NMFS included the consideration of a commercial retention limit for blacknose sharks in Section 2.3 Alternatives Considered But Not Further Analyzed. Blacknose sharks are known to form large schools, and even skilled fishermen with a high success rate of avoiding blacknose sharks may still encounter schools. Applying a blacknose shark retention limit of 16 sharks per trip could result in sets with high regulatory dead discards because the trip limit would be too low to cover the rare events where large numbers of blacknose sharks are incidentally encountered. NMFS also examined the blacknose shark landings from the HMS electronic dealer data in 2013 and 2014 on a per trip basis. In 2013, 285 trips

landed blacknose sharks and, in 2014, there were 178 trips that landed blacknose sharks. The majority of these trips landed less than 200 lbs of blacknose sharks per trip. While a blacknose shark commercial retention limit could reduce the incentive for fishermen to avoid catching blacknose sharks, the creation of a commercial retention limit for blacknose sharks could also increase the incentive to maximize landings of blacknose sharks on each trip, thus causing the blacknose quota to be harvested faster and leading to a closure of both the blacknose and non-blacknose SCS quotas. Therefore, NMFS prefers to address blacknose shark landings and discards by linking the blacknose shark and non-blacknose SCS quotas, which should provide greater and more effective incentive for reducing landings of blacknose sharks than a retention limit, thus more effectively managing the blacknose fishery in a manner that maximizes resource sustainability, while minimizing, to the greatest extent possible, socioeconomic impacts.

Gulf of Mexico Regional and Sub-Regional Quotas

Comment 15: NMFS received general support for the idea of sub-regional quotas in the Gulf of Mexico and requests for specific changes to the preferred alternative. The FWC, after consulting with Florida fishery participants, supported dividing the Gulf of Mexico at 88°00' W. longitude. Other commenters also supported changing the sub-regional quota line to 88°00' or 88°30' W. longitude. In general, commenters suggested moving away from the proposed 89°00' W. longitude as they felt this boundary would not create enough geographic separation between the fishing activities of fishermen from the western Gulf of Mexico and those in the eastern Gulf of Mexico. These commenters felt that fishermen from the western Gulf of Mexico were close enough to the boundary that they would easily fish on both sides of the boundary, ultimately compromising the fishing opportunities of fishermen from the eastern Gulf of Mexico (who were further from the boundary between the sub-regions). Commenters also indicated that hammerhead sharks are landed in the western Gulf of Mexico and requested some hammerhead shark quota to the western Gulf of Mexico sub-region so hammerhead sharks can be landed and not discarded.

Response: NMFS proposed to apportion the GOM regional commercial quotas for LCS into western and eastern sub-regions along 89°00' W. longitude,

maintain the hammerhead and aggregated LCS linkages in the eastern sub-region, and remove this linkage and prohibit hammerhead sharks in the western sub-region. In the proposed rule, NMFS also evaluated alternatives which apportion the GOM regional commercial quotas for LCS into western and eastern sub-regions along 89°00' W. and 88°00' W. longitude with maintaining the hammerhead and aggregated LCS linkages in the eastern and western sub-regions. In those alternatives, for the western sub-region of the Gulf of Mexico, the aggregated LCS quota would be linked to a very small hammerhead shark quota (0.1 mt dw; 334 lb dw). Due to the management difficulty of managing such a small quota and to avoid having the aggregated LCS fishery close early, NMFS preferred to prohibit hammerhead sharks in the western sub-region. Based on public comments and additional analyses, and after consulting with the HMS AP, NMFS is apportioning the GOM regional commercial quotas for aggregated LCS, hammerhead, and blacktip shark management groups into eastern and western sub-regional quotas along 88°00' W. long. As the range of Louisiana fishermen extends east beyond 89°00' W. longitude, placing the boundary at this location would have allowed active shark fishermen in the western sub-region to utilize both sub-regional quotas while active shark fishermen in the eastern sub-region would be limited to just the eastern sub-region quota. As such, this sub-regional boundary would have resulted in less equitable economic benefits to fishermen in both sub-regions. NMFS agrees that this is a more appropriate boundary between the sub-regions, as it would provide better geographic separation between the major stakeholders in the GOM, in order to prevent active shark fishermen in the western sub-region from utilizing both sub-regional quotas to the detriment of shark fishermen who fish entirely in the eastern sub-region. This change in the sub-regional split should provide more equitable economic benefits to fishermen in both sub-regions, by allowing them increased likelihood of fully harvesting their sub-regional quota, and maximizing the potential annual revenue they could gain upon implementation of sub-regional quotas in the GOM.

Additionally, NMFS is no longer prohibiting retention of hammerhead sharks in the western sub-region of the GOM. Under the preferred alternative in the proposed rule for Amendment 6,

99.4 percent of the hammerhead shark base annual quota would have been apportioned to the eastern sub-region, while only 0.6 percent would have gone to the western sub-region. Based on these percentages, NMFS felt it was appropriate to maintain the linkage between aggregated LCS and hammerhead sharks in the eastern GOM sub-region because of the overlap of ranges of these management groups. In addition, in the proposed rule, the preferred alternative would have eliminated the linkage between aggregated LCS and hammerhead sharks in the western Gulf of Mexico sub-region and prohibited the harvest and landings of hammerhead sharks in the western Gulf of Mexico sub-region, due to predicted challenges associated with monitoring a small quota of 0.1 mt dw. However, based on public comment, NMFS took another look at the GULFIN landings data originally used for the calculation of the hammerhead shark sub-regional quotas. NMFS became aware that there were errors in how hammerhead sharks were reported in GULFIN, and also that the new hammerhead shark management group (implemented mid-season in 2013 under Amendment 5a to the 2006 Consolidated HMS FMP) impacted the landings data in GULFIN. Due to these issues, landings of hammerhead sharks reported in GULFIN likely underestimate the magnitude and regional distribution of landings in the GOM. To corroborate public comments that indicated there were increased landings of hammerhead sharks in the western sub-region, NMFS reviewed eDealer data from 2014, and decided in this final rule to apportion the hammerhead shark quota between the two sub-regions. This change is consistent with and furthers the fundamental purpose and intent of the rule, as expressed in the proposed rule, to set quotas for the sub-regions that accurately reflect landings in each sub-region. Using the eDealer data better satisfies that intent because it better reflects the current hammerhead shark landings in the Gulf of Mexico. The resultant sub-regional quotas will prevent large numbers of hammerhead sharks from being unnecessarily discarded in the western sub-region.

Comment 16: NMFS received support for Alternative D7 in the GOM region, which would increase the non-blacknose SCS TAC and quotas to the highest amounts analyzed. Commenters felt this alternative would not limit SCS fisheries based on the results of the bonnethead shark stock assessment. Commenters also requested that NMFS

remove the quota linkage between the non-blacknose SCS and blacknose shark management groups and prohibit the retention of blacknose sharks in the GOM because the small blacknose shark quota has the potential to close the non-blacknose SCS fishery before the entire non-blacknose SCS quota can be harvested.

Response: In the proposed rule, NMFS proposed to establish a GOM non-blacknose SCS TAC of 954.7 mt dw and a commercial quota of 68.3 mt dw (current adjusted quota) based on the SEDAR 34 stock assessment, which accounted for uncertainty in the bonnethead assessment. However, NMFS has developed a new preferred alternative in this final rule (Alternative D8) based on these comments and additional analyses, establishing a non-blacknose SCS TAC of 999.0 mt dw and increasing the commercial quota to 112.6 mt dw (248,215 lb dw). This new preferred alternative retains the non-blacknose SCS quota originally considered under Alternative D7, but also prohibits blacknose sharks in the GOM and adjusts the commercial quota to account for blacknose shark discards, so that the level of discards would not exceed the 2015 base annual blacknose shark quota of 2.0 mt dw. Because projections from the GOM bonnethead and Atlantic sharpnose shark stock assessments indicated that there was a 70-percent chance that both stocks could withstand harvest levels almost double current levels, NMFS believes there is a relatively low likelihood that the higher non-blacknose SCS TAC and commercial quota would negatively impact the Atlantic sharpnose, bonnethead, or finetooth shark stocks. Based on public comments and a review of landings data, NMFS found that bonnethead sharks represented only 6 percent of the combined Gulf of Mexico and Atlantic non-blacknose SCS landings in 2014, and therefore, limiting the quota based on bonnethead sharks is overly conservative. Finetooth sharks represented only 21 percent of combined Gulf of Mexico and Atlantic non-blacknose SCS landings in 2014, compared to Atlantic sharpnose representing 73 percent, indicating that the increased quota would have minimal impacts on finetooth sharks. Additionally, the higher non-blacknose SCS commercial quota under Alternative D8 would continue to allow fishermen to land these species at current levels, while maintaining the Atlantic sharpnose and bonnethead stocks at sustainable levels, without unnecessarily limiting the quota due to

bonnethead sharks and limiting economic gains.

Additionally, while the commercial non-blacknose SCS quota in Alternative D8 would be lower than the quota considered under Alternative D7, removal of the quota linkage between blacknose and non-blacknose SCS (due to the prohibition of blacknose sharks) would increase the likelihood that fishermen in the GOM could harvest the entire non-blacknose SCS quota. In the Draft EA for Amendment 6, NMFS had stated that prohibiting all landings of blacknose sharks could possibly result in a loss of revenue for fishermen who land small amounts of blacknose sharks (as all interactions would be turned into discards). The socioeconomic benefits gained by access to a larger non-blacknose SCS quota, which would no longer be linked to the blacknose shark quota, would outweigh the potential revenue gained from being able to retain and land blacknose sharks. Fishermen in the GOM have also been requesting a prohibition on landing and retention of blacknose sharks since Amendment 3 to the 2006 Consolidated HMS FMP, when blacknose sharks were separated from the SCS management group and linked to the newly created non-blacknose SCS management group. The small blacknose shark quota has resulted in early closure before the non-blacknose SCS quota could be harvested. However, in recent years, blacknose sharks have not been the limiting factor in initiating closure of the linked SCS management groups in the Gulf of Mexico; instead, it has been landings of non-blacknose SCS either exceeding or being projected to exceed 80 percent of the quota. This combined with the fact that fishermen have demonstrated an ability to largely avoid blacknose sharks with the use of gillnet gear, suggest that mortality of blacknose sharks under Alternative D8 could be lower than that under the current quota.

Modifying Commercial Vessel Upgrading Restrictions

Comment 17: Constituents, including the NCDMF, SCDNR, MAFMC, and FWC, supported NMFS's proposal to remove the commercial vessel upgrading restriction under Alternative E2.

Response: In the proposed rule for Amendment 6, NMFS preferred to remove the current upgrading restrictions for shark limited access permit holders. All the comments received supported this measure. Therefore, in part based on these comments, NMFS is removing the upgrading restrictions for shark limited access permit holders in the final rule.

Comment 18: NMFS received comments to further investigate the need for upgrading restrictions in other HMS permits.

Response: NMFS appreciates the comments and recognizes the need to potentially investigate whether it is appropriate to remove upgrading restrictions for the other commercial HMS permits. However, this request is outside of the scope of this current shark fishery rulemaking. NMFS may consider the need for upgrading restrictions in other HMS permits in a future rulemaking.

General Comments

Comment 19: NMFS received suggestions to stop all shark fishing.

Response: National Standard 1 requires NMFS to prevent overfishing while achieving, on a continuing basis, optimum yield from each fishery for the U.S. fishing industry. NMFS continually monitors the federal shark fisheries, and based on the best available scientific information, takes action needed to conserve and manage the fisheries. The primary goal of Amendment 6 is to implement management measures for the Atlantic shark fisheries that will achieve the objectives of increasing management flexibility to adapt to the changing needs of the shark fisheries, prevent overfishing while and achieving on a continuing basis optimum yield, and rebuilding overfished shark stocks.

Comment 20: NMFS received multiple comments referring to the SEDAR shark stock assessment for Atlantic sharpnose and bonnethead sharks. One commenter believes the SEDAR process is flawed and gravely over-estimates the shark population in the world. Other commenters focused on the list of future SEDAR stock assessments and the timeline of those stock assessments. The NCDMF and other commenters requested that NMFS perform a SEDAR stock assessment on sandbar and dusky sharks as soon as possible. Another commenter would like NMFS to do another SEDAR stock assessment on the Gulf of Mexico blacktip shark and blacknose shark stocks.

Response: Most of the domestic shark stock assessments follow the SEDAR process. This process is also used by the South Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils and is designed to provide transparency throughout the stock assessment. Generally, SEDAR stock assessments are focused on available data, assessment models, and peer review. Sometimes these stages include face to face meetings; other times, the stages are conducted solely by webinar

or conference calls. All meetings, webinars, and conference calls are open to the public. All reports from all stages of the process are available online at <http://sedarweb.org/>.

With regard to the timing of upcoming LCS and SCS SEDAR assessments, NMFS aims to conduct a number of shark stock assessments every year and to regularly reassess these stocks. The number of species that can be assessed each year depends on whether assessments are establishing baselines or are only updates to previous assessments. Assessments also depend on ensuring there are data available for a particular species. Tentatively, in addition to the shark assessments being conducted by ICCAT, NMFS is considering a dusky shark update assessment in 2016 and an update assessment for GOM blacktip sharks in 2017. NMFS has not yet decided on which species to assess in 2018.

Comment 21: NMFS received multiple comments on the status of the sandbar shark population. Commenters expressed concern that the impact of the increased sandbar shark population is now impacting other fisheries (e.g., amberjack, red snapper, grouper, tilefish). In addition, commenters believe that NMFS should implement a small retention limit (1–5 per trip) of sandbar sharks in the commercial fishery.

Response: Before the most recent assessment, sandbar sharks were determined to be overfished and experiencing overfishing in a 2005/2006 stock assessment. NMFS established a rebuilding plan for this species in Amendment 2 in July 2008 (NMFS 2008a). Under that rebuilding plan, NMFS determined that sandbar sharks would rebuild by the year 2070 with a total allowable catch of 220 mt ww (158.3 mt dw). Also, as part of that rebuilding plan, NMFS maintained the bottom longline mid-Atlantic shark closed area, prohibited the landing of sandbar sharks in the recreational fishery, and established a shark research fishery in the commercial fishery. Only fishermen participating in the limited shark research fishery can land sandbar sharks.

The SEDAR 21 sandbar shark stock assessment (2011) evaluated the status of the stock based on new landings and biological data, and projected future abundance under a variety of catch levels in the U.S. Atlantic Ocean, Gulf of Mexico, and Caribbean Sea. The base model used in the SEDAR 21 sandbar shark assessment, an age-structured production model, indicated that the stock is overfished (spawning stock fecundity (SSF) 2009/SSFMSY=0.66),

but no longer experiencing overfishing (F2009/FMSY=0.62). According to the SEDAR 21, the sandbar shark stock status is improving, and the current rebuilding timeframe, with the 2008 TAC of 220 mt ww, provides a greater than 70-percent probability of rebuilding by 2070. Having a 70-percent probability of rebuilding is the level of success for rebuilding of sharks that was established in the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks and carried over in the 2006 Consolidated HMS FMP. This stock assessment also indicates that reducing the TAC from the current 220 mt ww to 178 mt ww would provide a 70-percent chance of rebuilding the stock by the year 2066, a reduction of 4 years from the current rebuilding timeframe. Because the current TAC already provides a greater than 70-percent probability of rebuilding, and because overfishing is not occurring and the stock status is improving, in Amendment 5a to the 2006 Consolidated HMS FMP, NMFS maintained the current TAC and rebuilding plan, consistent with the Magnuson-Stevens Act requirements and the National Standard Guidelines.

In the Final EA for Amendment 6, NMFS considered the implementation of a sandbar shark commercial quota (Section 2.6, Alternative F) that would allow commercial fishermen to incidentally land a limited number of sandbar sharks outside the Atlantic shark research fishery. NMFS explored several different options of distributing the unused sandbar shark research quota. While some commenters requested a limited number of sandbar sharks (between 1 to 5 per trip), the available sandbar shark quota would only provide between 1 and 7 sandbar sharks per vessel per year, not per trip. Under all options considered, NMFS is concerned about monitoring and enforcing such small individual annual retention limits without the monitoring mechanisms that are possible under a catch share scenario. NMFS is also concerned that changes to the shark research fishery could have negative effects on the status of the sandbar shark stock, which has improved and stabilized since the inception of the research fishery in 2008. In addition, NMFS is concerned about potential identification issues and impacts to dusky sharks if fishermen were allowed to incidentally land sandbar sharks outside the shark research fishery. Thus, due to these concerns and the benefits to the sandbar and dusky sharks of current management measures, NMFS prefers to continue to only allow commercial sandbar shark landings as

part of the shark research fishery. NMFS may reexamine the commercial sandbar shark quotas once a new stock assessment has been completed.

Comment 22: The NCDMF and FWC request that NMFS consider increasing the federal fishery closure trigger for the shark management groups from 80 percent to greater than 90 percent, because the implementation of weekly reporting requirements for dealers and electronic reporting requirements has improved quota monitoring abilities, and increased the timeliness and accuracy of dealer reporting.

Response: NMFS' goal is to allow shark fishermen to harvest the full quota without exceeding it in order to maximize economic benefits to stakeholders while achieving conservation goals, including preventing overfishing. Based on past experiences with monitoring quotas for HMS species, NMFS believes that the 80-percent threshold works well, allowing for all or almost all of the quota to be harvested without exceeding the quota. As such, NMFS expects that, in general, the quotas would be harvested between the time that the 80-percent threshold is reached and the time that the season actually closes. In addition, NMFS must also account for late reporting by shark dealers even with the improved electronic dealer system and provide a buffer to include landings received after the reporting deadline in an attempt to avoid overharvests. At the spring 2015 HMS Advisory Panel meeting, NMFS discussed some of the difficulties in monitoring the shark fishery quotas. Some of the difficulties in monitoring shark fishery quotas include late dealer reporting, state exemptions allowing shark landings following Federal closures of some shark management groups, and late receipt of paper-based trip ticket state dealer data. The reasons listed above have contributed in some cases to the overharvest of some of the shark management groups. As such, NMFS believes that closing the fishery at 90 percent of the harvested quota would not provide a sufficient buffer and could lead to overharvests. These overharvests could result in reduced quotas in the future since all overharvests would be accounted for when establishing subsequent shark fishing seasons and quotas.

Changes From the Proposed Rule (80 FR 2648, January 20, 2015)

NMFS made numerous changes from the proposed rule, as described below.

1. Commercial Retention Limits (§ 635.24(a)(2)) and sandbar shark research fishery quota

(§ 635.27(b)(1)(iii)(A)). In response to public comments received and based on discussions with the NMFS Southeast Fisheries Science Center (SEFSC), NMFS revised the calculations used to evaluate the commercial LCS retention limit for shark directed LAP holders. This final rule increases the commercial LCS retention limit to a maximum of 55 LCS other than sandbar sharks per trip and establishes a default LCS retention limit of 45 LCS other than sandbar sharks per trip. If the LCS quotas are being harvested too slowly or too quickly, the existing regulations allow NMFS to adjust the commercial LCS trip limit inseason to account for spatial and temporal differences in the shark fishery. This final rule also reduces the sandbar shark research fishery quota from the current 116.6 mt dw to 90.7 mt dw, which is an increase from the quota in the proposed rule. These revised measures better correspond with NMFS' intent to increase management flexibility to adapt to the changing needs of the Atlantic shark fisheries, while still providing opportunities to collect scientific data in the sandbar shark research fishery.

2. Atlantic Regional and Sub-Regional Quotas (§ 635.27(b)(1)(i), § 635.27(b)(1)(i)(A)–(D), § 635.28(b)(4)(i) and (iv)). In response to public comment and additional analyses, NMFS has modified a number of the proposed management measures in the Atlantic region related to quotas and quota linkages. First, NMFS is not apportioning the Atlantic regional commercial LCS and SCS quotas along 34°00' N. lat. into northern and southern sub-regional quotas. For LCS, NMFS is instead maintaining the existing regulations that provide for the LCS retention limit to be adjusted during the fishing season to ensure fishermen throughout the region have opportunities to fish for LCS.

Second, for SCS, NMFS is establishing a management boundary in the Atlantic region along 34°00' N. lat. Retention of blacknose sharks is prohibited north of 34°00' N. lat., and fishermen fishing north of 34°00' N. lat. can fish for non-blacknose SCS as long as quota is available. South of 34°00' N. lat., the quota linkage between blacknose and non-blacknose SCS is maintained, and fishermen in this area may only fish for SCS when quota of both blacknose and non-blacknose SCS is available.

Third, this final rule includes a non-blacknose SCS TAC of 489.3 mt dw (1,078,711 lb dw) and a commercial quota of 264.1 mt dw (582,333 lb dw (*i.e.*, the current adjusted quota)), which is an increase from 401.3 mt dw

(884,706 lb dw) TAC and 176.1 mt dw (388,222 lb dw (*i.e.*, current base) commercial quota in the proposed rule. The final TAC and commercial quota are consistent with results of the 2013 stock assessments, which showed that both species would not become overfished or experience overfishing at these harvest levels, and consistent with NMFS' objectives of preventing overfishing while achieving on a continuing basis optimum yield and rebuilding overfished shark stocks.

The removal of quota linkages north of 34°00' N. lat., and the increased non-blacknose SCS commercial quota would allow fishermen to maximize fishing opportunities and additional revenues from harvesting more non-blacknose SCS without being constrained by fishing activities south of 34°00' N. lat., where the majority of blacknose sharks are landed. This new management boundary along 34°00' N. lat. will not impact LCS, as NMFS will maintain the existing quota linkages for the LCS management groups across the Atlantic region.

3. Gulf of Mexico Regional and Sub-Regional Quotas (§ 635.27(b)(1)(ii), § 635.27(b)(1)(ii)(A)–(E), § 635.28(b)(4)(ii) and (iii)). Similar to the Atlantic region, NMFS has modified a number of the proposed management measures for the GOM region in response to public comment and additional analyses. While NMFS is still apportioning the GOM regional commercial quotas for aggregated LCS, hammerhead, and blacktip shark management groups into eastern and western sub-regional quotas, the boundary line has changed from 89°00' W. long. to 88°00' W. long. Additionally, this final rule will not prohibit retention of hammerhead sharks in the western sub-region of the GOM, but instead, apportions the hammerhead shark quota between the two sub-regions.

Changes were also made to management measures impacting the SCS fishery in the GOM region. NMFS proposed to establish a non-blacknose SCS TAC of 954.7 mt dw and a commercial quota of 68.3 mt dw (150,476 lb dw (*i.e.*, the current adjusted quota)). Based on public comments and additional analyses revealing the interaction ratio between non-blacknose SCS and blacknose sharks in the GOM, in the final rule, NMFS is implementing a non-blacknose SCS TAC of 999.0 mt dw (2,202,395 lb dw), increasing the commercial quota to 112.6 mt dw (248,215 lb dw), and prohibiting the retention of blacknose sharks in the entire GOM region. These non-

blacknose SCS TAC and commercial quota levels would account for all blacknose shark mortality, including blacknose shark discards that were previously landed. This change is consistent with NMFS' efforts to reduce regulatory discards, as the level of discards would not exceed the 2015 base annual blacknose shark quota of 2.0 mt dw, and fishermen have demonstrated an ability to largely avoid blacknose sharks with the use of gillnet gear since Amendment 3. It also simultaneously allows fishermen to maximize revenue from the non-blacknose SCS landings, without concerns of early closure due to the linkage of the non-blacknose SCS and blacknose shark management groups.

4. Blacktip shark fishery closure (§ 635.28(b)(5)). NMFS is making a minor, non-substantive change to language in the regulations regarding the fishery closure procedure for blacktip sharks in the GOM. This change is merely a language clarification, and it does not change the substance of the paragraph or agency practice. In 2008, NMFS finalized regulations as part of Amendment 2 to the 2006 Consolidated HMS FMP (73 FR 40658; July 15, 2008) that requires NMFS to close shark management groups or regional areas once the landings of that shark management group or regional area have reached or are projected to reach 80 percent of the available quota. NMFS currently uses this regulation to close shark species groups and regional areas and is not changing that regulation in this final rule; all shark management groups will continue to close when landings reach, or are projected to reach, 80 percent of the relevant quota. In the final rule for Amendment 5a to the 2006 Consolidated HMS FMP (78 FR 40318; July 3, 2013), NMFS established a separate Gulf of Mexico blacktip shark management group, established that NMFS could close the Gulf of Mexico blacktip shark management group if Gulf of Mexico blacktip shark landings are less than 80 percent of the relevant quota, and implemented criteria for NMFS to consider before closing the Gulf of Mexico blacktip shark management group at less than 80 percent of the relevant quota. As described in that final rule and Amendment 5a (78 FR 40318; July 3, 2013), NMFS' intent was to "maintain flexibility to close the Gulf of Mexico blacktip shark management group depending on several criteria to ensure that the bycatch of hammerhead sharks and aggregated LCS would not result in mortality that would exceed the TAC of

either management group." As explained in that 2013 final rule, NMFS' intent was that NMFS could close the Gulf of Mexico blacktip management group, based on consideration of the criteria listed in paragraph § 635.28(b)(5), after, or at the same time as, the hammerhead and aggregated LCS management groups close, to ensure that bycatch of hammerhead sharks and aggregated LCS does not result in mortality that would exceed the TAC of either management group. Since publication of that 2013 final rule, NMFS has found that the language was confusing regarding what actions require consideration of the criteria in § 635.28(b)(5). As a result, in this final rule, NMFS has revised § 635.28 (b)(5) to clarify that, consistent with the language and intent of the final rule implementing Amendment 5a, NMFS would consider those criteria only when NMFS is considering closing the unlinked blacktip shark management group in the Gulf of Mexico before landings reach, or are expected to reach, 80 percent of the quota.

5. Atlantic Tuna Longline category (§ 635.4(1)(2)(iv) and (v)). NMFS is making a minor, non-substantive change to language in the regulations clarifying that the name of the "tuna limited access permit" previously referenced in two places in the regulations is the "Atlantic Tuna Longline category limited access permit." Paragraphs (1)(2)(iv) and (v) of § 635.4 have been revised to clarify the language referring to the limited access permit by its name. This is the only tuna limited access permit that NMFS currently has, and therefore, it is more appropriate to reference the permit by name. This change also makes these references consistent with the language throughout 50 CFR part 635, which refers to the "Atlantic Tuna Longline category limited access permit." This change is merely a language clarification, and it does not change the substance of the paragraph or agency practice.

Commercial Fishing Season Notification

Pursuant to the measures being implemented in this final rule, the commercial LCS retention limit will be 45 LCS other than sandbar sharks per trip, unless further modified by NMFS. The current 2015 adjusted base quotas, preliminary 2015 landings, annual base quotas under Amendment 6, and information on whether the fisheries for those quotas will remain open or will re-open as a result of this final rule are located in Tables 1 and 2.

TABLE 1—2015 LARGE AND SMALL COASTAL SHARK QUOTAS AND LANDINGS BEFORE AMENDMENT 6. NOTE: 1 METRIC TON = 2,204.6 LB.

Region	Management group	2015 Base quota (A)	2015 Adjusted annual quota ¹ (B)	Preliminary 2015 landings ² (C)	Remaining 2015 quota (B - C = D)
No regional quota	Sandbar shark research fishery	116.6 mt dw (257,056 lb dw)	116.6 mt dw (257,056 lb dw)	60.6 mt dw (133,496 lb dw)	56.0 mt dw (123,560 lb dw)
Atlantic	Aggregated Large Coastal Sharks	168.9 mt dw (372,552 lb dw)	168.9 mt dw (372,552 lb dw)	12.3 mt dw (27,100 lb dw)	156.6 mt dw (345,452 lb dw)
	Hammerhead Sharks	27.1 mt dw (59,736 lb dw)	27.1 mt dw (59,736 lb dw)	0.7 mt dw (1,476 lb dw)	26.4 mt dw (58,260 lb dw)
	Non-Blacknose Small Coastal Sharks	176.1 mt dw (388,222 lb dw)	176.1 mt dw (388,222 lb dw)	98.6 mt dw (217,360 lb dw)	77.5 mt dw (170,862 lb dw)
Gulf of Mexico	Blacknose Sharks	18.0 mt dw (39,749 lb dw)	17.5 mt dw (38,638 lb dw)	20.4 mt dw (44,966 lb dw)	-2.9 mt dw (-6,328 lb dw)
	Blacktip Sharks	256.6 mt dw (565,700 lb dw)	328.6 mt dw (724,302 lb dw)	291.1 mt dw (641,771 lb dw)	37.5 mt dw (82,531 lb dw)
	Aggregated Large Coastal Sharks	157.5 mt dw (347,317 lb dw)	156.5 mt dw (344,980 lb dw)	150.4 mt dw (331,479 lb dw)	6.1 mt dw (13,501 lb dw)
	Hammerhead Sharks	25.3 mt dw (55,722 lb dw)	25.3 mt dw (55,722 lb dw)	13.8 mt dw (30,326 lb dw)	11.5 mt dw (25,396 lb dw)
	Non-Blacknose Small Coastal Sharks	45.5 mt dw (100,317 lb dw)	45.5 mt dw (100,317 lb dw)	46.2 mt dw (101,948 lb dw)	-0.7 mt dw (-1,631 lb dw)
	Blacknose Sharks	2.0 mt dw (4,513 lb dw)	1.8 mt dw (4,076 lb dw)	1.0 mt dw (2,096 lb dw)	0.8 mt dw (1,980 lb dw)

¹ On December 2, 2014, NMFS published a final rule (79 FR 71331) to implement the 2015 shark fishing season quotas.

² Landings are from January 1, 2015, through July 17, 2015.

TABLE 2—LARGE AND SMALL COASTAL SHARK QUOTAS AND FISHERY RE-OPENINGS AS A RESULT OF THIS FINAL ACTION.

NOTE: THIS ACTION INCREASES BASE QUOTAS FOR NON-BLACKNOSE SCS MANAGEMENT GROUPS AND DECREASES THE BASE QUOTAS FOR THE SANDBAR SHARK RESEARCH FISHERY AND THE BLACKNOSE SHARK MANAGEMENT GROUPS. FOR ALL OTHER MANAGEMENT GROUPS, THE BASE QUOTAS UNDER THIS ACTION ARE THE SAME AS THE PREVIOUS BASE QUOTAS. THIS TABLE REFERS BACK TO THE 2015 BASE QUOTA (COLUMN A), PRELIMINARY 2015 LANDINGS (COLUMN C), AND REMAINING 2015 QUOTA (COLUMN D) IN TABLE 1. 1 METRIC TON = 2,204.6 LB.

Region	Management group	Sub-Region	Annual base quotas under Amendment 6 (E)	Remaining quota (If base quota remained the same, this is equal to column D in Table 1. If base quota changed, then E - C from Table 1 = F)	Percent of Amendment 6 quota landed to date ((E - F)/E × 100)	Will fishery remain open or re-open with implementation of Amendment 6?
No regional quota	Sandbar shark research fishery	N/A	90.7 mt dw (199,943 lb dw)	30.1 mt dw (66,447 lb dw)	67%	Yes.
Atlantic	Aggregated Large Coastal Sharks	N/A	Same as Column A. 168.9 mt dw (372,552 lb dw)	Same as Column D. 156.6 mt dw (345,452 lb dw)	7	Yes.
	Hammerhead Sharks		Same as Column A. 27.1 mt dw (59,736 lb dw)	Same as Column D. 26.4 mt dw (58,260 lb dw)	2	Yes.
	Non-Blacknose Small Coastal Sharks		264.1 mt dw (582,333 lb dw)	165.5 mt dw (364,973 lb dw)	37	Yes, North of 34° N. latitude only.
	Blacknose Sharks		17.2 mt dw (37,921 lb dw)	-3.2 mt dw (-7,045 lb dw)	119	No.
Gulf of Mexico	Blacktip Sharks	Eastern	9.8% of Column A. 25.1 mt dw (55,439 lb dw)	9.8% of Column D. 3.7 mt dw (8,088 lb dw)	85	No.

TABLE 2—LARGE AND SMALL COASTAL SHARK QUOTAS AND FISHERY RE-OPENINGS AS A RESULT OF THIS FINAL ACTION. NOTE: THIS ACTION INCREASES BASE QUOTAS FOR NON-BLACKNOSE SCS MANAGEMENT GROUPS AND DECREASES THE BASE QUOTAS FOR THE SANDBAR SHARK RESEARCH FISHERY AND THE BLACKNOSE SHARK MANAGEMENT GROUPS. FOR ALL OTHER MANAGEMENT GROUPS, THE BASE QUOTAS UNDER THIS ACTION ARE THE SAME AS THE PREVIOUS BASE QUOTAS. THIS TABLE REFERS BACK TO THE 2015 BASE QUOTA (COLUMN A), PRELIMINARY 2015 LANDINGS (COLUMN C), AND REMAINING 2015 QUOTA (COLUMN D) IN TABLE 1. 1 METRIC TON = 2,204.6 LB.—Continued

Region	Management group	Sub-Region	Annual base quotas under Amendment 6 (E)	Remaining quota (If base quota remained the same, this is equal to column D in Table 1. If base quota changed, then E - C from Table 1 = F)	Percent of Amendment 6 quota landed to date ((E - F)/E × 100)	Will fishery remain open or re-open with implementation of Amendment 6?
.....	Aggregated Large Coastal Sharks.	Western	90.2% of Column A. 231.5 mt dw ... (510,261 lb dw).	90.2% of Column D. 33.8 mt dw (74,443 lb dw) ..	85	No.
		Eastern	54.3% of Column A. 85.5 mt dw (188,593 lb dw).	54.3% of Column D. 3.3 mt dw (7,331 lb dw)	96	No.
	Hammerhead Sharks	Western	45.7% of Column A. 72.0 mt dw (158,724 lb dw).	45.7% of Column D. 2.8 mt dw (6,170 lb dw)	96	No.
		Eastern	52.8% of Column A. 13.4 mt dw (29,421 lb dw)	52.8% of Column D. 6.1 mt dw (13,409 lb dw) ..	54	No.
	Non-Blacknose Small Coastal Sharks.	Western	47.2% of Column A. 11.9 mt dw (26,301 lb dw)	47.2% of Column D. 5.4 mt dw (11,987 lb dw) ..	54	No.
		N/A	112.6 mt dw ... (248,215 lb dw).	66.4 mt dw (146,267 lb dw)	41	Yes.
Blacknose Sharks	N/A	0.0 mt dw (0 lb dw)	0.0 mt dw (0 lb dw)	—	No.	

As described in the 2015 shark fishing season rule (79 FR 71331, December 2, 2014) that established the opening dates and adjusted the 2015 quotas based on over- and underharvests from previous years, the commercial quotas for the GOM aggregated LCS, GOM blacknose shark, and Atlantic blacknose shark management groups were exceeded in 2014 and previous fishing seasons. As such, if NMFS were to re-open these fisheries, the new base annual quotas established in this final rule would have to be adjusted for overharvests. However, on May 3, 2015 (80 FR 24836, May 1, 2015), the GOM blacktip, GOM aggregated LCS, and GOM hammerhead shark management groups were closed since the harvest of the blacktip and aggregated LCS management groups exceeded 80 percent of available commercial quotas. The 2015 landings of these GOM LCS management groups

also exceed the new sub-regional LCS quotas in this final rule. Because the LCS quotas are not increasing, NMFS is not re-opening the GOM LCS management group quota upon publication of the final rule.

Regarding blacknose sharks, since this final rule prohibits the retention of blacknose sharks in the GOM region, NMFS does not need to adjust the commercial blacknose shark quota based on previous overharvests, as the new blacknose shark quota would be 0 mt dw. As for GOM non-blacknose SCS, this final rule will re-open the GOM non-blacknose SCS fishery with a quota of 112.6 mt dw. Landings of non-blacknose SCS in the GOM are currently at 41% of this new quota.

Additionally, in this final rule, NMFS adjusts the Atlantic blacknose shark management group based on overharvest from previous years. On

June 7, 2015, the Atlantic blacknose shark and non-blacknose SCS management groups were closed since the harvest of the blacknose shark management group exceeded 80 percent of the available quota. Since the increased Atlantic non-blacknose SCS quota under this final rule has not been exceeded, NMFS will re-open the Atlantic non-blacknose SCS fishery, for fishermen in the area north of the management boundary at 34°00' N. lat. only, based on the new management measures in this final rule. The fishery would have a quota of 264.1 mt dw, and current landings of non-blacknose SCS in the Atlantic are currently at 37% of this new quota.

Classification

The NMFS Assistant Administrator for Fisheries (“AA”) has determined that this final rule is consistent with the

2006 Consolidated Atlantic HMS FMP and its amendments, the Magnuson-Stevens Act, and other applicable law.

This final rule has been determined to be not significant for purposes of Executive Order 12866.

The AA finds that there is good cause under 5 U.S.C. 553(b)(B) to waive notice and comment for the revised Gulf of Mexico blacktip shark fishery closure language in § 635.28(b)(5) and the “Atlantic Tuna Longline category limited access permit” language in § 635.4(1)(2)(iv) and (v). NMFS did not propose these specific changes in the proposed rule for Amendment 6. However, notice and comment on these language changes is unnecessary, because the changes are only minor, non-substantive changes, they do not change agency practice, and they will have no impact on the public. The revision regarding the Gulf of Mexico blacktip shark fishery closure language does not change the timing or procedures for closure of the Gulf of Mexico blacktip shark management group, it merely clarifies, consistent with the language and intent of the final rule implementing Amendment 5a to the 2006 Consolidated HMS FMP (78 FR 40318; July 3, 2013), that NMFS would consider the criteria in § 635.28(b)(5) only when NMFS closes the unlinked blacktip shark management group in the Gulf of Mexico before landings reach, or are expected to reach, 80 percent of the quota. The revision regarding the Atlantic Tuna Longline category limited access permit language is a technical change. It does not change the name of the permit or change what permit is being referenced, it merely clarifies the language by referring to the permit by its name. These changes do not change the meaning of the paragraphs or NMFS practice. Because these are minor, non-substantive language changes, there would be no public interest in them, and therefore, notice and comment are unnecessary.

The AA finds that there is good cause under 5 U.S.C. 553(d)(3) to waive the 30-day delay in effective date for the language changes regarding the Gulf of Mexico blacktip shark fishery closure process and the “Atlantic Tuna Longline category limited access permit” references. Delaying the effectiveness of the revised language is unnecessary, because these changes are minor, non-substantive, technical changes, they do not change agency practice, and they will have no impact on the public. These revisions simply clarify the language describing the existing process for how NMFS may close the unlinked blacktip shark management group in the Gulf of

Mexico and clarify the tuna permit references by referring to the limited access permit by its name.

The AA finds that certain measures in this final rule are exempt from the 30-day delay in effective date because they relieve a restriction, 5 U.S.C. 553(d)(1). First, in the Atlantic region, the non-blacknose SCS fishery is currently closed. However, upon implementation of this final rule, the non-blacknose SCS fishery could reopen for fishermen in the area north of the management boundary at 34°00' N. lat. As explained above, establishing a management boundary in the Atlantic region along 34°00' N. lat. for the SCS fishery and removing the quota linkage between blacknose and non-blacknose SCS north of 34°00' N. lat. (due to the prohibition of blacknose sharks) would relieve a restriction on fishermen north of 34°00' N. lat. due to a species (blacknose sharks) that is not prevalent in that area. There is good cause to waive the delay in effectiveness of the management boundary and quota linkage, because this would allow positive economic and ecological impacts as fishermen would be able to land non-blacknose SCS north of 34°00' N. lat. instead of discarding them. Second, in the Gulf of Mexico, this final rule increases the non-blacknose SCS quota, increases opportunities to harvest that quota, and reopens the fishery. As described above, prohibiting the retention of blacknose sharks in the GOM would relieve the quota linkage restriction with the non-blacknose SCS. There is good cause to waive the delay in effectiveness of the blacknose shark prohibition in the GOM, because this would allow positive economic impacts as fishermen and provide for optimum yield from the fishery. Finally, this final rule removes upgrading restrictions on vessels.

In addition, for other measures in this final rule, the AA finds that there is good cause under 5 U.S.C. 553(d)(3) to waive the delay in effective date. The 30-day delay provides a reasonable opportunity for the regulated community to come into compliance with, or take other action with respect to, a final rule. As described further here, NMFS believes that there is no need to delay the effective date of the remaining measures in this rule, as they do not require specific action from the public and the public does not need time to come into compliance with the measures. Further, implementing this final rule quickly is in the public interest: Measures in this rule increase management flexibility and economic benefits and provide for optimum yield from the fishery, consistent with

Magnuson-Stevens Act conservation and management requirements.

As reflected in Table 2, several fisheries (*i.e.*, Atlantic blacknose sharks, eastern and western Gulf of Mexico blacktip sharks, eastern and western Gulf of Mexico aggregated LCS, and eastern and western Gulf of Mexico hammerhead sharks) are currently closed, and this rule will not result in them being reopened. As a result, there is no further action that the public needs to take. Under the current regulations, fishermen targeting LCS in the Atlantic region are subject to the 36 LCS other than sandbar shark commercial retention limit. This rule will increase that limit to a maximum of 55 LCS other than sandbar sharks with a default limit of 45 LCS per trip. There is good cause to waive the 30-day delay for the increased retention limit, because this change would allow for immediate positive economic and ecological impacts, as fishermen would be able to have more profitable trips and discard fewer sharks with the higher commercial retention limit, and no further action is required from the public to attain these positive impacts. Related to that, this final rule reduces the sandbar research fishery quota. There is good cause to waive the delay in effectiveness of the revised sandbar shark quota, because that lower quota is needed in order to account for additional dead discards of sandbar sharks that will occur under the increased commercial retention limit, and thus to ensure that sandbar sharks continue on the current rebuilding plan for the stock. Regarding the apportioning of the GOM regional commercial quotas for aggregated LCS, blacktip, and hammerhead sharks into western and eastern sub-regional quotas along 88°00' W. long., NMFS believes that there is no need to delay the effective date of these measures in this rule, as these measures do not require specific action from the public and the public does not need time to come into compliance with the measures. In addition, all of these management measures are so closely tied together and directly impact shark fishermen that it is in the public's best interest to have the management measures all go into effect at the same time.

A final regulatory flexibility analysis (FRFA) was prepared for this rule. The FRFA incorporates the Initial Regulatory Flexibility Analysis (IRFA), and a summary of the analyses completed to support the action. The full FRFA and analysis of economic and ecological impacts are available from NMFS (see **ADDRESSES**). A summary of the FRFA follows.

Section 604(a)(1) of the Regulatory Flexibility Act (RFA) requires a succinct statement of the need for and objectives of the rule. Chapter 1 of the Final EA and the final rule fully describes the need for and objectives of this final rule. The purpose of this final rulemaking, consistent with the Magnuson-Stevens Act, and the 2006 Consolidated HMS FMP and its amendments, is to enact management measures that increase management flexibility to adapt to the changing needs of the Atlantic shark fisheries, prevent overfishing while achieving on a continuing basis optimum yield, and rebuilding overfished shark stocks. Management measures in Amendment 6 are designed to respond to the problems facing Atlantic commercial shark fisheries, such as commercial landings that exceed the quotas, declining numbers of fishing permits since limited access was implemented, complex regulations, derby fishing conditions due to small quotas and short seasons, increasing numbers of regulatory discards, and declining market prices.

Section 604(a)(2) of the RFA requires a summary of the significant issues raised by the public comments in response to the IRFA, a summary of the assessment of the Agency of such issues, and a statement of any changes made in the rule as a result of such comments. NMFS received many comments on the proposed rule and the Draft EA during the public comment period. A summary of these comments and the Agency's responses, including changes as a result of public comment, are included above. NMFS did not receive comments specifically on the IRFA, though NMFS did receive comments on the potential economic impacts of this rule generally, and those comments and NMFS' responses are discussed under comments 2, 3, 5, 6, 7, 8, 10, 13, 15, 16, 21, and 22 above.

Section 604(a)(3) of the RFA requires the Agency to respond to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration (SBA) in response to the proposed rule, and a detailed statement of any change made in the rule as a result of such comments. NMFS did not receive any comments from the Chief Counsel for Advocacy of the SBA in response to the proposed rule.

Section 604(a)(4) of the RFA requires Agencies to provide an estimate of the number of small entities to which the rule would apply. The Small Business Administration (SBA) has established size criteria for all major industry sectors in the United States, including fish harvesters. The SBA size standards are \$20.5 million for finfish fishing, \$5.5

million for shellfish fishing, and \$7.5 million for other marine fishing, for-hire businesses, and marinas (79 FR 33467; June 12, 2014). NMFS considers all HMS permit holders to be small entities because they had average annual receipts of less than \$20.5 million for finfish-harvesting. The commercial shark fisheries are comprised of fishermen who hold shark directed or incidental limited access permits and the related shark dealers, all of which NMFS considers to be small entities according to the size standards set by the SBA. The final rule would apply to the approximately 208 directed commercial shark permit holders, 255 incidental commercial shark permit holders, and 100 commercial shark dealers as of July 2015.

The final rule would apply to the 464 commercial shark permit holders in the Atlantic shark fishery, based on an analysis of permit holders as of October 2014. Of these permit holders, 206 have directed shark permits and 258 hold incidental shark permits. Not all permit holders are active in the fishery in any given year. Active directed permit holders are defined as those with valid permits that landed one shark based on HMS electronic dealer reports. Based on 2014 HMS electronic dealer data, 24 shark directed permit holders were active in the Atlantic and 20 shark directed permit holders were active in the Gulf of Mexico. NMFS has determined that the final rule would not likely affect any small governmental jurisdictions.

Section 604(a)(5) of the RFA requires Agencies to describe any new reporting, record-keeping and other compliance requirements. The action does not contain any new collection of information, reporting, record-keeping, or other compliance requirements.

The RFA requires a description of the steps the Agency has taken to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and the reason that each one of the other significant alternatives to the rule considered by the Agency that affect small entities was rejected. These impacts are discussed below and in the Final EA/RIR/FRFA for Amendment 6. Additionally, the RFA (5 U.S.C. 603(c)(1)–(4)) lists four general categories of “significant” alternatives that could assist an agency in the development of significant alternatives. These categories of alternatives are: Establishment of differing compliance or reporting requirements or timetables

that take into account the resources available to small entities; clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; use of performance rather than design standards; and, exemptions from coverage of the rule for small entities.

In order to meet the objectives of this rule, consistent with the Magnuson-Stevens Act and other applicable law, such as the Endangered Species Act, we cannot exempt small entities or change the reporting requirements only for small entities because all the entities affected are considered small entities. Thus, there are no alternatives discussed that fall under the first and fourth categories described above. NMFS does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, complying with the Magnuson-Stevens Act. Thus, there are no alternatives considered under the third category. As described below, NMFS analyzed several different alternatives in this rulemaking and provided a rationale for identifying the preferred alternative to achieve the desired objective.

The alternatives considered and analyzed are described below. The FRFA assumes that each vessel will have similar catch and gross revenues to show the relative impact of the proposed action on vessels.

Permit Stacking

Under Alternative A1, the preferred alternative, NMFS would not implement permit stacking for the shark directed limited access permit holders. NMFS would continue to allow only one directed limited access permit per vessel and thus one retention limit. The current retention limit of 36 LCS per trip would result in potential trip revenues of \$1,184 (1,224 lb of meat, 61 lb of fins) per vessel, assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins. It is likely that this alternative could possibly have minor adverse economic impacts in the long term, because if fishermen are unable to retain an increased number of LCS per trip by stacking permits, the profitability of each trip could decline over time, due to declining prices for shark products and increasing prices for gas, bait, and other associated costs. The No Action alternative could also have neutral indirect impacts to those supporting the commercial shark fisheries, since the retention limits, and thus current fishing efforts, would not change under this alternative.

Under Alternative A2, NMFS would allow fishermen to concurrently use a maximum of two shark directed permits on one vessel, which would result in aggregated, and thus higher, trip limits. Under the current LCS retention limit of 36 LCS, this would allow a vessel with two stacked permits to have a LCS retention limit of 72 LCS per trip. This new retention limit would result in potential trip revenues of \$2,368 (2,448 lb of meat, 122 lb of fins) per vessel, assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins, which is an increase of \$1,184 per trip compared to the status quo alternative. For fishermen that currently have two directed limited access permits, this alternative would have short-term minor beneficial economic impacts because these fishermen would be able to stack their permits and avail themselves of the retention limit of 72 LCS per trip. The higher retention limit is likely to make each trip more profitable for fishermen, as well as more efficient, if they decide to take fewer trips and in turn save money on gas, bait, and other associated costs. However, the current number of directed permits in the Atlantic region is 136, and 130 of those permits have different owners. In the Gulf of Mexico, of the 83 directed shark permits, 73 have different owners. Therefore, it is unlikely that many of the current directed shark permit holders would be able to benefit from this alternative in the short-term. In addition, the cost of one directed shark permit can run anywhere between \$2,000 and \$5,000, which could be difficult for many shark fishermen to afford. For fishermen that do not currently have more than one directed shark permit, this alternative could have long-term minor beneficial impacts if these fishermen are able to acquire an additional permit and offset the cost of the additional permit by taking advantage of the potential economic benefits of the higher retention limits. Nevertheless, this alternative is unlikely to have beneficial economic impacts for the shark fishery as whole because only shark fishermen that could afford to buy multiple shark permits would benefit from the higher retention limit and higher revenues whereas those shark fishermen that cannot afford to buy a second directed shark permit would be at a disadvantage, unable to economically benefit from the higher retention limits. Given the current make-up of the shark fishery, which primarily consists of small business fishermen with only one permit, and the cost of the additional permit, this could potentially lead to negative economic impacts among the

directed shark permit holders if those fishermen that currently have multiple directed permits or that could afford to buy an additional directed permit gain an economic advantage.

Under Alternative A3, NMFS would allow fishermen to concurrently use a maximum of three shark directed permits on one vessel, which would result in aggregated, and thus higher, trip limits. Under the current LCS retention limit of 36 LCS, this would mean that a vessel with three stacked permits would have a LCS retention limit of 108 LCS per trip. This alternative would allow shark directed permit holders to retain three times as many LCS per trip then the current retention limit. This new retention limit would result in potential trip revenues of \$3,552 (3,672 lb of meat, 184 lb of fins) per vessel, assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins, which is an increase of \$2,368 per trip compared to the status quo alternative. The higher retention limit is likely to make each trip more profitable for fishermen, as well as more efficient, if they decide to take fewer trips and in turn save money on gas, bait, and other associated costs. Similar to Alternative A2, this alternative would have short-term minor beneficial economic impacts for fishermen that currently have three shark directed limited access permits, because these fishermen would be able to stack their permits and avail themselves of the retention limit of 108 LCS per trip. As mentioned above, the current number of shark directed permit holders is 219, with 93 percent having different owners. Therefore, it is unlikely that many of the current directed shark permit holders currently hold three directed shark permits and would be able to benefit from this alternative in the short-term. For fishermen who do not currently have more than one directed shark permit, this alternative could have larger long-term beneficial economic impacts than Alternative 2, if these fishermen are able to acquire two additional permits and offset the cost of the additional permits by taking advantage of the potential economic benefits of retaining up to 108 LCS per trip. However, for the same reasons discussed for Alternative A2, this alternative is unlikely to have economic benefits for those shark fishermen that cannot afford to buy two additional directed permits, and thus would be unable to economically benefit from a higher retention limit. Thus, given the current make-up of the shark fishery, Alternative A3 could potentially lead to more inequity and unfairness among the directed shark

permit holders than Alternative A2, especially if those fishermen that currently have multiple directed permits or that could afford to buy additional directed permits gain an economic advantage under this alternative.

Commercial Retention Limits

Alternative B1 would not change the current commercial LCS retention limit for directed shark permit holders. The retention limit would remain at 36 LCS other than sandbar sharks per trip for directed permit holders. This retention limit would result in potential trip revenues of \$1,184 (1,224 lb of meat, 61 lb of fins), assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins. It is likely that this alternative would have short-term neutral economic impacts, since the retention limits would not change under this alternative. However, not adjusting the retention limit would have long-term minor adverse economic impacts, due to the expected continuing decline in prices for shark products and increase in gas, bait, and other associated costs, which would lead to declining profitability of individual trips. In recent years, there have been changes in federal and state regulations, including the implementation of Amendment 5a and state bans on the possession, sale, and trade of shark fins, which have impacted shark fishermen. In addition to federal and state regulations, there have also been many international efforts to prohibit shark finning at sea, as well as campaigns targeted at the shark fin soup markets. All of these efforts have impacted the market and demand for shark fins. In addition, NMFS has seen a steady decline in ex-vessel prices for shark fins in all regions since 2010.

Alternative B2, the preferred alternative, would increase the LCS retention limit to a maximum of 55 LCS other than sandbar sharks per trip for shark directed permit holders and reduce the sandbar shark research fishery quota to 90.7 mt dw (199,943 lb dw). NMFS would also set the default LCS retention limit to 45 LCS other than sandbar sharks per trip for shark directed permit holders but could adjust the retention limits to account for spatial, temporal, and other differences in the shark fisheries. This alternative would allow shark directed permit holders to retain 19 more LCS per trip than the current retention limit if the retention limit were increased to 55 LCS other than sandbar sharks per trip during the fishing season. Under a retention limit of 55 LCS other than sandbar sharks per trip, the potential trip revenues would be \$1,809 (1,870 lb

of meat, 94 lb of fins), assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins. Under the 45 LCS other than sandbar sharks per trip, the potential trip revenues would be lower at \$1,488 (1,530 lb of meat, 77 lb of fins), assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins. This alternative would have short- and long-term direct minor beneficial socioeconomic impacts under both commercial retention limits, since shark directed permit holders could land more sharks per trip when compared to the current retention limit of 36 LCS per trip. The higher retention limit is likely to make each trip more profitable for fishermen, as well as more efficient, if they decide to take fewer trips, and in turn save money on fuel, bait, and other associated costs. Regarding the shark research fishery, this alternative could cause an average annual loss of \$68,307, since the sandbar research fishery quota would be reduced by 57,113 lb dw. If NMFS continues to select the same number of vessels as in 2015, this alternative would impact 7 shark research vessel participants. Based on this number, the total average annual gross revenue loss for each shark research fishery vessel would be \$9,758 per vessel. This potential lost income for the research fishery could be positive for commercial fishermen, since the increased retention limit could make trips more profitable. NMFS estimates that this reduction in the sandbar research fishery quota would have neutral socioeconomic impacts, based on current limited resources available to fund observed trips in the fishery and the current harvest level of the sandbar research fishery quota. In 2014, the vessels participating in the Atlantic shark research fishery landed 54.2 mt dw (119,527 lb dw), or 46 percent, of the available sandbar shark quota. Under the new sandbar shark quota with the Atlantic shark research fishery, the 2014 landings would result in 60 percent of the new sandbar shark quota being landed. If available resources increase in the future for more observed trips in the fishery, then this alternative could have minor adverse economic impacts if the full quota is caught and the fishery has to close earlier in the year.

Alternative B3 would increase the LCS retention limit to a maximum of 72 LCS other than sandbar sharks per trip for shark directed permit holders and reduce the sandbar shark research fishery quota to 82.7 mt dw (182,290 lb dw). This alternative would double the current retention limit. This new retention limit would result in potential trip revenues of \$2,368 (2,448 lb of

meat, 124 lb of fins), assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins. This alternative would have short- and long-term minor beneficial economic impacts, since shark directed permit holders could land twice as many LCS per trip. Shark directed trips would become more profitable, but more permit holders could become active in order to avail themselves of this higher trip limit, and potentially causing a derby fishery and bringing the price of shark products even lower. Thus, NMFS needs to balance providing the flexibility of increasing the efficiency of trips and the associated economic benefits with the negative economic impacts of derby fishing and lower profits. This alternative could have neutral impacts for fishermen participating in the Atlantic shark research fishery, since the 2014 landings (54.2 mt dw; 119,527 lb dw) would result in 66 percent of the new sandbar shark quota being landed. Under Alternative B3, the new sandbar shark quota could result in average annual lost revenue of \$89,420 for those fishermen participating in the shark research fishery, but the income could be recouped by the increased retention limit outside the shark research fishery. If NMFS continues to select the same number of vessels as in 2015, this alternative would impact 7 shark research vessel participants. Based on this number, the total average annual gross revenue loss for each shark research fishery vessel would be \$12,774 per vessel. If available resources increase in the future for more observed trips in the fishery, then this alternative still would have neutral economic impacts, since the observed trips would be distributed throughout the year, to ensure the research fishery remains open and obtains biological and catch data all year round.

Alternative B4 would increase the LCS retention limit to a maximum of 108 LCS other than sandbar sharks per trip for shark directed permit holders and reduce the sandbar shark research fishery quota to 65.7 mt dw (144,906 lb dw). This alternative would allow shark directed permit holders to retain three times as many LCS per trip as the current retention limit. This new retention limit would result in potential trip revenues of \$3,552 (3,672 lb of meat, 184 lb of fins), assuming an ex-vessel price of \$0.58 for meat and \$7.68 for fins. This alternative could have short- and long-term moderate beneficial economic impacts, since shark directed permit holders could land three times the current LCS retention limit. This increased retention

limit could result in 3,672 lb dw of LCS per trip, which could bring the fishery almost back to historical levels of 4,000 lb dw LCS per trip. While a retention limit of 108 LCS per trip would make each trip more profitable and potentially require fishermen to take fewer trips per year, this large increase in the retention limit would likely result in more permit holders becoming active in the LCS fishery. Thus, the shark fishery could return to a derby fishery, with quotas being caught at a faster rate and the fishing season shortened. Additionally, in order to increase the retention limit to 108 LCS per trip, the sandbar shark research quota would need to be reduced to an amount comparable to the 2014 landing in the shark research fishery, which could have minor adverse impacts on fishermen in the shark research fishery, who would lose revenue associated with this loss of quota.

Atlantic Regional and Sub-Regional Quotas

Alternative C1, the No Action alternative, would not change the current management of the Atlantic shark fisheries. This alternative would likely result in short-term direct neutral economic impacts, as the shark fisheries would continue to operate under current conditions, with shark fishermen continuing to fish at current rates. Based on the 2014 ex-vessel prices, the annual gross revenues for the entire fleet from aggregated LCS and hammerhead shark meat in the Atlantic region would be \$313,464, while the shark fins would be \$85,009. Thus, total average annual gross revenues for aggregated LCS and hammerhead shark landings in the Atlantic region would be \$398,473 (\$313,464 + \$85,009), which is 9 percent of the entire revenue for the shark fishery. Based on eDealer landings, there are approximately 35 active directed shark permit holders that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holders in the Atlantic region would be \$11,385 per vessel. For the non-blacknose SCS and blacknose shark landings, the annual gross revenues for the entire fleet from the meat would be \$318,289, while the shark fins would be \$85,594. The total average annual gross revenues for non-blacknose SCS and blacknose shark landings in the Atlantic region would be \$403,883 (\$318,289 + \$85,594), which is 9 percent of the entire revenue for the shark fishery. Based on eDealer landings, there are approximately 26 active directed shark permit holders that landed SCS in 2014. Based on this

number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$15,534 per vessel. However, this alternative would likely result in long-term minor adverse economic impacts. Negative impacts would be partly due to the continued negative effects of federal and state regulations related to shark finning and sale of shark fins, which have resulted in declining ex-vessel prices of fins since 2010, as well as continued changes in shark fishery management measures. Additionally, under the current regulations, fishermen operating in the south of the Atlantic region drastically impact the availability of quota remaining for fishermen operating in the north of the Atlantic region. If fishermen in the south fish early in the year and NMFS does not adjust the LCS retention limit, they have the ability to land a large proportion of the quota before fishermen in the north have the opportunity to fish, due to time/area closures and seasonal migrations of LCS and SCS, potentially resulting in indirect long-term minor adverse economic impacts. However, NMFS would intend to use existing regulations to monitor the LCS quotas and adjust the retention limit as needed to ensure equitable fishing opportunities throughout the region. This approach could result in some minor beneficial impacts over the long-term. Indirect short-term economic impacts resulting from any of the actions in Alternative C1 would likely be neutral because the measures would maintain the status quo with respect to shark landings and fishing effort. However, this alternative would likely result in indirect long-term minor beneficial economic impacts. Beneficial economic impacts and increased revenues associated with ensuring equitable fishing opportunities through trip limit adjustments experienced by fishermen within Atlantic shark fisheries would carry over to the dealers and supporting businesses they regularly interact with.

Alternative C2 would apportion the Atlantic regional quotas for LCS and SCS along 33°00' N. lat. (approximately at Myrtle Beach, South Carolina) into northern and southern sub-regional quotas and potentially adjust the non-blacknose SCS quota based on the results of the 2013 assessments for Atlantic sharpnose and bonnethead sharks. Establishing sub-regional quotas could allow for flexibility in seasonal openings within the Atlantic region. Different seasonal openings within sub-regions would allow fishermen to maximize their fishing effort during

periods when sharks migrate into local waters or when regional time/area closures are not in effect. This would benefit the economic interests of North Carolina and Florida fishermen, the primary constituents impacted by the timing of seasonal openings for LCS and SCS in the Atlantic, by placing them in separate sub-regions with separate sub-regional quotas.

Under this alternative, the northern Atlantic sub-region would receive 21.0 percent of the total aggregated LCS quota (35.4 mt dw; 78,236 lb dw) and 34.9 percent of the total hammerhead shark quota (9.5 mt dw; 20,848 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for aggregated LCS and hammerhead shark meat in the northern Atlantic sub-region would be \$70,560, while the shark fins would be \$18,819. Thus, total average annual gross revenues for aggregated LCS and hammerhead shark landings in the northern Atlantic sub-region would be \$89,379 (\$70,560 + \$18,819). Based on eDealer landings, there are approximately 14 active directed shark permit holders in the northern Atlantic sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$6,384 per vessel. When compared to the other alternatives, the northern Atlantic sub-region would have minor beneficial economic impacts under Alternative C2, because this alternative would result in the highest total average annual gross revenues for aggregated LCS and hammerhead sharks. In the southern Atlantic sub-region, fishermen would receive 79.0 percent of the total aggregated LCS quota (133.5 mt dw; 294,316 lb dw) and 65.1 percent of the total hammerhead shark quota (17.6 mt dw; 38,888 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for aggregated LCS and hammerhead shark meat in the southern Atlantic sub-region would be \$242,903, while the shark fins would be \$66,190. The total average annual gross revenues for aggregated LCS and hammerhead shark landings in the southern Atlantic sub-region would be \$309,093 (\$242,903 + \$66,190). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$14,719 per vessel. When compared to the other alternatives, the southern Atlantic sub-

region would have minor adverse economic impacts under Alternative C2, because this alternative would result in lower total average annual gross revenues for aggregated LCS and hammerhead sharks.

Under Alternative C2, NMFS would determine the blacknose shark quota for each sub-region using the percentage of landings associated with blacknose sharks within each sub-region and the new non-blacknose SCS quotas in conjunction with Alternatives C5, C6, and C7. The northern Atlantic sub-region would receive 33.5 percent of the total non-blacknose SCS quota, while the southern Atlantic sub-region would receive 66.5 percent of the total non-blacknose SCS quota in this alternative. For the blacknose sharks, the northern Atlantic sub-region would receive 6.2 percent of the total blacknose shark quota (1.1 mt dw; 2,464 lb dw), while the southern Atlantic sub-region would receive 93.8 percent of the total blacknose shark quota (16.9 mt dw; 37,285 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for blacknose shark meat in the northern Atlantic sub-region would be \$1,953, while the shark fins would be \$493. Thus, total average annual gross revenues for blacknose shark landings in the northern Atlantic sub-region would be \$2,446 (\$1,953 + \$493). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$489 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for blacknose shark meat in the southern Atlantic sub-region would be \$29,082, while the shark fins would be \$7,457. The total average annual gross revenues for blacknose shark landings in the southern Atlantic sub-region would be \$36,539 (\$29,082 + \$7,457). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$1,740 per vessel.

Alternative C3 would apportion the Atlantic regional quotas for LCS and SCS along 34°00' N. lat. (approximately at Wilmington, North Carolina) into northern and southern sub-regional quotas and potentially adjust the non-blacknose SCS quota based on the results of the 2013 assessments for

Atlantic sharpnose and bonnethead sharks. This alternative would likely result in direct short-term minor beneficial impacts, and ultimately direct long-term moderate beneficial impacts. However, drawing the regional boundary between the northern and southern Atlantic sub-regions along 34°00' N. lat. would result in more equitable sub-regional quotas, in comparison to the boundary considered in Alternative C2. Under this alternative, the northern Atlantic sub-region would receive 18.4 percent of the total aggregated LCS quota (31.0 mt dw; 68,550 lb dw) and 34.9 percent of the total hammerhead shark quota (9.5 mt dw; 20,848 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for aggregated LCS and hammerhead shark meat in the northern Atlantic sub-region would be \$63,296, while the shark fins would be \$14,697. Thus, total average annual gross revenues for aggregated LCS and hammerhead shark landings in the northern Atlantic sub-region would be \$77,993 (\$63,296 + \$14,697). Based on eDealer landings, there are approximately 14 active directed shark permit holders in the northern Atlantic sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$5,571 per vessel. When compared to Alternative C2, the northern Atlantic sub-region would have minor adverse economic impacts under this alternative. In the southern Atlantic sub-region, fishermen would receive 81.6 percent of the total aggregated LCS quota (137.9 mt dw; 304,002 lb dw) and 65.1 percent of the total hammerhead shark quota (17.6 mt dw; 38,888 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for aggregated LCS and hammerhead shark meat in the southern Atlantic sub-region would be \$250,168, while the shark fins would be \$68,219. The total average annual gross revenues for aggregated LCS and hammerhead shark landings in the southern Atlantic sub-region would be \$318,387 (\$250,168 + \$68,219). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$15,161 per vessel.

As in Alternative C2, NMFS would determine the blacknose shark quota for each sub-region using the percentage of

landings associated with blacknose sharks within each sub-region in Alternative C3 and the new non-blacknose SCS quotas in conjunction in Alternatives C5, C6, and C7. Under Alternative C3, the northern Atlantic sub-region would receive 32.9 percent of the total non-blacknose SCS quota, while the southern Atlantic sub-region would receive 67.1 percent of the total non-blacknose SCS quota. For the blacknose sharks, the northern Atlantic sub-region would receive 4.6 percent of the total blacknose shark quota (0.8 mt dw; 1,828 lb dw), while the southern Atlantic sub-region would receive 95.4 percent of the total blacknose shark quota (16.7 mt dw; 37,921 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for blacknose shark meat in the northern Atlantic sub-region would be \$1,426, while the shark fins would be \$366. Thus, total average annual gross revenues for blacknose shark landings in the northern Atlantic sub-region would be \$1,792 (\$1,426 + \$366). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$358 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for blacknose shark meat in the southern Atlantic sub-region would be \$29,578, while the shark fins would be \$7,584. The total average annual gross revenues for blacknose shark landings in the southern Atlantic sub-region would be \$37,162 (\$29,578 + \$7,584). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$1,770 per vessel. This alternative would have neutral economic impacts for the northern Atlantic sub-region fishermen when compared to Alternative C2, and would have beneficial economic impacts for the southern Atlantic sub-region fishermen when compared to Alternative C2.

Alternative C4 would apportion the Atlantic regional quotas for certain LCS and SCS management groups along 34°00' N. lat. (approximately at Wilmington, North Carolina) into northern and southern sub-regional quotas, maintain SCS quota linkages in the southern sub-region of the Atlantic

region, remove the SCS quota linkages in the northern sub-region of the Atlantic region, and prohibit the harvest and landings of blacknose sharks in the northern Atlantic sub-region. The economic impacts of apportioning the Atlantic regional quotas for LCS and SCS along 34°00' N. lat. into northern and southern sub-regional quotas would have the same impacts as described in alternative C3 above. Removing quota linkages within the northern Atlantic sub-region would have beneficial impacts, as active fishermen in this region would be able to continue fishing for non-blacknose SCS without the fishing activities in the southern Atlantic sub-region, where the majority of blacknose sharks are landed, impacting the timing of the non-blacknose SCS fishery closure. Economic advantages associated with removing quota linkages, allowing the northern Atlantic sub-region to land a larger number of non-blacknose SCS, would outweigh the income lost from prohibiting landings of blacknose sharks (\$1,426) for fishermen in the northern sub-region, particularly given the minimal landings of blacknose sharks attributed to the northern sub-region. In the southern Atlantic region, no economic impacts are expected by maintaining the quota linkages already in place for SCS. Thus, by removing quota linkages in the northern Atlantic region, in combination with apportioning the Atlantic regional quota at 34°00' N. lat. to allow fishermen to maximize their fishing effort, and thereby maximize revenue, during periods when sharks migrate into local waters or when regional time/area closures are not in place, Alternative C4 would result in overall direct and indirect, short- and long-term moderate beneficial economic impacts.

Alternative C5 would establish a non-blacknose SCS TAC of 353.2 mt dw and reduce the non-blacknose SCS commercial quota to 128 mt dw (282,238 lb dw). When combined with the other alternatives to establish sub-regional non-blacknose SCS quotas, the economic impacts of Alternative C5 would vary based on the alternative. Under Alternative C2, the northern Atlantic sub-region would receive 33.5 percent of the total non-blacknose SCS quota (42.9 mt dw; 94,550 lb dw) and the southern Atlantic sub-region would receive 65.5 percent of the total non-blacknose SCS quota (85.1 mt dw; 187,668 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the northern Atlantic sub-region would be \$69,967, while the shark fins would be

\$18,910. Thus, total average annual gross revenues for non-blacknose SCS landings in the northern Atlantic sub-region would be \$88,877 (\$69,967 + \$18,910). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$17,775 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the southern Atlantic sub-region would be \$138,889, while the shark fins would be \$37,538. The total average annual gross revenues for non-blacknose SCS landings in the southern Atlantic sub-region would be \$176,427 (\$138,889 + \$37,538). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder in Atlantic would be \$8,401 per vessel. Sub-regional quotas under Alternatives C2 are about a two percent increase in landings allocated to the northern region for non-blacknose SCS when compared to Alternative C3. This percentage would lead to a slight increase in some of the sub-regional quotas within the northern Atlantic sub-region, as compared to Alternative C3, and would result in short-term minor beneficial economic impacts, and ultimately long-term moderate beneficial economic impacts in the northern Atlantic sub-region.

Using the quotas considered under Alternative C5 and the sub-regional split under Alternatives C3 and C4, the northern Atlantic sub-region would receive 33.5 percent of the total non-blacknose SCS quota (42.1 mt dw; 92,856 lb dw), while the southern Atlantic sub-region would receive 67.1 percent of the total non-blacknose SCS quota (85.9 mt dw; 189,382 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the northern Atlantic sub-region would be \$68,714, while the shark fins would be \$18,571. The total average annual gross revenues for non-blacknose SCS landings in the northern Atlantic sub-region would be \$87,285 (\$68,714 + \$18,571). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total

average annual gross revenue for the active directed permit holder in Atlantic would be \$17,457 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the southern Atlantic sub-region would be \$140,142, while the shark fins would be \$37,876. The total average annual gross revenues for non-blacknose SCS landings in the southern Atlantic sub-region would be \$178,018 (\$140,142 + \$37,876). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$8,477 per vessel. Overall, the non-blacknose SCS commercial quota considered under this alternative is almost thirty percent less than the current base quota and less than half of the current adjusted quota for this management group. Therefore, NMFS believes this alternative would have short- and long-term minor adverse economic impacts due to the quota being capped at a lower level than what is currently being landed in the non-blacknose SCS fisheries, leading to a loss in annual revenue for these shark fishermen. In addition, the adverse impacts would be compounded by the unknown stock status of bonnethead, which would prevent NMFS from carrying forward underharvested quota. Thus, the commercial quota of 128 mt dw would not be adjusted and the fishermen would be limited to this amount each year, which could lead to shorter seasons and reduced flexibility, potentially affecting fishermen's decisions to participate.

Under Alternative C6, NMFS would establish a non-blacknose SCS TAC and maintain the current base annual quota of 176.1 mt dw (388,222 lb dw). When combined with the other alternatives to establish sub-regional non-blacknose SCS quotas, the economic impacts of Alternative C6 would vary based on the sub-regional quotas. Under Alternatives C2, the northern Atlantic sub-region would receive 33.5 percent of the total non-blacknose SCS quota (59.0 mt dw; 130,054 lb dw) and the southern Atlantic sub-region would receive 66.5 percent of the total non-blacknose SCS quota (117.1 mt dw; 258,168 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the northern Atlantic sub-region would be \$96,240, while the shark fins would be \$26,011. Thus, total average annual gross revenues for non-blacknose SCS landings in the northern

Atlantic sub-region would be \$122,251 (\$96,240 + \$26,011). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$24,450 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the southern Atlantic sub-region would be \$191,044, while the shark fins would be \$51,634. The total average annual gross revenues for non-blacknose SCS landings in the southern Atlantic sub-region would be \$242,678 (\$191,044 + \$51,634). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$11,556 per vessel. Sub-regional quotas under Alternative C2 would lead to some slightly higher sub-regional quotas within the northern Atlantic sub-region, as compared to Alternative C3, and would result in short-term minor beneficial impacts, and ultimately long-term moderate beneficial economic impacts in the northern Atlantic sub-region.

Using the quotas considered under Alternative C6 and the sub-regional split considered under Alternatives C3 and C4, the northern Atlantic sub-region would receive 32.9 percent of the total non-blacknose SCS quota (57.9 mt dw; 127,725 lb dw), while the southern Atlantic sub-region would receive 67.1 percent of the total non-blacknose SCS quota (118.2 mt dw; 260,497 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the northern Atlantic sub-region would be \$94,517, while the shark fins would be \$25,545. The total average annual gross revenues for non-blacknose SCS landings in the northern Atlantic sub-region would be \$120,062 (\$94,517 + \$25,545). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$24,012 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the southern Atlantic sub-region would be \$192,768, while the shark fins would be \$52,099. The total

average annual gross revenues for non-blacknose SCS landings in the southern Atlantic sub-region would be \$244,867 (\$192,768 + \$52,099). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder in Atlantic would be \$11,660 per vessel. Overall, Alternative C6 would lead to a lower quota in the northern Atlantic sub-region, as compared to current landings under the higher base quota. Because this alternative would maintain the non-blacknose SCS commercial quota, it is likely to have short-term neutral economic impacts. Recent non-blacknose SCS landings have been below 176.1 mt dw, thus, this commercial quota could allow for increased landings and additional revenue if the entire quota is caught, which could have beneficial socioeconomic impacts. However, since the quota of 176.1 mt dw would not be adjusted for underharvests due to the unknown status of bonnethead sharks, the fishermen would be capped at a lower quota than is possible in the current non-blacknose SCS fisheries if there is underharvest, potentially leading to long-term minor adverse socioeconomic impacts. NMFS does not expect fishing effort to dramatically increase for non-blacknose SCS in the southern region of the Atlantic, since landings would continue to be limited by blacknose shark landings and the linkage between these two groups.

Under Alternative C7, a preferred alternative, NMFS would establish a non-blacknose SCS TAC of 489.3 mt dw and increase the quota to the current adjusted base annual quota of 264.1 mt dw (582,333 lb dw) which is equal to the 2014 adjusted non-blacknose SCS quota. Based on the 2014 ex-vessel prices, the annual gross revenues for the entire fleet from non-blacknose SCS meat in the Atlantic region would be \$430,926 while the shark fins would be \$116,467. Thus, total average annual gross revenues for non-blacknose shark landings in the Atlantic region would be \$547,393 (\$430,926 + \$116,467), which is 12 percent of the entire revenue for the shark fishery. The economic impacts of Alternative C7 would vary when combined with Alternatives C2 through C4 to establish sub-regional non-blacknose SCS quotas as considered in the Draft EA, and a new preferred Alternative C8 that would maintain the status quo of a regional quota for the blacknose and non-blacknose SCS

management groups and would establish a management boundary to modify the blacknose and non-blacknose SCS quota linkage. Under Alternative C2, the northern Atlantic sub-region would receive 33.5 percent of the total non-blacknose SCS quota (88.4 mt dw; 195,082 lb dw) and the southern Atlantic sub-region would receive 66.5 percent of the total non-blacknose SCS quota (175.7 mt dw; 387,251 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the northern Atlantic sub-region would be \$144,360, while the shark fins would be \$39,016. Thus, total average annual gross revenues for non-blacknose SCS landings in the northern Atlantic sub-region would be \$183,376 (\$144,360 + \$39,016). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in Atlantic would be \$36,675 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the southern Atlantic sub-region would be \$286,566, while the shark fins would be \$77,450. The total average annual gross revenues for non-blacknose SCS landings in the southern Atlantic sub-region would be \$364,016 (\$286,566 + \$77,450). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder in Atlantic would be \$17,334 per vessel.

Under Alternative C7 and either Alternative C3 or C4, the northern Atlantic sub-region would receive 32.9 percent of the total non-blacknose SCS quota (86.9 mt dw; 191,588 lb dw), while the southern Atlantic sub-region would receive 67.1 percent of the total non-blacknose SCS quota (177.2 mt dw; 390,745 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the northern Atlantic sub-region would be \$141,775, while the shark fins would be \$38,318. The total average annual gross revenues for non-blacknose SCS landings in the northern Atlantic sub-region would be \$180,093 (\$141,775 + \$38,318). Based on eDealer landings, there are approximately 5 active directed shark permit holders in the northern Atlantic sub-region that landed SCS in 2014. Based on this number of

individual permits, the total average annual gross revenue for the active directed permit holder in Atlantic would be \$36,019 per vessel. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the southern Atlantic sub-region would be \$289,152, while the shark fins would be \$78,149. The total average annual gross revenues for non-blacknose SCS landings in the southern Atlantic sub-region would be \$367,301 (\$289,152 + \$78,149). Based on eDealer landings, there are approximately 21 active directed shark permit holders in the southern Atlantic sub-region that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder in Atlantic would be \$17,491 per vessel.

Under Alternative C7 and a new preferred Alternative C8, the commercial quota for the SCS fishery would be 264.1 mt dw (582,333 lb dw) for the Atlantic region, which is equal to the 2014 adjusted non-blacknose SCS quota. Based on the 2014 ex-vessel prices, the annual gross revenues for the entire fleet from non-blacknose SCS meat in the Atlantic region would be \$430,926, while the shark fins would be \$116,467. Thus, total average annual gross revenues for non-blacknose shark landings in the Atlantic region would be \$547,393 (\$430,926 + \$116,467), which is 13 percent of the entire revenue for the shark fishery. Based on eDealer landings, there are approximately 26 active directed shark permit holders that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder in the Atlantic region would be \$21,054 per vessel.

The quota considered under Alternative C7 is an increase compared to the non-blacknose SCS commercial quotas under Alternatives C5 or C6. Since underharvested quota would no longer be carried forward, this quota would provide a buffer, potentially providing for landings to increase in the future, and thus, providing some beneficial socioeconomic impacts in the long-term due to the potential to gain additional revenue. The increased landings could result in additional revenues of up to \$302,526 in total average annual gross revenue for non-blacknose shark landings relative to Alternative C6, the preferred alternative in the Draft EA. However, recent landings of non-blacknose SCS have been less than half of the commercial quota under this alternative (in part because of increasing blacknose landings), so it is unlikely that

fishermen would catch this entire quota in the short-term (unless this alternative is combined with Alternative C8), such that this alternative would have neutral economic impacts. When combined with Alternative C8, the increased quota in Alternative C7 could have positive economic impacts for fishermen.

Alternative C8, one of the preferred alternatives, would maintain the current aggregated LCS (168.9 mt dw; 372,552 lb dw) and hammerhead shark (27.1 mt dw; 59,736 lb dw) regional quotas in the Atlantic region, establish a management boundary for the SCS fishery, and prohibit the retention of blacknose sharks north of the management boundary at 34°00' N. lat. Based on historical landings and 2014 ex-vessel prices, the annual gross revenues for blacknose meat in the Atlantic region south of 34°00' N. lat. would be \$29,578, while the blacknose shark fins would be \$7,584. Thus, total average annual gross revenues for blacknose landings in the Atlantic region south of 34°00' N. lat. would be \$37,162 (29,578 + \$7,584). Based on eDealer landings, there are approximately 21 active directed shark permit holders that landed SCS in 2014 south of 34°00' N. lat. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder south of 34°00' N. lat. would be \$1,770 per vessel. No economic impacts are expected from maintaining the current LCS and hammerhead regional quotas structure as fishermen would continue to fish at current rates and would not be limited by sub-regional quotas. However, NMFS would intend to use existing regulations to monitor the LCS quotas and adjust the retention limit as needed to ensure equitable fishing opportunities throughout the region. This approach could result in some minor beneficial impacts over the long-term. Establishing a management boundary and removing quota linkages north of 34°00' N. lat. in this alternative would have beneficial impacts for fishermen north of the management boundary, as active fishermen in the area above 34°00' N. lat. would be able to continue fishing for non-blacknose SCS without being constrained by the fishing activities south of 34°00' N. lat., where the majority of blacknose sharks are landed. Given the fact that in recent years the SCS fishery has closed before the non-blacknose SCS quota has been harvested, fishermen north of the management boundary who would be able to continue to fish after the fisheries are closed south of the management boundary, could have substantial economic gains under this

alternative. Economic benefits associated with removing quota linkages between non-blacknose SCS and blacknose sharks, allowing fishermen north of the management boundary to land a larger number of non-blacknose SCS, would outweigh for the fishermen north of the boundary the income lost from prohibiting landings of blacknose sharks. This is in part due to the minimal landings of blacknose sharks north of 34°00' N. lat. and the request of fishermen in the Atlantic to remove the linkage between the two management groups in order to continue fishing for non-blacknose SCS when the blacknose quota is reached. In the area south of 34°00' N. lat., no change in socioeconomic impacts is expected by maintaining the quota linkages already in place for the SCS fishery as this alternative is essentially status quo. Fishermen south of the management boundary line would be able to continue fishing for non-blacknose SCS based upon how successful they are at avoiding blacknose sharks. If blacknose shark bycatch remains low, fishermen would have the opportunity to continue fishing the non-blacknose SCS quota. Thus, by implementing management measures considered in Alternative C8, this alternative would result in overall direct and indirect, short- and long-term minor beneficial socioeconomic impacts.

Gulf of Mexico Regional and Sub-Regional Quotas

Alternative D1, the No Action alternative, would maintain the current regional quotas and quota linkages in the Gulf of Mexico region and continue to allow harvest of hammerhead sharks throughout the entire Gulf of Mexico region. This alternative would likely result in short-term neutral direct economic impacts, because shark fishermen would continue to operate under current conditions, with shark fishermen continuing to fish at similar rates. Based on the 2014 ex-vessel prices, the annual gross revenues for the entire fleet from blacktip, aggregated LCS, and hammerhead shark meat in the Gulf of Mexico region would be \$497,148, while the shark fins would be \$472,355. Thus, total average annual gross revenues for blacktip, aggregated LCS, and hammerhead shark landings in the Gulf of Mexico region would be \$969,503 (\$497,148+ \$472,355), which would be 22 percent of the entire shark fishery. Based on eDealer landings, there are approximately 28 active directed shark permit holders that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the

active directed permit holders in the Gulf of Mexico would be \$34,625 per vessel. For the non-blacknose SCS and blacknose shark landings, the annual gross revenues for the entire fleet from the meat would be \$39,995, while the shark fins would be \$30,610. The total average annual gross revenues for non-blacknose SCS and blacknose shark landings in the Gulf of Mexico region would be \$70,605 (\$39,995 + \$30,610), which is 2 percent of the entire revenue for the shark fishery. Based on eDealer landings, there are approximately 8 active directed shark permit holders that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in the Gulf of Mexico would be \$8,826 per vessel. Alternative D1 would likely result in short-term neutral direct socioeconomic impacts because shark fishermen would continue to operate under current conditions and to fish at similar rates. However, this alternative would likely result in long-term minor adverse socioeconomic impacts. Negative impacts would be partly due to the continued negative impact of federal and state regulations related to shark finning and sale of shark fins, which have resulted in declining ex-vessel prices of fins since 2010, as well as continued changes in shark fishery management measures. In addition, under the No Action alternative, the non-blacknose SCS quota would not be modified. This could potentially lead to negative socioeconomic impacts, since the non-blacknose SCS quotas could be increased based on results from the most recent stock assessment, as described in Alternatives D6–D8 below. Additionally, under the current regulations, differences in regional season opening dates would impact the availability of quota remaining in the Gulf of Mexico. Florida fishermen prefer to begin fishing the LCS quotas in the beginning of the year, when sharks are in local waters. However, opening the season at the beginning of the year puts Louisiana fishermen at a slight economic disadvantage, as many Louisiana fishermen prefer to delay fishing, maximizing fishing efforts during the religious holiday Lent when prices for shark meat are higher. Indirect short-term socioeconomic impacts resulting from any of the actions in Alternative D1 would likely be neutral because the measures would maintain the status quo with respect to shark landings and fishing effort. However, this alternative would likely result in indirect long-term minor adverse socioeconomic impacts. Negative

socioeconomic impacts and decreased revenues associated with financial difficulties experienced by fishermen within the Gulf of Mexico shark fisheries would carry over to the dealers and supporting businesses they regularly interact with. In addition, this alternative would not achieve the goals of this rulemaking of increasing management flexibility to adapt to the changing needs of the Atlantic shark fisheries.

Alternative D2 would apportion the Gulf of Mexico regional quotas for blacktip, aggregated LCS and hammerhead sharks along 89°00' W. longitude into western and eastern sub-regional quotas. Establishing sub-regional quotas would provide flexibility in seasonal openings within the Gulf of Mexico region. Different seasonal openings within sub-regions would allow fishermen to maximize their fishing effort during periods when sharks migrate into local waters or during periods when sales of shark meat are increased (e.g., in Louisiana, during Lent). Allowing fishermen in these states more flexibility, by implementing sub-regions, could result in a higher proportion of the quota being landed and increased average annual gross revenues. This would benefit the economic interests of the Louisiana and Florida fishermen, the primary constituents impacted by the timing of seasonal openings for LCS and SCS in the Gulf of Mexico, by placing them in separate sub-regions with separate sub-regional quotas. No negative impacts are expected for either the fishermen or the length of the fishing season since NMFS will be able to transfer quota between sub-regions to ensure that the full quota is harvested.

Under this alternative, the eastern Gulf of Mexico sub-region would receive 30.8 mt dw in blacktip shark, 88.8 mt dw in aggregated LCS, and 13.4 mt dw in hammerhead shark quotas. Based on the 2014 ex-vessel prices, the annual gross revenues for blacktip, aggregated LCS, and hammerhead shark meat in the eastern Gulf of Mexico sub-region would be \$153,897, while the shark fins would be \$145,758. Thus, total average annual gross revenues for blacktip, aggregated LCS, and hammerhead shark landings in the eastern Gulf of Mexico sub-region would be \$299,655 (\$153,897 + \$145,758). Based on eDealer landings, there are approximately 11 active directed shark permit holders in the eastern Gulf of Mexico sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this

sub-region would be \$27,241 per vessel. When compared to Alternative D3, the eastern Gulf of Mexico sub-region would have minor beneficial economic impacts under Alternative D2, because this alternative would result in the highest total average annual gross revenues for blacktip, aggregated LCS, and hammerhead sharks. In the western Gulf of Mexico sub-region, fishermen would receive 225.8 mt dw in blacktip shark, 68.7 mt dw in aggregated LCS, and 11.9 mt dw in hammerhead shark quotas. Based on the 2014 ex-vessel prices, the annual gross revenues for blacktip, aggregated LCS, and hammerhead shark meat in the eastern Gulf of Mexico sub-region would be \$343,251, while the shark fins would be \$326,597. Thus, total average annual gross revenues for blacktip, aggregated LCS, and hammerhead shark landings in the eastern Gulf of Mexico sub-region would be \$669,502 (\$343,251 + \$326,597). Based on eDealer landings, there are approximately 17 active directed shark permit holders in the western Gulf of Mexico sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$39,382 per vessel.

Alternative D2 would result in \$19,753 more in annual gross revenues for the eastern Gulf of Mexico sub-region, as compared to Alternative D3. This alternative would have direct short-term minor beneficial economic impacts as a result of implementing a sub-regional quota structure, combined with higher sub-regional quotas and therefore increased potential gross revenue, received by the eastern Gulf of Mexico sub-region. However, despite the increase in the quota for the eastern Gulf of Mexico sub-region, in the long-term, there could be minor adverse economic impacts based on the boundary line chosen to separate the sub-regions in the Gulf of Mexico. Placing the boundary between the eastern and western Gulf of Mexico sub-regions along 89°00' W. long. (i.e., between fishing catch areas 11 and 12) may not create sufficient geographic separation between the major stakeholders in the Gulf of Mexico (i.e., Louisiana and Florida), as opposed to the boundary in Alternative D3. As the range of Louisiana fishermen extends east beyond this boundary, placing the boundary along 89°00' W. long. would allow active shark fishermen in the western sub-region to utilize both sub-regional quotas while active shark fishermen in the eastern sub-region would be limited to just the eastern sub-

region quota. As such, this alternative could result in less equitable economic benefits to fishermen in both sub-regions. Fishermen in the western sub-region could potentially increase their gross annual revenues by harvesting some of the eastern sub-regional quota, which would be lost by fishermen from the eastern sub-region, who could lose some of their potential annual revenue as a result of not fully harvesting the eastern sub-regional quota.

Alternative D3, one of the preferred alternatives, would apportion the Gulf of Mexico regional quotas for blacktip, aggregated LCS, and hammerhead sharks along 88°00' W. long. into western and eastern sub-regional quotas. Under this alternative, the eastern Gulf of Mexico sub-region would receive 9.8 percent of the total blacktip quota (25.1 mt dw; 55,439 lb dw), 54.3 percent of the total aggregated LCS quota (85.5 mt dw; 188,593 lb dw), and 52.8 percent of the total hammerhead shark quota (13.4 mt dw; 29,421 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for blacktip, aggregated LCS, and hammerhead shark meat in the eastern Gulf of Mexico sub-region would be \$143,735 while the shark fins would be \$136,167. Thus, total average annual gross revenues for blacktip, aggregated LCS, and hammerhead shark landings in the eastern Gulf of Mexico sub-region would be \$279,902 (\$143,735 + \$136,167). Based on eDealer landings, there are approximately 11 active directed shark permit holders in the eastern Gulf of Mexico sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$25,446 per vessel. The eastern Gulf of Mexico sub-region would have minor adverse socioeconomic impacts under Alternative D3, because this alternative would result in lower total average annual gross revenues for blacktip, aggregated LCS, and hammerhead sharks than under Alternative D2. In the western Gulf of Mexico sub-region, fishermen would receive 90.2 percent of the total blacktip quota (231.5 mt dw; 510,261 lb dw), 45.7 percent of the total aggregated LCS quota (72.0 mt dw; 158,724 lb dw), and 47.2 percent of the total hammerhead shark quota (11.9 mt dw; 23,301 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for blacktip, aggregated LCS, and hammerhead shark meat in the western Gulf of Mexico sub-region would be \$251,403, while the shark fins would be \$101,055. Thus, total average annual gross revenues for blacktip,

aggregated LCS, and hammerhead shark landings in the western Gulf of Mexico sub-region would be \$689,601 (\$353,412 + \$336,189). Based on eDealer landings, there are approximately 17 active directed shark permit holders in the western Gulf of Mexico sub-region that landed LCS in 2014. Based on this number of individual permits, the total average annual gross revenues for the active directed permit holders in this sub-region would be \$40,565 per vessel, which would be more than the average annual gross revenue per vessel under Alternatives D1 or D2.

Alternative D3 would result in \$19,753 less in annual gross revenues to the eastern Gulf of Mexico sub-region, which would receive slightly smaller sub-regional quotas under this alternative, as compared to under Alternative D2. However, despite the economic disadvantages resulting from slightly smaller sub-regional quotas for the eastern Gulf of Mexico sub-region, overall there would be short-term minor beneficial economic impacts and long-term moderate beneficial socioeconomic impacts under this alternative, based on where the Gulf of Mexico sub-region would be split. Placing the boundary between the eastern and western Gulf of Mexico sub-regions along 88°00' W. long. (*i.e.*, between fishing catch areas 10 and 11) would create better geographic separation between the major stakeholders in the Gulf of Mexico (*i.e.*, Louisiana and Florida), as opposed to the boundary in Alternative D2. This would provide more equitable economic benefits to fishermen in both sub-regions, by allowing them increased likelihood of fully harvesting their sub-regional quotas, and maximizing the potential annual revenue they could gain upon implementation of sub-regional quotas in the Gulf of Mexico.

Alternative D4 would apportion the Gulf of Mexico regional quotas for blacktip, aggregated LCS, and hammerhead sharks along 89°00' W. longitude into western and eastern sub-regional quotas, maintain LCS quota linkages in the eastern sub-region of the Gulf of Mexico region, remove the LCS quota linkages in the western sub-region of the Gulf of Mexico region, and prohibit the harvest of hammerhead sharks in the western Gulf of Mexico sub-region. In the Draft EA for Amendment 6, NMFS originally considered this alternative to have neutral economic impacts, as there were negligible landings of hammerhead sharks in western sub-region between 2008–2013. However, based on updated landing data resulting in comparable hammerhead shark sub-regional quotas (13.4 mt dw for the eastern Gulf of

Mexico sub-region, and 11.9 mt dw for the western Gulf of Mexico sub-region), it is now apparent that there would be some negative socioeconomic impacts if NMFS were to prohibit hammerhead sharks in the western sub-region. Given this information, prohibiting retention of hammerhead sharks in the western sub-region would result in a large number of regulatory discards, and would also have negative socioeconomic impacts on fishermen in this sub-region. Under Alternative D4, there would be loss of \$25,941 for active shark fishermen operating within the western Gulf of Mexico region if they were unable to retain hammerhead sharks. Additionally, based on public comment on the preference for a boundary line at 88°00' W. long., placing the boundary line at 89°00' W. long. would allow fishermen operating in the western sub-region an opportunity to harvest from both sub-regional quotas. While implementing sub-regional quotas in the Gulf of Mexico would allow fishermen to maximize their fishing effort at times when fishing would be most profitable for them, thereby maximizing revenue, placing the boundary line at 89°00' W. long. would decrease the likelihood of fishermen from each respective sub-region fully harvesting their sub-regional quota, and maximizing the potential annual revenue they could gain upon implementation of sub-regional quotas in the Gulf of Mexico. Thus, Alternative D4 would likely result in both direct and indirect short- and long-term minor adverse socioeconomic impacts across the entire Gulf of Mexico region, as there would be potential losses from prohibiting landings of hammerhead sharks in the western Gulf of Mexico and from choosing a boundary that does not create sufficient geographic separation between the major stakeholders in the Gulf of Mexico.

Under Alternative D5, NMFS would establish a non-blacknose SCS TAC of 931.9 mt dw and maintain the current base annual quota of 45.5 mt dw (100,317 lb dw). However, given the impact of federal and state regulations related to shark finning and sale of shark fins, which have resulted in declining ex-vessel prices of fins since 2010, on fishermen in the Gulf of Mexico, maintaining the current base annual quota would likely have negative socioeconomic impacts. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS and blacknose shark meat in the Gulf of Mexico region would be \$36,114, while the shark fins would be \$29,293. Thus,

total average annual gross revenues for non-blacknose SCS landings would be \$65,407 (\$36,114 + \$29,293). Based on eDealer landings, there are approximately 8 active directed shark permit holders that landed SCS in 2014. Based on this number of individual permits, the total average annual gross revenue for the active directed permit holder in Atlantic would be \$8,176 per vessel. When compared to Alternative D8, the preferred alternative, this alternative would result in \$96,429 (\$161,836 – \$65,407) less in total gross annual revenue, or \$12,054 less per vessel. Alternative D5 would likely result in both direct and indirect short- and long-term moderate adverse socioeconomic impacts, as fishermen would continue to experience reduced revenue throughout the region, as would the dealers and supporting business that they regularly interact with.

Under Alternative D6, NMFS would establish a non-blacknose SCS TAC of 954.7 mt dw and increase the quota to the current adjusted annual quota of 68.3 mt dw (150,476 lb dw). Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the Gulf of Mexico region would be \$54,171, while the shark fins would be \$43,939. Thus, total average annual gross revenues for non-blacknose SCS landings would be \$90,110 (\$54,171 + \$43,939). There are approximately 8 active directed shark permit holders in the entire Gulf of Mexico that landed SCS in 2014, which would result in average annual gross revenues for all SCS species of \$11,264 per vessel. Given current financial difficulties faced by fishermen, associated with declining ex-vessel prices and restrictions on the sale of shark fins, the beneficial economic impacts of increasing the annual quota by 22.8 mt dw (from the quota under Alternative D5) would likely be minimal. Thus, it is likely that Alternative D6 could result in both direct and indirect short- and long-term neutral to minor adverse economic impacts.

Under Alternative D7, NMFS would establish a non-blacknose SCS TAC of 1,064.9 mt dw and increase the quota to 178.5 mt dw (393,566 lb dw). Under this alternative, the commercial quota would be increased to twice the current 2013 landings, which is almost four times the current base annual quota for non-blacknose SCS. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the Gulf of Mexico region would be \$141,684, while the shark fins would be \$114,921. Thus, total average annual gross revenues for non-blacknose SCS landings would be \$256,605 (\$141,684 +

\$114,921). There are approximately 8 active directed shark permit holders in the entire Gulf of Mexico, which would result in average annual gross revenues for all SCS species of \$32,076 per vessel. The quota considered under this alternative would result in an increase of \$94,769 (\$256,605 – \$161,836) in annual revenues or an increase of \$11,846 per vessel, over the quota considered in preferred Alternative D8. Alternative D7 could have short-term beneficial socioeconomic impacts, since the commercial quota under this alternative is almost four times the current base quota for non-blacknose SCS. However, if the increase in quota results in overfishing for blacknose and/or finetooth sharks, additional restrictions would be likely in the future, which would likely have large negative economic impacts.

Alternative D8, one of the preferred alternatives, would establish a non-blacknose SCS TAC of 999.0 mt dw, increase the quota to 112.6 mt dw (248,215 lb dw), and prohibit the retention of blacknose sharks in the Gulf of Mexico. Under this alternative, the commercial quota would be increased to almost twice the 2013 landings, which is almost four times the current base annual quota for non-blacknose SCS, but then would be adjusted down to account for blacknose shark discards that would occur as a result of the prohibition on retaining blacknose sharks. Based on the 2014 ex-vessel prices, the annual gross revenues for non-blacknose SCS meat in the Gulf of Mexico region would be \$89,357, while the shark fins would be \$72,479. Thus, total average annual gross revenues for non-blacknose SCS landings would be \$345,551 (\$125,941 + \$219,610). Fishermen could potentially land more non-blacknose SCS under this alternative than under either Alternatives D5 or D6, resulting in increased annual revenues. While the quota would be lower than under Alternative D7, by prohibiting blacknose sharks, this would remove the linkage between blacknose sharks and non-blacknose sharks, and increase the likelihood that fishermen could harvest the entire non-blacknose SCS quota. Additional revenue gained from increasing the non-blacknose SCS quota would outweigh a loss of \$5,199 from prohibiting blacknose in the Gulf of Mexico. Potential loss of gross revenue by shark fishermen due to the prohibition on blacknose may also be less than \$5,199, as fishermen have demonstrated an ability to largely avoid blacknose sharks with the use of gillnet gear. Fishermen in the Gulf of Mexico

have also been requesting a prohibition on landing and retention of blacknose sharks since Amendment 3 to the 2006 Consolidated HMS FMP, when blacknose sharks were separated from the SCS management group and linked to the newly created non-blacknose SCS management group. The small blacknose shark quota has resulted in early closure before the non-blacknose SCS quota could be harvested. However, in recent years, blacknose sharks have not been the limiting factor in initiating closure of the linked SCS management groups in the Gulf of Mexico; instead, it has been landings of non-blacknose SCS either exceeding or being projected to exceed 80 percent of the quota. Thus, Alternative D8 would likely result in both direct and indirect short- and long-term moderate beneficial socioeconomic impacts, since the commercial quota under this alternative would be higher than the current base quota for non-blacknose SCS.

Upgrading Restrictions

Under Alternative E1, the No Action alternative, NMFS would maintain the current upgrading restrictions in place for shark limited access permit holders. Thus, shark limited access permit holders would continue to be limited to upgrading a vessel or transferring a permit only if it does not result in an increase in horsepower of more than 20 percent or an increase of more than 10 percent overall, gross registered tonnage, or net tonnage from the vessel baseline specifications. The No Action alternative could result in direct and indirect minor adverse economic impacts if fishermen continue to be constrained by limits on horsepower and vessel size increases. Fishermen would also be limited by these upgrading restrictions when buying, selling, or transferring shark directed limited access permits.

Alternative E2, a preferred alternative, would remove current upgrading restrictions for shark directed permit holders. Eliminating these restrictions would have short- and long-term minor beneficial economic impacts, since it would allow fishermen to buy, sell, or transfer shark directed permits without worrying about the increase in horsepower of more than 20 percent or an increase of more than 10 percent in length overall, gross registered tonnage, or net tonnage from the vessel baseline specifications. In addition, the upgrade restriction for shark permit holders was implemented to match the upgrading restrictions for the Northeast multispecies permits. NMFS is currently considering removing the upgrading restrictions for the Northeast

multispecies permits, and if those are removed, then removing the upgrading restrictions for shark directed permit holders could aid in maintaining consistency for fishermen who hold multiple permits.

Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996 states that, for each rule or group of related rules for which an agency is required to prepare a FRFA, the agency shall publish one or more guides to assist small entities in complying with the rule, and shall designate such publications as “small entity compliance guides.” The agency shall explain the actions a small entity is required to take to comply with a rule or group of rules. As part of this rulemaking process, a letter to permit holders that also serves as small entity compliance guide (the guide) was prepared. Copies of this final rule are available from the HMS Management Division (see **ADDRESSES**) and the guide (*i.e.*, permit holder letter) will be sent to all holders of permits for the Atlantic shark commercial fisheries. The guide and this final rule will be available upon request.

List of Subjects in 50 CFR Part 635

Fisheries, Fishing, Fishing vessels, Foreign relations, Imports, Penalties, Reporting and recordkeeping requirements, Treaties.

Dated: August 6, 2015.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 635 is amended as follows:

PART 635—ATLANTIC HIGHLY MIGRATORY SPECIES

■ 1. The authority citation for part 635 continues to read as follows:

Authority: 16 U.S.C. 971 *et seq.*; 16 U.S.C. 1801 *et seq.*

■ 2. In § 635.2, add the definition “Management group” in alphabetical order to read as follows:

§ 635.2 Definitions.

* * * * *

Management group in regard to sharks means a group of shark species that are combined for quota management purposes. A management group may be split by region or sub-region, as defined at § 635.27(b)(1). A fishery for a management group can be opened or closed as a whole or at the regional or sub-regional levels. Sharks have the following management groups: Atlantic

aggregated LCS, Gulf of Mexico aggregated LCS, research LCS, hammerhead, Atlantic non-blacknose SCS, Gulf of Mexico non-blacknose SCS, and pelagic sharks other than blue or porbeagle.

* * * * *

3. In § 635.4, revise paragraph (l)(2)(i), the introductory text of paragraph (l)(2)(ii), and paragraphs (l)(2)(iv) through (vi), and remove paragraph (l)(2)(x) to read as follows:

§ 635.4 Permits and fees.

* * * * *

- (1) * * *
(2) * * *

(i) Subject to the restrictions on upgrading the harvesting capacity of permitted vessels in paragraph (l)(2)(ii) of this section, as applicable, and to the limitations on ownership of permitted vessels in paragraph (l)(2)(iii) of this section, an owner may transfer a shark or swordfish LAP or an Atlantic Tunas Longline category permit to another vessel that he or she owns or to another person. Directed handgear LAPs for swordfish may be transferred to another vessel or to another person but only for use with handgear and subject to the upgrading restrictions in paragraph (l)(2)(ii) of this section and the limitations on ownership of permitted vessels in paragraph (l)(2)(iii) of this section. Shark directed and incidental LAPs and swordfish incidental LAPs are not subject to the upgrading requirements specified in paragraph (l)(2)(ii) of this section. Shark and swordfish incidental LAPs are not subject to the ownership requirements specified in paragraph (l)(2)(iii) of this section.

(ii) An owner may upgrade a vessel with a swordfish LAP or an Atlantic Tunas Longline category permit, or transfer such permit to another vessel or to another person, and be eligible to retain or renew such permit only if the upgrade or transfer does not result in an increase in horsepower of more than 20 percent or an increase of more than 10 percent in length overall, gross registered tonnage, or net tonnage from the vessel baseline specifications. A vessel owner that concurrently held a directed or incidental swordfish LAP, a directed or incidental shark LAP, and an Atlantic Tunas Longline category permit as of August 6, 2007, is eligible to increase the vessel size or transfer the permits to another vessel as long as any increase in the three specifications of vessel size (length overall, gross registered tonnage, and net tonnage) does not exceed 35 percent of the vessel baseline specifications, as defined in paragraph (l)(2)(ii)(A) of this section;

horsepower for those eligible vessels is not limited for purposes of vessel upgrades or permit transfers.

* * * * *

(iv) In order to transfer a swordfish, shark or an Atlantic Tunas Longline category limited access permit to a replacement vessel, the owner of the vessel issued the limited access permit must submit a request to NMFS, at an address designated by NMFS, to transfer the limited access permit to another vessel, subject to requirements specified in paragraph (l)(2)(ii) of this section, if applicable. The owner must return the current valid limited access permit to NMFS with a complete application for a limited access permit, as specified in paragraph (h) of this section, for the replacement vessel. Copies of both vessels' U.S. Coast Guard documentation or state registration must accompany the application.

(v) For swordfish, shark, and an Atlantic Tunas Longline category limited access permit transfers to a different person, the transferee must submit a request to NMFS, at an address designated by NMFS, to transfer the original limited access permit(s), subject to the requirements specified in paragraphs (l)(2)(ii) and (iii) of this section, if applicable. The following must accompany the completed application: The original limited access permit(s) with signatures of both parties to the transaction on the back of the permit(s) and the bill of sale for the permit(s). A person must include copies of both vessels' U.S. Coast Guard documentation or state registration for limited access permit transfers involving vessels.

(vi) For limited access permit transfers in conjunction with the sale of the permitted vessel, the transferee of the vessel and limited access permit(s) issued to that vessel must submit a request to NMFS, at an address designated by NMFS, to transfer the limited access permit(s), subject to the requirements specified in paragraphs (l)(2)(ii) and (iii) of this section, if applicable. The following must accompany the completed application: The original limited access permit(s) with signatures of both parties to the transaction on the back of the permit(s), the bill of sale for the limited access permit(s) and the vessel, and a copy of the vessel's U.S. Coast Guard documentation or state registration.

* * * * *

■ 4. In § 635.24, revise paragraphs (a)(2) and (3), (a)(4)(ii) and (iii), and (a)(8) to read as follows:

§ 635.24 Commercial retention limits for sharks, swordfish, and BAYS tunas.

* * * * *

(a) * * *

(2) Except as noted in paragraphs (a)(4)(iv) through (vi) of this section, the commercial retention limit for LCS other than sandbar sharks for a person who owns or operates a vessel that has been issued a directed LAP for sharks and does not have a valid shark research permit, or a person who owns or operates a vessel that has been issued a directed LAP for sharks and that has been issued a shark research permit but does not have a NMFS-approved observer on board, may range between zero and 55 LCS other than sandbar sharks per vessel per trip if the respective LCS management group(s) is open per §§ 635.27 and 635.28. Such persons may not retain, possess, or land sandbar sharks. At the start of each fishing year, the default commercial retention limit is 45 LCS other than sandbar sharks per vessel per trip unless NMFS determines otherwise and files with the Office of the Federal Register for publication notification of an inseason adjustment. During the fishing year, NMFS may adjust the retention limit per the inseason trip limit adjustment criteria listed in § 635.24(a)(8).

(3) Except as noted in paragraphs (a)(4)(iv) through (vi) of this section, a person who owns or operates a vessel that has been issued an incidental LAP for sharks and does not have a valid shark research permit, or a person who owns or operates a vessel that has been issued an incidental LAP for sharks and that has been issued a valid shark research permit but does not have a NMFS-approved observer on board, may retain, possess, or land no more than 3 LCS other than sandbar sharks per vessel per trip if the respective LCS management group(s) is open per §§ 635.27 and 635.28. Such persons may not retain, possess, or land sandbar sharks.

(4) * * *

(ii) A person who owns or operates a vessel that has been issued a shark LAP and is operating south of 34°00' N. lat. in the Atlantic region, as defined at § 635.27(b)(1), may retain, possess, land, or sell blacknose and non-blacknose SCS if the respective blacknose and non-blacknose SCS management groups are open per §§ 635.27 and 635.28. A person who owns or operates a vessel that has been issued a shark LAP and is operating north of 34°00' N. lat. in the Atlantic region, as defined at § 635.27(b)(1), or a person who owns or operates a vessel that has been issued a shark LAP and is operating in the Gulf

of Mexico region, as defined at § 635.27(b)(1), may not retain, possess, land, or sell any blacknose sharks, but may retain, possess, land, or sell non-blacknose SCS if the respective non-blacknose SCS management group is open per §§ 635.27 and 635.28.

(iii) Consistent with paragraph (a)(4)(ii) of this section, a person who owns or operates a vessel that has been issued an incidental shark LAP may retain, possess, or land no more than 16 SCS and pelagic sharks, combined, per trip, if the respective fishery is open per §§ 635.27 and 635.28.

* * * * *

(8) *Inseason trip limit adjustment criteria.* NMFS will file with the Office of the Federal Register for publication notification of any inseason adjustments to trip limits by region or sub-region. Before making any adjustment, NMFS will consider the following criteria and other relevant factors:

(i) The amount of remaining shark quota in the relevant area, region, or sub-region, to date, based on dealer reports;

(ii) The catch rates of the relevant shark species/complexes in the region or sub-region, to date, based on dealer reports;

(iii) Estimated date of fishery closure based on when the landings are projected to reach 80 percent of the quota given the realized catch rates;

(iv) Effects of the adjustment on accomplishing the objectives of the 2006 Consolidated HMS FMP and its amendments;

(v) Variations in seasonal distribution, abundance, or migratory patterns of the relevant shark species based on scientific and fishery-based knowledge; and/or

(vi) Effects of catch rates in one part of a region or sub-region precluding vessels in another part of that region or sub-region from having a reasonable opportunity to harvest a portion of the relevant quota.

* * * * *

■ 5. In § 635.27, revise paragraph (b)(1), paragraph (b)(2) introductory text, paragraph (b)(2)(i), paragraph (b)(2)(ii), paragraph (b)(2)(iii) introductory text, and paragraph (b)(3) introductory text to read as follows:

§ 635.27 Quotas.

* * * * *

(b) *Sharks*—(1) *Commercial quotas.* The commercial quotas for sharks specified in this section apply to all sharks harvested from the management unit, regardless of where harvested. Sharks caught and landed commercially from state waters, even by fishermen

without Federal shark permits, must be counted against the appropriate commercial quota. Any of the base quotas listed below, including regional and/or sub-regional base quotas, may be adjusted per paragraph (b)(2) of this section. Any sharks landed commercially as “unclassified” will be counted against the appropriate quota based on the species composition calculated from data collected by observers on non-research trips and/or dealer data. No prohibited sharks, including parts or pieces of prohibited sharks, which are listed under heading D of Table 1 of appendix A to this part, may be retained except as authorized under § 635.32. For the purposes of this section, the boundary between the Gulf of Mexico region and the Atlantic region is defined as a line beginning on the east coast of Florida at the mainland at 25°20.4' N. lat., proceeding due east. Any water and land to the south and west of that boundary is considered, for the purposes of quota monitoring and setting of quotas, to be within the Gulf of Mexico region. Any water and land to the north and east of that boundary, for the purposes of quota monitoring and setting of quotas, is considered to be within the Atlantic region.

(i) *Commercial quotas that apply only in the Atlantic Region.* The commercial quotas specified in this paragraph (b)(1)(i) apply only to those species of sharks and management groups within the management unit that were harvested in the Atlantic region, as defined in paragraph (b)(1) of this section.

(A) *Atlantic aggregated LCS.* The base annual commercial quota for Atlantic aggregated LCS is 168.9 mt dw.

(B) *Atlantic hammerhead sharks.* The regional base annual commercial quota for hammerhead sharks caught in the Atlantic region is 27.1 mt dw (51.7% of the overall base quota established in paragraph (b)(1)(iii) of this section).

(C) *Atlantic non-blacknose SCS.* The base annual commercial quota for Atlantic non-blacknose SCS is 264.1 mt dw.

(D) *Atlantic blacknose sharks.* The base annual commercial quota for Atlantic blacknose sharks is 17.2 mt dw. Blacknose sharks may only be harvested for commercial purposes in the Atlantic region south of 34°00' N. lat. The harvest of blacknose sharks by persons aboard a vessel that has been issued or should have been issued a shark LAP and that is operating north of 34°00' N. lat. is prohibited.

(ii) *Commercial quotas that apply only in the Gulf of Mexico Region.* The commercial quotas specified in this paragraph (b)(1)(ii) apply only to those

species of sharks and management groups within the management unit that were harvested in the Gulf of Mexico region, as defined in paragraph (b)(1) of this section. The Gulf of Mexico region is further split into western and eastern Gulf of Mexico sub-regions by a boundary that is drawn along 88°00' W. long. All sharks harvested within the Gulf of Mexico region in fishing catch areas in waters westward of 88°00' W. long. are considered to be from the western Gulf of Mexico sub-region, and all sharks harvested within the Gulf of Mexico region in fishing catch areas in waters east of 88°00' W. long., including within the Caribbean Sea, are considered to be from the eastern Gulf of Mexico sub-region.

(A) *Gulf of Mexico aggregated LCS.* The base annual commercial quota for Gulf of Mexico aggregated LCS is 157.5 mt dw. The eastern Gulf of Mexico sub-region base quota is 85.5 mt dw (54.3% of the Gulf of Mexico region base quota) and the western Gulf of Mexico sub-region base quota is 72.0 mt dw (45.7% of the Gulf of Mexico region base quota).

(B) *Gulf of Mexico hammerhead sharks.* The regional base annual commercial quota for hammerhead sharks caught in the Gulf of Mexico region is 25.3 mt dw (48.3% of the overall base quota established in paragraph (b)(1)(iii) of this section). The eastern Gulf of Mexico sub-region base quota is 13.4 mt dw (52.8% of this regional base quota) and the western Gulf of Mexico sub-region base quota is 11.9 mt dw (47.2% of this regional base quota).

(C) *Gulf of Mexico blacktip sharks.* The base annual commercial quota for Gulf of Mexico blacktip sharks is 256.6 mt dw. The eastern Gulf of Mexico sub-region base quota is 25.1 mt dw (9.8% of the Gulf of Mexico region base quota) and the western Gulf of Mexico sub-region base quota is 231.5 mt dw (90.2% of the Gulf of Mexico region base quota).

(D) *Gulf of Mexico non-blacknose SCS.* The base annual commercial quota for Gulf of Mexico non-blacknose SCS is 112.6 mt dw. This base quota is not split between the eastern and western Gulf of Mexico sub-regions.

(E) *Gulf of Mexico blacknose sharks.* The base annual commercial quota for Gulf of Mexico blacknose sharks is 0.0 mt dw. The harvest of blacknose sharks by persons aboard a vessel that has been issued or should have been issued a shark LAP and that is operating in the Gulf of Mexico region is prohibited.

(iii) *Commercial quotas that apply in all regions.* The commercial quotas specified in this section apply to any sharks or management groups within the management unit that were

harvested in either the Atlantic or Gulf of Mexico regions.

(A) *Sandbar sharks*. The base annual commercial quota for sandbar sharks is 90.7 mt dw. This quota, as adjusted per paragraph (b)(2) of this section, is available only to the owners of commercial shark vessels that have been issued a valid shark research permit and that have a NMFS-approved observer onboard.

(B) *Research LCS*. The base annual commercial quota for Research LCS is 50 mt dw. This quota, as adjusted per paragraph (b)(2) of this section, is available only to the owners of commercial shark vessels that have been issued a valid shark research permit and that have a NMFS-approved observer onboard.

(C) *Hammerhead sharks*. The overall base annual commercial quota for hammerhead sharks is 52.4 mt dw. This overall base quota is further split for management purposes between the regions defined in paragraphs (b)(1)(i) and (ii) of this section.

(D) *Pelagic sharks*. The base annual commercial quotas for pelagic sharks are 273.0 mt dw for blue sharks, 1.7 mt dw for porbeagle sharks, and 488.0 mt dw for pelagic sharks other than blue sharks or porbeagle sharks.

(2) *Annual and inseason adjustments of commercial quotas*. NMFS will publish in the **Federal Register** any annual or inseason adjustments to the base annual commercial overall, regional, or sub-regional quotas. No quota will be available, and the fishery will not open, until any adjustments are published in the **Federal Register** and effective. Within a fishing year or at the start of a fishing year, NMFS may transfer quotas between regions and sub-regions of the same species or management group, as appropriate, based on the criteria in paragraph (b)(2)(iii) of this section.

(i) *Annual overharvest adjustments—*
(A) *Adjustments of annual overall and regional base quotas*. Except as noted in this section, if any of the available commercial base or adjusted overall quotas or regional quotas, as described in this section, is exceeded in any fishing year, NMFS will deduct an amount equivalent to the overharvest(s) from the base overall or regional quota the following fishing year or, depending on the level of overharvest(s), NMFS may deduct from the overall or regional base quota an amount equivalent to the overharvest(s) spread over a number of subsequent fishing years to a maximum of five years. If the blue shark quota is exceeded, NMFS will reduce the annual commercial quota for pelagic sharks by the amount that the blue shark quota is

exceeded prior to the start of the next fishing year or, depending on the level of overharvest(s), deduct an amount equivalent to the overharvest(s) spread over a number of subsequent fishing years to a maximum of five years.

(B) *Adjustments to sub-regional quotas*. If a sub-regional quota is exceeded but the regional quota is not, NMFS will not reduce the annual regional base quota the following year and sub-regional quotas will be determined as specified in paragraph (b)(1) of this section. If both a sub-regional quota(s) and the regional quota are exceeded, for each sub-region in which an overharvest occurred, NMFS will deduct an amount equivalent to that sub-region's overharvest from that sub-region's quota the following fishing year or, depending on the level of overharvest, NMFS may deduct from that sub-region's base quota an amount equivalent to the overharvest spread over a number of subsequent fishing years to a maximum of five years.

(C) *Adjustments to quotas when the species or management group is split into regions or sub-regions for management purposes and not as a result of a stock assessment*. If a regional quota for a species that is split into regions for management purposes only is exceeded but the overall quota is not, NMFS will not reduce the overall base quota for that species or management group the following year and the regional quota will be determined as specified in paragraph (b)(1) of this section. If both a regional quota(s) and the overall quota is exceeded, for each region in which an overharvest occurred, NMFS will deduct an amount equivalent to that region's overharvest from that region's quota the following fishing year or, depending on the level of overharvest(s), NMFS may deduct from that region's base quota an amount equivalent to the overharvest spread over a number of subsequent fishing years to a maximum of five years. If a sub-regional quota of a species or management group that is split into regions for management purposes only is exceeded, NMFS will follow the procedures specified in paragraph (b)(2)(i)(B) of this section.

(ii) *Annual underharvest adjustments*. Except as noted in this paragraph (b)(2)(ii), if any of the annual base or adjusted quotas, including regional quotas, as described in this section is not harvested, NMFS may adjust the annual base quota, including regional quotas, depending on the status of the stock or management group. If a species or a specific species within a management group is declared to be overfished, to have overfishing

occurring, or to have an unknown status, NMFS may not adjust the following fishing year's base quota, including regional quota, for any underharvest, and the following fishing year's quota will be equal to the base annual quota. If the species or all species in a management group is not declared to be overfished, to have overfishing occurring, or to have an unknown status, NMFS may increase the following year's base annual quota, including regional quota, by an equivalent amount of the underharvest up to 50 percent above the base annual quota. Except as noted in paragraph (b)(2)(iii) of this section, underharvests are not transferable between regions, species, and/or management groups.

(iii) *Determination criteria for inseason and annual quota transfers between regions and sub-regions*. Inseason or annual quota transfers of quotas between regions or sub-regions may be conducted only for species or management groups where the species are the same between regions or sub-regions and the quota is split between regions or sub-regions for management purposes and not as a result of a stock assessment. Before making any inseason or annual quota transfer between regions or sub-regions, NMFS will consider the following criteria and other relevant factors:

* * * * *

(3) *Opening commercial fishing season criteria*. NMFS will file with the Office of the Federal Register for publication notification of the opening dates of the overall, regional, and sub-regional shark fisheries for each species and management group. Before making any decisions, NMFS would consider the following criteria and other relevant factors in establishing the opening dates:

* * * * *

■ 6. In § 635.28, revise paragraph (b) to read as follows:

§ 635.28 Fishery closures.

* * * * *

(b) *Sharks*. (1) A shark fishery that meets any of the following circumstances is closed and subject to the requirements of paragraph (b)(6) of this section:

(i) No overall, regional, and/or sub-regional quota, as applicable, is specified at § 635.27(b)(1);

(ii) The overall, regional, and/or sub-regional quota, as applicable, specified at § 635.27(b)(1) is zero;

(iii) After accounting for overharvests as specified at § 635.27(b)(2), the overall, regional, and/or sub-regional quota, as applicable, is determined to be

zero or close to zero and NMFS has closed the fishery by publication of a notice in the **Federal Register**;

(iv) The species is a prohibited species as listed under Table 1 of appendix A of this part; or

(v) Landings of the species and/or management group meet the requirements specified in § 635.28(b)(2) through (5) and NMFS has closed the fishery by publication of a notice in the **Federal Register**.

(2) *Non-linked quotas*. If the overall, regional, and/or sub-regional quota of a species or management group is not linked to another species or management group and that overall, regional, and/or sub-regional quota is available as specified by a publication in the **Federal Register**, then that overall, regional, and/or sub-regional commercial fishery for the shark species or management group will open as specified in § 635.27(b). When NMFS calculates that the overall, regional, and/or sub-regional landings for a shark species and/or management group, as specified in § 635.27(b)(1), has reached or is projected to reach 80 percent of the available overall, regional, and/or sub-regional quota as specified in § 635.27(b)(1), NMFS will file for publication with the Office of the Federal Register a notice of an overall, regional, and/or sub-regional closure, as applicable, for that shark species and/or shark management group that will be effective no fewer than 5 days from date of filing. From the effective date and time of the closure until NMFS announces, via the publication of a notice in the **Federal Register**, that additional overall, regional, and/or sub-regional quota is available and the season is reopened, the overall, regional, and/or sub-regional fisheries for that shark species or management group are closed, even across fishing years.

(3) *Linked quotas*. As specified in paragraph (b)(4) of this section, the overall, regional, and/or sub-regional quotas of some shark species and/or management groups are linked to the overall, regional, and/or sub-regional quotas of other shark species and/or management groups. For each pair of linked species and/or management groups, if the overall, regional, and/or sub-regional quota specified in § 635.27(b)(1) is available for both of the linked species and/or management groups as specified by a publication in the **Federal Register**, then the overall, regional, and/or sub-regional commercial fishery for both of the linked species and/or management groups will open as specified in § 635.27(b)(1). When NMFS calculates that the overall, regional, and/or sub-

regional landings for any species and/or management group of a linked group has reached or is projected to reach 80 percent of the available overall, regional, and/or sub-regional quota as specified in § 635.27(b)(1), NMFS will file for publication with the Office of the Federal Register a notice of an overall, regional, and/or sub-regional closure for all of the species and/or management groups in that linked group that will be effective no fewer than 5 days from date of filing. From the effective date and time of the closure until NMFS announces, via the publication of a notice in the **Federal Register**, that additional overall, regional, and/or sub-regional quota is available and the season is reopened, the overall, regional, and/or sub-regional fishery for all species and/or management groups in that linked group is closed, even across fishing years.

(4) The quotas of the following species and/or management groups are linked:

(i) Atlantic hammerhead sharks and Atlantic aggregated LCS.

(ii) Eastern Gulf of Mexico hammerhead sharks and eastern Gulf of Mexico aggregated LCS.

(iii) Western Gulf of Mexico hammerhead sharks and western Gulf of Mexico aggregated LCS.

(iv) Atlantic blacknose sharks and Atlantic non-blacknose SCS south of 34°00' N. lat.

(5) NMFS may close the regional or sub-regional Gulf of Mexico blacktip shark management group(s) before landings reach, or are expected to reach, 80 percent of the quota, after considering the following criteria and other relevant factors:

(i) Estimated Gulf of Mexico blacktip shark season length based on available sub-regional quotas and average sub-regional weekly catch rates during the current fishing year and from previous years;

(ii) Variations in regional and/or sub-regional seasonal distribution, abundance, or migratory patterns of blacktip sharks, hammerhead sharks, and aggregated LCS based on scientific and fishery information;

(iii) Effects of the adjustment on accomplishing the objectives of the 2006 Consolidated HMS FMP and its amendments;

(iv) The amount of remaining shark quotas in the relevant sub-regions, to date, based on dealer or other reports; and,

(v) The regional and/or sub-regional catch rates of the relevant shark species or management group(s), to date, based on dealer or other reports.

(6) When the overall, regional, and/or sub-regional fishery for a shark species and/or management group is closed, a fishing vessel, issued a Federal Atlantic commercial shark permit pursuant to § 635.4, may not possess, retain, land, or sell a shark of that species and/or management group that was caught within the closed region or sub-region, except under the conditions specified in § 635.22(a) and (c) or if the vessel possesses a valid shark research permit under § 635.32, a NMFS-approved observer is onboard, and the sandbar and/or Research LCS fishery, as applicable, is open. A shark dealer, issued a permit pursuant to § 635.4, may not purchase or receive a shark of that species and/or management group that was caught within the closed region or sub-region from a vessel issued a Federal Atlantic commercial shark permit, except that a permitted shark dealer or processor may possess sharks that were caught in the closed region or sub-region that were harvested, off-loaded, and sold, traded, or bartered, prior to the effective date of the closure and were held in storage. Under a closure for a shark species or management group, a shark dealer, issued a permit pursuant to § 635.4 may, in accordance with State regulations, purchase or receive a shark of that species or management group if the shark was harvested, off-loaded, and sold, traded, or bartered from a vessel that fishes only in State waters and that has not been issued a Federal Atlantic commercial shark permit, HMS Angling permit, or HMS Charter/Headboat permit pursuant to § 635.4. Additionally, under an overall, a regional, or a sub-regional closure for a shark species and/or management group, a shark dealer, issued a permit pursuant to § 635.4, may purchase or receive a shark of that species group if the sandbar or Research LCS fishery, as applicable, is open and the shark was harvested, off-loaded, and sold, traded, or bartered from a vessel issued a valid shark research permit (per § 635.32) that had a NMFS-approved observer on board during the trip the shark was collected.

(7) If the Atlantic Tunas Longline category quota is closed as specified in paragraph (a)(4) of this section, vessels that have pelagic longline gear on board cannot possess, retain, land, or sell sharks.

* * * * *

■ 7. In § 635.31, revise paragraphs (c)(1) and (4) to read as follows:

§ 635.31 Restrictions on sale and purchase.

* * * * *

(c) * * *

(1) Persons that own or operate a vessel that possesses, retains, or lands a shark from the management unit may sell such shark only if the vessel has a valid commercial shark permit issued under this part. Persons may possess, retain, land, and sell a shark only to a federally-permitted dealer and only when the fishery for that species, management group, region, and/or sub-region has not been closed, as specified in § 635.28(b). Persons that own or operate a vessel that has pelagic longline gear onboard can possess, retain, land, and sell a shark only if the Atlantic Tunas Longline category has not been closed, as specified in § 635.28(a).

* * * * *

(4) Only dealers who have a valid Federal Atlantic shark dealer permit and who have submitted reports to NMFS according to reporting requirements of § 635.5(b)(1)(ii) may first receive a shark from an owner or operator of a vessel that has, or is required to have, a valid Federal Atlantic commercial shark permit issued under this part. Dealers may purchase a shark only from an owner or operator of a vessel who has a valid commercial shark permit issued under this part, except that dealers may purchase a shark from an owner or operator of a vessel who does not have a Federal Atlantic commercial shark permit if that vessel fishes exclusively in state waters and does not possess a HMS Angling permit or HMS Charter/Headboat permit pursuant to § 635.4. Atlantic shark dealers may purchase a sandbar shark only from an owner or operator of a vessel who has a valid shark research permit and who had a NMFS-approved observer onboard the vessel for the trip in which the sandbar shark was collected. Atlantic shark dealers may purchase a shark from an owner or operator of a fishing vessel who has a valid commercial shark permit issued under this part only when the fishery for that species, management group, region, and/or sub-region has not been closed, as specified in § 635.28(b). Atlantic shark dealers may first receive a shark from a vessel that has pelagic longline gear onboard only if the Atlantic Tunas Longline category has

not been closed, as specified in § 635.28(a).

* * * * *

■ 8. In § 635.34, revise paragraphs (a) and (b) to read as follows:

§ 635.34 Adjustment of management measures.

(a) NMFS may adjust the IBQ shares or resultant allocations for bluefin tuna, as specified in § 635.15; catch limits for bluefin tuna, as specified in § 635.23; the overall, regional, and/or sub-regional quotas for bluefin tuna, sharks, swordfish, and northern albacore tuna as specified in § 635.27; the retention limits for sharks, as specified at § 635.24; the regional retention limits for Swordfish General Commercial permit holders, as specified at § 635.24; the marlin landing limit, as specified in § 635.27(d); and the minimum sizes for Atlantic blue marlin, white marlin, and roundscale spearfish as specified in § 635.20.

(b) In accordance with the framework procedures in the 2006 Consolidated HMS FMP, NMFS may establish or modify for species or species groups of Atlantic HMS the following management measures: Maximum sustainable yield or optimum yield based on the latest stock assessment or updates in the SAFE report; domestic quotas; recreational and commercial retention limits, including target catch requirements; size limits; fishing years or fishing seasons; shark fishing regions, or regional and/or sub-regional quotas; species in the management unit and the specification of the species groups to which they belong; species in the prohibited shark species group; classification system within shark species groups; permitting and reporting requirements; workshop requirements; the IBQ shares or resultant allocations for bluefin tuna; administration of the IBQ program (including but not limited to requirements pertaining to leasing of IBQ allocations, regional or minimum IBQ share requirements, IBQ share caps (individual or by category), permanent sale of shares, NED IBQ rules, etc.); time/area restrictions; allocations among user groups; gear prohibitions, modifications, or use restriction; effort restrictions; observer coverage requirements; EM requirements;

essential fish habitat; and actions to implement ICCAT recommendations, as appropriate.

* * * * *

■ 9. In § 635.71, revise paragraphs (d)(3) and (4) to read as follows:

§ 635.71 Prohibitions.

* * * * *

(d) * * *

(3) Retain, possess, or land a shark of a species or management group when the fishery for that species, management group, region, and/or sub-region is closed, as specified in § 635.28(b).

(4) Sell or purchase a shark of a species or management group when the fishery for that species, management group, region, and/or sub-region is closed, as specified in § 635.28(b).

* * * * *

■ 10. In appendix A to part 635, revise Section B of Table 1 to read as follows:

Appendix A to Part 635—Species Tables

TABLE 1 OF APPENDIX A TO PART 635—OCEANIC SHARKS

*	*	*	*	*
B. Small Coastal Sharks				
Atlantic and Gulf of Mexico sharpnose,				
<i>Rhizoprionodon terraenovae</i>				
Atlantic and Gulf of Mexico blacknose,				
<i>Carcharhinus acronotus</i>				
Atlantic and Gulf of Mexico bonnethead,				
<i>Sphyrna tiburo</i>				
Finetooth, <i>Carcharhinus isodon</i>				
*	*	*	*	*

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BILLING CODE 3510-22-P

Fishery	Authorized gear types
10. Squid, all spp. except market squid or not otherwise prohibited, and Octopus Fisheries (Non-FMP):	
A. Commercial	A. Hook and line, pot/trap, dip net, seine, trawl, set net, spear, hand harvest.
B. Recreational Squid North of 42° N. lat	B. Hook and line, cast net, dip net, hand harvest.
C. Recreational Octopus North of 42° N. lat	C. Hook and line, pot/trap, dip net, hand harvest.
D. Recreational South of 42° N. lat	D. Hook and line, dip net, hand harvest.
11. White Sturgeon Fisheries (Non-FMP):	
A. Commercial South of 46°15' N. lat. and North of 42° N. lat	A. Trawl, pot/trap, hook and line, seine, dip net, spear.
B. Recreational North of 42° N. lat	B. Hook and line.
C. Recreational South of 42° N. lat	C. Hook and line, spear.
12. Sea Cucumber Fishery (Non-FMP):	
A. Commercial hand harvest fishery South of 46°15' N. lat	A. Hand harvest.
B. Commercial trawl South of 42° N. lat	B. Trawl.
13. Minor Finfish Commercial Fisheries South of 46°15' N. lat. and North of 42° N. lat. for: Salmon shark, Pacific pomfret, slender sole, wolf-eel, eelpout species, Pacific sandfish, skilfish, and walleye pollock Fisheries (Non-FMP).	Trawl, pot/trap, hook and line, seine, dipnet, spear.
14. Weathervane Scallop Commercial Fishery South of 46°15' N. lat. and North of 42° N. lat. (Non-FMP).	Trawl.
15. California Halibut, White Seabass Commercial Fisheries South of 42° N. lat. (Non-FMP):	
A. California halibut trawl	A. Trawl.
B. California halibut and white seabass set net	B. Gillnet, trammel net.
C. California halibut hook and line	C. Hook and line.
D. White seabass hook and line	D. Hook and line.
16. California Barracuda, White Seabass, and Yellowtail Drift-Net Commercial Fishery South of 42° N. lat. (Non-FMP).	Gillnet.
17. Pacific Bonito Commercial Net Fishery South of 42° N. lat. (Non-FMP).	Purse seine.
18. Lobster Commercial Pot and Trap Fishery South of 42° N. lat. (Non-FMP).	Pot/trap.
19. Finfish and Invertebrate Fisheries Not Listed Above and Not Otherwise Prohibited (Non-FMP):	
A. Commercial South of 46°15' N. lat	A. Hook and line, pot/trap, spear.
B. Recreational	B. Hook and line, spear, pot/trap, dip net, cast net, hand harvest, rake, harpoon, bow and arrow.
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BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
50 CFR Part 635
[Docket No. 110819516-4534-01]
RIN 0648-BB02
Atlantic Highly Migratory Species; Smoothhound Shark and Atlantic Shark Management Measures

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.
ACTION: Proposed rule; request for comments.

SUMMARY: This proposed rule to implement draft Amendment 9 to the 2006 Consolidated Highly Migratory Species (HMS) Fishery Management

Plan (FMP) considers management measures in the smoothhound and shark fisheries. In addition to the measures in draft Amendment 9, this rulemaking would establish an effective date for previously-adopted shark management measures finalized in Amendment 3 to the 2006 Consolidated HMS FMP (Amendment 3) and the 2011 HMS Trawl Rule that were delayed, and proposes to increase the smoothhound shark annual quota that was finalized in Amendment 3, using updated landings data. It also proposes to implement the smoothhound shark-specific requirements of the 2012 Shark Biological Opinion (BiOp), and considers modifying current regulations related to the use of Vessel Monitoring Systems (VMS) by Atlantic shark fishermen using gillnet gear. For purposes of this rulemaking, the term “smoothhound sharks” collectively refers to smooth dogfish (*Mustelus canis*), Florida smoothhound (*M. norrisi*), Gulf smoothhound (*M. sinusmexicanus*), small eye smoothhound (*M. higmani*), and any other *Mustelus* spp. that might be found

in U.S. waters of the Atlantic, Gulf of Mexico, and Caribbean, collectively. Finally, this action considers the implementation of the smooth dogfish-specific provisions in the Shark Conservation Act of 2010 (the “SCA”). The SCA requires that all sharks landed from federal waters in the United States be landed with their fins naturally attached to the carcass, but includes a limited exception for smooth dogfish. Throughout this document, the term “fins” includes both the tail and the fins of the shark. For the federal Atlantic shark fisheries, current HMS regulations require federally-permitted shark fishermen to land all sharks with fins naturally attached to the carcass. The SCA’s fins-attached requirement is being addressed nationwide through a separate ongoing rulemaking. Thus, regarding the SCA, this rulemaking addresses only the provision that allows fin removal at sea of Atlantic smooth dogfish.

DATES: Written comments must be received on or before November 14, 2014. NMFS will announce the dates

and locations of public hearings in a future **Federal Register** document.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2014–0100, by any one of the following methods:

- *Electronic Submission:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to www.regulations.gov/#!/docketDetail;D=NOAA-NMFS-2014-0100, click the “Comment Now” icon, complete the required fields, and enter or attach your comments.

- *Mail:* Submit written comments to Margo Schulze-Haugen, NMFS/SF1, 1315 East-West Highway, National Marine Fisheries Service, SSMC3, Silver Spring, MD 20910.

Instructions: Please include the identifier NOAA–NMFS–2014–0100 when submitting comments. Comments sent by any other method, to any other address or individual, or received after the close of the comment period, may not be considered by NMFS. All comments received are a part of the public record and generally will be posted for public viewing on www.regulations.gov without change. All personal identifying information (e.g., name, address), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter “N/A” in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, or Adobe PDF file formats only. Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this proposed rule may be submitted to the Atlantic Highly Migratory Species Management Division by email to OIRA_Submission@omb.eop.gov, or fax to 202–395–7285.

Copies of the supporting documents—including the draft Environmental Assessment (EA), Regulatory Impact Review (RIR), Initial Regulatory Flexibility Analysis (IRFA), and the 2006 Consolidated Atlantic HMS FMP are available from the HMS Web site at <http://www.nmfs.noaa.gov/sfa/hms/> or by contacting Steve Durkee at 202–670–6637.

FOR FURTHER INFORMATION CONTACT: LeAnn Hogan or Karyl Brewster-Geisz by phone: 301–427–8503 or Steve Durkee by phone: 202–670–6637, or by fax: 301–713–1917.

SUPPLEMENTARY INFORMATION: Atlantic sharks, including smoothhound sharks, are managed under the authority of the

Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and the authority to issue regulations has been delegated from the Secretary to the Assistant Administrator (AA) for Fisheries, NOAA. On October 2, 2006, NMFS published in the **Federal Register** (71 FR 58058) final regulations, effective November 1, 2006, implementing the 2006 Consolidated HMS FMP, which details management measures for Atlantic HMS fisheries. The implementing regulations for the 2006 Consolidated HMS FMP and its amendments are at 50 CFR part 635.

This proposed rule addresses implementation of Amendment 9 to the 2006 Consolidated HMS FMP.

Except for restrictions on finning, smoothhound sharks were not managed by the Federal government before 2010. In the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks (1999 FMP), NMFS included smoothhound sharks in a Federal fishery management unit that included deep water and other sharks to prevent finning of all of these species. These species of smoothhound sharks were removed from the fishery management unit in the 2003 when NMFS amended the 1999 FMP in Amendment 1, since these sharks became protected from finning under the Shark Finning Prohibition Act (67 FR 6124, February 11, 2002). In 2008, the Atlantic States Marine Fisheries Commission (ASMFC) adopted management measures for smoothhound sharks in state waters; the ASMFC measures became effective in January 2010.

In 2010, through Amendment 3, NMFS determined that smoothhound sharks were in need of federal conservation and management measures. NMFS included smoothhound sharks within the HMS-managed stocks because of the wide geographic distribution and range of smoothhound sharks and because NMFS has management authority over HMS, including “oceanic sharks,” under the Magnuson-Stevens Act. Details about NMFS’ authority and decision to manage smoothhound sharks can be found in the Final Environmental Impact Statement (EIS) for Amendment 3. At that time, “smoothhound sharks” referred to a species complex consisting of smooth dogfish and Florida smoothhounds (75 FR 30484, June 1, 2010). The final rule implementing Amendment 3 published in June 2010 and delayed the effective date of the smoothhound shark management measures until approximately 2012, pending approval for the data collection under the

Paperwork Reduction Act (PRA) by the Office of Management and Budget (OMB). NMFS delayed the effective date also to provide time to implement a permit requirement, for NMFS to complete a BiOp under section 7 of the ESA, and for affected fishermen to change business practices, particularly as they related to keeping the fins attached to the carcass through offloading (June 1, 2010, 75 FR 30484). OMB approved the PRA data collection in May of 2011, and NMFS met informally with smoothhound shark fishermen along the east coast in the fall of 2010.

In January 2011, the President signed the SCA (Pub. L. 111–348). This legislation requires that all sharks, except for smooth dogfish (*Mustelus canis*), landed from federal waters in the United States be landed with their fins and tail naturally attached to the carcass. It included, however, a limited exception for smooth dogfish (*Mustelus canis*), stating that the amendments made by the SCA do not apply to an “individual engaged in commercial fishing for smooth dogfish (*Mustelus canis*) in that area of the waters of the United States located shoreward of a line drawn in such a manner that each point on it is 50 nautical miles from the baseline of a State from which the territorial sea is measured, if the individual holds a valid State commercial fishing license, unless the total weight of smooth dogfish fins landed or found on board a vessel to which this subsection applies exceeds 12 percent of the total weight of smooth dogfish carcasses landed or found on board.” Public Law 111–348, section 103(b)(1). Throughout this document, the term “fins” includes both the tail and the fins of the shark.

Also, in 2011, NMFS published a final rule regarding trawl gear (August 10, 2011, 76 FR 49368). The HMS trawl rule, among other things, allowed for the retention of smoothhound sharks caught incidentally with trawl gear, provided that total smoothhound shark catch on board or offloaded does not exceed 25 percent of the total catch by weight.

In November 2011, NMFS published a final rule (76 FR 70064, November 10, 2011) that delayed the effective date for all smoothhound shark management measures in both Amendment 3 and the 2011 trawl rule indefinitely to provide time for NMFS to consider the smooth dogfish-specific provisions in the SCA, and for NMFS to finalize a Biological Opinion on the federal actions in Amendment 3, among other things.

Since that time, the 2012 Atlantic Shark Biological Opinion (2012 Shark

BiOp) on Federal actions in Amendment 3 has been completed. Except for consideration of the smooth dogfish-specific measures in the SCA, all reasons for delaying implementation of Amendment 3 and the 2011 HMS trawl gear rule have been addressed and completed. Thus, NMFS is ready to make effective previously-finalized smoothhound shark measures from Amendment 3 and the 2011 HMS trawl gear rule. In addition, new landings information and data about the smoothhound shark fishery has become available. Draft Amendment 9 considers that new information and data, and considers resulting adjustments to the quota based on that information, as well as considering implementation of smooth dogfish-specific provisions of the SCA. Draft Amendment 9 is amending the HMS FMP because of the significant modification to the Atlantic smoothhound shark quota based upon updated landings information.

During the development of Amendment 3 in 2009, molecular and morphological research indicated that Florida smoothhound (*Mustelus norrisi*) had been historically misclassified as a separate species from smooth dogfish (*M. canis*). Additionally, the Southeast Fisheries Science Center (SEFSC) advised that there were insufficient data at the time to separate smooth dogfish and Florida smoothhound into two separate species, and that they should be treated as a single stock until scientific evidence indicated otherwise. Accordingly, in Amendment 3, NMFS decided to manage both Florida smoothhound sharks and smooth dogfish together as “smoothhound sharks” because of this taxonomic correction and based upon SEFSC advice. Since the finalization of Amendment 3 in 2010, additional scientific information has become available from the SEFSC regarding species identification of smoothhound sharks. This updated scientific data shows that *M. norrisi* (Florida smoothhound), *M. canis* (smooth dogfish) and *M. sinusmexicanus* (Gulf smoothhound) are separate species, and that there may be additional smoothhound species in the Gulf of Mexico.

The majority of the landings in the commercial smoothhound fishery currently occur in the mid-Atlantic region. Scientific evidence indicates that smooth dogfish are almost exclusively the species found in this area and along the coast throughout the Atlantic region; however, there have been a very limited number of Florida smoothhounds reported off of southern Florida. In the Gulf of Mexico region, all

three *Mustelus* species are commonly found off Florida in the Gulf of Mexico. The best available scientific information collected for the upcoming SEDAR 39 stock assessment for smoothhound sharks indicates that smooth dogfish are likely the only smoothhound shark species found along the Atlantic coast. In the Gulf of Mexico, however, there are at least three different smoothhound species, with no practical way to distinguish among them. For more information, see Draft EA for Amendment 9.

Identification between these species is difficult, and all three species’ ranges overlap in the Gulf of Mexico. The most commonly used macroscopically visible external characteristics, such as dermal denticle and labial furrow differences, cannot be reliably used for species identification. Some limited success has been achieved by using other external characteristics, such as hyomandibular pore distribution, but misidentification is still common, especially for juvenile specimens. Data examined for the ongoing SEDAR 39 smoothhound stock assessment found that during shark surveys, Florida smoothhound was only correctly identified 40 percent of the time and Gulf smoothhound was only correctly identified 64 percent of the time, with the greatest identification difficulty occurring between Gulf smoothhound and smooth dogfish. Thus, it is unlikely that shark fishermen and enforcement officers would be able to tell these three species of smoothhound sharks apart without genetic analyses to differentiate between the three species. For more information, see Draft EA for Amendment 9.

Because of the overlap in range between the different species and the extreme difficulty in distinguishing among the three species, NMFS will continue to group all the smoothhound species (all *Mustelus* species within the U.S. EEZ of the Atlantic, Gulf of Mexico, and Caribbean) together within the term “smoothhound sharks” for management purposes and will manage them as a complex. As a result, this proposed rule expands the definition of smoothhound sharks that NMFS previously adopted in Amendment 3 to an inclusive reference to *Mustelus* species. The SCA, however, explicitly limits the fin-removal exception to commercial fishing for smooth dogfish, identifying the species by scientific name. Given the above issues, NMFS examines two alternatives for applying the exception for smooth dogfish: one that applies the exception along the Atlantic Coast and the Florida Coast in the Gulf of Mexico, and a second that would apply the exception along the Atlantic Coast but not the

Florida Coast in the Gulf of Mexico. Given the challenges posed by correctly identifying different smoothhound shark species, the specificity of the SCA’s application, and the presence of multiple smoothhound shark species in the Gulf of Mexico, NMFS is requesting public comment on alternatives for implementing and enforcing the SCA smooth dogfish exception.

In addition to proposing to implement exceptions found in the SCA that specifically apply to smooth dogfish, this rule would also establish an effective date for previously-adopted shark management measures finalized in Amendment 3 (June 1, 2010, 75 FR 30483) and the 2011 HMS trawl rule (August 10, 2011; 76 FR 49368). These measures include increasing the previously-adopted commercial quota for smoothhound sharks based on updated scientific information and data, implementing limited exceptions from certain provisions of the SCA that specifically apply to smooth dogfish, implementing Term and Condition 4 of the 2012 Shark BiOp, which required either net checks or soak time restrictions in the Atlantic shark gillnet fisheries, and reducing the VMS requirements for shark gillnet fishermen.

NMFS prepared a draft EA, RIR, and an IRFA, which present and analyze anticipated environmental, social, and economic impacts of each alternative contained in this proposed rule. A summary of the alternatives considered and related analyses are provided below. The complete list of alternatives and related analyses are provided in the draft EA/RIR/IRFA. A copy of the draft EA/RIR/IRFA prepared for this proposed rule is available from NMFS (see ADDRESSES).

Establishing an Effective Date for Previously-Adopted Shark Management Measures Finalized in Amendment 3 to the 2006 Consolidated HMS FMP and in the 2011 HMS Trawl Rule

Amendment 3 finalized certain conservation and management measures for smoothhound sharks. As described above, implementation of these measures was delayed indefinitely. This action will implement an effective date for the previously-delayed Amendment 3 management measures for smoothhound sharks, including:

- A research set-aside quota;
- An accountability measure (AM), which closes the fishery when smoothhound shark landings reach, or are expected to reach, 80 percent of the quota;
- A requirement for a dealer permit to purchase smoothhound sharks;

- A requirement for dealers to report smoothhound shark purchases;
- A smoothhound permit requirement for commercial and recreational fishing and retention;
- A requirement for vessels fishing for smoothhound sharks to carry an observer, if NMFS selects them;
- A requirement for vessels fishing for smoothhound sharks to comply with applicable Take Reduction Plans pursuant to the Marine Mammal Protection Act; and
- A requirement for commercial vessels to sell catch only to federally-permitted shark dealers.

In addition, this action addresses an effective date for the smoothhound shark management measures in the 2011 HMS trawl rule published on August 10, 2011 (76 FR 49368). As described above, the HMS trawl rule allowed, among other things, for the retention of smoothhound sharks caught incidentally with trawl gear, provided that total smoothhound shark catch on board or offloaded does not exceed 25 percent of the total catch by weight.

FMP Amendment Adjusting the Quota for the Smoothhound Shark Fishery

When Amendment 3 was finalized, smoothhound shark data was available through 2007, although there was no stock assessment for the species. Updated information is now available—in some cases as recently as 2013—although data on the number of participants, total catch, fishing techniques, spatial and temporal availability, etc., are still incomplete because of the lack of mandatory reporting requirements for this shark species. Data can be expected to improve in the future with implementation of the previously-delayed Amendment 3 requirements for a Federal permit, dealer reporting, and observer coverage as well as completion of the current smoothhound shark stock assessment. As stated in Amendment 3, NMFS' goal has been to characterize and collect data on the smoothhound fishery while minimizing changes in the fishery until it can be better assessed and additional management measures can be developed. Thus, as described in the final rule for Amendment 3, NMFS established a smoothhound shark quota using the best data available at that time equal to the highest reported annual landings between 1998 and 2007, plus two standard deviations in order to account for any underreporting due to the lack of smoothhound shark reporting requirements and to follow advice from the Northeast and Southeast Fisheries Science Centers (June 1, 2010, 75 FR 30484).

Since publishing Amendment 3, NMFS has received updated reported landings data from the Atlantic Coastal Cooperative Statistics Program (ACCS) that warrants adjusting the quota established in Amendment 3, using the same methodology presented in Amendment 3 but with the new data. This quota adjustment would be done through an amendment to the 2006 Consolidated HMS FMP. Additionally, NMFS has begun conducting a smoothhound shark stock assessment (79 FR 17509, March 28, 2014; 79 FR 23327, April 28, 2014). In this action, NMFS analyzes quota alternatives ranging from the status quo (the quota calculated in Amendment 3) to adjusting the quota based on updated landings information to establishing the quota based on quota scenarios that could result from the ongoing stock assessment. Additional environmental analyses and regulatory action may be considered if warranted by the stock assessment outcomes, or depending on the magnitude of any resultant changes in management approaches. Landings from both the directed and incidental smoothhound shark fisheries would count against the adopted quota.

The preferred alternative in this proposed rule would establish a smoothhound quota of 1,739.9 mt dw, which is equal to the maximum annual landings from the 10 most recent years available at this time (i.e., 2004–2013) plus two standard deviations. The quota alternative that was finalized in Amendment 3 was selected because NMFS, with guidance from the NEFSC and SEFSC, determined that adding two standard deviations to the maximum annual landings was the best way to account for any underreporting in the fishery while minimizing changes in catch levels and catch rates in the smoothhound shark fishery. While the quota under the current preferred alternative is higher than the quota calculated in Amendment 3, it caps the quota at a level that reflects the current operation of the smoothhound shark fishery without allowing the quota to increase in the future if reported landings increase. As stated when establishing this methodology in Amendment 3, since landings data could be underestimated due to underreporting, setting the quota above current reported landings levels should allow the fishery to continue at current levels, minimizing changes to the fishery while collecting information on catch and participants.

In the short-term, this preferred alternative is expected to have neutral direct ecological impacts on the smoothhound stock, as the quota-setting

approach was designed to bring the species under Federal management while minimizing immediate changes in the fishery. The preferred alternative could have long-term direct minor adverse ecological impacts due to a potential for increased landings of smoothhound compared to other alternatives with lower quotas. In the preferred alternative, allowable effort and landings would be higher than the quota set under Amendment 3; however, the allowable landings would more accurately represent current fishing activity and would be constrained with a cap that prevents future growth of the fishery. Implementing such a cap on landings would help ensure that the smoothhound stock is maintained at a healthy level. This preferred alternative appropriately adjusts the Amendment 3 quota and remains within the intended outcome of the range of alternatives considered in the Amendment 3 rulemaking. The intent of Amendment 3 was to minimize changes in catch levels and catch rates in the fishery to allow for the collection of catch and participant information pending completion of a stock assessment to guide Federal management. A smoothhound shark stock assessment is currently being conducted. NMFS believes it is imperative to bring smoothhound sharks under Federal management as quickly as possible, particularly given that time has passed since Amendment 3 was first published. Although a smoothhound shark stock assessment is currently underway, NMFS is proceeding with developing a quota based on landings history to avoid any further delays in federally managing this stock. As explained below, this rulemaking considers another alternative that would further adjust the quota(s) if necessary based on this stock assessment if it is available before publication of the final rule.

The preferred smoothhound quota alternative would result in potential annual revenues in the entire fishery of \$3,016,460 (3,835,784 lb. of meat, 460,294 lb. of fins) assuming an ex-vessel price of \$1.72 lb. for fins and \$0.58 for meat. Setting the quota at current landings levels with room for presumed underreporting should allow the fishery to continue throughout the year, rather than be closed for part of the year, allowing NMFS to collect year-long information that can be used in future stock assessments. NMFS anticipates direct moderate, beneficial short- and long-term socioeconomic impacts with implementing a quota based on maximum reported recent

annual landings plus two standard deviations to allow for a buffer for potential unreported landings during that time to reflect actual landings. This would allow the fishery to continue at the landings rate and level reported in recent years. Under this alternative, NMFS anticipates the fishery would operate as it currently does, resulting in indirect, moderate beneficial socioeconomic impacts in the short- and long-term for shark dealers and processors. The preferred alternative accounts for recent trends in the fishery and the best available landings data as recalculated and reported by ACCSP, reflects recent behavior in the fishery, and provides an appropriate buffer to account for underreporting in the fishery. Additionally, providing a maximum cap on the fishery would allow fishermen, dealers, and processors to make better business decisions based on a more predictable yield (assuming that the fishery is fished to near-full capacity each year).

NMFS is also considering three other quota alternatives that are not preferred at this time. The first would not adjust the commercial smoothhound shark quota, and would instead implement the quota as calculated in Amendment 3. This alternative is not preferred because it does not use the best available information and would result in premature fishery closures, inconsistent with the objectives in Amendment 3 and in this Amendment, which are to bring smoothhound sharks within Federal management, collect data to improve future management measures, and minimize changes to the fishery in the meantime. The second alternative considers a rolling quota that would recalculate the quota each year based on the previous 5 years of available landings data. This rolling quota alternative was not preferred because the quota could grow, expanding the fishery without limit, which could lead to unsustainable fishing levels. The third quota alternative would implement a TAC and smoothhound shark quota(s) consistent with the results of the 2014 smoothhound shark stock assessment if the results become available before publication of the final rule for this action. This alternative is based on a possible range of quota recommendations that reasonably could be expected to result from the assessment. The potential range of quota recommendations from the assessment are quota(s): (1) Equal to approximately one-half the Amendment 3 quota (357.8 mt dw); (2) approximately equal to the Amendment 3 quota; (3) half way in between Amendment 3 and the

proposed quota, or 1,227.7 mt dw; and (4) larger than Amendment 3, approximately equal to or greater than the quota under preferred alternative (1,739.9 mt dw). Because the stock assessment is not yet final and it is unknown if it will be available before the final rule for this action publishes, NMFS does not prefer this alternative at this time. Additional environmental analyses and regulatory action may be considered, if warranted by the stock assessment outcomes or depending on the magnitude of any resultant changes in management approaches.

Implementation of the Smooth Dogfish-Specific Provisions of the Shark Conservation Act of 2010

The SCA amended the Magnuson-Stevens Act to provide greater protection from illegal “finning” of sharks. Shark finning is the practice of taking a shark, removing a fin or fins (whether or not including the tail), and returning the remainder of the shark to the sea. Among the provisions in subsection 103(a) of the SCA is a requirement that all sharks landed from federal waters in the United States be maintained with the fins naturally attached to the carcass through offloading. Subsection (b), however, provides the following exception: “The amendments made by subsection (a) do not apply to an individual engaged in commercial fishing for smooth dogfish (*Mustelus canis*) in that area of the waters of the United States located shoreward of a line drawn in such a manner that each point on it is 50 nautical miles from the baseline of a State from which the territorial sea is measured, if the individual holds a valid State commercial fishing license, unless the total weight of smooth dogfish fins landed or found on board a vessel to which this subsection applies exceeds 12 percent of the total weight of smooth dogfish carcasses landed or found on board.” The SCA provides that “State” has the same meaning as in section 803 of Public Law 103–206 (16 U.S.C. 5102), which refers to “Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, the District of Columbia, or the Potomac River Fisheries Commission.” To implement the exception, this proposed rule considers three issues: Catch composition, state permit requirements, and geographic applicability of the exception—and explores alternatives for each issue. If a federally-permitted shark fisherman does not qualify for this exception under the SCA, he will be

required to land smooth dogfish with the fins naturally attached. Note that although several Atlantic coast states have laws addressing shark fins, those state laws as of the date of this proposed rule provide an exception for smooth dogfish, and so present no conflict with the SCA as applied to smooth dogfish, whether or not the SCA exception applies.

NMFS considered four Catch Composition sub-alternatives to address the SCA text regarding “an individual engaged in commercial fishing for smooth dogfish (*Mustelus canis*).” Because the SCA specifies that the exception applies when an individual is fishing “for” smooth dogfish as opposed to fishing “for” other species and incidentally catching smooth dogfish or simply “when fishing,” the proposed rule examines alternatives that limit the exception to those fishing for smooth dogfish, i.e., fishing with the object of commercially harvesting smooth dogfish.

Under the preferred sub-alternative, smoothhound sharks must make up 75 percent of the retained catch on board a vessel to constitute a trip fishing “for” smooth dogfish. Implementing a target catch requirement of 75 percent smooth dogfish would preclude fishermen on trips for other species but who incidentally catch smooth dogfish from removing smooth dogfish fins at sea. Only those fishermen fishing for smooth dogfish as defined by this rulemaking would be allowed to remove the fins of the species while at sea. Under this preferred sub-alternative, no sharks other than smooth dogfish could be retained when smooth dogfish fins are removed at sea. This requirement would ensure that no other shark species are on board with fins removed, ensuring consistency with other provisions of the SCA. This sub-alternative would likely have direct short- and long-term minor beneficial impacts. Indirect ecological impacts to species caught with smooth dogfish would likely both be neutral in the short- and long-term, because fishing effort or rates are not expected to change under this sub-alternative. The only changes that would occur under this sub-alternative would be in fisheries for other species that incidentally catch smooth dogfish. Fishermen in these incidental fisheries do not plan trips around smooth dogfish; rather, they engage in fishing operations based on the target species availability and market. Therefore, a prohibition on at-sea fin removal of smooth dogfish fins in the incidental fishery would not be expected to alter effort. Indirect impacts are generally positively correlated with effort. Effort

would not likely be affected, and indirect impacts would be neutral. Since this sub-alternative would be unlikely to have adverse ecological impacts and provides some flexibility in retained catch, NMFS prefers this sub-alternative at this time.

Because some fishermen catch smooth dogfish while fishing for other species, the preferred catch composition sub-alternative is likely to have short- and long-term direct, minor, adverse socioeconomic impacts since it would reduce flexibility in which species may be retained, though not to the extent that other alternatives would. The number of mixed species trips where fishermen could take advantage of the fins-attached exception would decrease. However, this sub-alternative provides more flexibility than other sub-alternatives, specifically the sub-alternative that examines a 100-percent smooth dogfish catch composition requirement for the exception to apply. For these reasons, NMFS prefers this sub-alternative at this time.

NMFS also considered three other catch composition sub-alternatives. The first would not implement any catch composition requirement, allowing the fins of smooth dogfish to be removed at sea regardless of the composition of the rest of the catch, provided no other sharks are retained. This measure was not preferred because it would not limit the at-sea processing allowance to “fishing for smooth dogfish,” consistent with the SCA. Second, NMFS considered a 25-percent smooth dogfish catch composition for at-sea processing, which would allow some fishermen who are fishing for species other than smooth dogfish and catching smooth dogfish incidental to those fishing activities to use the limited exception. This measure was not preferred because it would not limit the at-sea processing allowance to individuals “fishing for smooth dogfish,” consistent with the SCA. Third, NMFS considered a 100-percent smooth dogfish catch composition for at-sea processing. Although this sub-alternative would even more narrowly limit the fins-attached exception to fishermen only “fishing for smooth dogfish,” consistent with the SCA, it would remove all flexibility in retained catch on board vessels that remove smooth dogfish fins at sea, possibly increasing dead discards without providing any clear benefits beyond the preferred sub-alternative. For this reason, NMFS does not prefer that sub-alternative at this time.

NMFS considered two State Fishing Permit sub-alternatives to address text in the SCA exception regarding “if the individual holds a valid State

commercial fishing license.” The preferred sub-alternative would require federally-permitted smooth dogfish fishermen to possess a State commercial fishing license that allows fishing for smooth dogfish in order to be able to remove smooth dogfish fins at sea. A “valid state commercial fishing license” would be any state license that allows the individual to engage in commercial fishing for smooth dogfish, whether it is dogfish-specific or a general shark permit or a general commercial fishing permit. This sub-alternative recognizes variations in state fishing permit processes that allow commercial fishing for smooth dogfish.

NMFS is also examining a sub-alternative based on a more narrow application of the exception. The language in the smooth dogfish-specific provision of the SCA states that it applies to an “individual engaged in commercial fishing for smooth dogfish . . . if the individual holds a valid State commercial fishing license.” Sub-alternative 2 would interpret this more narrowly to mean that the individual has a smoothhound-specific State commercial fishing license, since the exception applies only to “individuals engaged in commercial fishing ‘for’ smooth dogfish.” By requiring a smooth dogfish-specific permit and not a general state commercial license, NMFS would be further ensuring that the individual is one “engaged in commercial fishing for smooth dogfish,” which NMFS interprets as narrowing the limited at-sea fin removal allowance only to those fishing for smooth dogfish. Requiring a smooth dogfish-specific State fishing permit would likely lead to direct and indirect short and long-term neutral ecological impacts since this sub-alternative would not increase fishing effort. Because not all states have smooth dogfish-specific permits, NMFS does not prefer this alternative at this time but is seeking comments, particularly from the States, about their preferences and what approach would work best in conjunction with their state approach to permitting and state fishery objectives.

NMFS considered two alternatives for Geographic Application of the SCA exception: Applying the exception along the Atlantic Coast and the Florida Coast in the Gulf of Mexico, and applying the exception only along the Atlantic Coast. As explained earlier, as a practical matter, smooth dogfish and other smoothhound species are essentially indistinguishable in the field, and while the Atlantic population is entirely smooth dogfish but for the occasional Florida smoothhound, the Gulf of Mexico population includes all three

species. The best available scientific information indicates smooth dogfish are the predominant smoothhound species along the Atlantic coast (only a handful of Florida smoothhound have ever been recorded in the Atlantic, and those have been near southern Florida). In the Gulf of Mexico, however, there are at least three different smoothhound species, with no practical way to readily distinguish among them. The non-preferred sub-alternative would apply the smooth dogfish exception 50 nautical miles from the baseline of all the States that fall under the SCA definition of “State,” including the west coast of Florida in the Gulf of Mexico. This sub-alternative could result in smoothhound sharks other than smooth dogfish indirectly falling under the exception, because they cannot be distinguished from smooth dogfish, which would violate the specific requirements of the SCA and pose enforcement difficulties. The preferred sub-alternative would apply the exception only along the Atlantic Coast where the population is almost entirely smooth dogfish, but not in the Gulf of Mexico—even on the Florida Coast. By limiting the exception to the Atlantic region, as specified at § 635.27(b)(1), this sub-alternative would ensure that the exception would only apply where the population is almost entirely smooth dogfish, reducing identification problems and inadvertent finning violations. NMFS expects neutral direct and indirect short- and long-term ecological impacts because, at this time, there is no commercial fishery for smooth dogfish in the Gulf of Mexico. For the same reason, NMFS expects neutral direct and indirect short- and long-term socioeconomic impacts. NMFS prefers this sub-alternative at this time because it simplifies enforcement and compliance without adverse impacts.

Implementation of the 2012 Shark Biological Opinion

On December 12, 2012, following consultation under section 7(a)(2) of the Endangered Species Act (ESA), NMFS determined that the continued operation of the Atlantic shark and smoothhound shark fisheries is not likely to jeopardize the continued existence of Atlantic sturgeon, smalltooth sawfish, or any species of ESA-listed large whale or sea turtles. In order to avoid take prohibited by Section 9 of the ESA, NMFS must comply with the Reasonable and Prudent Measures (RPMs) and the Terms and Conditions (TCs) in the 2012 Shark BiOp. NMFS has reviewed the 2012 Shark BiOp and associated TCs and has determined that the current

regulations meet the specifications of all the TCs except for TC 4, which requires either net checks or soak time restrictions in the Atlantic shark gillnet fisheries. Therefore, this rulemaking considers measures that would ensure the Atlantic shark gillnet fisheries operate consistent with TC 4 in the 2012 Shark BiOp.

NMFS proposes to establish a soak time limit of 24 hours for fishermen using sink gillnet gear and a 2-hour net check requirement for fishermen using drift gillnet gear in the Atlantic shark and smoothhound shark fisheries. Drift gillnets would be defined as those that are unattached to the ocean bottom with a float line at the surface, and sink gillnet gear would be defined as those with a weight line that sinks to the ocean bottom, has a submerged float line, and is designed to be fished on or near the bottom. Most smoothhound shark gillnet fishermen would be required to limit soak times to 24 hours, since they primarily use sink gillnet gear. This requirement would not significantly change smoothhound shark fishing practices. With regard to other Atlantic shark fishermen, fishermen who use sink gillnet gear would be required to limit soak times to 24 hours and those that use drift gillnets would be required to perform net checks at least every 2 hours. Currently, all Atlantic shark fishermen that use gillnet gear to fish for or who are in possession of any large coastal, small coastal, or pelagic shark, regardless of gillnet type, are required to perform net checks at least every 2 hours (see § 635.21(e)(3)(v)). During the net checks, fishermen are required to look for and remove any sea turtles, marine mammals, or smalltooth sawfish. Only a few Atlantic shark limited access permit holders use gillnet gear and the proportions of each type (e.g., sink or drift) vary in any one year. Fishermen are not required to report the type of gillnet gear used, so the proportion of each type is best estimated using data from observed gillnet trips, although it is important to note that not all observed trips targeted sharks. From 2009 through 2012, the portion of gillnet trips that used sink gillnet gear ranged from a low in 2009 of 47 percent, up to 87 percent, 100 percent, and 93 percent in 2010–2012, respectively. For a variety of reasons (e.g., reduced LCS retention limits and gillnet gear fishing restrictions), it appears that the fishery has moved predominately to sink gillnet gear. Under the preferred alternative, shark gillnet fishermen that use sink gillnet gear would no longer be required to perform net checks at least every 2

hours under this alternative. Instead, they would be required to limit soak times to 24 hours. In the 2002 rulemaking that implemented the net checks (July 9, 2002, 67 FR 45393), NMFS stated that the net checks would be unlikely to impact the bycatch of species that are not protected resources. This statement was made because the net checks do not require fishermen to remove or disentangle any animals except protected species during the net checks, thus, non-protected resource bycatch species would be unlikely to be removed from the net. In the 2012 BiOp, the requirement to use either net checks or the 24 hour set limitation was determined to ensure that any incidentally taken ESA-listed species are detected and released in a timely manner, reducing the likelihood of mortality.

As such, this preferred alternative would likely result in short- and long-term direct minor adverse ecological impacts because the target species, sharks, could remain in the gillnet for longer periods of time before being released, reducing the chances of a live release. Similarly, this alternative could result in short- and long-term indirect neutral ecological impacts to non-target, incidentally caught fish species and bycatch because net checks do not require fishermen to remove or disentangle any animals except protected species during the net checks. This alternative would likely have, however, short- and long-term minor beneficial impacts on protected resources since it would implement one of the Terms and Conditions of the 2012 Shark BiOp to minimize impacts on protected resources. Since this alternative complies with the Biological Opinion, has only minor adverse direct and indirect ecological impacts to other species, and allows all smoothhound shark gillnet fishermen to continue current fishing practices, NMFS prefers this alternative at this time.

This action would likely result in neutral short- and long-term direct socioeconomic impacts. Smoothhound shark fishermen, who typically use sink gillnets, would be required to limit soak times to 24 hours and as discussed above, this requirement is unlikely to significantly alter smoothhound shark fishing practices. Drift gillnet fishermen, who are more likely to target Atlantic sharks rather than smoothhound sharks, would be required to check their nets at least every 2 hours, as is currently required. Thus, this alternative is unlikely to have any socioeconomic impacts to Atlantic shark and smoothhound shark fishermen since it would not change current fishing

practices. Similarly, this alternative would likely result in neutral short- and long-term indirect socioeconomic impacts since supporting businesses, including dealers and bait, tackle, and ice suppliers, should not be impacted. The preferred alternative would impact the approximately 31 vessels that annually direct on smoothhound sharks with gillnet gear. Since this action would have minimal economic impact but is still consistent with the 2012 Shark BiOp, and thus sufficiently protects protected resources, NMFS prefers this alternative at this time.

NMFS also considered three other alternatives to implement the 2012 Shark BiOp gillnet requirements in the Atlantic shark fisheries. First, NMFS considered not implementing the requirements, but does not prefer this alternative because it would not be consistent with the 2012 Shark BiOp. Second, NMFS considered requiring smoothhound shark fishermen to conduct net checks at least every 2 hours to look for and remove any protected species. This measure was not preferred because it would change current fishing practices, reducing efficiency and landings, thus reducing profitability, without reducing the likelihood of mortality of protected species per the 2012 BiOp. Third, NMFS considered different requirements based on permit type. It would establish a gillnet soak time limit of 24 hours for smoothhound shark permit holders. Under this alternative, fishermen holding both an Atlantic shark limited access permit and a smoothhound shark permit would have to abide by the 24-hour soak time restriction and conduct net checks at least every 2 hours. This would disadvantage smoothhound shark fishermen holding both permits relative to smoothhound shark fishermen only holding a smoothhound shark permit without ecological benefits to protected resources. For this reason, this measure is not preferred at this time.

Atlantic Shark Gillnet Vessel Monitoring System Requirements

This proposed rule would also revise the requirement to use VMS by shark fishermen using gillnet gear. Currently, Federal directed shark permit holders with gillnet gear on board are required to use VMS, regardless of vessel location. This requirement was implemented as part of the 2003 Amendment 1 to the 1999 FMP to ensure shark gillnet vessels were complying with the Atlantic Large Whale Take Reduction Plan (ALWTRP) time/area closures and observer requirements (50 CFR 229.32). The ALWTRP requirements apply only to

Atlantic directed shark limited access permit holders with gillnet gear on board in the Southeast U.S. Monitoring Area. At the time of implementation in 2003, NMFS determined that requiring all gillnet fishermen with a directed shark permit to use VMS regardless of geographic location would simplify compliance and outreach, particularly if these fishermen regularly fished different regions, including in the Southeast U.S. Monitoring Area. Since then, however, it has become apparent that while some of these fishermen fish multiple regions, many do not fish in or even near the Southeast U.S. Monitoring Area. Thus, this rulemaking considers measures to bring the VMS requirements in-line with the requirements of the ALWTRP.

NMFS proposes to require Federal directed Atlantic shark limited access permit holders with gillnet gear on board to use VMS only in the vicinity of the Southeast U.S. Monitoring Area, pursuant to ALWTRP requirements. This action is expected to have neutral short- and long-term direct and indirect ecological impacts. These VMS requirements are an enforcement tool for complying with the ALWTRP requirements and would not affect catch. VMS requirements do not impact incidentally caught species. The preferred alternative would likely provide short- and long-term moderate beneficial impacts for protected resources, because it maintains the requirement to have VMS on board when gillnet fishing in the U.S. Southeast Monitoring Area, as required in the ALWTRP. The difference between this alternative and the No Action alternative is that this alternative would limit the VMS requirement for Atlantic shark permit holders using gillnet gear to the vicinity of the Southeast U.S. Monitoring Area. Requirements to minimize large whale interactions would not change, only the geographic area of the VMS requirement. For this reason, protected resource impacts resulting from the preferred alternative are the same as for the no action alternative. Thus, because this alternative maintains the VMS requirements for large whales consistent with the ALWTRP, and at the same time reduces adverse socioeconomic impacts, NMFS prefers this alternative at this time.

This change to the VMS gillnet requirement would have short- and long-term direct minor beneficial socioeconomic impacts. Atlantic shark gillnet fishermen fishing in the vicinity of the Southeast U.S. Monitoring Area would still incur the installation costs of the VMS, but data transmission would

be limited to those times when the vessel is in this area. Furthermore, shark gillnet fishermen outside of this area that do not fish in the vicinity of the Southeast U.S. Monitoring Area would not need to install a VMS unit or, if they already have one, maintain the VMS unit or replace a malfunctioning one. Thus, the socioeconomic impacts from this alternative, while still adverse, are of a lesser degree than those under the No Action alternative. This alternative would likely result in neutral short- and long-term indirect socioeconomic impacts since supporting businesses including dealers and bait, tackle, and ice suppliers would not be impacted. Since this alternative is more in line with the requirements of the ALWTRP, and because it would reduce socioeconomic impacts while still maintaining beneficial ecological impacts for protected whale species, NMFS prefers this alternative at this time.

Other Measures

Currently, the Atlantic shark fishery observer program is administered by the NMFS Southeast Fisheries Science Center (SEFSC). However, because a portion of the commercial smoothhound shark fishery occurs in the Northeast region, there is a possibility that the smoothhound shark observer program could be run by the NMFS Northeast Fisheries Science Center (NEFSC). The two regional science center observers programs differ in the way they notify fishermen of their selection to carry an observer. The SEFSC notifies fishermen in writing at the time of selection. This process is currently in the 50 CFR part 635 regulations. The NEFSC does not require written notification of selection and any vessel holding an applicable permit can be selected. Thus, NMFS is proposing changes to the observer regulations in 50 CFR part 635 to incorporate the relevant portions of the Northeast observer regulations found at 50 CFR part 648. In this action, NMFS proposes to update the regulatory text to incorporate the observer selection process used by the NEFSC into the current selection process used by the SEFSC. These proposed changes are administrative in nature, will not have any biological, economic, or social impacts or impacts on the physical environment and are not anticipated to affect the current fishing level or practices in commercial highly migratory species fisheries, and, therefore, are not further analyzed in this document.

Request for Comments

Comments on this proposed rule may be submitted via <http://www.regulations.gov>, or mail, and comments may also be submitted at a public hearing. NMFS solicits comments on this proposed rule by November 14, 2014 (See **DATES** and **ADDRESSES**). We will announce the dates and locations of public hearings in a future **Federal Register** notice.

Classification

Pursuant to the Magnuson-Stevens Act, the NMFS Assistant Administrator has determined that the proposed rule is consistent with the 2006 Consolidated HMS FMP and its amendments, other provisions of the Magnuson-Stevens Act, and other applicable law, subject to further consideration after public comment.

NMFS prepared a draft EA for Draft Amendment 9 that discusses the impact on the environment that would occur as a result of this proposed action. In this proposed action, NMFS is considering measures for the smoothhound shark fishery, smooth dogfish, and the Atlantic shark gillnet fishery. A copy of the EA is available from NMFS (see **ADDRESSES**).

This proposed rule has been determined to be not significant for purposes of Executive Order 12866.

This proposed rule contains a collection-of-information requirement subject to review and approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act (PRA). This requirement has been submitted to OMB for approval.

The Federal commercial smoothhound shark permit requirement analyzed in Amendment 3 will become effective upon the effective date of a final rule. NMFS submitted a PRA change request to OMB to add this permit to the existing HMS permit PRA package (OMB control number 0648-0327). OMB subsequently accepted the change request to add the Federal commercial smoothhound shark permit to the HMS permit PRA package.

Public comment is sought regarding: Whether this proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; the accuracy of the burden estimate; ways to enhance the quality, utility, and clarity of the information to be collected; and ways to minimize the burden of the collection of information, including through the use of automated collection techniques or other forms of information technology. Send comments

on these or any other aspects of the collection of information to (enter office name) at the **ADDRESSES** above, and by email to *OIRA_Submission@omb.eop.gov* or fax to (202) 395-7285.

Notwithstanding any other provision of law, no person is required to respond to, and no person shall be subject to penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB control number.

Regulatory Flexibility Act

An initial regulatory flexibility analysis (IRFA) was prepared, as required by section 603 of the Regulatory Flexibility Act (RFA). The IRFA describes the economic impact this proposed rule would have on small entities if adopted. A description of the action, why it is being considered, and the legal basis for this action are contained at the beginning of this section in the preamble and in the **SUMMARY** section of the preamble. A summary of the analysis follows. A copy of this analysis is available from NMFS (see **ADDRESSES**).

This proposed action is designed to implement the smooth dogfish provisions of the Shark Conservation Act of 2010 and to implement the smoothhound sharks measures in Amendment 3 to the 2006 Consolidated HMS FMP (75 FR 30484, June 1, 2010) and the 2011 Atlantic HMS Trawl Rule (76 FR 49368, August 10, 2011) that are currently on hold. This action also reexamines the smoothhound shark quota that would be implemented along with the Amendment 3 measures. NMFS has updated landings data that could necessitate a recalculation of the quota. See Section 1.3 of the Draft EA for Amendment 9 for more information.

On December 12, 2012, consistent with Section 7(b)(4) of the ESA, NMFS determined that the continued operation of the Atlantic shark and smoothhound shark fisheries is not likely to jeopardize the continued existence of Atlantic sturgeon, smalltooth sawfish, or any species of ESA-listed large whale or sea turtles. In order to be exempt from take prohibitions established by Section 9 of the ESA, NMFS must comply with the RPMs and TCs listed in the 2012 Shark BiOp. One purpose of Amendment 9 is to propose measures to implement the 2012 Shark BiOp TCs that are specific to the Atlantic shark and smoothhound shark fisheries. See Section 1.3 of the Draft EA for Amendment 9 for more information.

Currently, Federal directed shark permit holders with gillnet gear on board are required to use VMS

regardless of vessel location. This requirement was originally implemented to comply with the ALWTRP requirements at 50 CFR 229.32. However, these requirements require federal directed shark permit holders with gillnet gear on board to use VMS only when fishing in a certain area in the South Atlantic. Thus, another purpose of this rulemaking is to examine measures to bring current VMS regulations for Federal directed shark permit holders using gillnet gear in-line with the current requirements of the ALWTRP at 50 CFR 229.32. See Section 1.3 of the Draft EA for Amendment 9 for more information.

The management goals and objectives of this action are to provide for the sustainable management of smoothhound sharks and Atlantic shark species under authority of the Secretary consistent with the requirements of the Magnuson-Stevens Act and other statutes which may apply to such management, including the ESA and the Marine Mammal Protection Act (MMPA). The management objectives are to achieve the following:

- Implement the smooth dogfish provisions of the SCA.
- Implement other measures, as necessary, to ensure that the smooth dogfish provisions of the SCA do not negatively impact the sustainable fishery of other shark species.
- Reexamine the smoothhound shark quota in light of updated landings data.
- Implement the Term and Condition of the 2012 Smoothhound Shark and Atlantic Shark Biological Opinion related to gillnet impacts on ESA-listed species.
- Reexamine Atlantic shark gillnet VMS regulation in compliance with the ALWTRP, per the MMPA.

Section 603(b)(3) of the RFA requires Agencies to provide an estimate of the number of small entities to which the rule would apply. On June 12, 2014, the Small Business Administration (SBA) issued a final rule revising the small business size standards for several industries effective July 14, 2014 (79 FR 33647; June 12, 2014). The rule increased the size standard for Finfish Fishing from \$19.0 to 20.5 million. NMFS has reviewed the analyses prepared for this action in light of the new size standards. Under the former, lower size standards, all entities subject to this action were considered small entities; thus, they all would continue to be considered small entities under the new standards. NMFS does not believe that the new size standards affect analyses prepared for this action and solicits public comment on the analyses in light of the new size standards. Under

these standards, NMFS considers all Atlantic HMS permit holders subject to draft Amendment 9 to be small entities.

As discussed in Section 6.1 of the Draft EA for Amendment 9, NMFS does not have exact numbers on affected commercial fishermen. The smoothhound shark commercial permit has not yet been created, so NMFS does not know how many smoothhound shark fishermen will be impacted. An annual average of 275 vessels reported retaining smooth dogfish through VTR from 2003–2012. This is NMFS' best estimate of affected smoothhound shark fishermen.

While the retention of sharks in federal waters requires one of two limited access commercial shark permits, these permits do not specify gear type, such as gillnets. For this reason, NMFS does not know the exact number of affected shark gillnet fishermen. As of July 11, 2013, there are 216 directed shark and 261 incidental shark permit holders. Logbook records indicate that there are usually about 10 Atlantic shark directed permit holders that use gillnet gear in any year. However, the universe of directed permit holders using gillnet gear can change from year to year and could include anyone who holds an Atlantic shark directed permit.

As of July 11, 2013, there are 96 Atlantic shark dealers. These dealers could be affected by these measures to varying degrees. Not all of these dealers purchase smoothhound sharks and those that do are concentrated in the Mid-Atlantic region. NMFS will know more about the number of affected dealers when smoothhound reporting requirements go into place. Similarly, not all of these dealers purchase Atlantic sharks caught with gillnet gear. The number is likely low and is concentrated in Florida and the Gulf of Mexico.

NMFS has determined that the proposed rule is not likely to affect any small governmental jurisdictions. More information regarding the description of the fisheries affected, and the categories and number of permit holders can be found in Chapter 3 of the Draft EA for Amendment 9.

Under section 603(b)(4) of the RFA, Agencies are required to describe any new reporting, record-keeping and other compliance requirements. The Federal commercial smoothhound shark permit requirement analyzed in Amendment 3 to the 2006 Consolidated HMS FMP will become effective upon the effective date of this rule. NMFS submitted a PRA change request to OMB to add this permit to the existing HMS permit PRA package (OMB control number 0648–

0327). OMB subsequently accepted the change request to add the federal commercial smoothhound shark permit to the HMS permit PRA package.

On November 15, 2013, NMFS published a final rule (78 FR 68757) that modifies declaration requirements for Atlantic shark fishermen using VMS. The final rule implements requirements for operators of vessels that have been issued Atlantic HMS permits and are required to use their VMS units to provide hourly position reports 24 hours a day, 7 days a week (24/7). The final rule implements requirements allowing the operators of such vessels to make declarations out of the fishery when not retaining or fishing for Atlantic HMS for specified periods of time that encompass two or more trips. These changes alter the burden estimates under the existing HMS permit PRA package (OMB control number 0648-0327).

Under section 603(b)(5) of the RFA, agencies must identify, to the extent practicable, relevant Federal rules which duplicate, overlap, or conflict with the proposed rule. Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements, domestic laws, and other FMPs. These include the Magnuson-Stevens Act, the Atlantic Tunas Convention Act, the High Seas Fishing Compliance Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Environmental Policy Act, the Paperwork Reduction Act, and the Coastal Zone Management Act. This proposed rule has also been determined not to duplicate, overlap, or conflict with any other Federal rules.

One of the requirements of an IRFA is to describe any alternatives to the proposed rule which accomplish the stated objectives and which minimize any significant economic impacts. These impacts are discussed below.

Additionally, the RFA (5 U.S.C. 603(c) (1)–(4)) lists four general categories of “significant” alternatives that would assist an agency in the development of significant alternatives. These categories of alternatives are: (1) Establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) use of performance rather than design standards; and, (4) exemptions from coverage of the rule for small entities.

In order to meet the objectives of this proposed rule, consistent with the Magnuson-Stevens Act, ATCA, and the

ESA, NMFS cannot establish differing compliance requirements for small entities or exempt small entities from compliance requirements. Thus, there are no alternatives discussed that fall under the first and fourth categories described above. NMFS does not know of any performance or design standards that would satisfy the aforementioned objectives of draft Amendment 9 while, concurrently, complying with the Magnuson-Stevens Act. As described below, NMFS analyzed several different alternatives in this proposed rulemaking and provides rationale for identifying the preferred alternative to achieve the desired objective.

The alternatives considered and analyzed are described below. The IRFA assumes that each vessel will have similar catch and gross revenues to show the relative impact of the proposed action on vessels.

With regard to the implementation of the SCA, NMFS considered two alternatives. Alternative A1, which would not implement the smooth dogfish-specific provisions of the SCA and would instead implement the fins attached requirement finalized in Amendment 3, and Alternative A2, which proposes to implement the smooth dogfish-specific provisions of the SCA and has sub-alternatives that address the specific elements of the smooth dogfish-specific provisions.

Alternative A1 would not implement the smooth dogfish-specific provisions of the SCA and would require all smooth dogfish to be landed with fins naturally attached. This alternative would change current fishing practices since smooth dogfish caught in the directed and incidental fisheries are fully processed while at sea. As a result, this Alternative A1 would likely lead to reduced landings and a lower ex-vessel price since the product would not be fully processed. This could lead to adverse socioeconomic impacts.

Under Alternative A2, the preferred alternative, an allowance for the removal of smooth dogfish fins at sea would increase efficiency in the smooth dogfish fishery and provide a more highly processed product for fishermen to sell to dealers. Quantifying the financial benefits is difficult since baseline effort and increases in efficiency cannot be calculated, but the benefit would not exceed \$585,516, the ex-vessel value of the entire smooth dogfish gillnet fishery. The benefit to individual vessels is likely equal to the average annual per vessel revenues from smooth dogfish caught in the directed sink gillnet fishery which was \$15,365.

Supporting entities, such as bait and tackle suppliers, ice suppliers, dealers, and other similar businesses, could experience increased revenue if the efficiency of fin removal at sea results in a higher quality product. However, while supporting businesses would benefit from the increased profitability of the fishery, they do not solely rely on the smooth dogfish fishery. In the long-term, it is likely that changes in the smooth dogfish fishery would not have large impacts on these businesses.

Under Sub-Alternative A2–1a, smooth dogfish could make up any portion of the retained catch on board, provided that no other sharks are retained. This sub-alternative would authorize smooth dogfish fishermen to retain any non-shark species of fish while still availing themselves of the at-sea fin removal allowance. Smooth dogfish are often caught incidentally during other fishing operations, thus this sub-alternative would allow fishermen to maximize the profitability of each trip and allow individual operators the flexibility to make decisions, before the trip and while on the water, as to the retained catch composition that would maximize ex-vessel revenues. Under this alternative, fishermen could remove smooth dogfish fins at sea during any type of trip including those trips that are directing on other non-shark species. This alternative would maintain the current practice in the fishery and vessels could continue to have ex-vessel revenues of \$585,516 per year in the smooth dogfish gillnet fishery.

Under Sub-Alternative A2–1b, fishermen could avail themselves of the at-sea fin removal allowance only if smooth dogfish comprise 25 percent of the retained catch on board. This sub-alternative would authorize smooth dogfish fishermen to retain some non-shark species of fish while still availing themselves of the at-sea fin removal allowance. Smooth dogfish are often caught incidentally during other fishing operations, thus this sub-alternative would allow fishermen to increase the profitability of each trip and allow individual operators the flexibility to make decisions, before the trip and while on the water, as to the retained catch composition that would increase ex-vessel revenues. This increase in flexibility would be to a lesser extent than Sub-Alternative A2–1a, which would not have a catch composition requirement, but greater than the other sub-alternatives that limit the fins-attached exception to the directed fishery. This sub-alternative would decrease total ex-vessel revenues relative to the current level of \$585,516

per year in the smooth dogfish gillnet fishery.

Under Sub-Alternative A2-1c, a preferred sub-alternative, fishermen could avail themselves of the at-sea fin removal allowance only if smooth dogfish comprise 75 percent of the retained catch on board. NMFS chose this threshold because in other HMS fisheries, 75 percent retention of the target catch is considered a trip where the fisherman is fishing for that species. Thus, implementing a target catch requirement of 75 percent smooth dogfish would limit the at-sea fin removal allowance to those fishing for smooth dogfish. Because some fishermen catch smooth dogfish while fishing for other species, this sub-alternative is likely to reduce flexibility in which species may be retained and would decrease the number of mixed species trips where fishermen could take advantage of the at-sea fin removal allowance. Between 2003 and 2012, an annual average of 275 vessels landed smooth dogfish, but only around 30 vessels targeted smooth dogfish in any given year. For this reason, NMFS estimates that approximately 245 vessels in the mixed species fishery would be impacted by sub-Alternative A2-1c.

Sub-Alternative A2-1d would require smooth dogfish to comprise 100 percent of the retained catch on board the vessel in order for fishermen to avail themselves of the at-sea fin removal allowance for smooth dogfish. This sub-alternative would eliminate the ability of mixed trips to take advantage of the at-sea fin removal, and would reduce flexibility in deciding which species to retain on each fishing trip. However, the approximately 30 vessels (annual average 2003-2012) that target smooth dogfish often only retain smooth dogfish due to the processing practices in place. Thus, these fishermen would only have smooth dogfish on board and would not be impacted by a 100 percent smooth dogfish requirement, and would benefit from the ability to remove the smooth dogfish fins at sea.

Sub-Alternative A2-2a would require federal smoothhound permitted fishermen to obtain a smooth dogfish-specific state commercial fishing license in order to be able to remove smooth dogfish fins at sea. The requirement to obtain a smooth dogfish-specific state commercial fishing license may be more difficult for fishermen who are in states that do not have smooth dogfish-specific permits in place. This sub-alternative would result in the increased burden on fishermen to obtain another permit, and depending upon the state, could result in an additional permit charge. Since

most permits are valid for one year, fishermen would likely need to renew the permit each year for as long as they wish to retain smooth dogfish and remove the fins while at sea. Because not all states have smooth dogfish-specific permits, NMFS does not prefer this alternative at this time but is seeking comments, particularly from the States, about their preferences and what approach would work best in conjunction with their state approach to permitting and state fishery objectives.

Sub-Alternative A2-2b, the preferred alternative, would require fishermen to hold any state commercial fishing permit that allows retention of smooth dogfish. It is likely, however, that most smooth dogfish fishermen already hold this type of state permit and would be unaffected by this requirement. This sub-alternative would likely be the most straightforward for regulatory compliance since the permit requirement would be the simpler than sub-alternative A2-2a. Thus, NMFS prefers this sub-alternative at this time but is seeking comments, particularly from the States, about their preferences and what approach would work best in conjunction with their state approach to permitting and state fishery objectives.

NMFS considered two alternatives for Geographic Application of the SCA exception. Under Sub-Alternative A2-3a, the exception would apply along the Atlantic Coast and the Florida west coast in the Gulf of Mexico. As explained earlier, as a practical matter, smooth dogfish and other smoothhound species are indistinguishable. The best available scientific information indicates that smooth dogfish are likely the only smoothhound shark species along the Atlantic coast. In the Gulf of Mexico, however, there are at least three different smoothhound species, with no practical way to distinguish among them. This sub-alternative would apply the smooth dogfish exception 50 nautical miles from the baseline of all the States that fall under the SCA definition of "State." This sub-alternative could result in other smoothhound sharks indirectly falling under the exception, because they cannot be distinguished from smooth dogfish. NMFS does not expect any impacts from this alternative because there is no commercial fishery for smooth dogfish in the Gulf of Mexico at this time. However, NMFS does not prefer this sub-alternative at this time because, if a fishery does develop, species misidentification could result in enforcement action.

Under Sub-Alternative 3b, the preferred sub-alternative, the exception would only apply along the Atlantic

coast and not the Florida west coast in the Gulf of Mexico. By not extending the exception into the Gulf of Mexico, this sub-alternative would ensure that the smooth dogfish fins attached exception would only apply along the Atlantic Coast where the population is almost entirely smooth dogfish, reducing identification problems and inadvertent finning violations. NMFS does not expect any impacts from this alternative because, at this time, there is no commercial fishery for smooth dogfish in the Gulf of Mexico. NMFS prefers this sub-alternative at this time because it simplifies enforcement and compliance without adverse impacts.

NMFS considered 4 alternatives to the smoothhound quota alternatives. Alternative B1, which would implement the smoothhound shark quota finalized in Amendment 3; Alternative B2, which would establish a rolling quota based on the most recent five years of landings data; Alternative B3, the preferred alternative, which would calculate the smoothhound quota using the same method as in Amendment 3 but would use updated smoothhound landings information; and Alternative B4 which would establish smoothhound shark quotas that reflect any necessary adjustments as a result of the 2014 smoothhound shark stock assessment.

Alternative B1 would implement the quota finalized in Amendment 3 (715.5 mt dw), which was based on the calculation of quotas from a historical period in the fishery (1998 to 2007) and adding two standard deviations. Current reported smoothhound shark landings are higher than the quota level in Alternative B1. As such, implementing this quota would prevent fishermen from fishing at current levels, resulting in lost revenues. In 2011, the most recent year when landings exceeded the Amendment 3 quota, smoothhound shark landings totaled 2,078,251 lb dw (ACCSP data), resulting in revenues across the entire smoothhound shark fishery of \$1,634,337 (2,078,251 lb of meat, 249,390 lb of fins). Implementation of the Amendment 3 quota (715.5 mt dw) would result in ex-vessel revenues of only \$1,240,460 (1,577,391 lb of meat, 189,287 lb of fins), which is \$393,877 less than 2011 ex-vessel revenues. Both of these estimates assume \$1.72/lb for fins, \$0.58/lb for meat based on 2013 HMS dealer data, and a 12 percent fin-to-carcass ratio from the SCA. Seventy-six percent of all landings in the smoothhound shark fishery come from sink gillnets, and there are approximately 82 vessels that use sink gillnet gear to fish for smoothhound sharks. Assuming an average of 82 sink

gillnet vessels fishing for smoothhound sharks, the quota in this alternative would result in annual ex-vessel revenues of \$15,128 per vessel, which is less than current ex-vessel revenues of \$19,931 per vessel. This is an average across all directed and incidental sink gillnet vessels and this individual annual vessel ex-vessel revenue may fluctuate based on the degree to which fishermen direct on smoothhound sharks.

The quota in Alternative B1 does not accurately characterize current reported landings of smoothhound sharks. The VTR data for the Northeastern United States shows that an average of 31 vessels between 2002 and 2012 directed on smoothhound shark. These vessels likely fished opportunistically on multiple species of coastal migratory fish and elasmobranchs, and it is unlikely that any sector within the fishing industry in the Northeast (fisherman, dealer, or processor) relies wholly upon smoothhound sharks. Longer-term impacts are expected to be neutral given the small size of the fishery and the generalist nature of the sink gillnet fishery.

Alternative B2 would establish a rolling smoothhound shark quota set above the maximum annual landings for the preceding five years; this quota would be recalculated annually to account for the most recent landing trends within the smoothhound complex (2015 quota would be 1,663 mt dw based on 2009–2013 data). The 2015 quota under this alternative would likely result in annual revenues of \$2,883,139 (3,666,250 lb of meat, 439,950 lb of fins) assuming an ex-vessel price of \$1.72 lb for fins and \$0.58 lb for meat based on 2013 HMS dealer data. Seventy-six percent of all landings in the smoothhound shark fishery come from sink gillnets, and there are approximately 82 vessels that use sink gillnet gear to fish for smoothhound sharks. Assuming an average of 82 sink gillnet vessels fishing for smoothhound sharks, the quota in this alternative would result in individual vessel annual revenues of \$35,160, which is more than current ex-vessel revenues of \$19,931 per vessel. This is an average across all directed and incidental sink gillnet vessels, and this individual annual vessel revenue may fluctuate based on the degree to which fishermen direct on smoothhound sharks.

Per the intent of Amendment 3, smoothhound management measures are designed to characterize and collect data while minimizing changes in catch levels and catch rates in the fishery. This goal necessitates a quota near

actual exploitation levels. Thus, setting the quota above current landings levels should allow the fishery to continue, rather than be closed, allowing for NMFS to collect more information that can be used in future stock assessments. Alternative B2 is consistent with the intent of Amendment 3, which was to minimize changes to the fishery while information on catch and participants was collected. Because landings in the smoothhound shark fishery are likely underreported, it is unclear at this time whether the increase in reported landings is due to existing smoothhound fishermen reporting in anticipation of future management or increased effort (e.g., new entrants into the fishery). While a rolling quota would cover all current reporting and likely cover all underreporting of landings, the fishery could grow exponentially if reported landings continue to increase over consecutive years, possibly resulting in stock declines and in turn a potential loss of revenue to the fishing industry. The rolling quota could also lead to lower quotas in consecutive years if landings decrease over time. Thus, the changing nature of the rolling quota could lead to uncertainty in the fishery and could cause direct and indirect minor adverse socioeconomic impacts in the long term.

Alternative B3, the preferred alternative, would create a smoothhound quota equal to the maximum annual landings from 2004–2013 plus two standard deviations, and would equal 1,739.9 mt dw. This alternative establishes a smoothhound quota two standard deviations above the maximum annual landings reported over the last ten years, which is the method used to calculate the smoothhound shark quota that was finalized in Amendment 3. This quota would result in potential annual revenues in the entire fishery of \$3,016,460 (3,835,784 lb of meat, 460,294 lb of fins) assuming an ex-vessel price of \$1.72 lb for fins and \$0.58 for fins based on 2013 HMS dealer data. Seventy six percent of all landings in the smoothhound shark fishery come from sink gillnets, and there are approximately 82 vessels that use sink gillnet gear to fish for smoothhound sharks. Assuming an average of 82 sink gillnet vessels fishing for smoothhound sharks, the quota proposed in this alternative would result in individual vessel annual revenues of \$36,786. This is an average across all directed and incidental sink gillnet vessels and this individual annual vessel revenue may fluctuate based on the degree to which

fishermen direct on smoothhound sharks.

Consistent with the intent of Amendment 3, the preferred alternative B3 would set the quota above current landings levels to allow the fishery to continue throughout the year, rather than be closed for part of the year. This would allow NMFS to collect year-round fishery data that could be used in future smoothhound shark stock assessments. Because landings in the smoothhound fishery are likely underreported, it is unclear at this time whether the increase in reported landings is due to existing smoothhound shark fishermen reporting in anticipation of future management or increased effort. Under this alternative, NMFS anticipates the fishery would operate as it currently does. Alternative B3 accounts for recent trends in the fishery and the best available landings data as recalculated and reported by ACCSP reflects recent behavior in the fishery, and provides an appropriate buffer to account for underreporting in the fishery. Alternative B3 provides for more stability in the fishery due to a quota that does not change from year to year as in alternative B2. Additionally, providing a maximum cap on the fishery would allow fishermen, dealers, and processors to make better business decisions based on a more predictable yield (assuming that the fishery is fished to near-full capacity each year).

Alternative B4 would implement a smoothhound shark quota consistent with the results of the 2014 smoothhound shark stock assessment, if the results become available before publication of the final rule for this action. For the entire smoothhound shark complex, there are four possible outcomes: (1) One or more of the stocks is found to be overfished but not experiencing overfishing; (2) one or more of the stocks is found to be experiencing overfishing but not yet overfished; (3) one or more of the stocks is found to be overfished and experiencing overfishing; or (4) all stocks are found to not be overfished or experiencing overfishing (healthy). A smoothhound shark quota that is based on the results of a stock assessment would provide short and long-term ecological benefits and the resulting sustainable fishery will ensure long-term socioeconomic benefits for the smoothhound shark fishermen. Unless the stock assessment indicates that current fishing levels are unsustainable, short-term negative socioeconomic impacts are unlikely to result from this alternative. However, the stock assessment is not yet available and NMFS is unsure if it will be available

before the final rule for this action publishes. Therefore, NMFS does not prefer this alternative at this time.

In order to implement the TCs of the 2012 Shark BiOp in the smoothhound shark fishery, NMFS considered 4 alternatives. The No Action alternative, which would not implement TC 4 of the 2012 Shark BiOp; C2 which would require smoothhound shark fishermen to conduct net checks at least every 2 hours; C3 which would require smoothhound shark fishermen to limit their gillnet soak time to 24 hours and those smoothhound shark fishermen that also have a Atlantic shark limited access permit to check their nets at least every 2 hours; and C4 which would require smoothhound and Atlantic shark fishermen using sink gillnet to soak their nets no longer than 24 hours and those fishermen using drift gillnets to check their nets at least every 2 hours.

Alternative C1 would not implement the BiOp term and condition requiring all smoothhound shark permit holders to either check their gillnet gear at least every 2.0 hours, or limit their soak time to no more than 24 hours. This alternative would likely result in short- and long-term neutral direct socioeconomic impacts. Under Alternative C1, smoothhound shark fishermen would continue to fish as they do now and so this alternative would not have economic impacts that differ from the status quo. Similarly, this alternative would likely result in neutral short and long-term indirect socioeconomic impacts since supporting businesses including dealers and bait, tackle, and ice suppliers would not be impacted.

Alternative C2 would require smoothhound shark fishermen using gillnet gear to conduct net checks at least every 2 hours to check for and remove any protected species, and would likely result in short- and long-term direct moderate adverse socioeconomic impacts. Some smoothhound shark gillnet fishermen fish multiple nets at one time or deploy their net(s), leave the vicinity, and return at some later time. Alternative C2 would require these fishermen to check each gillnet at least once every 2 hours, making fishing with multiple nets or leaving nets unattended difficult. This would likely lead to a reduction in effort and landing levels, resulting in lower ex-vessel revenues. Quantifying the loss of income is difficult without information characterizing the fishery, including the number of nets fished. However, limiting the amount of fishing effort in this manner is likely to reduce total landings of smoothhound sharks

or, in order to keep landing levels high, extend the length of trips. Landings of incidentally caught fish species could be reduced as well, although under preferred sub-Alternative A2-1c, smoothhound shark fishermen that wish to remove smooth dogfish fins at sea could not retain other species. This alternative would not have a large impact on supporting businesses such as dealers or bait, tackle, and ice suppliers, since these businesses do not solely rely on the smoothhound shark fishery. The smoothhound shark fishery is small relative to other fisheries. Thus, Alternative C2 would likely result in short- and long-term indirect neutral socioeconomic impacts. Alternative C2 would impact the approximately 31 vessel that annually direct on smoothhound sharks with gillnet gear (annual average from 2003–2013).

Alternative C3 would establish a gillnet soak time limit of 24 hours for smoothhound shark permit holders. Under this alternative, fishermen holding both an Atlantic shark limited access permit and a smoothhound shark permit must abide by the 24 hour soak time restriction and conduct net checks at least every 2 hours. This alternative would likely result in short- and long-term direct minor adverse socioeconomic impacts to those smoothhound permitted fishermen that also have an Atlantic shark limited access permit, and therefore would be required to check their nets at least every 2 hours. Currently, smoothhound shark gillnet fishermen sometimes fish multiple nets or leave nets unattended for short periods of time. Rarely are these nets soaked for more than 24 hours, thus, this alternative would not impact smoothhound shark gillnet fishermen that do not have an Atlantic shark limited access permit. Adverse socioeconomic impacts resulting from this alternative would likely occur to the subset of smoothhound shark fishermen that also hold an Atlantic shark limited access permit. These smoothhound shark fishermen would be at a disadvantage to other smoothhound shark fishermen that do not have an Atlantic shark limited access permit, because they would be required to check their gillnets at least every 2 hours, which is a large change in the way the smoothhound shark fishery currently operates. Dropping the Atlantic shark permit to avoid the net check requirement is not likely feasible, since Atlantic shark permits are limited access and cannot be easily obtained. Additionally, pelagic longline fishermen are required to have an incidental or directed shark permit when targeting

swordfish or tunas, even if they are not fishing for sharks, due to the likelihood of incidental shark catch. In practical terms, this alternative could result in smoothhound shark gillnet fishermen abiding by the 2 hour net check requirement even if they do not fish for Atlantic sharks and only hold a Atlantic shark limited access permit to fish for swordfish or tunas (note that gillnets cannot be used to target swordfish or tunas, but some vessels may switch gears between trips). For this subset of fishermen, basing gillnet requirements on permit types could introduce fishing inefficiencies when compared to other smoothhound fishermen, likely resulting in adverse socioeconomic impacts to these fishermen. It is unlikely that this alternative would have a large impact on supporting businesses such as dealers or bait, tackle, and ice suppliers since these businesses do not solely rely on the smoothhound shark fishery. As noted above, the smoothhound shark fishery is small relative to other fisheries, and it is difficult to determine the number of fishermen that would be adversely affected since NMFS does not yet know which vessels will obtain a smoothhound shark fishing permit. However, it is likely that this number will be approximately 170, which is the average annual number of vessel that retain smoothhound sharks.

Alternative C4, the preferred alternative, would establish a soak time limit of 24 hours for fishermen using sink gillnet gear and a 2 hour net check requirement for fishermen using drift gillnet gear in the Atlantic shark and smoothhound shark fisheries. Drift gillnets would be defined as those that are unattached to the ocean bottom with a float line at the surface. Sink gillnet gear would be defined as those with a weight line that sinks to the ocean bottom, has a submerged float line, and is designed to be fished on or near the bottom. Alternative C4 would likely result in neutral short- and long-term direct socioeconomic impacts. Smoothhound shark fishermen, who typically use sink gillnets, would be required to limit soak times to 24 hours and as discussed above, this requirement is unlikely to significantly alter smoothhound shark fishing practices. Drift gillnet fishermen, who are more likely to target Atlantic sharks other than smoothhound sharks, would be required to check their nets at least every 2 hours, as is currently required. Thus, this alternative is unlikely to have any socioeconomic impacts to Atlantic shark and smoothhound shark fishermen since it would not change

current fishing practices. Similarly, this alternative would likely result in neutral short- and long-term indirect socioeconomic impacts since supporting businesses including dealers and bait, tackle, and ice suppliers should not be impacted. Alternative C4 would impact the approximately 31 vessels that annually direct on smoothhound sharks with gillnet gear. Since Alternative C4 would have minimal economic impact but is still consistent with the 2012 Shark BiOp, NMFS prefers this alternative at this time.

NMFS also considered two alternatives to streamline the current VMS requirements for Atlantic shark fishermen with gillnet gear on board. NMFS considered two alternatives, the No Action alternative that would maintain the current requirement to have VMS on board when fishing for Atlantic sharks with gillnet regardless of where the vessel is fishing, and alternative D2 that would only require VMS on board for Atlantic shark fishermen using gillnet gear in an area specified by the ALWTRP requirements at 50 CFR 229.32.

Alternative D1 would maintain the current requirement that Atlantic shark permit holders fishing with gillnet gear must have VMS on board from November 15–April 15, regardless of where the vessel is fishing. These VMS requirements were put in place as an enforcement tool for complying with the ALWTRP requirements set forth in 50 CFR 229.32. Per 50 CFR 229.32 (h)(2)(i) Atlantic shark gillnet fishermen are only required to have VMS if they are fishing in the Southeast U.S. Monitoring Area. Purchasing and installing a VMS unit costs fishermen around \$3,500 and monthly data transmission charges cost, on average, approximately \$44.00. Because these monthly costs are currently incurred whenever a shark gillnet fishermen is fishing from November 15–April 15, these costs can affect the fishermen’s annual revenues. Although the affected fishermen already have VMS installed, they continue to pay for transmission and maintenance costs, and could need to buy a new unit if theirs fails. NMFS notes that there may be a reimbursement program that would defray part of the purchase cost, but whether that program will exist is not certain at this time. Thus, it is likely that this alternative could have short and long-term direct minor adverse socioeconomic impacts to fishermen due to the cost of purchasing and maintaining a VMS unit. While the retention of sharks in federal waters requires one of two limited access commercial shark permits, these permits do not specify gear type, including

gillnets. For this reason, NMFS does not know the exact number of affected shark gillnet fishermen. As of July 11, 2013, there are 216 directed shark and 261 incidental shark permit holders. Logbook records indicate that there are usually about 10 Atlantic shark directed permit holders that use gillnet gear in any year. However, the universe of directed permit holders using gillnet gear can change from year to year and could include anyone who holds an Atlantic shark directed permit.

Alternative D2, the preferred alternative, would change the gillnet VMS requirements to require federal directed shark permit holders with gillnet gear on board to use VMS only in the vicinity of the Southeast U.S. Monitoring Area, pursuant to ALWTRP requirements. This alternative would have short- and long-term direct minor beneficial socioeconomic impacts. Atlantic shark gillnet fishermen fishing in the vicinity of the Southeast U.S. Monitoring Area would still incur the installation costs of the VMS, but data transmission would be limited to those times when the vessel is in this area. Furthermore, shark gillnet fishermen outside of this area that do not fish in the vicinity of the Southeast U.S. Monitoring Area would not need to install a VMS unit or, if they already have one, maintain the VMS unit or replace a malfunctioning one. Thus, the socioeconomic impacts from this alternative, while still adverse, are of a lesser degree than those under Alternative D1, the No Action alternative. This alternative would likely result in neutral short- and long-term indirect socioeconomic impacts, since supporting businesses including dealers and bait, tackle, and ice suppliers would not be impacted. As noted in the other alternatives discussions, NMFS does not know the exact number of shark gillnet fishermen that would be affected by this alternative. As of July 11, 2013, there are 216 directed shark and 261 incidental shark permit holders. Logbook records indicate that there are usually about 10 Atlantic shark directed permit holders that use gillnet gear in any year. However, the universe of directed permit holders using gillnet gear can change from year to year and could include anyone who holds an Atlantic shark directed permit. Since this alternative is more in line with the requirements of the ALWTRP, and because it would reduce socioeconomic impacts while still maintaining beneficial ecological impacts for protected whale species, NMFS prefers this alternative at this time.

List of Subjects in 50 CFR Part 635

Fisheries, Fishing, Fishing vessels, Penalties, Reporting and recordkeeping requirements, Retention limits.

Dated: August 1, 2014.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For reasons set out in the preamble, 50 CFR part 635 is proposed to be amended as follows:

PART 635—ATLANTIC HIGHLY MIGRATORY SPECIES

■ 1. The authority citation for part 635 continues to read as follows:

Authority: 16 U.S.C. 971 *et seq.*; 16 U.S.C. 1801 *et seq.*

■ 2. In § 635.2, definitions for “Atlantic States,” “Drift gillnet,” “Sink gillnet,” and “Smoothhound shark” are added in alphabetical order to read as follows:

§ 635.2 Definitions.

* * * * *

Atlantic States, consistent with section 803 of Public law 103–206 (16 U.S.C. 5102), refers to Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, the District of Columbia, and the Potomac River Fisheries Commission, for purposes of applying the Shark Conservation Act exception at 50 CFR 635.30(c)(5).

* * * * *

Drift gillnet means a gillnet that is unattached to the ocean bottom and not anchored, secured or weighted to the ocean bottom.

* * * * *

Sink gillnet means a gillnet that is designed to be or is fished on or near the bottom in the lower third of the water column by means of a weight line or enough weights and anchors that the bottom of the gillnet sinks to, on, or near the ocean bottom.

* * * * *

Smoothhound shark(s) means one of the species, or part thereof, listed in section E of table 1 in appendix A to this part.

* * * * *

■ 3. In § 635.4, paragraphs (e)(4) and (m)(2) are revised to read as follows:

§ 635.4 Permits and fees.

* * * * *

(e) * * *

(4) Owners of vessels that fish for, take, retain, or possess the Atlantic

oceanic sharks listed in section E of Table 1 of Appendix A with an intention to sell must obtain a Federal commercial smoothhound permit. A Federal commercial smoothhound permit may be issued to a vessel alone or to a vessel that also holds either a Federal Atlantic commercial shark directed or incidental limited access permit.

* * * * *
(m) * * *

(2) *Shark and swordfish permits.* A vessel owner must obtain the applicable limited access permit(s) issued pursuant to the requirements in paragraphs (e) and (f) of this section and/or a Federal commercial smoothhound permit issued under paragraph (e) of this section; or an HMS Commercial Caribbean Small Boat permit issued under paragraph (o) of this section, if: The vessel is used to fish for or take sharks commercially from the management unit; sharks from the management unit are retained or possessed on the vessel with an intention to sell; or sharks from the management unit are sold from the vessel. A vessel owner must obtain the applicable limited access permit(s) issued pursuant to the requirements in paragraphs (e) and (f) of this section, a Swordfish General Commercial permit issued under paragraph (f) of this section, an Incidental HMS Squid Trawl permit issued under paragraph (n) of this section, an HMS Commercial Caribbean Small Boat permit issued under paragraph (o) of this section, or an HMS Charter/Headboat permit issued under paragraph (b) of this section, which authorizes a Charter/Headboat to fish commercially for swordfish on a non for-hire trip subject to the retention limits at § 635.24(b)(4) if: The vessel is used to fish for or take swordfish commercially from the management unit; swordfish from the management unit are retained or possessed on the vessel with an intention to sell; or swordfish from the management unit are sold from the vessel. The commercial retention and sale of swordfish from vessels issued an HMS Charter/Headboat permit is permissible only when the vessel is on a non for-hire trip. Only persons holding non-expired shark and swordfish limited access permit(s) in the preceding year are eligible to renew those limited access permit(s). Transferors may not renew limited access permits that have been transferred according to the procedures in paragraph (l) of this section.

* * * * *

■ 4. In § 635.7, paragraph (a) is revised and paragraph (g) is added to read as follows:

§ 635.7 At-sea observer coverage.

(a) *Applicability.* NMFS may select for at-sea observer coverage any vessel that has an Atlantic HMS, tunas, shark or swordfish permit issued under § 635.4 or § 635.32. Vessels permitted in the HMS Charter/Headboat and Angling categories will be requested to take observers on a voluntary basis. When selected, vessels issued any other permit under § 635.4 or § 635.32 are required to take observers on a mandatory basis. Requirements for selection, notification, and assignment of observers for vessels that have been issued Federal commercial smoothhound permits are set forth in paragraph (g) of this section.

* * * * *

(g) *Selection, Notification, and Assignment of Observers for Commercial Smoothhound Vessels.* (1) NMFS may request any vessel issued a Federal commercial smoothhound shark permit to carry a NMFS-approved observer.

(2) If requested to carry an observer, it is the responsibility of the vessel owner to arrange for and facilitate observer placements. Owners of vessels selected for observer coverage must notify NMFS, at an address specified by NMFS, before commencing any fishing trip that may result in the harvest of smoothhound sharks. Notification procedures are set forth in paragraph (4) below.

(3) NMFS may waive the requirement to carry an observer if an observer is not available for placement or if the facilities on a vessel for housing the observer, or for carrying out observer functions, are so inadequate or unsafe that the health or safety of the observer, or the safe operation of the vessel, would be jeopardized.

(4) A vessel issued a Federal smoothhound permit may not begin a fishing trip without providing notice as required under this paragraph and receiving an observer notification or waiver pursuant to paragraph (g)(5) of this section. Unless otherwise notified by NMFS, at least 48 hours prior to departing port on any trip, the owner or operator of a vessel issued a Federal smoothhound permit must provide notice to NMFS at an address specified by NMFS of the vessel name and permit number; contact name and telephone number for coordination of observer deployment; date, time, and port of departure; and the vessel's trip plan, including area to be fished and gear type to be used. For trips lasting 48 hours or less from the time the vessel leaves port to begin a fishing trip until the time the vessel returns to port upon the completion of the fishing trip, the vessel

owner or operator may make a weekly notification rather than trip-by-trip calls. For weekly notifications, a vessel owner or operator must notify NMFS at an address specified by NMFS by 1 a.m. of the Friday preceding the week (Sunday through Saturday) that it intends to complete at least one smoothhound trip during the following week and provide the date, time, port of departure, area to be fished, and gear type to be used for each trip during that week. Such weekly notifications must be made no more than 10 days in advance of each fishing trip. The vessel owner or operator must notify NMFS of any trip plan changes at least 24 hours prior to vessel departure from port.

(5) Within 24 hours of a notice made under paragraph (g)(4) of this section, NMFS will notify the vessel owner or operator via the information provided by the vessel owner or operator, whether the vessel must carry an observer or if a waiver has been granted pursuant to paragraph (g)(3) of this section. All trip notifications shall be issued a unique confirmation number. A vessel may not fish on a smoothhound shark trip with an observer waiver confirmation number that does not match the trip plan that was provided to NMFS, pursuant to paragraph (g)(4) of this section. Confirmation numbers for trip notification calls are valid for 48 hours from the intended sail date. If a trip is interrupted and returns to port due to bad weather or other circumstance beyond the owner's or operator's control, and goes back out within 48 hours, the same confirmation number and observer status remains. If the layover time is greater than 48 hours, a new trip notification must be made by the operator or owner of the vessel.

■ 5. In § 635.20, paragraph (e)(4) is revised to read as follows

§ 635.20 Size limits.

* * * * *

(e) * * *

(4) There is no size limit for smoothhound sharks taken under the recreational retention limits specified at § 635.22(c)(6).

* * * * *

■ 6. In § 635.21, paragraphs (g)(2) and (3), as proposed to be amended at 78 FR 52032, August 21, 2013, are further revised to read as follows:

§ 635.21 Gear operation and deployment restrictions.

* * * * *

(g) * * *

(2) While fishing with a drift gillnet, a vessel issued or required to be issued a Federal Atlantic commercial shark

limited access permit and/or a Federal commercial smoothhound permit must conduct net checks at least every 2 hours to look for and remove any sea turtles, marine mammals, Atlantic sturgeon, or smalltooth sawfish, and the drift gillnet must remain attached to at least one vessel at one end, except during net checks. Smalltooth sawfish must not be removed from the water while being removed from the net.

(3) While fishing with a sink gillnet, vessels issued or required to be issued a Federal Atlantic commercial shark limited access permit and/or a Federal commercial smoothhound permit must limit the soak time of the sink gillnet gear to 24 hours, measured from the time the sink gillnet first enters the water to the time it is completely removed from the water.

* * * * *
■ 7. In § 635.22, paragraph (c)(6) is revised to read as follows:

§ 635.22 Recreational retention limits.

* * * * *

(c) * * *

(6) The smoothhound sharks listed in Section E of Table 1 of Appendix A to this part may be retained and are subject only to the size limits described in § 635.20(e)(4).

* * * * *

■ 8. In § 635.24, paragraph (a)(7) is revised to read as follows:

§ 635.24 Commercial retention limits for sharks, swordfish, and BAYS tunas.

* * * * *

(a) * * *

(7) A person who owns or operates a vessel that has been issued a Federal commercial smoothhound permit may retain, possess, and land smoothhound sharks if the smoothhound fishery is open in accordance with §§ 635.27 and 635.28. Persons aboard a vessel in a trawl fishery that has been issued a Federal commercial smoothhound permit and are in compliance with all other applicable regulations, may retain, possess, land, or sell incidentally-caught smoothhound sharks, but only up to an amount that does not exceed 25 percent, by weight, of the total catch on board and/or offloaded from the vessel. A vessel is in a trawl fishery when it has no commercial fishing gear other than trawls on board and when smoothhound sharks constitute no more than 25 percent by weight of the total catch on board or offloaded from the vessel.

* * * * *

■ 9. In § 635.27, paragraphs (b)(1)(xi) and (b)(4)(iv) are added and read as follows:

§ 635.27 Quotas.

* * * * *

(b) * * *

(1) * * *

(xi) *Smoothhound sharks.* The base annual commercial quota for smoothhound sharks is 1782.2 mt dw.

* * * * *

(4) * * *

(iv) The base annual quota for persons who collect smoothhound sharks under a display permit or EFP is 6 mt ww (4.3 mt dw).

* * * * *

■ 10. In § 635.30, paragraph (c) is revised to read as follows:

§ 635.30 Possession at sea and landing.

* * * * *

(c) *Shark.* (1) In addition to the regulations issued at part 600, subpart N, of this chapter, a person who owns or operates a vessel issued a Federal Atlantic commercial shark permit under § 635.4 must maintain all the shark fins including the tail naturally attached to the shark carcass until the shark has been offloaded from the vessel, except for under the conditions specified in § 635.30(c)(5). While sharks are on board and when sharks are being offloaded, persons issued a Federal Atlantic commercial shark permit under § 635.4 are subject to the regulations at part 600, subpart N, of this chapter.

(2) A person who owns or operates a vessel that has a valid Federal Atlantic commercial shark permit may remove the head and viscera of the shark while on board the vessel. At any time when on the vessel, sharks must not have the backbone removed and must not be halved, quartered, filleted, or otherwise reduced. All fins, including the tail, must remain naturally attached to the shark through offloading, except under the conditions specified for smooth dogfish in paragraph (c)(5) of this section. While on the vessel, fins may be sliced so that the fin can be folded along the carcass for storage purposes as long as the fin remains naturally attached to the carcass via at least a small portion of uncut skin. The fins and tail may only be removed from the carcass once the shark has been landed and offloaded, except under the conditions specified in paragraph (c)(5) of this section.

(3) A person who owns or operates a vessel that has been issued a Federal Atlantic commercial shark permit and who lands sharks in an Atlantic coastal port, including ports in the Gulf of Mexico and Caribbean Sea, must have all fins and carcasses weighed and recorded on the weighout slips specified in § 635.5(a)(2) and in accordance with

part 600, subpart N, of this chapter. Persons may not possess any shark fins not naturally attached to a shark carcass on board a fishing vessel at any time, except under the conditions specified in paragraph (c)(5) of this section. Once landed and offloaded, sharks that have been halved, quartered, filleted, cut up, or reduced in any manner may not be brought back on board a vessel that has been or should have been issued a Federal Atlantic commercial shark permit.

(4) Persons aboard a vessel that does not have a Federal Atlantic commercial shark permit must maintain a shark intact through landing with the head, tail, and all fins naturally attached, except under the conditions specified in paragraph (c)(5) of this section. The shark may be bled and the viscera may be removed.

(5) A person who owns or operates a vessel that has been issued or is required to be issued a Federal commercial smoothhound permit may remove the fins and tail of a smooth dogfish shark prior to offloading if the conditions in paragraphs (c)(5)(i) through (iv) of this section have been met. If the conditions in paragraphs (c)(5)(i) through (iv) have not been met, all fins, including the tail, must remain naturally attached to the smooth dogfish through offloading from the vessel:

(i) The smooth dogfish was caught within waters of the United States located shoreward of a line drawn in such a manner that each point on it is 50 nautical miles from the baseline of an Atlantic State, from which the territorial sea is measured, from Maine south through Florida to the Atlantic and Gulf of Mexico shark regional boundary defined in § 635.27(b)(1).

(ii) The vessel has been issued both a Federal commercial smoothhound permit and a valid State commercial fishing permit that allows for fishing for smooth dogfish.

(iii) Smooth dogfish make up at least 75 percent of the retained catch on board, and no other shark species are retained.

(iv) Total weight of the smooth dogfish fins landed or found on board a vessel cannot exceed 12 percent of the total dressed weight of smooth dogfish carcasses on board or landed from the fishing vessel.

* * * * *

■ 11. In § 635.69, paragraph (a)(3) is revised to read as follows:

§ 635.69 Vessel monitoring systems.

* * * * *

(a) * * *

(3) Pursuant to Atlantic large whale take reduction plan requirements at 50

CFR 229.32(h), whenever a vessel issued a directed shark LAP has a gillnet(s) on board.

* * * * *

■ 12. In § 635.71, paragraphs (d)(6), (d)(7), and (d)(18) are revised to read as follows:

§ 635.71 Prohibitions.

* * * * *

(d) * * *

(6) Fail to maintain a shark in its proper form, as specified in § 635.30(c). Fail to maintain naturally attached shark fins through offloading as specified in § 635.30(c), except for under the conditions specified in § 635.30(c)(5).

(7) Sell or purchase smooth dogfish fins that are disproportionate to the weight of smooth dogfish carcasses, as specified in § 635.30(c)(5).

* * * * *

(18) Retain or possess on board a vessel in the trawl fishery smoothhound sharks in an amount that exceeds 25 percent, by weight, of the total fish on board or offloaded from the vessel, as specified at § 635.24(a)(7).

* * * * *

■ 13. In appendix A to part 635, section E of table 1 is revised to read as follows:

Appendix A to Part 635—Species Tables

Table 1 of Appendix A to Part 635—Oceanic Sharks

* * * * *

E. Smoothhound Sharks

Smooth dogfish, *Mustelus canis*
Florida smoothhound, *Mustelus norrisi*
Gulf smoothhound, *Mustelus sinuatus*
sinuatus
Mustelus species

[FR Doc. 2014-18671 Filed 8-6-14; 8:45 am]

BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 648

[Docket No. 130822745-4627-01]

RIN 0648-BD64

Magnuson-Stevens Fishery Conservation and Management Act Provisions; Fisheries of the Northeastern United States; Atlantic Surfclam and Ocean Quahog Fishery; Information Collection

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS proposes an information collection program for the Atlantic surfclam and ocean quahog fishery. The intended effect of this rule is to collect more detailed information about individuals and businesses that hold fishery quota allocation in the Atlantic surfclam and ocean quahog individual transferable quota programs. This action is necessary to ensure that the Mid-Atlantic Fishery Management Council has the information needed to develop a future management action intended to establish an excessive share cap in this fishery.

DATES: Comments must be received by September 8, 2014.

ADDRESSES: You may submit comments, identified by NOAA-NMFS-2014-0088, by any of the following methods:

- *Electronic Submissions:* Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to www.regulations.gov/#/docketDetail;D=NOAA-NMFS-2014-0088, click the "Comment Now!" icon, complete the required fields, and enter or attach your comments.

- *Fax:* (978) 281-9135, Attn: Douglas Potts.

- *Mail:* John K. Bullard, Regional Administrator, NMFS, Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930. Mark the outside of the envelope: "Comments on Surfclam/Ocean Quahog Information Collection."

Instructions: All comments received are part of the public record and will generally be posted to www.regulations.gov without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

NMFS will accept anonymous comments. Attachments to electronic comments will be accepted via Microsoft Word, Microsoft Excel, WordPerfect, or Adobe PDF file formats only.

Written comments regarding the burden-hour estimates or other aspects of the collection-of-information requirements contained in this proposed rule may be submitted to the Greater Atlantic Regional Fisheries Office and by email to OIRA_Submission@omb.eop.gov or fax to (202) 395-5806.

FOR FURTHER INFORMATION CONTACT: Douglas Potts, Fishery Policy Analyst, 978-281-9341.

SUPPLEMENTARY INFORMATION:

Background

Section 402(a)(1) for the Magnuson-Stevens Fishery Conservation and Management Act authorizes the Secretary of Commerce to implement an information collection program if a fishery management council determines that additional information would be beneficial for developing, implementing, or revising a fishery management plan (FMP). The Mid-Atlantic Fishery Management Council requests that NMFS implement an information collection program in the Atlantic surfclam and ocean quahog individual transferable quota (ITQ) fisheries. The specific components of the requested information collection are detailed in a white paper titled, "Data Collection Recommendations for the Surfclam and Ocean Quahog Fisheries" that was prepared by the Surfclam and Ocean Quahog Data Collection Fishery Management Action Team, at the direction of the Council. The purpose of this information collection is to better identify the specific individuals who hold or control ITQ allocation in these fisheries. The Council will use the information collected to inform the development of a future management action intended to establish an excessive share cap as part of the Council's Surfclam/Ocean Quahog FMP.

The Atlantic surfclam and ocean quahog fisheries have been managed under an ITQ system since 1990. Vessel owners received an initial allocation of quota share based on a formula of historical catch and vessel size. Each year, the total commercial quotas for the surfclam and ocean quahog ITQ fisheries are divided among the individuals who hold quota share. Annual allocations take the form of cage tags for the standard 32-bushel (1,700L) cages, which must be used to land the product. The quota share or cage tags are both considered types of ITQ allocation, and may be leased or sold to anyone, except foreign owners.

While managed jointly, the surfclam and ocean quahog ITQ fisheries are operationally distinct. The commercial quotas, quota shareholders, and cage tags are different for the two species. In addition, vessels may not land both surfclams and ocean quahogs on the same trip. Because these fisheries are managed in the same way, this information collection program applies equally to both fisheries.

Currently, NMFS collects only basic information about the individuals or businesses that hold surfclam and ocean quahog ITQ allocations. This information is collected at the time that

Atlantic States Marine Fisheries Commission

Spiny Dogfish Management Board

*November 4, 2015
4:15 p.m. – 5:15 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*D. Borden*) 4:15 p.m.
2. Board Consent 4:15 p.m.
 - Approval of Agenda
 - Approval of Proceedings from November 2014
3. Public Comment 4:20 p.m.
4. 2015 Spiny Dogfish Stock Assessment Update (*S. Newlin*) 4:30 p.m.
5. Set 2016-2018 Spiny Dogfish Specifications **Final Action** 4:50 p.m.
 - Fishery Performance Report (*A. Harp*)
 - Review Mid-Atlantic Fishery Management Council Specifications (*A. Harp*)
6. Other Business/Adjourn 5:15 p.m.

The meeting will be held at the World Golf Village Renaissance, 500 South Legacy Trail, St. Augustine, FL

Vision: Sustainably Managing Atlantic Coastal Fisheries

MEETING OVERVIEW

Spiny Dogfish Management Board

November 4, 2015

4:15 – 5:15 p.m.

St. Augustine, Florida

Chair: David Borden (RI) Assumed Chairmanship: 10/15	Vice Chair: VACANT	Law Enforcement Committee Representative: Moran
Spiny Dogfish Technical Committee Chair: Scott Newlin	Spiny Dogfish Advisory Panel Chair: VACANT	Previous Board Meeting: October 2014
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NC, NMFS, USFWS (13 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2014

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. 2015 Spiny Dogfish Assessment Update (4:30 – 4:50 p.m.)

Background

- Stock is not overfished and overfishing is not occurring
- Compared to the last update (2013), the stock is estimated to be lower (87% of biomass target in 2015) compared to 2013 (135% of the biomass target).
- The primary cause of the reduction in the biomass estimate is that the last update was driven by survey data points that were above average (2011), very above average (2012), and near average (2013) while the current update is driven by survey data points that are near average (2013) and below average (2015).
- There is no NMFS survey value (and therefore no stock size estimate) for 2014 because important spiny dogfish areas were skipped by the Bigelow trawl survey due to a mechanical breakdown.

(2015 Stock Assessment Update and Monitoring Committee/Technical Committee Summary in Briefing Materials)

- SSC 3 year specification recommendation in Briefing Materials

Presentations

- 2015 Spiny Dogfish Assessment Update by S. Newlin

5. 2016-2018 Spiny Dogfish Specifications (4:50 – 5:15 p.m.)

Background

- Based on advice from the MAFMC SSC and AP, the Council voted to set the 2016 commercial quota at 25.3 million pounds, a 50% reduction from the 2015 quota of 50.6 million pounds.
(SSC 3-Year Specification Recommendations, Fishery Performance Report and Proposed Specifications in Briefing Materials; MAFMC Motions and Selected Alternatives in Supplemental Materials)

Presentations

- MAFMC Fishery Performance Report by A. Harp
- Review MAFMC Specifications by A. Harp

Board Actions for Consideration at this Meeting

- Set the 2016-2018 Spiny Dogfish Specifications

6. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
SPINY DOGFISH MANAGEMENT BOARD**

Hilton Mystic
Mystic, Connecticut
October 30, 2014

These minutes are draft and subject to approval by the Spiny Dogfish Management Board.
The Board will review the minutes during its next meeting.

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INDEX OF MOTIONS

1. **Approval of agenda by consent** (Page 1).
2. **Approval of proceedings of August 2014 by consent** (Page 1).
3. **Move to accept the 2014 Spiny Dogfish FMP Review and State Compliance and *de minimis* for Delaware** (Page 3). Motion by Bill Adler; second by Rob O'Reilly. Motion carried (Page 3).
4. **Move to approve Option B with the following change: concur with the Law Enforcement Committee to eliminate "and processing"** (Page 4). Motion by Doug Grout; second by Terry Stockwell. Motion carried unanimously (Page 5).
5. **Move to set the implementation date to May 1, 2015** (Page 5). Motion by Doug Grout; second by Bill Adler. Motion carried unanimously (Page 5).
6. **Move to approve the addendum as modified today** (Page 5). Motion by Doug Grout; second by Bill Adler. Motion carried unanimously (Page 6).
7. **Move to increase the daily trip limit to 7,000 pounds for the 2015-2016 season** (Page 12). Motion by Terry Stockwell; second by Doug Grout. Motion defeated (Page 18).
8. **Motion to adjourn by consent** (Page 18).

ATTENDANCE

Board Members

Terry Stockwell, ME proxy for P. Keliher (AA)	Emerson Hasbrouck, NY (GA)
Doug Grout, NH (AA)	Tony Rios, NY, proxy for Sen. Boyle (LA)
Rep. Sarah Peake, MA (LA)	Tom Baum NJ, proxy for D. Chanda (AA)
Bill Adler, MA (GA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
David Pierce, MA, proxy for P. Diodati (AA)	Stewart Michels, DE, proxy for D. Saveikis (AA)
Bob Ballou, RI (AA)	John Clark, DE, Administrative proxy
Mark Gibson, RI, Administrative proxy	Roy Miller, DE (GA)
David Borden, RI (GA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Rick Bellavance, RI, proxy for Sen. Sosnowski (LA)	Louis Daniel, NC (AA)
David Simpson, CT (AA)	Martin Gary, PRFC
Lance Stewart, CT (GA)	Peter Burns, NMFS
Rep. Craig Miner, CT (LA)	Sherry White, USFWS
James Gilmore, NY (AA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Scott Newlin, Technical Committee Chair

Staff

Robert Beal	Marin Hawk
Toni Kerns	Melissa Yuen

Guests

Derek Orner, NOAA	John Whiteside, Sustainable Fisheries Assn.
Chip Lynch, NOAA	Justin LeBlanc, NCFA
Kelly Denit, NOAA	Timothy Caldwell, Jamestown, RI
David Hilton, NMFS	Leo Maher, Chatham, MA
Jason Didden, MAFMC	Doug Feeney, Chatham, MA
Cheri Patterson, NH F&G	David Gelfman, Chatham, MA
Brandon Muffley, NJ DFW	Luther Bates, Chatham, MA
Eric Schneider, RI F&W	John Tuttle, Chatham, MA
Stephen Gephard, CT DEEP	William Ligenza, Chatham, MA
Jack Travelstead, CCA	Theodore Ligenza, Chatham, MA
Raymond Kane, CHOIR	Ted Platt, Newport, RI
Sonja Fordham, Shark Advocates	

The Spiny Dogfish Management Board of the Atlantic States Marine Fisheries Commission convened in the Grand Ballroom of The Mystic Hilton, Mystic, Connecticut, October 30, 2014, and was called to order at 1:15 o'clock p.m. by Chairman Mark Gibson.

CALL TO ORDER

CHAIRMAN MARK GIBSON: This is the meeting of Spiny Dogfish Board. My name is Mark Gibson from Rhode Island; and I am the Chair. I think this is my last meeting, actually. We have a one-hour time slot for this meeting; in the words of my New England Council Chair, let's roll and turbo through this.

APPROVAL OF AGENDA

The first item on the agenda is the agenda. Are there any suggested changes to the agenda? Seeing none; is there any objection to approving the agenda as presented? Seeing none; the agenda stands approved.

APPROVAL OF PROCEEDINGS

Next is Proceedings from our August 2014 board meeting. Are there any requests for edits or changes to those Proceedings? Seeing none; is there any objection to approving those as presented? Seeing none; those stand approved.

PUBLIC COMMENT

The next item on the agenda is public comment; but this is for items that are not on the agenda. I'm aware that there is a request to make one comment on the Addendum IV final action. We will take that up at a later time. Is there anybody requesting time to speak to this board on matters that are not on the agenda? Seeing none; we will move to Item 4 from Jason Didden on fishery performance and spawning stock biomass reference point update.

REVIEW OF 2015/2016 SPINY DOGFISH SPECIFICATIONS

FISHERY PERFORMANCE REPORT

MR. JASON DIDDEN: I'm taking over for Jim Armstrong at the council for spiny dogfish. Jim accepted a position with the North Pacific

Fishery Management Council and I think is in Alaska as we speak. He did most of the heavy lifting on the development of this action; but at least for the time being I will be the contact at the council.

These are the already-specified measures for 2015. The council did multiyear specifications and those are kind of the two critical things; ABC at 28,310 metric tons and the commercial quota at 22,957. Again, that is already specified; and because of how the projections were done, this is up slightly from the year before.

SPAWNING STOCK BIOMASS AND REFERENCE POINT UPDATE

I was asked to touch on a biological update that Paul Rago would have done. Essentially there is no biological update. The survey ship broke down and missed a lot of Mid-Atlantic stations; so we have no update of stock biomass. The last thing we have is the 2013 update, which was the stock is above its target biomass and no overfishing occurring.

With a species with the biology of spiny dogfish, it is not expected with catches in the range of the quota that it actually would change a whole lot from year to year; so the SSC just endorsed what they had previously set for 2015. They didn't see any reason to change. That is a projection trend; and it is still projecting this little dip as we move forward but not dipping below the target, which is the top dotted line.

That's kind of the same projection as you would have seen last year. Just a quick kind of overview of catch over the last few years; the landings were down primarily because of market conditions our advisory panel reports; but overall landings and discards are in the general range of recent history.

You can see the blue line being the landings drop off in the last year; and I'll touch a little bit maybe on some of the reasons for that when I hit the fishery performance report. We asked our advisory panel to create a report every year for their perspective on things that may be driving landings in the fishery; and there it is.

They noted that price last year was quite poor and dampened kind of the interest in fishing for spiny dogfish; not that any decline in spiny dogfish was responsible for the lower landings. They did note that price seems to be improving this year. Again, kind of the same thing I'm sure you've heard before, it is really an export-dependent market.

The frozen backs have been kind of carrying since the EU has put in some bans because of the contaminant issues; although we have gotten some recent indications that spiny dogfish exports to Russia, which is where a lot of the frozen backs have been going to, may get caught up in some of these trade sanction things that have been going on between the U.S. and Russia; so even that demand could have some problems going forward, but it is yet to be seen how that fully plays out.

In terms of the overall kind of viewpoint of what folks want to see, consistency has been kind of the overarching input we've gotten, but there certainly is some variability in that. We had a big meeting when we adjusted the trip limits; and there was a range of people who wanted it wide open to no change at all.

The council bumped it up a little bit to 5,000 pounds; and we have rollover provisions in the plan in terms of the actual regulations; so it is essentially 5,000 pounds until changed. We also keep getting kind of some input from the AP that they'd like to see a male fishery; that the market name, a potential change to that could be useful for this fishery; that people just don't want to buy spiny dogfish, no less.

There is also kind of continued concern of why there was such an apparent speedy recovery of the previously overfished dogfish stock. I think the general kind of idea from the science center is there must have just been a lot of dogfish outside the survey area; and we can only know the dogfish that are in the survey area or at least sample it; and so there must have been a lot of dogfish outside of that and the population was larger than it was thought to be and allowed it to either recover more quickly or fish came from outside the survey area to inside the survey area or some combination thereof.

The Monitoring Committee, which is council and NMFS and science center staff, saw no reason to make any changes from their perspective; and next the council came to the same conclusion and made no changes so the previously set 2015 specifications would continue on as they are now. That's end of my presentation.

CHAIRMAN GIBSON: Thank you, Jason. Are there questions? Yes, Louis Daniel.

DR. LOUIS B. DANIEL, III: Jason, a good friend of yours and mine, Jim Fletcher, keeps asking about this market name change. Is there any legs to that? What would we do because it makes sense, but I've tried to advise him but I really don't know how you would go about doing something like that?

MR. DIDDEN: I know Jim Armstrong has had conversations with Jim Fletcher about some potential ways to do that. There are some procedures going through I think the Department of Agriculture to submit requests for formal kind of market name changes. I can kind of follow up with Jim Fletcher where if he has tried to do that with the Department of Agriculture and kind of explore that further. I'm sure it will be kind of an ongoing issue.

MR. ROB O'REILLY: Jason, I guess the question is I think there has been some, at least, movement towards more of a male fishery. That has also been something that has been talked about for years; but my understanding is there really has been some more thoughts given to it lately. At least I think that is the case, but you can help out on that. I guess the second thing is this testing on the PCBs; is that both sexes or how does that work?

MR. DIDDEN: Since the landings are still predominantly female, I'm guessing it is those. I think it mostly related to the fresh product, which there is a certain treatment for the frozen product and for whatever reason the PCB testing has not shown high results. I know there is ongoing discussions with the EU for them to adjust their PCB tolerance limits, which are a lot lower than ours, and kind of the results of that negotiation are yet to be decided.

MR. O'REILLY: So I'm taking it that the PCB results are mostly female dogfish oriented, spiny dogfish oriented. Then I just wanted to hear has there been some planning about a male fishery, more males in the landings, anything like that that you know of?

MR. DIDDEN: Not that I'm aware of, but I know there has been, as you said, ongoing discussion of how it could be done. Certainly, there is a large biomass of male dogfish out there, but I can follow up on it and get back to you with some more detail on that.

CHAIRMAN GIBSON: Any other questions on those reports? Seeing none; is there any business from the board on dogfish specifications? Seeing none; we will move on to the next agenda item, FMP Review and State Compliance. Marin.

FMP REVIEW AND STATE COMPLIANCE

MS. MARIN HAWK: This is a very brief report. It is the Spiny Dogfish Review and State Compliance. Since Jason touched on the fishery, I'll keep this very brief. The harvest for 2013 was a bit depressed due to the situation in the market. The quota was 41 million pounds but only 16 million pounds were landed. The landing consisted of about 97 percent female.

Recreational landings were 81,570 pounds, which is less than 1 percent of the total catch. Discards were about 11 million pounds, which is similar to previous years. In terms of state compliance, the PRT reviewed all state compliance reports and found that all state regulations were consistent with the FMP. Delaware requested de minimis; and since their landings are less than 1 percent of the coast-wide landings, the PRT recommends that the board grant this request for de minimis. Thank you.

CHAIRMAN GIBSON: Are there any questions for Marin on that report? If not, we would need a motion to accept the compliance report and the de minimis status request. Bill Adler.

MR. WILLIAM A. ADLER: **I would like to make a motion to accept the compliance report, the FMP review and the de minimis for Delaware.**

CHAIRMAN GIBSON: Is there a second to that; second by Rob O'Reilly. Any board discussion on the motion? Seeing none; is there any objection to the motion? **Seeing none; the motion is approved unanimously.**

SPINY DOGFISH DRAFT ADDENDUM V FOR FINAL APPROVAL

CHAIRMAN GIBSON: Next is Addendum V. This is the final action on Addendum V. I had one request from the audience for a comment. Sonja, come up and read your comment into the record; and then Marin will report on it.

MS. SONJA FORDHAM: Thank you, Mr. Chairman; Sonja Fordham, Shark Advocates International. In partnership with our colleagues we have submitted comments for the record; so I'll be very brief. We appreciate the commission's consideration of action to address inconsistencies between state and federal regulations with respect to enforcement of spiny dogfish finning bans.

To be clear, it is smooth and not spiny dogfish that are exempted from best practice fins attached landing requirements under the Shark Conservation Act. Accordingly, the National Marine Fisheries Service has revised its spiny dogfish regulations to prohibit at-sea removal of fins. While they are not preferred, spiny dogfish fins do enter the global market for shark fins, the global shark fin trade, in substantial quantities.

While there is little incentive for widespread finning of dogfish, consistent bans on at-sea removal of fins across jurisdictions facilitate proper enforcement as well as improved species-specific collection of data for all shark species. They also strengthen our nation's stance as we promote this best practice of fins attached on a global scale through the regional fishery management organizations.

We urge the commission to adopt and promptly implement Option B to replace any remaining

fin-to-carcass ratios in state waters with requirements that spiny dogfish are to be landed with their fins naturally attached. Thank you, Mr. Chairman.

REVIEW OPTIONS AND PUBLIC COMMENT SUMMARY

CHAIRMAN GIBSON: Thank you for that. I'll go to Marin now and review the options and public comments.

MS. HAWK: So just a brief overview of this addendum; it is Draft Addendum V to the Spiny Dogfish Fishery Management Plan. It was initiated in May 2014 and now we are considering it for final approval. As Sonja mentioned, the Shark Conservation Act of 2010 requires all sharks to be landed with fins naturally attached.

Currently the Spiny Dogfish Fishery Management Plan allows processing at sea of dogfish with a maximum fin-to-carcass ratio of 5 to 95. Since a key goal of the Spiny Dogfish FMP is to maintain consistency; this addendum was initiated to address those inconsistencies. There is only one issue to deal with and that is the fins naturally attached policy. Option A is the status quo; fins of spiny dogfish may be removed at sea. If fins are removed, the corresponding carcasses must be retained.

The ratio of the wet weight of fins, the dressed weight of carcasses on board the vessel cannot exceed 5 to 95. Option B; fins naturally attached policy; removing any fin of spiny dogfish at sea is prohibited, including the tail. All spiny dogfish must be landed with fins naturally attached to the corresponding carcass. Gutting and processing fish at sea is permitted so long as the fins remain attached by a portion of uncut skin.

There was one public hearing held in Massachusetts. The individual that attended that hearing provided support for Option B, fins naturally attached. Five e-mail comments were received and they all supported Option 5, fins naturally attached. The LEC had some e-mail communication concerning this issue and they support Option B, fins naturally attached.

However, they did note that they would prefer if there was a language change to remove "and processing"; and I have that shown up here on the PowerPoint. The language would be "removing any fin of spiny dogfish at sea is prohibited, including the tail. All spiny dogfish must be landed with fins naturally attached to the corresponding carcass. Gutting fish at sea is permitted so long as the fins remain attached by a portion of uncut skin." They felt that way just to clarify that processing at sea was not allowed. If this addendum is approved today, the board must specify a compliance schedule. Thank you, Mr. Chairman.

CHAIRMAN GIBSON: Any questions or comments on that report? Jim Gilmore.

MR. JAMES J. GILMORE, JR.: Forgive me if I missed this; but is this all consistent with the federal rules on it, because I know we've gone through a couple of rounds with the feds on language problems, whatever; so we're all good with language in both of these?

MS. HAWK: Yes; this will bring the FMP into consistency with the federal plan.

CHAIRMAN GIBSON: Anyone else before we go to the technical committee report? Scott.

TECHNICAL COMMITTEE REPORT

MR. SCOTT NEWLIN: The technical committee agrees that consistency with the federal government is very important; and so as the technical committee, we support Option B; a fin naturally attached policy. We all agree that there is no scientific issues with Option B. Thank you.

CHAIRMAN GIBSON: I'm told there is no advisory panel report; so we are at the point of considering final approval of Addendum V. Doug Grout.

MR. DOUGLAS E. GROUT: **Mr. Chairman, I'd like to make a motion to approve Option B with the following change: that for the law enforcement recommendation, that in Sentence 2 here where says "gutting and**

processing of fish”; that the words “and processing” be eliminated.

CHAIRMAN GIBSON: Seconded by Terry. Discussion on the motion to approve with the law enforcement language change. Tom.

MR. THOMAS O’CONNELL: I was just interested in removing the word “processing”, if anybody is knowledgeable as to whether or not that causes any impacts to current practices.

CHAIRMAN GIBSON: I’m not aware of any. Emerson.

MR. EMERSON C. HASBROUCK: Yes; a similar question and that is why are they suggesting that language change to remove “processing”? I’m not really following that.

MR. TERRY STOCKWELL: I can’t certainly testify to what the boats are actively doing these days; but a number of years ago when I was dogfishing, we did cut the fish on the way home for a belly. We separated the bellies and the back flaps while we were steaming in. I thought the Law Enforcement Committee’s recommendation was spot-on and Doug’s modified motion is the one I would like to support.

CHAIRMAN GIBSON: Anything else on that issue? Seeing none; are we ready for the question? Do you need any time to caucus? **Move to approve Option B with the following change: concur with the LEC recommendation to eliminate the words “and processing”. Motion by Mr. Grout and seconded by Mr. Stockwell. Is there any objection to this motion? Seeing none; the motion is approved unanimously.**

CHAIRMAN GIBSON: The next item on the agenda is the Rhode Island Alternate Management Proposal. We have a presentation on that proposal from Bob Beal.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Back on the addendum, I think you need one more motion – well, actually two more; one to set the compliance schedule and then one to finally approve the addendum.

CHAIRMAN GIBSON: Does anyone have a motion? We need a motion to approve the addendum with the language change. Doug Grout.

MR. GROUT: **So the implementation date, I’m going to float one here, because I don’t think we really discussed this; but I would move that the implementation date be May 1, 2015.**

CHAIRMAN GIBSON: Is there a second to that; seconded by Bill Adler.

MS. HAWK: This is the only additional motion we would need. I just wanted to clarify.

MR. GROUT: We don’t need to approve the addendum as modified today, too?

MS. HAWK: Yes; we do need to do that; my apologies.

CHAIRMAN GIBSON: Discussion on the implementation date? Rob O’Reilly.

MR. O’REILLY: Just a question about May 1; as Doug was floating that, what was the thinking there?

MR. GROUT: The beginning of the fishing season.

CHAIRMAN GIBSON: I didn’t hear that; could you repeat that?

MR. O’REILLY: Doug said he was floating a date out there and he used May 1; but now he has clarified that it is correspondent with the fishing season. That was a good answer.

CHAIRMAN GIBSON: Any other comments on the motion? Is there any objection to the motion? **Seeing none; that is approved unanimously. Okay, now I need a motion to Addendum V as modified today. Doug Grout.**

MR. GROUT: So moved.

CHAIRMAN GIBSON: Seconded by Bill Adler. Any discussion on that motion? Any

objection to it? **Seeing none; the motion is approved unanimously.**

**REVIEW OF RHODE ISLAND
ALTERNATE MANAGEMENT
PROPOSAL**

CHAIRMAN GIBSON: Okay, now I think we're ready to move into the Rhode Island Alternate Management Proposal. Eric Schneider.

MR. ERIC SCHNEIDER: My name is Eric Schneider. I am a biologist with Rhode Island's Division of Fish and Wildlife. I appreciate the opportunity to give you a brief presentation. My goal is to provide a summary of the alternative management proposal that Rhode Island submitted to the commission earlier this month for consideration.

I'll try to be brief and focus only on the major aspects of this proposal. For the benefit of everyone in the room, Section 4.3 of the Interstate FMP for Spiny Dogfish species the requirements for an alternative state management regime; and specifically as you can see on the slide, it states that any state can request permission to implement an alternative to any mandatory compliance measures only if that state can show to the board's satisfaction that the proposed action is consistent with the target fishing mortality rate or will not contribute to overfishing and also is consistent with the goals and objectives of the FMP.

Therefore, in accordance with that section we submitted the proposal that is contained in your briefing packet for consideration. The problem we're trying to address is really an artifact of a combination of low market prices and trip limits. Both of these make participation in the Rhode Island directed and non-directed spiny dogfish fisheries uneconomical.

That is reportedly resulting in high discard levels and clearly an underutilization of the resource. These concerns were summarized in a memo to the board submitted by the Rhode Island Division of Fish and Wildlife on April 28, 2014, and was discussed at the spring meeting. And just for clarity, we completely recognize that

there are several factors contributing to this underharvest.

As Jason mentioned earlier in his Mid-Atlantic Performance Report, much of the landings are explained by market conditions; and so that the availability and abundance of the resource is not really constraining harvest. It is the low price for a dogfish trip that dictates the extent to which fishermen are willing to retain dogfish as part of their catch.

We believe this is certainly true in Rhode Island. We also believe that the proposed alternative management proposal may actually improve economics of the fishery, allowing us to more fully utilize the quota in the northern region and do so in a more effective manner by converting some of the landings into discards.

As I mentioned earlier, really one of the key aspects of a conservation equivalency or this alternative management regime is to ensure that whatever the action is, it does not contribute to overfishing. Before I get into what the details of the proposal are, I want to address this topic specifically. What we did to evaluate whether or not our program or would contribute to overfishing; we tried to assess what the potential total Rhode Island landings would be if all dogfish encountered in state waters were retained and landed. We referred to this as the zero discard scenario.

I won't get into too many details; they are in the proposal; and I'm happy questions afterwards; but I also don't want to take up too much time. In short, what we did was we used federal observer data that was collected in NOAA Statistical Reporting Area 539 during the 2010 to 2013 fishing years. We went through and we selected data from trips that intercepted dogfish.

They didn't have to land dogfish; they just need to bring dogfish on board. Using that data, we calculated gear-specific discard rates. We didn't use those discard – or I should say discard-to-landing estimates. We then used those ratios to extrapolate what we think Rhode Island landings could look like.

We did that by taking the 2013 fishing year Rhode Island landings; and we went through, based on gear, and applied these discard ratios so that we could extrapolate based on the number of dogfish that were landed what we also think that trip may have discarded. We arrived at an estimated discard rate; added that to what was landed; and we came up with what is an extrapolated landings' value under this zero discard scenario.

In short, these results suggests that even if all dogfish encountered in Rhode Island state waters were landed; that we don't expect to exceed 2.6 million pounds. There are some obvious assumptions there; but even under this extreme scenario of all the discards being landed, we don't believe this would contribute to overfishing.

And just to put that 2.6 million pound number in perspective; that is about 9.1 percent of the 2014 northern region quota. Furthermore, we really don't think this would contribute to overfishing, especially considering that the proposal contains several conditions that would prevent that. I'm going to get into the proposal in just a minute; but while I'm on this topic, some of the things that we included to ensure that we don't contribute to overfishing or adversely impact the ability of other northern region states to harvest the available resource is that we included a landings' cap.

In the proposal it is 3 million pounds. I'd like to take this opportunity to note that in the proposal it was written that 3 million pounds equates to 9.5 percent. It should have read 10.5 percent of the 2014 regional quota. In addition, there is also an 80 percent cap; so I'll explain this in just a minute. Here is essentially the proposed alternative management regime that Rhode Island submitted.

To summarize it in one sentence; we're proposing to implement a weekly aggregate possession limit of 28,000 pounds per vessel per week with the following conditions. First, all participants must possess a valid Rhode Island commercial fishing license or landing license authorizing them to harvest or land spiny dogfish in Rhode Island.

They must land at a Rhode Island DEM-licensed state dealer who reports landings electronically using SAFIS. They must report fishing effort via a state logbook reporting system or the federal VTR. Rhode Island will monitor landings using SAFIS to ensure compliance with the weekly limits and track total state landings.

I'll expand on this just a little bit that the Division, I imagine like most divisions, has a pretty good capacity to monitor landings. I have a quota monitoring team. They meet weekly and we use our weekly SAFIS reporting to try to monitor our state quotas. This would be another species in which we would certainly be willing to do that. The implementation date of this; we would like to implement it as soon as possible. We would implement it no later than May 2016. If this proposal is approved by the commission, Rhode Island will also apply to NOAA for federal consistency, allowing some federally permitted vessels to participate.

As I said, the weekly possession limit; the proposed action would be establishing the weekly possession permit of 28,000 pounds per vessel per week beginning at the start of the fishing season; and when either 3 million pounds are landed in Rhode Island or 80 percent of the regional quota is harvested, whichever comes first, this aggregate weekly possession limit would end; and Rhode Island would revert to the current ASMFC possession limit of 5,000 pounds per vessel per day. The last element is that the Division requests the authority to exercise or enact seasons as needed. That is my presentation, Mr. Chairman.

CHAIRMAN GIBSON: Thank you, Eric. The way I'd like to proceed now is if there are specific questions on the proposal from Eric; and then after that we'll go to the technical committee report. Then we will have board consideration of approval. David Pierce.

DR. DAVID PIERCE: Thank you for your presentation. It has never been a question of conservation or overfishing. It is about, well, other factors. My questions are these; do you have any idea as to how many fishermen would be participating in this program?

MR. SCHNEIDER: That is a good question. To answer your question directly; I do not have an estimate as to the number of fishermen that would participate. It would be open to all of the Rhode Island licensed fishermen; but I do not have an exact figure that I could provide you.

DR. PIERCE: Okay, so I would assume that this would be an opportunity for fishermen with a Rhode Island state permit but no federal permit, because they would be ruled by the federal restriction; correct, of 5,000 pounds?

MR. SCHNEIDER: That is correct. At least once the commission approves it, if the state of the Rhode Island were to simply go and implement it, as I understand it, fishermen with an active federal spiny dogfish permit would be bound by the most restrictive rule and could not participate unless they dropped that permit.

However, we do intend to submit – if this proposal is approved, we do intend to submit a proposal to NOAA requesting federal consistency for some federal participants to participate. I know that sounds vague; so to elaborate on that slightly, if there were federally permitted fishermen who met the requirements of this program, such as they had the pertinent Rhode Island licenses, the idea would be that they may be able to obtain a letter of authorization or some other mechanism that would allow them to participate. Right now that is not the case; and the first step is to seek board feedback and commission approval.

DR. PIERCE: Okay, that is an important point; and part of the program and part of the approach would be to request the federal government to have a letter of authorization to allow a fisherman, a federal permit holder to land 28,000 – on one day, for example, if they choose to do that, in excess of the federal limit of 5,000; so it's part of the proposal. I didn't realize that was part of the proposal.

I know, as you said, federal permit holders can drop their federal permit, fish in state waters, and then later on get their federal permit back because this is not a limited entry fishery. That is why I asked the original question of how many might get involved. It seemed to me that

just about everybody who is landing in Rhode Island could drop their federal permit and then take advantage of your program and then get the federal permit back later on. You've clarified that for me.

Another question would be under the program that you've described; would a fisherman be able to land in Westport, Massachusetts, and offload 5,000 pounds consistent with the Massachusetts rule and then go to Rhode Island and land another 28,000? I think they can unless there is something very specific that would prohibit that.

MR. SCHNEIDER: That is another good question, Dr. Pierce, and there is nothing in the proposal that prohibits that. I guess if they fished and caught 5,000 and went to Massachusetts; I guess I'm under the impression that in order not to violate Massachusetts regulations, they would have to go and fish again. The proposal as currently constructed does not contain a daily regional cap on landings, if that is a fair way to summarize it.

DR. PIERCE: Okay, so they'd have to be caught landing in Westport and offloading 5,000, which is probably a low probability of being caught, and then they can go on to Rhode Island and land 28,000 more or land 28,000 in Rhode Island on a given week, a given day in the week, and then the next day land in Massachusetts 5,000; so this continues to be a question I asked. It is relevant to weekly possession limits that Rhode Island has for not just spiny dogfish, which you propose, but for existing weekly limits that you have for other species that do cause some enforcement and monitoring problems. All right, you have answered my questions; thank you.

MR. ADLER: I believe one of the reasons for something like this had to do with the economical – it is more economical to land a lot like in a day rather than stick to the 5,000. My question here was economical and money; and wouldn't this type of a landing just drive the prices right down through the bottom rather than keep them somewhere near where you can make some money on a dogfish. Wouldn't it overload the market I guess I'm getting at?

MR. SCHNEIDER: Sure, that is a very good point. This proposal was – I guess the impetus for this proposal came our Rhode Island industry. I know they have had discussions amongst themselves as to that tradeoff. They feel that they can work together and that what they're trying to provide is more flexibility; so that if in a given day they come across more fish, they can retain it. When they scoped the project, it wasn't with the goal of going out and harvesting 28,000 in a given day or doing two days, something like that.

The discussions I've have had with them is that they are going to make – it is not in their best interest, either, to drive the price down. They don't want to work harder for the same amount of money is what they also certainly want to be cautious of. If they land a lot of fish and they drive the price down and now they need to land more fish to get the same amount of value; at least they have conveyed that they are well aware of that and they will be cognizant of that.

They will try to work with their fishermen and working with dealers who are in communication with processors as to what the value is and whether it is worth them to land their fish at a Rhode Island dealer to have it trucked up to a processor.

CHAIRMAN GIBSON: I just would like to remind the board that what I'm looking for here is questions for Eric on the elements of the proposal. The discussion about the merits of it and contingencies and so on; that should happen after the technical committee report and we have a motion on the table to consider approval. I have Rick Bellavance next.

MR. RICK BELLAVANCE: I'm going to pass, Mr. Chairman.

MR. GROUT: Eric, one question I had; you talked about this would be open licensed Rhode Island fishermen; would that be open to people with non-resident licenses?

MR. SCHNEIDER: It is a good question. I don't know; I don't want to guess.

MR. GROUT: So it is uncertain right now from your perspective?

MR. SCHNEIDER: It is uncertain only in my inability to answer the question; and for that I apologize.

MR. GROUT: Mr. Chairman is from Rhode Island; do you know?

CHAIRMAN GIBSON: Repeat the question for me.

MR. GROUT: Would this be open to non-resident – can someone get a non-resident Rhode Island license and participate in this program?

CHAIRMAN GIBSON: It will depend on whether we designate it what we call restricted species or not. Restricted species that are designated in our licensing regulations are only available to residents. To be honest, we have not included that in this proposal yet; so we will have to think about that.

MR. GROUT: Okay, could I have a follow-up then? Has this proposal been run by the Law Enforcement Committee as far as any input on enforceability of weekly trip limits?

CHAIRMAN GIBSON: Yes; they've had a discussion on that and I will ask Mark to brief the board on that.

MR. MARK ROBSON: We were briefed on Tuesday about this proposal, but the members did not have an opportunity to actually look at any of the language in the proposal. We did hear a pretty good discussion from the Rhode Island representative on our committee about how law enforcement in Rhode Island is perceiving they would be able to address this. We don't have a consensus viewpoint. We didn't look at actual written language proposal; but we did hear some of the issues from Rhode Island that they felt could be addressed.

DR. DANIEL: This may skirt the line of a technical question; but the typical Rhode Island fleet; is it a small boat fishery, big boat fishery; and do you anticipate by going to a 28,000 pound trip limit – I'll call it a weekly limit; but a

28,000 pound trip limit is going to bring in new participants that haven't really been participating in the fishery and impact those smaller boats?

MR. SCHNEIDER: That is another good and very fair question. We have not had any I guess input or interest from big boats, big draggers specifically when we've had a series of meetings and discussions; and they have not really showed interest one way or another.

Through discussions not that I've had directly but indirect comments given to me suggests that it still would not be worth their while given – I guess specifically the way it was phrased was that it would not be worth a big boat's effort, given that they would need and want to land a high-quality product, to go out and try to retain and land twelve or fifteen thousand dollars' worth of dogfish, because most of them just don't have the capacity to do that. I'm also skirting the line to be fair because this was not conveyed – this is not a discussion I've had directly with the folks who made that comment. It was through industry and some of their representatives. I think that is the best I can offer you.

MR. PETER BURNS: I know we talked about the enforceability a little bit, and I know that the Law Enforcement Committee hasn't had a chance to review this fully; but I was just wondering, Eric, in the context of your proposal is Rhode Island prepared to increase its enforcement of this at all within the context of this; because it seems like it would be difficult to – even though they've got the SAFIS reporting requirements and everything to track the landings, it might be very difficult to track the activities of a boat over a week-long period to ensure that they don't exceed the quota. I'm just curious if your proposal included something like that.

MR. SCHNEIDER: It doesn't include a specific, I guess, promise or reassurance from law enforcement that they'd make extra efforts, but I do have the utmost confidence that they will try to enforce this. We do have other weekly possession limits or other species that are managed during the fishing year with a weekly possession limit.

One is our fluke aggregate program and then another which is – the fluke is an aggregate program. We also have a scup aggregate weekly possession limit. Our Division of Enforcement is familiar with this type of process. I guess the best I could say is I don't see any reason why they could not enforce this as they do with those other two fisheries.

MR. HALBROUCK: I'm just curious as to how you came up with 28,000 pounds as a weekly trip limit.

MR. SCHNEIDER: 28,000 pounds equates to five days of the possession limit or 80 percent of the seven-day limit. I think one of the reasons rather than going for a full seven-day limit – obviously, if folks went out now under the current specifications they could go out and bring in 35,000 pounds in a week; we tried to be careful when we scoped this.

With all honesty, we really were trying to be cognizant of the fact that we don't want to largely impact the other states in the region; and that's why we put a cap on the total landings that we thought should be landed under this program. That is also why in part we put that 28,000 pound weekly limit in.

I think it also was an artifact to balance – I believe it might have been Mr. Adler mentioned earlier of not trying to flood the market and have vessels land fish that are going to decrease the price. I think really what our industry is trying to do is have more flexibility so that they can make a trip more worthwhile but not bring in a glut of fish that is going to really cause the price to crash and not make it really worth their while anymore to participate.

CHAIRMAN GIBSON: Any other questions for Eric? Seeing none; I'll move on the technical committee report.

TECHNICAL COMMITTEE REPORT

MR. NEWLIN: The technical committee reviewed this proposal and we agree that from a scientific perspective the management proposal is not likely to have any impact on the spawning dogfish population. We discussed the potential

impact that an aggregate of fish delivered to the processor may have on the market.

We're sure this could potentially have an inverse effect for Rhode Island; but we agree that this is a management concern and not a scientific concern. The technical committee would suggest to Rhode Island instead of implementing a cap on the program in terms of poundage, 3 million pounds, to implement a cap in percentage to allow for flexibility of quota or management changes in the future. Thank you.

CONSIDER APPROVAL OF RHODE ISLAND'S PROPOSAL

CHAIRMAN GIBSON: Any questions for the technical committee? Seeing none; then I'd like to throw open it up for board discussion and consideration of the proposal. I would like to go to Dave Borden first.

MR. DAVID V. BORDEN: Mr. Chairman, what I'd like to do is I'd like to spend – and I'll do this pretty quickly – just provide a little bit more context for the discussion; and then what I'm going to do is I'm going to ask Eric to put up a slide of the suggestions that many of you have made during the past couple of days.

The background here I think is important to reiterate that the Division originally came to the commission with the specific intent of raising the trip limit. That was the preferred option that the Division came forward with; and as a result of the discussion that took place, that was not implemented by the commission the way we had proposed.

A number of individuals suggested to us, well, do something different under conservation equivalency. Our preferred option, just to be clear, was to raise the trip limit, which would have treated every state around the table equally. Everyone would have had the same trip limit. The reason we supported that position is because of the problems that we identified in the Division of Fish and Wildlife letter of April 28th.

It is about seven pages long and goes into fairly extensive detail on the problems that are being encountered by Rhode Island fishermen. Those

problems aren't unique. During the last two meetings, the more I've discussed this issue with both commissioners and members of the industry, the problems are not unique to Rhode Island. They're more extensive than that.

What this comes down to is there is relatively little financial incentive for either dealers or trucking companies to truck low volumes of product extensive distances and particularly at the low prices that we had when we initiated the discussion, which was about fourteen cents. As Eric pointed out, as a result of that about 75 percent of the dogfish that are encountered by Rhode Island fishermen are being discarded.

Now, I just remind everybody in the initial, original, existing dogfish plan, this commission identified the need to reduce dead discards. That is one of the objectives of this plan. In the last year the only thing that has happened is dead discards have gone up; and that is all part of Paul Rago's report. Things have changed here.

The dynamic of the market has kind of changed, it has firmed up a little bit, the price has gotten better since we initiated this dialogue; but the reality is that some of the problems still exist. Those problems, in my view, can get resolved two ways. One is by increasing the trip limit and the other is by tailor-making a program to try to get at these issues through conservation equivalency.

Eric, if you could put up the slide, I'd just like to run through these issues, and this will take about two minutes to do. These are issues that many of you, including the technical committee, have raised. The first suggestion was to spread out the allocation. In other words, nobody wants a market – least of all Rhode Island – nobody wants a market glut.

The idea would be to spread whatever allocation Rhode Island got as part of this, if this proposal is approved, spread it over the year. One way to do that is with trimesters. Then the technical committee had recommended that there be a percentage in there; so that if the program continued for a couple of years and the quota went up or down, there would be another

mechanism that would be included to basically control the amount that is being fished.

Particularly if the quota went down; it would basically lower the amount in the program. Eric had put in and noted that there was a typo in it, but in my discussions with individuals, I have basically suggested that we would include like a 9 percent value; in other words, 9 percent or 3 million pounds, whichever is less.

The next issue that came up was this issue of how long is the program going to last? I think the simple way to answer that is just put a limit on it; and we would suggest two years. The next issue is market weakness. We had individuals tell us basically that the market in August was the weakest and the program shouldn't operate there. I think the way to address that is basically to prohibit the program from operating in August.

Then there is a lot of concern – and you have already heard some of it around the table – about product quality. I think this can be pretty simply addressed by putting in a maximum daily limit so that folks don't go out and land 28,000 pounds all at one. I guess the suggestion that was made to me is that we cap the limit at 10,000.

Those are basically the list of comments that I've heard from many of you. I have talked to the Rhode Island delegation and we would be willing to include those in any conservation equivalency proposal that gets implemented. Now, the last point that I'd like to make is this issue of possession limits. Dave Pierce raised this issue about landing in other states and kind of tag-teaming.

The possession limits – everyone should be clear possession limits should trump. If Rhode Island had this program in operation and Massachusetts had a 5,000 pound trip limit or the federal government a 5,000 trip limit, the boats are going to be bound by 5,000 pounds. If they go into Massachusetts and they've got 10,000 pounds, they're going to be in violation of the law. I think I'll stop here and take questions, Mr. Chairman, but we would gladly include all

these provisions within the proposal. Thank you.

CHAIRMAN GIBSON: I'm almost 20 minutes into the Policy Board time slot. I think we need a motion to get more productive board dialogue going. Terry Stockwell.

MR. STOCKWELL: Mr. Chairman, I know a lot of this work has gone into this proposal and on the onset it is quite attractive. It is something that could be applied to Maine and the other New England states, but I see it at this point fraught with enforcement and monitoring issues. David just highlighted an issue that has been near and dear to me, which is raising the daily trip limit.

It would be equitable, it would be enforceable and it would be accountable. **I'm going to cut to the chase and make a motion that we increase the daily trip limit to 7,000 pounds.** I realize this is another two-thirds vote. I raised it up the flagpole in the summer and I'd like to do it again.

CHAIRMAN GIBSON: Is there a second to that; seconded by Doug Grout. Okay, board discussion on the motion. David Pierce.

DR. PIERCE: The motion is attractive. I thought Terry was going to go for an even higher limit that would have really put me in a difficult position because I'm still trying to be sensitive to the concerns of those in the industry, small boats primarily, who are concerned about too much dogs in the market, depression of price, all of that.

MR. STOCKWELL: I was talked out of ten.

DR. PIERCE: Good! So, seven, we can support going to seven, especially because it is a far better alternative than that which is offered up by Rhode Island with their weekly limit. I appreciate what they've done; good work on their part; good arguments on their part; but there are some enforcement concerns and some monitoring concerns and some other concerns as well that I won't get into in the interest of time. We will support the 7,000.

I suspect it is not as high as what Rhode Island would want in order to deal with their specific concerns. Maybe it is high enough; I'm not sure. I hope they would find 7,000 to be high enough to convince them they should move away from consideration of a weekly limit that is a concept that I really can't support.

CHAIRMAN GIBSON: I'm going to the maker of the motion. I should have asked it before the rest of the board; how do you envision us moving ahead for a council process that had divergent views on the trip limits as well as NOAA Fisheries, which we have already conformed with once and has their rule in place? This is for the May 1, 2015, fishing year you'd be talking about?

MR. STOCKWELL: No; this would be for the 2015 and 2016 specifications. Someone has got to do it; and I think my comrade, Bill Adler, has always said why are we always the dog getting wagged by the tail. If we're going to move ahead and try to initiate a change, there are many members on this board that participate in both councils and we have a representing from the Fisheries Service here. If this motion does succeed, then it is the first step of many.

REPRESENTATIVE SARAH K. PEAKE: Thank you to my colleague commissioner from Maine for making this motion. I think in my heart of hearts I would – or maybe I should say my brain of brains, I would prefer status quo; but in the spirit of compromise that we spent so many hours working on yesterday and I think got to a good result with striped bass; in that same spirit of compromise I think that this is a way to satisfy some of the concerns that have been raised by Rhode Island while also addressing the concerns that many of the people who asked questions of the scientists from Rhode Island raised.

My overall impression as the presentation was given by Rhode Island is that there are as many questions that remain as to the rollout of this as there were answers that were supplied today. I think a significant change like this; it is important in making a proposal to make sure we have the T's crossed and the I's dotted.

We're still thinking about who the permit holders might be in the underlying proposal. I think I heard you say the fishermen say they don't need 28,000 pounds; they just need more. I think that this motion before us is providing the more that they're looking for. We can address some of the fish quality issues, the pricing at the processor; and for me and thinking about some of the small boat fleets in Massachusetts, certainly this lessens the potential negative impact on them and it lessens the potential for gear conflict as well. For all of those reasons; I'd be happy to support this motion.

MR. GROUT: Mr. Chairman, again, I appreciate Rhode Island's proposal. They did a wonderful job of trying to address an issue and an issue that wasn't being addressed because this commission could not support at least last year a higher trip limit. If you remember, the New England Council voted to eliminate trip limits.

It was because we were only comfortable with going to 4,000 pounds at that point despite the fact that we had a majority vote to consider that, but obviously like this motion, that previous motion requires a two-thirds majority to pass this. I certainly support it. My small boat fleet was asking for it last year. They think the market is even stronger this year; and that the market could support it. For all those reasons, I think it is time for us to stop constraining the market and try and at least give some flexibility here.

MR. BORDEN: Mr. Chairman, I intend to vote for the proposal; but before I do, I'd just like to talk a little bit about the sequence that I would envision taking place. I think if this motion passes, I think the next appropriate step is – and Terry is sitting on the opposite side of the table – is to request the New England Council to put it on its next agenda and formalize a position; and then if the council does that, then I think it is appropriate to ask the Mid-Atlantic Council to do the same thing.

Once you get those three groups together, they can forward a recommendation to the National Marine Fisheries Service and NMFS can then deal with it in the appropriate timeline. They

may not be able to get it in place for procedural issues by May 1st, but you can simply say we want this adopted as soon as possible. Thank you.

MR. DAVID SIMPSON: David helped with answering part of my question, which was how this might roll out; but at the same time I heard a lot of discussion about smaller vessels, state waters; do we contemplate and is it possible that this could move ahead in state waters only and not be held up by a federal process. I wondered about sentiment about that. We sort of have complementary management. We're not joined at the hip, so to speak, as we are with some of the other species.

CHAIRMAN GIBSON: I suppose that is a possible outcome were the commission to pass this, states could conceivably go back and go through their regulatory process. Most of the clear constraint from the commission that we couldn't do that, it seems states could go back and go through their regulatory process and put an elevated trip limit for their state-only permitted fishermen. That is just my view on it.

MR. GROUT: Yes, I agree we could do that, but that would not be the preferred alternative. I think clearly I'd like to move this forward through the council and federal process to see if we can get traction. If we can't, quite frankly, we've done this before years ago where we had a higher trip limit than the feds.

DR. PIERCE: I prefer the approach that was suggested by Doug. Of course, there is another approach that could be taken that I don't find very attractive, but I've already highlighted it and that is because there is no limited entry. If we were to implement this right away, then someone could simply say, well, I'm giving up my federal permit and they can then fish in state waters or pretend they fished in state waters and land the state limit.

Then they get their federal permit back whenever they want it because it is the way it works for the non-limited entry fishery. To me that is sort of disingenuous – that would be disingenuous on our part and it would be promoting an approach that, frankly, would run

counter to council intent and runs afoul of some of the past reasoning we have used regarding, for example, groundfish controls. Fishermen should their permit at the beginning of the year.

They should keep it; they should not give it up; but in this particular case they could with dogfish. It makes far more sense to work with our federal counterparts – and, of course, many of us are council members, anyways – to have it done in a reasonable way, in a way that everyone will understand and the councils and the service will support.

CHAIRMAN GIBSON: What say NOAA Fisheries?

MR. BURNS: It is certainly a very interesting proposal, but the first thing that comes to my mind is the consistency issue. As we know, the board acted at the last meeting to bring the trip limits in parity with the 5,000 pound federal limit. And above and beyond the consistency issue is also the fact that we've got some federal permit holders who all federal permit holders wouldn't be able to take advantage of this increased limit until if there was any kind of change in the federal regulations.

I believe we'd have to go through the council process and NMFS would have to do new regulations in order to implement that. I'm not aware of an LOA or any other mechanism that I'm aware of that would allow us to do that without changing regulations. Jason may be able to elaborate on this a little bit more, but the Mid-Atlantic Council, since it has already set the specifications for the 2015 fishing year, and I think they also voted to make no further changes to that; so going through the council process may not get the result to come up with a federal change that would be consistent with what the states are looking at here.

Certainly, it is an interesting concept, a lot more conservative, certainly, than the 28,000 pound trip limit, which seemed to have a lot of enforcement issues and some uncertainty about how that could be enforced and overseen. This new proposal here certainly does take into consideration the fact that fishermen are trying

to utilize the resource in a more efficient way. With that, I will leave it at that.

DR. DANIEL: Mr. Chairman, just a couple of points. First, I have been approached as the chairman of the commission to just express concerns over consistency; that the fishermen need to have a consistent numbers, and these have changed from three to four to five and now seven. That does create some issues and problems for planning.

I think whatever we do, it would probably be a good idea for the New England states to have something remain in place for a period of time. I would normally not even comment on these issues involving you. We have our own state quota; but we do 10,000 pounds in state waters; and that is inconsistent with the federal plan. My two other quick questions; are you going to take comments from the public; and is it two-thirds majority vote of the members present or the board; because you might have a problem there.

CHAIRMAN GIBSON: It is my understanding that we need nine out of the thirteen present. Yes, given it is a new concept, I was going take some comment from the public, but I wanted to wrap up the board discussion. Peter.

MR. BURNS: Mr. Chairman, just one more point. I was just curious as to whether we have any input from the Law Enforcement Committee or the technical committee on the implications of a 7,000 pound limit in state waters.

CHAIRMAN GIBSON: I'm assuming their comments would be similar to what it was for the Rhode Island conservation equivalency, but I'll let Scott make his comments.

MR. NEWLIN: I think the comment would be similar to what we've always had; trip limits are more of a management decision and not so much a scientific one. The quota deals with that so we would have no problem with it.

MR. ROBSON: Well, of course, there is already a 5,000 pound daily trip limit in place; so in terms of Rhode Island's enforcement, they're dealing with that and so this would not be that

much different except the amount. Trip limits are somewhat difficult from an enforcement perspective from the get-go; but certainly a daily limit, if you look at traditional law enforcement, which is dockside, then it is a manageable way to monitor those limits.

The challenge is moving to an aggregate trip limit such as was being discussed; and there you do need to have the resources, the real-time monitoring of trip data and communications necessary to monitor those individual permitted fishermen that come up with those aggregate weekly limits. But going to the 7,000 pounds wouldn't be much different than the daily trip limits that we are used to seeing now.

CHAIRMAN GIBSON: I'm going to go to the audience now. Is there anyone in the audience wishing to comment in favor of this proposal? Yes, sir.

MR. DAVID GELFMAN: I'm Dave Gelfman. I'm a commercial dogfish fisherman. I fish out of Chatham, Massachusetts. I want to comment. I'm not sure if it is favorable or unfavorable. There are a few points that I want you to think about because you talked about them in your science and in your preliminary discussion. One thing, the male/female marketing; so they don't want the males at the processors. They don't want them. We target females. Right now we're actually having a difficult time catching them.

I think from a science point of view – this is my own observation, but I suspect that your stock assessment is incorrect and that there is more males than females; so you might be overly optimistic about your overall quotas. This goes back to your daily catch limit ideas in that 5,000 pounds a day might be worth holding onto for a while, because I don't think your science is fully complete.

From a pragmatic standpoint, most of us in Chatham fish out of relatively small points, under 50 feet. Some of us, myself included, 5,000 pounds is pretty much a maximum load. If there is downward pressure on the price due to increased landings, it will become uneconomical

for some of us who are already participating to continue participating.

The guys who are complaining that it is not economical for them to participate yet; I'm not sure what their justification is over our participation. Roughly speaking, I would encourage 7,000 as opposed to anything more; but the fact of the matter is you have changed the daily catch limit several times in very short order, which for some people has had adverse consequences.

Some people are now looking at bigger boats and maybe they're not going to get a big enough boat. Another consideration that may or may not apply is gear type. We're fishing mostly with tub-trawl gear, which is hooked gear. If the price goes down, the cost of the bait doesn't go down. That is another reason why our fishery is fragile and might actually not be able to go anymore.

CHAIRMAN GIBSON: Sir, can I ask you to kind of summarize whether your position is for or against this motion.

MR. GELFMAN: Please keep the limit at 5,000 pounds; don't go over seven.

CHAIRMAN GIBSON: Thank you. Anyone else in the audience like to comment on this motion?

Please, only a couple of minutes apiece; we're well into the Policy Board's time slot at this point.

MR. TED PLATZ: I'll be brief. I'm Ted Platz from Newport, Rhode Island; primarily a monk fisherman. We do some dogfishing in the summer in Rhode Island. Typically our problem is a trucking problem. I'm one of the few Rhode Islanders that does bring in dogfish because I own my own refrigeration truck; so I can run them at cost and make it work.

Most of these guys cannot. The dealers price dogfish down and disincite the fishermen to go after them. That is why Rhode Island has a hard time landing dogfish between our monkfish seasons in the spring and fall. That is what Dave

Borden is talking about when he is talking about what is driving the bus. That is our reality.

If you're trucking fish from Point Judith to New Bedford, your trucker is going to want twelve cents a pound, anyway, and it doesn't leave much. I recognize our proposal isn't going to go anywhere, it seems. So regarding the landing limit, what I've said it before and I'll say it again; if you go up too fast on the dogfish limit, you're going to erode the price structure. If we land 7,000 pounds at twenty cents or we can land 5,000 pounds at thirty cents, at 7,000 pounds we're doing more work and we have more gear overhead and we're making the same or less money.

You're trying to do us a favor and you're really not. We saw this in the monkfish fishery when the limits went up way too fast about ten years ago. I would advocate 6,000 pounds. I know it is well-intentioned. This is totally consistent with my comments on this from the conversation last winter. We need to protect price structure.

We need to build markets; and the way you build the markets and protect price structure is you make gradual incremental increases in your landing limit. We just bumped up to five. I think it would be safe to go to six; but I think seven you're pushing it. Then if the price drops, it is kind of like a seesaw, the picture collapses.

We don't want to drop the price; so I would encourage you to rethink seven, go to six, we revisit it in a year and a half or two years, and then we go to seven. Markets love stability; and when we go up too fast we erode market stability and we're going to erode the price and fishermen are going to work harder for the same money; and that is not a positive development. Thank you.

CHAIRMAN GIBSON: Thank you, Ted. Anyone else wishing to comment on this motion?

MR. LUTHER BATES: My name is Luther Bates. I'm a commercial dog fisherman out of Chatham. I am also a graduate of Cornell University in economics. I'd like to state my preference to maintain the existing 2015

specifications. We have an objective to ensure a sustainable fishery for the next five to ten years and not just capture an immediate opportunity.

The biomass I directly observed contains a reduced amount of targeted large females. As such, I would urge the commission to use caution with any specification adjustments to allow adequate time for direct observation of the fishery's status.

The trip limit moved up 5,000 just seven weeks ago. I don't believe that is an adequate time to observe the market, observe the fishery's condition and make an objective analysis and move forward.

We need consistency to implement our business models; and I'm concerned about the impact that this measure would have on an increased mortality rate in the industry. If we do have to go to 7,000 or any higher, even six, I would suggest a seasonal adjustment starting in December. Thank you.

CHAIRMAN GIBSON: I am going to go back to the board at this time. Addressing the audience; is there anybody in opposition to this motion who wants to speak?

MR. THEODORE LIGENZA: Theodore Ligenza. I would like to keep it at five. The reason I've taken the time to speak is because the fact of the matter is in the past, fifteen, twenty years, Chatham has landed the vast majority of dogfish and we will probably continue doing that. You've got to realize when you raise the limit, we have a shallow bar that is six feet deep at low water, and about ten years ago we lost two boats.

This summer we had another boat that was lost. It wasn't destroyed but it was sunk. That needs to be taken into consideration when you raise this limit you're putting the Chatham fishermen at danger. I would propose for a while, anyways, keeping it at five for that very reason there. I just cannot agree to go out because of the safety of my friends.

CHAIRMAN GIBSON: Is there anyone in support of the motion? If you're in support,

come up and speak to it. I will take someone in opposition after that and then I'm going to close the door on public comment.

MR. JOHN WHITESIDE: Attorney John Whiteside, representing the Sustainable Fisheries Association, the dogfish processors. Prior to coming to today's meeting, my clients had asked me to urge the commission to increase to a 10,000 pound daily trip limit and oppose the Rhode Island Proposal of whatever the weekly trip limit was of 28,000 a week. Given the arguments today and the proposal for 7,000 pounds, we would support that. I ask that the commission approve that on behalf of the members of the Sustainable Fisheries Association. Thank you.

MR. JOHN TUTTLE: John Tuttle, Chatman fisherman 37 years. I gave up a day's pay to come and see you today. I think that the 5,000 should stay for a while. We haven't had it in place that long to do a good analysis. I think that would be my feeling today,

CHAIRMAN GIBSON: I'll go back to the board and to the motion. Is there anymore board discussion on the motion? Are you ready to caucus on it? This will be a roll call vote.

(Whereupon, a caucus was held.)

CHAIRMAN GIBSON: Emerson,

MR. HASBROUCK: Mr. Chairman, did we resolve the issue of whether or not we need two-thirds of the board or two-thirds of the board present?

EXECUTIVE DIRECTOR BEAL: The rule states that it is two-thirds of all voting members of the board; so that is present or not. The good news is all of them are here. It means the same thing today, but the rule reads the full membership.

CHAIRMAN GIBSON: That means of thirteen, we need nine affirmative votes. Representative Peake.

REPRESENTATIVE PEAKE: A point of order question and for the lack of a better word, the

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Rhode Island Proposal; was that a simple majority because we're not changing a trip limit or would that also require a two-thirds majority to carry?

EXECUTIVE DIRECTOR BEAL: Yes; that one is a simple majority since it is essentially a conservation equivalency proposal.

CHAIRMAN GIBSON: Let's call the roll.

MS. HAWK: Maine.

MAINE: Yes.

MS. HAWK: New Hampshire.

NEW HAMPSHIRE: Yes.

MS. HAWK: Massachusetts.

MASSACHUSETTS: Yes.

MS. HAWK: Rhode Island.

RHODE ISLAND: Yes.

MS. HAWK: Connecticut.

CONNECTICUT: Yes.

MS. HAWK: New York.

NEW YORK: Yes.

MS. HAWK: New Jersey.

NEW JERSEY: No.

MS. HAWK: Delaware.

DELAWARE: No.

MS. HAWK: Maryland.

MARYLAND: No.

MS. HAWK: Virginia. (No response) North Carolina.

NORTH CAROLINA: No.

MS. HAWK: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE:
Abstain.

MS. HAWK: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE:
Abstain.

CHAIRMAN GIBSON: **The motion fails for lack of a super majority.**

ADJOURNMENT

Is there any other business to come before the Dogfish Board? Seeing none; we stand adjourned.

(Whereupon, the meeting was adjourned at 2:45 o'clock p.m., October 30, 2014.)

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Update on the Status of Spiny Dogfish in 2015 and Projected Harvests at the Fmsy Proxy and Pstar of 40%

Paul Rago and Katherine Sosebee
Northeast Fisheries Science Center
National Marine Fisheries Service

Mid Atlantic Fishery Management Council
Scientific and Statistical Committee
August 26, 2015
Last Update: August 26, 2015

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Executive Summary

The purpose of this report is to summarize the most recent information on the status of spiny dogfish (*Squalus acanthias*) in 2015. Information on the NEFSC spring bottom trawl survey trends and total removals are provided along with an analysis of estimated stock size, fishing mortality rates, and projections of stock size under varying fishing mortality rates. The spiny dogfish population is not overfished and overfishing is not occurring.

US landings increased by 46% from 7,312 in 2013 to 10651 mt in 2014. Canadian landings for 2013 and 2014 were not available but averaged about 77 mt per year between 2009 and 2012. The recreational, Canadian and foreign fleets in 2014 collectively accounted for only 64 mt. Total landings since 2011 have averaged 9,696 mt.

Estimates of recreational landings were updated for the period 2004 to 2011 to account for changes resulting from the application of an alternative estimator to the historical data collected under the Marine Recreational Fisheries Statistics Survey (MRFSS). Differences between the Recreational landings and discard estimates for 2004 to 2010 were relatively minor. MRIP estimates of landings are about 18% lower than MRFSS. MRIP estimates of discards are about 7% lower. In view of the small overall magnitude of the change and the minor contribution of recreational catch to the total removals, NO historical adjustments of recreational catches were made.

Total discards in 2014 of 15,327 mt were slightly above the 14,206 mt average of the preceding 10 yrs. Total dead discards in 2014 of 5783 were about the same as the 2003-2013 average of 5365 mt. The ratio of dead discards to landings since 2011 has been about 0.54 suggesting a general improvement in the utilization of the spiny dogfish resource (ie. landings/catch)

Overall survey abundance, measured as a 3 yr moving average of NEFSC spring bottom trawl survey indices declined about 41% between 2013 and 2015 (Table 7). The 2012 survey abundance index may have been anomalously high since all size groups and sexes increased by average of 58%. Such increases are unlikely in a population subject to relatively low fishing mortality and exhibiting relatively slow growth and recruitment, irrespective of fishing intensity. The raw 3-yr average of female SSB swept area biomass in 2013 of 235,900 mt was about the same as the 241,000 mt in 2012. Pup production in 2015 of 2.4 kt was slightly below the long-term average of 2.59 kt (Fig. 7) in the NEFSC spring survey. Male biomass in the 36 to 79 cm size range declined by about the same fraction as mature females, suggesting a common underlying year effect in survey availability apart from harvest. This paper is unlike the interannual changes that occurred in the mid 1990s when female biomass fell much more rapidly and male biomass remained consistently high.

Female spawning stock biomass estimates from 2009 to 2013 have exceeded the biomass reference point. Therefore, the stock is not overfished and is rebuilt. Stochastic model estimates of mean female spawning stock biomass in 2015 was 138,997 mt (compared to 211,372 mt in 2013). The drop in abundance is due primarily to the absence of the very high 2012 abundance estimate from the 3 point moving average. Due to the absence of the 2014 survey the abundance estimate for 2015 relies entirely on the 2013 and 2015 indices. An examination of the ratio of the average weight per tow of females in the complete survey strata to average weights based on the incomplete strata set in 2014 suggested a range of 1 to 3.5 for 2009 to 2015 (Appendix 3, Fig. 1). In contrast, the same computation for male weight per tow was approximately 1.0 for all years. Hence the strata not sampled in 2014 are highly influential to the abundance estimate for female spiny dogfish and imputation based on average ratio of complete to incomplete was judged inappropriate. The probability of stock size being above the SSB target is about 35% in 2015; the sampling distribution of SSB in 2015 suggested that the probability of SSB being below the SSB threshold is about 10%.

Estimated fishing mortality rates in 2012 and 2014 were 0.149 and 0.214, respectively. Increased variability the stochastic biomass estimate led to increased dispersion in the stochastic estimate of F and a very skewed distribution in 2014 (Fig. 11b). The mean estimate of fully recruited F on the exploitable population in 2014 was 0.214, below the F_{msy} proxy of 0.2439. If catches in 2015 are assumed to be equal to those estimated in 2014, and all other factors are held constant, the projected F in 2015 would approximately equal the F_{msy} proxy. This conclusion is based on a projection and should be considered preliminary until the updated assessment is completed in 2016.

In the mid 1990's F on fully recruited spiny dogfish was about 2 to 3 times greater than contemporary rates and a greater fraction of the mature female population was vulnerable to fishing mortality. The reduced rate of fishing mortality and shift in selectivity led to major reductions in the overall force of mortality on the population. Fishing mortality rates on male dogfish are negligible (<0.01).

This report examines a two harvest scenarios based on fishing mortality rates at the F_{msy} proxy (0.2439) and a forecast based on iterative application of the P_{star} control rule. The P_{star} method assumes that the OFL is lognormally distributed with a CV of 100%. The probability of exceeding the target F is set at 40% when the stock is above B_{msy} and declines linearly as the ratio of current SSB to target SSB declines.

Scenario	Year	Median Catch	5-th Percentile	95-th Percentile
OFL based on $F = F_{msy}$ Proxy=0.2439	2016	24,247	14,551	33,962
	2017	25,090	15,013	35,182

	2018	25,775	15,306	36,257
Catch based on iterative application of Pstar adjusted for Stock Status.	2016	16,765	NA –constant catch	NA –constant catch
	2017	16,526	NA –constant catch	NA –constant catch
	2018	16,636	NA –constant catch	NA –constant catch

For management purposes it is important to recognize that projections rely on continuation of current fishery selectivity patterns in the future. Changes in management regulations or economic value of spiny dogfish would reduce the tenability of these assumptions.

Projections provide guidance on projected landings, probabilities of overfishing and probabilities of falling below SSB targets and thresholds. A common feature of these projections and earlier updates is the oscillation in future stock sizes induced by the stanza of low recruitment between 1997 and 2003. Higher rates of fishing mortality tend to induce greater declines in abundance and a greater chance that the population will fall to levels requiring rebuilding measures. These future oscillations have important implications for selection of contemporary harvest policies, especially with respect to variability of landings streams and the risk of introducing measures to reduce overfishing or rebuild the stock. Given the state of the resource in 2015, it appears that the likelihood of falling below the threshold biomass level is relatively low even when fishing at Fmsy. Increased recruitment, especially in the past 4 years, has resulted in an increased abundance of fish under 60 cm. This “filling out” of the size frequency distribution tends to diminish the expected oscillations in future population trajectories. However, it should be noted that all of these conclusions are conditional on little change in the selectivity patterns over time.

Assuming that the 2015 catches are equal to those in 2014, the projected median OFL for 2016 is 24,247 mt with a 90% confidence interval of 14,551 to 33,962 mt. The projection for 2016 in Rago and Sosebee (2013, Table 12 therein) was 32,346 mt with a 90% confidence interval of 18,125 to 46,590 mt. Table 14 in Rago and Sosebee (2013) uses a harvest rate of $F=0.19$ to predict a median OFL of 28,664 mt with a 90% confidence interval of 16,705 to 40,642 mt. The median projected catch for 2016 (a 4 year ahead forecast) based on Table 16 in Rago and Sosebee (2012b) was 24,991 mt with a 90% confidence interval of 17,689 to 32,301mt. This forecast used a $F=0.19$; this is approximately equal to the realized F on the population during the 2012 to 2014 period.

	<i>Predicted Catches for 2016</i>		
<i>Source</i>	<i>Median Catch (mt)</i>	<i>90% Confidence interval (mt)</i>	<i>Harvest Projection</i>
This assessment, Table 12	24,247	14,551 to 33,962	$F=0.2439$
Rago and Sosebee 2013, Table 14	32,346	18,125 to 46,590	$F=0.2439$
Rago and Sosebee 2013, Table 14	28,664	16,705 to 40,642	$F=0.19$ (this is about observed average)
Rago and Sosebee 2012b, Table 16	24,991	17,689 to 32,301	$F=0.19$ (this is about observed average)

Background

This report draws heavily on the results of the last peer-reviewed stock assessment vetted at SARC 43 in 2006, assessment model described in Rago and Sosebee (2009), and a revision of the biological reference points for spiny dogfish described in Rago and Sosebee (2010). The revised biomass reference points were peer-reviewed by the Transboundary Resource Assessment Committee in April 2010. The revised biological reference points required an update of the size and sex-based selectivity estimates of the fishery. Previous biomass reference points for spiny dogfish were based on a Ricker stock-recruitment model derived from Northeast Fishery Science Center trawl survey data. SSB_{max}, the biomass that results in the maximum projected recruitment, is the proxy for BMSY. The revised biomass reference point incorporates additional information on the average size of the recruits as an important explanatory variable. A hierarchical AIC-based model building approach is used to identify the best model. Comparisons of maximum likelihood and robust nonlinear least squares regression models suggested that the robust estimator had the lowest AIC and highest precision for the estimate of SSB_{max}.

The revised target reference point, expressed in terms of average weight (kg) per tow of female spiny dogfish greater than 80 cm, is estimated as 30.343 kg/tow. Conversion of this metric to swept area biomass depends on the average swept area per tow, i.e., the trawl footprint. The nominal footprint of the R/V Albatross is 0.01 nm². Using this value, the swept area estimate of SSB_{max} is 189,553 mt. Using an alternative footprint more consistent with recent gear mensuration suggests that a footprint of 0.0119 nm² is more appropriate. The revised swept area biomass target (SSB_{max}) corresponding to this footprint is 159,288 mt. Applying the convention defined in the current control rule in the Spiny Dogfish Fishery Management Plan, the threshold biomass is one half of the target or 79,644 mt. Based on the revised biomass reference point and using the trawl footprint of 0.0119 nm², the US spiny dogfish resource was rebuilt in 2008 when the swept area female spawning stock biomass was 194,616 mt.

Changes in the estimated selectivity of the fishery also led to revised estimates of fishing mortality reference points. The updated target and threshold fishing mortality rates of 0.207 and 0.325, respectively were based on a life history model described in Rago et al. 2008. During the Meeting of the MAFMC SSC on September 21, 2010 the committee noted that the longterm projections were inconsistent with these reference points. The SSC recommended that the fishing mortality reference points be reexamined. Additional analyses were conducted with the projection model to identify fishing mortality rates that would lead to a stable population structure and a finite rate of increase of 1. A revised fishing mortality rate of 0.2439 was estimated (Rago 2011). These analyses and results were reviewed and approved on August 19, 2011 by the SSC.

A. Catch Trends

1. This document summarizes the most recent information on spiny dogfish stock status using survey data from the spring 2015 NEFSC bottom trawl survey and catch data from 2014. Catch data include landings from US and Canadian commercial fisheries, and US recreational landings. Discard information includes discards from US commercial fisheries and US recreational fisheries. Estimates of dead discards are obtained by multiplying the total discards by the gear-specific discard mortality rates.

2. Total landings estimates are summarized in Table 1 and Fig. 1. US landings increased by 46% from 7,312 in 2013 to 10651 mt in 2014. Canadian landings for 2013 and 2014 were not available but averaged about 77 mt per year between 2009 and 2012. The recreational, Canadian and foreign fleets in 2014 collectively accounted for only 64 mt. Total landings since 2011 have averaged 9,696 mt.
3. The estimates of recreational landings were updated for the period 2004 to 2011 (Table 2). The changes represent the application of an alternative estimator to the historical data collected under the Marine Recreational Fisheries Statistics Survey (MRFSS). The new program, known as the Marine Recreational Information Program (MRIP) is in the process of revising the historical data as well as advancing an improved sampling design for future surveys. At the time this report was prepared, the changes in the historical data bases were restricted to 2004 to 2011. To be clear, the re-estimation of recreational catch estimates for 2004 onward represents the application of a revised estimator to the historical MRFSS data. The revised estimates are now consistent with the actual sampling collection program employed under MRFSS.
4. Differences between the Recreational landings and discard estimates for 2004 to 2010 were relatively minor (Table 2). MRIP estimates of landings are about 18% lower than MRFSS. MRIP estimates of discards are about 7% lower (Fig. 2). In view of the small overall magnitude of the change and the minor contribution of recreational catch to the total removals, NO historical adjustment of recreational catches were made. In 2011 the ratio of recreational catch to total catch was 3.3%. Hence changes of 18% and 7%, respectively to recreational landings and discards would represent negligible changes to the historical catch series (Fig. 3).
5. Total discards in 2014 of 15,327 mt were slightly above the 14,206 mt average of the preceding 10 yrs. Total dead discards in 2014 of 5783 were about the same as the 2003-2013 average of 5365 mt (Table 3). Total dead discards in 2014 (5,783 mt) were about 17% higher than the previous 5 year average of 4,925 mt.
6. Most of the increase in discards occurred in the otter trawl fleet. Sink gill net discards in 2014 were among the lowest on record. (Table 3). The ratio of dead discards to landings in 2014 of 0.45 is the second lowest value since the closure of the fishery in 2000 (Table 4, Fig. 5). These data suggest a general improvement in the utilization of the spiny dogfish resource (ie. landings/catch)
7. Biological samples collected by port agents are used to estimate size composition and sex ratios for spiny dogfish in landings (Table 5). Overall landings are dominated by females, a trend that has persisted since the US EEZ fishery began (Fig. 6). Most fishing takes place near shore where females are more abundant (Appendix 4, Fig. 1 and 2). The fraction of females in the landings in 2014 (94%) was nearly equal to the landings fractions in the previous two years and consistent with the longterm pattern of a female dominated fishery. (Table 5).

8. The sex ratios of discarded fish are similarly dominated by females, but females represent only 65% of total discards by weight (Table 6). This difference, compared to landings, is likely due to the much higher rate of discarding of male fish. On a numerical basis, 18% of the males caught in 2014 were landed; for females this fraction was 62% in 2014 (Table 5, 6).
9. Discard rates are declining as a fraction of total catch. The decrease in discards represents an improvement in the utilization of the spiny dogfish resource (Table 4, Fig. 4, 5).

B. Survey Indices

1. Beginning in 2009 the NEFSC spring bottom trawl surveys were conducted by the FSV Bigelow instead of the R/V Albatross IV. The Bigelow is a larger, acoustically-quiet vessel. It tows a larger net and has different sampling protocols. A large-scale side-by-side calibration experiment was conducted in 2008 to compare catches between the two vessels. A peer-review committee met in August 2009 to review the results of the experiment and to provide additional guidance on methodology for estimating the magnitude of the gear-vessel-protocol differences.
2. The calibration factor for spiny dogfish was estimated using a beta-binomial estimator (Miller et al. 2010). Overall the Bigelow caught 1.1468 times as many spiny dogfish per tow as the Albatross. The standard error of the estimate was 0.0441 and the 95% confidence interval was 1.0636 to 1.2365. The 2012 Bigelow-based estimates of relative abundance were converted to predicted Albatross equivalents by dividing each estimate by 1.1468.
3. The use of a calibration coefficient increases the variance of the estimated Albatross equivalent because this prediction includes the sampling errors of the original Bigelow survey value and the calibration coefficient. A Taylor series expansion method was used to estimate the variance as
 - a.
$$\text{Var}\left[\frac{I_{\text{Bigelow}}}{\gamma}\right] = \frac{\text{Var}[I_{\text{Bigelow}}]}{\gamma^2} + \frac{I_{\text{Bigelow}}^2 \text{Var}[\gamma]}{\gamma^4}$$
 - b. Application of this formula to 2015 Bigelow survey increased the CV by less than 2%. See example computational details in Appendix 1.
4. Overall swept area biomass estimates in 2015, using a nominal trawl survey footprint of 0.010 nm² declined about 58% from record high levels in 2012 (Table 7). This table is included to facilitate comparisons with previous summaries of this information. The raw average of female SSB swept area biomass 2015 (based on 2013 and 2015) also decreased by about 57% to 135.5 kt as compared to 235.9 kt in 2013. Pup Production in 2015 of 2.4 kt was slightly below the long-term average of 2.59 kt (Fig. 7) in the NEFSC spring survey.
5. Size frequency plots for males and females in the spring surveys are depicted in Fig. 17. The 2-yr survey average for 2013 and 2015 suggests a large number of recruiting females in the 40 to 60 cm range. This pattern is consistent with high recruitments since 2009. A similar pattern is revealed

for male dogfish size compositions. The loss of the high 2012 mature female abundance estimate in 2012 from the 3yr average for 2013-15 led to a marked drop in relative abundance of female spiny dogfish above 80 cm (Fig 17, bottom left panel).

6. The stochastic estimates of stock size and fishing mortality, described in the following sections, explicitly take the variability into account and dampens the interannual changes by using a 3-year moving average of survey estimates. Stochastic estimates of swept area biomass given in Table 8, suggest about a 34% decline in females SSB and 15% decrease in total biomass.

C. Stochastic Estimates of Biomass and Fishing Mortality

1. The simple arithmetic average of stock size does not incorporate sampling variations in the underlying survey data or uncertainty in the size of the footprint of the average trawl tow. A stochastic estimator of spawning stock biomass and fishing mortality for female dogfish is described in SARC 43. . Computational details on this estimator may be found in Rago and Sosebee (2009). The stochastic estimator incorporates uncertainty in the sampling observation (ie. the variance of the relative abundance index) of a 3 yr average and variation in the survey footprint. Estimates of various biomass estimates are summarized in Table 8 and Fig. 10b. Average biomass estimates are summarized in Table 8 while Fig. 8a and 8b depict the variability in biomass estimates for 2008-15. It is important to note that the estimate for 2015 is based on two surveys only: 2013 and 2015. Comparison of female spawning stock biomass estimates for the raw data, 3 yr average and stochastic estimators (Fig. 9) show how the observation error in the surveys tends to smooth the interannual changes compared to the simple 3 point moving average.
2. The estimator for fishing mortality is based on the ratio of total catch and swept area biomass. Ostensibly this assumes that the trawl is 100% efficient in capturing dogfish between the wings. Alternatively, it implies that the trawl is about 50% efficient in capturing dogfish between the doors. Dogfish in schools are known to herd between trawl doors. An external mass balance model was first applied at SARC 43 and has been recently updated in Rago and Sosebee (2009). The mass balance model supports the biomass estimates based on simple swept area concepts. However, it is acknowledged that this is a source of uncertainty in the assessment and subject to change at a future benchmark assessment. Importantly, recent information provided by Sagarese et al. (2014, 2015) will be helpful for refining estimates of relative abundance and incorporating covariates that may elucidate the role of environmental fluctuations on abundance estimates.
3. Female spawning stock biomass estimates from 2009 to 2013 have exceeded the biomass reference point. Therefore, the stock is not overfished and is rebuilt. Stochastic model estimates of mean female spawning stock biomass in 2015 was 138,997 mt (compared to 211,372 mt in 2013)(Table 8). The drop in the abundance estimate is due primarily to the absence of the very high 2012 abundance estimate from the 3 point moving average (see Table 7). Due to the absence of the 2014 survey the abundance estimate for 2015 relies entirely on the 2013 and 2015 indices. An examination of the ratio

of the average weight per tow of females in the complete survey strata to average weights based on the incomplete strata set in 2014 suggested a range of 1 to 3.5 for 2009 to 2015 (Appendix 3, Fig. 1). In contrast, the same computation for male weight per tow was approximately 1.0 for all years. Hence the strata not sampled in 2014 are highly influential to the abundance estimate for female spiny dogfish and imputation based on average ratio of complete to incomplete was judged inappropriate. The probability of stock size being above the SSB target is about 35% in 2015; the sampling distribution of SSB in 2015 suggested that the probability of SSB being below the SSB threshold is about 10%. (Table 10, Fig. 8b). A comparison of the raw, 3-yr moving average and stochastic estimators are shown in Fig. 9. The magnitude of the increase between 2011 and 2012 is improbable given the biology of spiny dogfish.

4. Estimated fishing mortality rates in 2012 and 2014 were 0.149 and 0.214, respectively (Table 9). Increased variability the stochastic biomass estimate led to increased dispersion in the stochastic estimate of F and a very skewed distribution in 2014 (Fig. 11b). The mean estimate of fully recruited F on the exploitable population in 2014 was 0.214, below the F_{msy} proxy of 0.2439. If catches in 2015 are assumed to be equal to those estimated in 2014, and all other factors are held constant, the projected F in 2015 would approximately equal the F_{msy} proxy. This conclusion is based on a projection and should be considered preliminary until the updated assessment is completed in 2016.
5. In the mid 1990's F on fully recruited spiny dogfish was about 2 to 3 times greater than contemporary rates and a greater fraction of the mature female population was vulnerable to fishing mortality. The reduced rate of fishing mortality and shift in selectivity led to major reductions in the overall force of mortality on the population. Fishing mortality rates on male dogfish are negligible (<0.01).
6. The probability that female spiny dogfish SSB in 2015 exceeds the biomass reference point is about 35% (Fig. 8b, Table 10). This conclusion is based on a projection that assumes the catch by sex in 2015 is equal to catch in 2014.
7. Fishing mortality estimates incorporate uncertainty in the biomass as well as landings and discards. Variance estimates of discards by gear type and sex are computed for trawls, gillnets and recreational catch (Appendix 2, Table 1,2). Results of the fishing mortality estimates are summarized in Table 9 and 10, and Figure 11a and 11b. Fishing mortality rates for female spiny dogfish are about 87% of the F_{msy} proxy of 0.2439 (Table 9). The median F on the exploitable stock of female biomass in 2015 is 0.228 or about 93% of the F_{my} proxy, IF the total catch in 2015 equals the 16,498 mt (Table 10). It should be noted that the distribution of fishing mortality is highly skewed in 2015 (Fig. 11b).
8. Additional details on the variability in survey indices and discard estimation may be found in Appendix 2.

D. Harvest Scenarios

Stock projections are based on a stochastic model that incorporates uncertainty in initial population size. Uncertainty in population size is derived by consideration of sampling variability of a 3 year average

abundance, and uncertainty in the average area swept per tow. The effects of harvest policies are estimated using length-based sex-specific projection model that has been used for catch and status projections since 2003. (See Rago and Sosebee, 2009 for a summary and example. Other examples in NEFSC 2003, and 2006).

In addition to specifying target fishing mortality rates and/or quotas, it is necessary to specify a number of key assumptions about future fisheries. The key assumptions include:

- All life history parameters, especially those related to reproduction are effectively constant
- Selectivity patterns in the fishery remain the same over time.
- Discard patterns and proportions of total catch remain constant over time
- Recent recruitment trends will continue and that the low recruitment period from earlier will not return
- The relationship between male and female fishing mortality rates scales directly with the magnitude of female fishing mortality. When F_s are increased to the F_{msy} proxy (0.2439) it is assumed that the F on males would increase proportionally (Table 11).

D.1 Scenarios

All of the scenarios assumed that the 2015 fishery had the same selectivity and fishing mortality properties as the 2013 fishery. Catch in 2015 was assumed to be equal to the catch in 2014 = 16,542 mt. The implications of this assumption are illustrated in Table 10, which demonstrates that there is about a 40% chance that the fishing mortality rate would exceed the F_{msy} proxy in 2015. However there is about a 35% chance that the population would exceed the B_{msy} proxy of 159 kt. The scenario planning horizon was 15 years (2015-2030) (Fig. 12). The longer term projections should be viewed as informative of potential trends, but the absolute values are less reliable. Longer term trends are useful for comparing the likely state of the resource after a sustained harvest period. An F -based scenario with $F = F_{msy}$ proxy = 0.2439 was used to create a sampling distribution of catch (Fig. 13 Panel A), total landings (Panel C) and a sampling distribution of female SSB (Panel B) and fraction of the SSB target (Panel D).

A second scenario was based on iterative application of a P_{star} adjusted catch. The F_{msy} proxy was used to estimate the OFL in year $t=2016$ by assuming that the catch in 2015 was 16,498 mt. A P_{star} value was estimated based on the SSC's control rule for Typical stocks, adjusted for the relative fraction of the population biomass to B_{msy} . The OFL was assumed to be distributed lognormally with a 100% CV. The resulting ABC was substituted back into the projection model as a quota, and the OFL for the next year was computed. The OFL was then used to derive a new ABC and the process was repeated. The same assumptions about 2014 fishery were used to initialize these projections. Details on the iterative estimation of ABCs are summarized in the text table below.

Computation of Female and Male quotas				ABC				
	OFL(F)	B/Bmsy	Pstar	Total	Females	Males	frac_Fem	frac_Mal
2015				16498	13811	2687	0.837132	0.162868
2016	24277	0.834	0.326222	16686	13968	2718		
2017	25427	0.768	0.296889	16,310	13653	2656		
2018	26577	0.735	0.282222	16,449	13770	2679		

Results of this scenario are given in Table 13 and 14.

D.2 Results

The constant F harvest policies lead to a static population and catch when $F=F_{msy}$ proxy (Fig. 12B). The short term response is dominated by oscillations that are primarily a function of the contemporary size structure of the population. A common feature of these projections and earlier updates is the oscillation in future stock sizes induced by the stanza of low recruitment between 1997 and 2003. Fig. 12A provides a comparison of projections in 2013 in Rago and Sosebee (2013). These future oscillations have important implications for selection of contemporary harvest policies, especially with respect to variability of landings streams and the risk of introducing measures to reduce overfishing or rebuild the stock. Given the state of the resource in 2015, it appears that the likelihood of falling below the threshold biomass level is relatively low even when fishing at F_{msy} . Increased recruitment, especially in the past 4 years, has resulted in an increased abundance of fish under 60 cm. This “filling out” of the size frequency distribution (Fig. 17) tends to diminish the expected oscillations in future population trajectories. The abundance of mature females in the 2015 survey suggests that either the cumulative effects of low recruitment in the late 1990s and early 2000s are beginning to show up OR that large females may have shifted their distribution patterns in 2015. However, it should be noted that all of these conclusions are conditional on little or no change in the selectivity patterns over time.

Box plots are used to convey the predicted uncertainty in catch, landings, and female SSB (Fig. 13); numerical details are provided in Tables 11 and 12. Table 12 provides detailed information on the percentiles of catch, landings, discards and female SSB for 2016 to 2018. The 40%-ile of catch under $F=0.2439$ averages about 23 kt for 2016 to 2018 with no meaningful variation between years.

Table 12 can be viewed as an approximation of the sampling distribution of the Overfishing Level (i.e., a function of the F_{msy} proxy and the uncertainty in the population size). The median of the Overfishing Limit (OFL) for 2016 is 24,247 mt. The 90% confidence interval for the 2016 OFL is 14,551 to 33,962 mt.

Figure 13 illustrates the expected increases in uncertainty over time. The expectations for SSB (panels B and D) are particularly instructive for selection of harvest policies. The last four columns of Table 11 include important information for the comparison of alternative harvest scenarios. Estimates of the

probability of falling below the target and below the threshold biomass targets can be used to evaluate the risk of initiating a rebuilding program in future years or other management measures. The last two columns provide estimates of the probabilities of F exceeding the overfishing limit and the target F . These considerations are relevant only for quota based policies. Decrease in stock size may occur by 2020 but current runs suggest the stock has a low probability of declining below the threshold biomass. The Pstar harvest based policy is evaluated in Tables 13 and 14. Median projected catches for 2016 to 2018 are 16,765, 16,526, and 16,636 mt, respectively (Table 14). Owing to the lower relative abundance of 80 cm + females in 2015, the female SSB is expected to decrease about 12% during this period.

E. Sources of Uncertainty

1. The long term dynamics of spiny dogfish are an important guide for structuring harvest scenarios. The current size structure and sex ratio of the population have important implications for stock dynamics over the next decade. However, it should also be noted that long-term forecasts are inherently uncertain. The history of this resource during periods of high exploitation is informative about the magnitudes of likely fishing mortality rates. Changes in average size in both the surveys and landings suggest that the magnitude of population biomass from the swept area computations is approximately correct.
2. Scientific advice on catch levels for spiny dogfish needs to be carefully crafted. A longer term perspective is necessary to ensure that the transient effects of the current population size and sex structure are considered over a period of several decades. At the same time, such longer term projections become increasingly uncertain and are driven by the assumptions used to model the stock dynamics. It is imprudent to look at short term changes in harvest levels without considering the longer-term implications.
3. Recent changes in survey-based abundance suggest that changes in availability play an important role in abundance indices. As the male population is largely unexploited, it may offer additional insights into changes in availability to the survey since inter-annual changes in the male component of the stock should be less variable. The sharp increase in survey abundance in 2012 may represent increased availability to the survey area or concentrations of the resource in larger offshore strata. Such changes in resource allocation are, in theory, not expected to alter abundance indices. However, even slight changes in catchability among strata and high sampling variability could lead to very high or low abundance estimates in a given year. Recent publications by Sagarese et al. (2014) are relevant to the issues of changing distributions.
4. Changes in discard patterns could become extremely important. In 2014, discard mortality presently constitutes 76% of fishing mortality by weight on male dogfish and 27% by weight on females. The male population is at or near historic highs, but its low marketability and offshore distribution reduce the chances of male dogfish contributing significantly to future landings. All of the projections described herein assume that there will not be major increases in male dogfish landings. While the sex ratio of mature male to mature female dogfish declined through 2007, it appears to be increasing

slightly since then and is higher than expected (Fig. 14). A targeted fishery to land male dogfish would not be detrimental to the population in the short run but the consequences for changes in selectivity for co-occurring female populations should be evaluated.

5. Other important source of uncertainty include
 - a. Potential changes in fishery selectivity. Large increases in catches could induce changes in the overall selectivity pattern in the fishery.
 - b. Implications of changing selectivity on estimation of biological reference points
 - c. Potential inconsistency between the life history based estimates of fishing mortality rates and the biomass reference points derived from the Ricker stock recruitment curve.
 - d. Total discard estimates AND estimated mortality of discarded dogfish.

F. Potential Indicators of Stock Status during Multi-year fishery management Quotas

<i>Potential Indicator</i>	<i>Metric</i>	<i>Evaluation</i>	<i>Reference</i>
Discards	Changes in ratio of discard to landings	Ratio has been steadily declining since 2004 suggesting more efficient utilization of the resource	Figure 5, Table 4
	Changes by gear type	Sink gill net discard rates have declined over time. Otter trawl discards have increased slightly but remain about 3375 mt in last 5 years.	Table 3.
Survey Abundance Trends	Average Size of Mature females	Mean length of mature females has been increasing since 1999. Average size of mature females is still well below rates observed in mid 1980s.	Figure 15
	Ratio of mature males to females	Ratio has decreased to between 3 to 4 from earlier ratios near 7. Ratio has been increasing modestly since 2008. Expected ratio, based on growth and maturity rates should be about 2.	Figure 14.
	Recruitment	Recruitment indices have averaged about 6.0 kt since 2009 which is well above the 1969-2008 average of 2.1 kt	Table 7. Figure 7.
	Pup Size	Average length of male and female pups have increased steadily from a low of 26 cm in 1997 to a record high of 32 cm in 2015. Average size now exceeds that observed in the 1980s.	Figure 16.
	Size composition	Sizes of mature females are increasing slightly; males are relatively unchanged. Size composition of sub adults is broadening and approaching distribution seen prior to major fisheries in 1990s. High abundance of dogfish in the 40 to 60 cm size range suggests a robust future stock size.	Figure 15. Figure 17.
	Spatial Distribution	Large Female spiny dogfish were less abundant in the inshore areas in 2014 and 2015. This may be responsible for the lower overall abundance estimates. Examination of environmental influences on distribution may be instructive.	Appendix 4. Figure 3-6.
Commercial Landings	Average Size	Average weight of landed females of about 2.9 kg has been steady since 2004.	Table 5
	Sex ratio	Landings remain dominated by females with no apparent trend.	Table 5
	Changes in Canadian Landings	Landings remain low and are not available for 2014 and 2015.	Table 1.
	Spatial distribution of landings	Seasonal maps by quarter 1 and 2 pooled and quarter 3 and 4 pooled suggest fishing is concentrated in the vicinity of major fishing ports with little or no activity near the shelf break where males are more abundant.	Appendix 4. Fig. 1 and 2.
Forecast	Comparison of OFL	Comparison of 3 and 4 year ahead forecasts show	Executive

accuracy	and ABC predictions between assessments	reasonable agreement with current ABC estimates for 2016 based on Pstar.	summary, page 3.
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G. References

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Table 1. Total spiny dogfish landings (mt, live) in NAFO Areas 2 to 6, 1962-2014.

Year	United States			Distant Water Fleets	Total Landings	Year	United States			Distant Water Fleets	Total Landings
	Commer- cial	Recre- ational	Canada				Commer- cial	Recre- ational	Canada		
1962	235		0	0	235	1988	3,105	359	1	647	4,112
1963	610		0	1	611	1989	4,492	418	167	256	5,333
1964	730		0	16	746	1990	14,731	179	1,309	393	16,611
1965	488		9	198	695	1991	13,177	131	307	234	13,848
1966	578		39	9,389	10,006	1992	16,858	215	868	67	18,008
1967	278		0	2,436	2,714	1993	20,643	120	1,435	27	22,225
1968	158		0	4,404	4,562	1994	18,798	155	1,820	2	20,774
1969	113		0	9,190	9,303	1995	22,578	68	956	14	23,615
1970	106		19	5,640	5,765	1996	27,136	25	431	236	27,827
1971	73		4	11,566	11,643	1997	18,351	66	446	214	19,078
1972	69		3	23,991	24,063	1998	20,628	39	1,055	607	22,329
1973	89		20	18,793	18,902	1999	14,855	53	2,091	554	17,552
1974	127		36	24,513	24,676	2000	9,257	5	2,741	402	12,405
1975	147		1	22,523	22,671	2001	2,294	28	3,820	677	6,819
1976	550		3	16,788	17,341	2002	2,199	205	3,584	474	6,462
1977	931		1	7,199	8,131	2003	1,170	40	1,302	643	3,155
1978	828		84	622	1,534	2004	982	105	2,362	330	3,778
1979	4,753		1,331	187	6,271	2005	1,147	45	2,270	330	3,792
1980	4,085		660	599	5,344	2006	2,249	94	2,439	10	4,792
1981	6,865	1,493	564	974	9,896	2007	3,503	84	2,384	31	6,002
1982	5,411	70	389	364	6,234	2008	4,108	214	1,572	131	6,025
1983	4,897	67		464	5,428	2009	5,377	34	113	82	5,606
1984	4,450	91	2	391	4,935	2010	5,440	21	6	127	5,594
1985	4,028	89	13	1,012	5,142	2011	9,480	32	124	143	9,779
1986	2,748	182	20	368	3,318	2012	10,660	19	65	137	10,881
1987	2,703	306	281	139	3,429	2013	7,312	37	NA	61	7,410
						2014	10,651	31	NA	33	10,715

Table 2. Summary of spiny dogfish landings and discard estimates based on Marine Recreational Information Program estimates, 1981-2014. As in previous assessments, the average weight of landed discarded spiny dogfish is assumed to be 2.5 kg. Discard mortality is assumed to be 20%. The revised MRIP estimator was used for 2004 to 2012. Differences between MRFSS and MRIP were considered minor relative to total catch (ie Commercial landings and discards); no adjustments were made to historical recreational data.

Year	Catch in Numbers								Numbers			Weight (mt)			Estimates used in Previous assessments			
	Observed Harvest (A)	PSE	Reported Harvest (B1)	PSE	Released Alive (B2)	PSE	Total Catch A+B1+B2	PSE	Total Landings A+B1 (number)	Discards B2 (number)	Landings (A+B1) (mt)	Discards (B2) (mt)	Dead Discards (mt)	Landings (mt)	Discards (mt)	% dif Landings	% dif Discard	Estimator
1981	5,943	49.1	591,300	52.1	118,440	31.3	715,683	43.4	597,243	118,440	1493	296	59	1,493	59	0.0	0.4	MRFSS
1982	12,460	38.6	15,712	45.5	139,730	21.4	167,902	18.5	28,172	139,730	70	349	70	70	70	0.6	-0.2	MRFSS
1983	13,154	36.3	13,675	34.1	215,973	23.7	242,803	21.2	26,829	215,973	67	540	108	67	108	0.1	0.0	MRFSS
1984	9,606	48.1	26,918	45.1	169,574	35.1	206,099	29.6	36,524	169,574	91	424	85	91	85	0.3	-0.3	MRFSS
1985	5,495	47.7	30,172	38.3	385,745	41.8	421,412	38.4	35,667	385,745	89	964	193	89	193	0.2	-0.1	MRFSS
1986	11,598	26.5	61,688	22.8	474,930	17.7	548,216	15.6	73,286	474,930	183	1187	237	182	237	0.7	0.2	MRFSS
1987	14,286	44	108,171	28.9	422,387	21.6	544,844	17.8	122,457	422,387	306	1056	211	306	211	0.0	0.1	MRFSS
1988	46,068	30.6	98,002	19.8	350,410	24.4	494,480	18	144,070	350,410	360	876	175	359	175	0.3	0.1	MRFSS
1989	63,031	40.6	104,511	34.4	539,731	17.2	707,273	14.5	167,542	539,731	419	1349	270	418	269	0.2	0.3	MRFSS
1990	22,364	26.1	49,045	28.6	468,085	14.6	539,494	13	71,409	468,085	179	1170	234	179	234	-0.3	0.0	MRFSS
1991	30,459	21.9	21,884	22.7	539,883	13.5	592,227	12.4	52,343	539,883	131	1350	270	131	270	-0.1	0.0	MRFSS
1992	46,753	22.8	50,483	23.1	407,485	10.6	504,721	9.1	97,236	407,485	243	1019	204	215	204	11.6	-0.1	MRFSS
1993	23,350	21.6	24,535	30.8	444,077	15.5	491,963	14.1	47,885	444,077	120	1110	222	120	222	-0.2	0.0	MRFSS
1994	17,714	34	44,230	35.6	387,274	15.2	449,218	13.6	61,944	387,274	155	968	194	155	194	-0.1	-0.2	MRFSS
1995	15,447	31.2	11,583	37.2	261,465	11.5	288,496	10.7	27,030	261,465	68	654	131	68	131	-0.6	-0.2	MRFSS
1996	8,500	29.8	1,843	48.4	131,672	12.7	142,015	11.9	10,343	131,672	26	329	66	25	66	3.3	-0.2	MRFSS
1997	21,017	24.4	5,582	54.9	337,431	12.1	364,030	11.3	26,599	337,431	66	844	169	66	167	0.7	1.0	MRFSS
1998	14,831	28.7	9,445	78.2	243,988	13.2	268,264	12.4	24,276	243,988	61	610	122	39	122	35.7	0.0	MRFSS
1999	11,995	52.5	9,710	68.2	214,974	11.5	236,679	11.1	21,705	214,974	54	537	107	53	106	2.3	1.4	MRFSS
2000	1,773	46.6	271	89.5	276,258	16.3	278,302	16.2	2,044	276,258	5	691	138	5	137	2.2	0.8	MRFSS
2001	7,771	39.7	3,459	44.6	842,583	9.1	853,812	9	11,230	842,583	28	2106	421	28	420	0.3	0.3	MRFSS
2002	2,281	32.3	79,691	43.8	669,469	10.6	751,440	10.5	81,972	669,469	205	1674	335	205	335	0.0	-0.1	MRFSS
2003	8,314	36.2	7,560	33.9	1,199,490	8	1,215,364	7.9	15,874	1,199,490	40	2999	600	40	597	-0.8	0.5	MRFSS
2004	19,328	44.7	28,761	38.9	1,315,796	14.1	1,363,885	13.6	48,089	1,315,796	120	3289	658	105	698	12.7	-6.1	MRIP
2005	6,894	33.5	7,230	37.9	1,339,412	19.9	1,353,536	19.7	14,124	1,339,412	35	3349	670	45	702	-27.4	-4.8	MRIP
2006	7,592	40.1	24,221	65.7	1,420,564	11.6	1,452,377	11.4	31,813	1,420,564	80	3551	710	94	768	-18.2	-8.1	MRIP
2007	2,134	44.2	32,352	67.3	1,557,079	12.7	1,591,565	12.5	34,486	1,557,079	86	3893	779	84	860	2.6	-10.5	MRIP
2008	10,930	35.3	34,701	38	1,078,307	12.6	1,123,938	12.2	45,631	1,078,307	114	2696	539	214	623	-87.6	-15.6	MRIP
2009	6,155	40.3	10,929	31.9	1,031,866	13	1,048,951	12.8	17,084	1,031,866	43	2580	516	34	574	20.4	-11.3	MRIP
2010	2,270	34.4	4,158	60.3	790,412	20.7	796,840	20.6	6,428	790,412	16	1976	395	21	386	-30.7	2.3	MRIP
2011	5,742	42.6	7,063	48.6	924,891	14.8	937,696	14.6	12,805	924,891	32	2312	462	NA	NA	NA	NA	MRIP
2012	3,413	65.7	4,103	63.6	549,820	18	557,336	17.7	7,516	549,820	19	1375	275	NA	NA	NA	NA	MRIP
2013	7,381	48.1	7,294	56.9	1,061,125	11.9	1,075,800	11.8	14,675	1,061,125	37	2653	531	NA	NA	NA	NA	MRIP
2014	2052	41.9	10470	28.5	1897300	52.5	1,909,822	52.1	12522	1897300	31	4743	949	NA	NA	NA	NA	MRIP

Table 3. Estimated total discards of spiny dogfish (mt) from commercial and recreational US fisheries, 1981-2014. The values for otter trawl and gill net from 1981-1989 are hindcast estimates (see SARC 43)

Year	Total Discards (mt)						Assumed Discard Mortality Rate					Total Dead
	Otter Trawl	Sink Gill Net	Scallop Dredge	Line gear	Recreational	Total	0.50	0.30	0.75	0.10	0.20	
							Dead Discards					
	Otter Trawl	Sink Gill Net	Scallop Dredge	Line gear	Recreational	Total	Otter Trawl	Sink Gill Net	Scallop Dredge	Line gear	Recreational	Total
1981	36,360	5,360	na	na	296	42,016	18,180	1,608	na	na	59	19,847
1982	42,910	4,454	na	na	349	47,713	21,455	1,336	na	na	70	22,861
1983	42,188	4,042	na	na	540	46,770	21,094	1,213	na	na	108	22,415
1984	39,625	4,918	na	na	424	44,967	19,813	1,475	na	na	85	21,373
1985	33,354	4,539	na	na	964	38,857	16,677	1,362	na	na	193	18,232
1986	31,745	4,883	na	na	1,187	37,815	15,873	1,465	na	na	237	17,575
1987	29,050	4,864	na	na	1,056	34,970	14,525	1,459	na	na	211	16,195
1988	28,951	5,132	na	na	876	34,959	14,476	1,540	na	na	175	16,190
1989	28,286	5,360	na	na	1,344	34,990	14,143	1,608	na	na	269	16,020
1990	34,242	6,062	na	na	1,170	41,474	17,121	1,819	na	na	234	19,174
1991	19,322	11,030	32	97	1,350	31,831	9,661	3,309	24	10	270	13,274
1992	32,617	5,953	827	650	1,019	41,066	16,309	1,786	620	65	204	18,983
1993	17,284	9,814	209	44	1,110	28,461	8,642	2,944	157	4	222	11,969
1994	13,908	2,887	723	na	968	18,486	6,954	866	542	na	194	8,556
1995	16,997	6,731	378	na	654	24,760	8,499	2,019	284	na	131	10,932
1996	9,402	3,890	121	na	329	13,742	4,701	1,167	91	na	66	6,025
1997	6,704	2,326	198	na	837	10,065	3,352	698	149	na	167	4,366
1998	5,268	1,965	120	na	610	7,963	2,634	590	90	na	122	3,435
1999	7,685	2,005	41	na	532	10,263	3,843	602	31	na	106	4,581
2000	2,728	4,684	14	na	685	8,111	1,364	1,405	11	na	137	2,917
2001	4,919	7,204	30	na	2,099	14,252	2,460	2,161	23	na	420	5,063
2002	5,540	4,997	58	4,015	1,673	16,283	2,770	1,499	44	402	335	5,049
2003	3,853	5,413	103	2	2,987	12,358	1,927	1,624	77	0	597	4,225
2004	8,299	4,031	53	497	3,490	16,370	4,150	1,209	40	50	698	6,146
2005	7,515	3,338	15	1,175	3,509	15,552	3,758	1,001	11	118	702	5,589
2006	7,773	3,369	14	131	3,840	15,126	3,886	1,011	10	13	768	5,688
2007	8,115	5,133	61	73	4,300	17,681	4,058	1,540	45	7	860	6,510
2008	5,604	4,864	237	260	3,115	14,080	2,802	1,459	178	26	623	5,088
2009	7,010	4,874	364	835	2,869	15,952	3,505	1,462	273	84	574	5,897
2010	5,564	2,385	196	509	1,930	10,584	2,782	716	147	51	386	4,081
2011	6,540	2,831	226	356	2,312	12,264	3,270	849	170	36	462	4,787
2012	6,687	2,959	432	172	1,375	11,626	3,344	888	324	17	275	4,848
2013	6,897	3,107	127	37	2,653	12,820	3,448	932	95	4	531	5,010
2014	8,070	2,388	108	17	4,743	15,327	4,035	716	81	2	949	5,783

Table 4. Total landings, discards and total catch for spiny dogfish, 1989-2014.

Year	Total Discard	Total Dead Discards (mt)	Total Landings (mt)	Dead Discard/ Landings	Total Discard / Landings	Total Catch (mt)
1989	34,990	16,020	5,333	3.00	6.56	21,353
1990	41,474	19,174	16,611	1.15	2.50	35,785
1991	31,831	13,274	13,848	0.96	2.30	27,122
1992	41,066	18,983	18,008	1.05	2.28	36,991
1993	28,461	11,969	22,225	0.54	1.28	34,194
1994	18,486	8,556	20,774	0.41	0.89	29,330
1995	24,760	10,932	23,615	0.46	1.05	34,547
1996	13,742	6,025	27,827	0.22	0.49	33,852
1997	10,065	4,366	19,078	0.23	0.53	23,443
1998	7,963	3,435	22,329	0.15	0.36	25,764
1999	10,263	4,581	17,552	0.26	0.58	22,134
2000	8,111	2,917	12,405	0.24	0.65	15,321
2001	14,252	5,063	6,819	0.74	2.09	11,882
2002	16,283	5,049	6,462	0.78	2.52	11,510
2003	12,358	4,225	3,155	1.34	3.92	7,380
2004	16,370	6,146	3,778	1.63	4.33	9,925
2005	15,552	5,589	3,792	1.47	4.10	9,382
2006	15,126	5,688	4,792	1.19	3.16	10,480
2007	17,681	6,510	6,002	1.08	2.95	12,512
2008	14,080	5,088	6,025	0.84	2.34	11,113
2009	15,952	5,897	5,606	1.05	2.85	11,503
2010	10,584	4,081	5,594	0.73	1.89	9,675
2011	12,264	4,787	9,779	0.49	1.25	14,566
2012	11,626	4,848	10,881	0.45	1.07	15,729
2013	12,820	5,010	7,410	0.68	1.73	12,420
2014	15,327	5,783	10,715	0.54	1.43	16,498

Table 5. Summary of estimated landings of US, Canadian and foreign fisheries by sex, 1982-2014. US recreational landings included. Estimated total weights based on sum of estimated weights from sampled length frequency distributions from port samples. Estimated weights computed for female as $W = \exp(-15.025)^L \cdot 3.606935$ and males as $W = \exp(-13.002) \cdot L \cdot 3.097787$ with weight in kg and length in cm. "Samples" = number of measured dogfish.

Year	NMFS Biological Samples from Ports							Total Landings (mt)	Prorated Landings by Sex				
	Total Samples Males	Est Total Wt (kg) Males	Average Wt (kg) Males	Total Samples Females	Est Total Wt (kg) Females	Average Wt (kg) Females	Fraction Females by Weight		Est Landings (mt) of Males	Est Landings (mt) of Females	Number of Males Landed (000)	Number of Females Landed (000)	Total Numbers Landed (000)
1982	24	52.0	2.167	680	3015.7	4.435	0.9830	6,234	106	6,128	49	1,382	1,431
1983				610	2513.9	4.121	1.0000	5,428	0	5,428		1,317	1,317
1984	9	15.8	1.760	1499	6626.0	4.420	0.9976	4,935	12	4,923	7	1,114	1,120
1985	21	35.2	1.678	1657	6799.2	4.103	0.9948	5,142	27	5,116	16	1,247	1,263
1986	64	104.1	1.626	1165	4669.0	4.008	0.9782	3,318	72	3,246	44	810	854
1987	31	52.7	1.700	2000	7550.1	3.775	0.9931	3,429	24	3,406	14	902	916
1988	7	14.8	2.114	1764	7560.7	4.286	0.9980	4,112	8	4,104	4	957	961
1989	35	67.5	1.927	1375	5528.0	4.020	0.9879	5,333	64	5,269	33	1,311	1,344
1990	19	33.7	1.772	2230	8916.6	3.998	0.9962	16,611	63	16,549	35	4,139	4,174
1991	161	379.2	2.356	1518	5923.9	3.902	0.9398	13,848	833	13,015	354	3,335	3,689
1992	12	22.3	1.861	3187	12180.6	3.822	0.9982	18,008	33	17,975	18	4,703	4,721
1993	42	78.4	1.866	2773	9927.5	3.580	0.9922	22,225	174	22,051	93	6,159	6,253
1994	47	86.6	1.843	2092	6639.9	3.174	0.9871	20,774	267	20,507	145	6,461	6,606
1995	25	38.9	1.555	2266	6676.6	2.946	0.9942	23,615	137	23,479	88	7,969	8,056
1996	569	886.7	1.558	1662	4397.6	2.646	0.8322	27,827	4,669	23,158	2,996	8,752	11,749
1997	303	449.1	1.482	382	780.9	2.044	0.6349	19,078	6,966	12,112	4,700	5,925	10,625
1998	68	85.4	1.257	683	1434.5	2.100	0.9438	22,329	1,255	21,073	999	10,034	11,033
1999	93	130.3	1.401	311	625.5	2.011	0.8276	17,552	3,026	14,527	2,160	7,223	9,382
2000	345	473.1	1.371	1921	3921.2	2.041	0.8923	12,405	1,335	11,069	974	5,423	6,397
2001	12	17.1	1.422	215	456.5	2.123	0.9640	6,819	246	6,573	173	3,096	3,269
2002	1	1.3	1.279	278	752.5	2.707	0.9983	6,462	11	6,451	9	2,383	2,392
2003	34	48.3	1.421	966	2338.4	2.421	0.9798	3,155	64	3,091	45	1,277	1,322
2004	15	23.9	1.593	1180	3296.9	2.794	0.9928	3,778	27	3,751	17	1,343	1,360
2005	745	1018.7	1.367	2065	5196.0	2.516	0.8361	3,792	622	3,171	455	1,260	1,715
2006	646	924.4	1.431	4211	10382.9	2.466	0.9182	4,792	392	4,400	274	1,785	2,058
2007	507	720.7	1.421	2865	7514.8	2.623	0.9125	6,002	525	5,477	370	2,088	2,458
2008	236	342.0	1.449	2925	7973.8	2.726	0.9589	6,025	248	5,777	171	2,119	2,290
2009	472	696.6	1.476	3378	9161.6	2.712	0.9293	5,606	396	5,210	268	1,921	2,189
2010	821	1213.4	1.478	4963	14217.4	2.865	0.9214	5,594	440	5,154	298	1,799	2,097
2011	868	1109.9	1.279	4800	12786.8	2.664	0.9201	9,779	781	8,998	611	3,378	3,989
2012	213	371.8	1.746	3763	10727.9	2.851	0.9665	10,881	365	10,516	209	3,689	3,898
2013	450	736.7	1.637	5441	16258.3	2.988	0.9567	7,410	321	7,089	196	2,372	2,569
2014	546	830.6	1.521	4505	13198	2.930	0.9408	10,715	634	10,081	417	3,441	3,858
formula	A	B	C=B/A	D	E	F=E/D	G=E/(E+B)	H	I=(1-G)*H	J=G*H	K=I/C	L=J/F	M=K+L

Table 6 . Summary of estimated discards of combined US fleets by sex, 1991-2014. Estimated total weights based on summation of estimated weights from sampled length frequency distributions. Estimated weights computed from length-weight regressions. Female $W = \exp(-15.025)L^{3.606935}$. Male $W = \exp(-13.002)L^{3.097787}$ with weight in kg and length in cm. "Samples" = number of measured dogfish that were discarded. 2010 estimates based on fishing year rather than calendar year.

Year	NMFS Biological Samples of Discards from Observers							Prorated Discards by Sex					
	Total Samples Males	Est Total Wt (kg) Males	Average Wt (kg) Males	Total Samples Females	Est Total Wt (kg) Females	Average Wt (kg) Females	Fraction Females by Weight	Total Dead Discards (mt)	Est Discards (mt) of Males	Est Discards (mt) of Females	Number of Males Discarded (000)	Number of Females Discarded (000)	Total Numbers Discarded (000)
1991	376	463	1.231	894	2350	2.628	0.8355	13274	2184	11090	1775	4219	5994
1992	449	504	1.123	632	1090	1.724	0.6836	18983	6007	12976	5347	7526	12873
1993	57	62	1.087	130	414	3.184	0.8697	11969	1559	10410	1434	3270	4704
1994	207	207	1.001	747	1397	1.870	0.8708	8556	1105	7451	1104	3985	5090
1995	2191	2342	1.069	2384	3064	1.285	0.5668	10932	4735	6197	4431	4821	9251
1996	1643	1833	1.115	1370	2013	1.469	0.5234	6025	2871	3153	2574	2147	4721
1997	1359	1391	1.024	1427	2070	1.451	0.5980	4366	1755	2611	1714	1800	3514
1998	1289	1320	1.024	1463	1939	1.326	0.5951	3435	1391	2044	1359	1542	2901
1999	447	440	0.984	870	1808	2.078	0.8044	4581	896	3685	911	1773	2684
2000	423	568	1.343	1498	3207	2.141	0.8495	2917	439	2478	327	1157	1484
2001	650	842	1.295	2987	7377	2.470	0.8976	5063	518	4545	400	1840	2241
2002	1293	1819	1.407	5880	13899	2.364	0.8843	5049	584	4464	415	1889	2304
2003	4711	5367	1.139	12826	27210	2.121	0.8353	4225	696	3529	611	1664	2275
2004	10878	14480	1.331	28583	64771	2.266	0.8173	6146	1123	5023	844	2217	3060
2005	7470	9450	1.265	13024	28593	2.195	0.7516	5589	1388	4201	1098	1914	3011
2006	4512	5449	1.208	7041	14559	2.068	0.7277	5688	1549	4139	1283	2002	3284
2007	3955	5183	1.310	9830	24621	2.505	0.8261	6510	1132	5378	864	2147	3011
2008	3096	3969	1.282	6140	14857	2.420	0.7892	5088	1073	4015	837	1659	2496
2009	1719	2088	1.215	3083	6849	2.221	0.7664	5897	1378	4519	1134	2034	3169
2010	1634	2190	1.340	2086	4994	2.394	0.6952	4081	1244	2837	928	1185	2113
2011	2286	2920	1.278	2428	5864	2.415	0.6675	4787	1591	3196	1246	1323	2569
2012	734	1010	1.376	1384	3302	2.386	0.766	4848	1136	3712	825	1556	2381
2013	448	381	0.850	701	1210	1.725	0.761	5010	1200	3810	1411	2208	3620
2014	743	786	1.058	784	1428	1.822	0.645	5783	2053	3730	1940	2047	3987
formula	A	B	C=B/A	D	E	F=E/D	G=E/(E+B)	H	I=(1-G)*H	J=G*H	K=I/C	L=J/F	M=K+L

Table 7. Biomass estimates for spiny dogfish (thousands of metric tons) based on area swept by NEFSC trawl during spring surveys, 1968-2015. Estimate for 2014 not included as survey coverage was incomplete.

Year	Lengths >= 80 cm			Lengths 36 to 79 cm			Length <= 35 cm			All Lengths	3-pt Average Female SSB
	Females	Males	Total	Females	Males	Total	Females	Males	Total		
1968			41.4			110.4			1.52	153.3	
1969			27.4			69.3			0.66	97.3	
1970			36.7			33.0			3.19	72.9	
1971			103.8			27.6			2.76	134.2	
1972			126.6			145.9			1.55	274.1	
1973			178.7			165.3			2.58	346.5	
1974			221.9			179.6			2.66	404.1	
1975			105.1			125.0			3.97	234.0	
1976			96.3			120.8			1.20	218.3	
1977			77.3			68.0			0.53	145.9	
1978			87.4			131.2			1.24	219.8	
1979			52.3			18.6			1.82	72.7	
1980	104.7	15.3	168.1	16.8	72.2	123.5	0.32	0.39	0.84	292.4	
1981	266.5	24.4	293.8	25.5	75.1	100.6	2.14	2.80	5.06	399.5	
1982	454.0	34.6	488.6	61.6	143.3	204.9	0.48	0.69	1.17	694.6	275.1
1983	77.7	30.1	107.8	36.7	98.5	135.3	3.09	3.95	7.03	250.1	266.1
1984	115.6	27.5	143.1	33.4	88.0	121.4	0.14	0.21	0.35	264.9	215.8
1985	317.0	125.5	442.6	102.5	502.5	605.0	4.01	5.10	9.10	1056.7	170.1
1986	191.3	3.5	194.8	51.9	29.6	81.5	0.84	1.11	1.96	278.2	208.0
1987	219.1	90.5	309.6	61.5	171.7	233.1	2.46	4.76	7.22	550.0	242.5
1988	433.1	26.2	459.4	93.3	153.6	247.0	0.89	1.09	1.98	708.4	281.2
1989	162.1	40.5	202.6	100.4	158.2	258.6	1.14	1.54	2.68	463.9	271.5
1990	400.3	70.7	471.0	163.5	303.1	466.6	0.68	1.03	1.71	939.3	331.8
1991	220.4	30.0	250.3	108.4	186.3	294.7	0.98	1.43	2.41	547.4	260.9
1992	280.5	41.9	322.4	179.9	231.9	411.8	0.73	1.00	1.73	735.9	300.4
1993	234.6	27.8	262.5	104.1	198.5	302.6	0.55	0.65	1.21	566.3	245.2
1994	105.3	37.1	142.4	108.3	254.2	362.5	4.28	5.54	9.82	514.8	206.8
1995	102.4	29.5	131.9	154.0	174.5	328.5	0.25	0.35	0.59	460.9	147.5
1996	196.5	33.4	229.9	201.7	334.8	536.4	0.98	1.14	2.12	768.5	134.7
1997	83.7	17.5	101.2	205.2	209.1	414.3	0.05	0.05	0.10	515.5	127.5
1998	26.7	22.9	49.7	69.0	236.4	305.4	0.05	0.08	0.13	355.2	102.3
1999	62.7	20.4	83.1	140.8	256.4	397.2	0.02	0.03	0.05	480.4	57.7
2000	85.8	11.7	97.5	91.5	166.2	257.7	0.07	0.09	0.16	355.4	58.4
2001	56.7	16.7	73.4	71.4	160.5	231.9	0.04	0.03	0.07	305.4	68.4
2002	75.2	19.0	94.2	131.5	246.3	377.8	0.06	0.06	0.12	472.1	72.5
2003	64.5	22.5	87.1	125.5	256.3	381.8	0.13	0.14	0.27	469.1	65.5
2004	40.4	10.0	50.3	46.9	126.2	173.1	0.66	0.91	1.56	225.0	60.0
2005	55.8	30.8	86.6	59.8	294.7	354.5	0.28	0.42	0.69	441.9	53.6
2006	253.4	29.0	282.5	141.6	406.5	548.1	0.10	0.17	0.27	830.8	116.6
2007	158.0	18.9	176.9	73.6	227.6	301.1	0.23	0.32	0.56	478.6	155.8
2008	241.7	29.6	271.4	91.2	293.7	385.0	0.47	0.59	1.05	657.4	217.7

Notes: Total equals sum of males and females plus unsexed dogfish. Data for dogfish prior to 1980 are currently not available by sex.

Estimated derived from the FSV Bigelow using a weight specific calibration to convert to Albatross equivalents.											
Year	Lengths >= 80 cm			Lengths 36 to 79 cm			Length <= 35 cm			All Lengths	3-pt Average Female SSB
	Females	Males	Total	Females	Males	Total	Females	Males	Total		
2009	148.3	21.9	170.2	54.9	326.1	381.0	2.95	3.76	6.71	557.9	182.7
2010	160.6	18.3	178.8	64.0	287.3	351.3	1.15	1.44	2.59	532.7	183.5
2011	213.9	26.7	240.6	60.0	408.6	468.6	0.99	2.48	3.47	712.6	174.2
2012	348.4	44.5	399.0	72.6	584.7	723.0	4.06	5.04	9.16	1131.1	241.0
2013	145.6	57.2	202.7	133.1	444.3	577.4	5.25	6.48	11.73	791.8	235.9
2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2015	125.4	22.3	147.7	40.5	280.2	320.6	1.07	1.35	2.42	470.8	135.5

Data have been adjusted to AL IV equivalents using HB Bigelow calibration coefficients. 3-pt Ave SSB for 2015 is 2013 and 2015 only.

Table 8. Summary of mean swept area biomass estimates (mt) based on stochastic population estimator, 1991-2015. Swept area estimates not available for 2014. Exploitable biomasses are based on year-specific selectivity functions based on 3 year moving averages. Female spawning stock biomass is base on sum of female spiny dogfish above 80 cm TL. The target spawning stock biomass is 30.343 kg/tow or 159,288 mt (using the 0.0119 nm² trawl footprint). The threshold spawning stock biomass is 79,644 mt.

Terminal Year	Mid Year	Total Exploitable Biomass	Exploitable Female Biomass	Exploitable Male Biomass	Tot Biomass	Female Spawning Stock Biomass
1991	1990	570,113	339,405	230,208	582,274	234,229
1992	1991	532,641	278,419	253,722	664,850	269,624
1993	1992	379,501	169,227	209,773	553,731	220,002
1994	1993	322,345	93,716	228,128	544,415	186,132
1995	1994	261,387	55,102	205,785	460,932	133,264
1996	1995	329,048	77,600	250,948	519,920	120,664
1997	1996	316,075	81,413	234,162	520,782	114,091
1998	1997	319,828	69,005	250,323	489,233	91,458
1999	1998	185,468	77,142	107,825	406,287	51,821
2000	1999	167,483	66,023	100,960	358,185	52,562
2001	2000	286,458	96,233	189,725	343,602	61,552
2002	2001	291,695	107,026	184,169	337,686	64,844
2003	2002	278,283	63,794	213,989	371,200	58,376
2004	2003	241,697	39,745	201,452	347,176	53,625
2005	2004	237,536	17,432	219,604	338,170	47,719
2006	2005	327,077	54,587	271,991	453,881	106,180
2007	2006	233,662	90,651	142,511	524,205	141,351
2008	2007	423,273	123,742	299,031	586,413	194,616
2009	2008	361,040	89,151	271,390	505,116	163,256
2010	2009	377,034	87,984	288,549	521,494	164,066
2011	2010	410,490	88,702	321,288	557,059	169,415
2012	2011	518,504	111,692	406,311	688,632	215,744
2013	2012	567,696	110,296	456,899	766,064	211,372
2014	2013	NA	NA	NA	NA	NA
2015	2014	473,278	75,061	397,717	648,989	138,997

Table 9. Summary of stochastic fishing mortality rates expressed as the mean of full F on the exploitable biomass of female and male spiny dogfish, 1990-2014. Estimates for 2013 are not available. Year represents the year of the catch (landings plus dead discards). Sampling distribution of F estimates for females are given in Figure 11a,b. Fthreshold for females is 0.2439.

Year	F1: Female Catch on exploitable female biomass	F2: Male Catch on exploitable male biomass
1990	0.088	0.044
1991	0.082	0.026
1992	0.177	0.040
1993	0.327	0.021
1994	0.465	0.018
1995	0.418	0.014
1996	0.355	0.031
1997	0.234	0.038
1998	0.306	0.025
1999	0.289	0.043
2000	0.152	0.007
2001	0.109	0.005
2002	0.165	0.003
2003	0.168	0.004
2004	0.474	0.008
2005	0.128	0.007
2006	0.088	0.012
2007	0.090	0.005
2008	0.110	0.004
2009	0.113	0.006
2010	0.093	0.005
2011	0.114	0.006
2012	0.149	0.003
2013	NA	NA
2014	0.214	0.007

Table 10. Projected percentiles of fishing mortality rate on females, total catch , landings , discards, female spawning stock and exploitable biomass in 2015. Catches in 2015 are assumed to be equal to catches in 2014=16,542 mt.

Percentile	2015					
	F	Catch (mt)	Landings (mt)	Discards (mt)	Female SSB (mt)	Exploitable Female Biomass (mt)
1	0.845	16,541	10,725	5,816	42,452	20,309
2	0.723	16,538	10,723	5,815	48,412	23,160
3	0.646	16,539	10,723	5,815	53,410	25,551
4	0.591	16,540	10,724	5,816	57,746	27,626
5	0.549	16,535	10,721	5,814	61,600	29,469
10	0.431	16,531	10,717	5,813	76,580	36,636
15	0.372	16,535	10,721	5,815	87,767	41,987
20	0.334	16,538	10,723	5,815	97,044	46,425
25	0.306	16,527	10,715	5,812	105,187	50,321
30	0.285	16,534	10,720	5,814	112,603	53,869
35	0.267	16,529	10,716	5,813	119,536	57,186
40	0.252	16,536	10,721	5,815	126,151	60,350
45	0.240	16,558	10,738	5,821	132,574	63,423
50	0.228	16,544	10,728	5,817	138,904	66,451
55	0.218	16,554	10,735	5,820	145,234	69,480
60	0.208	16,563	10,741	5,822	151,657	72,552
65	0.199	16,534	10,720	5,814	158,272	75,717
70	0.190	16,527	10,715	5,812	165,205	79,033
80	0.173	16,537	10,722	5,815	180,764	86,477
95	0.144	16,537	10,722	5,815	216,208	103,433
96	0.142	16,575	10,750	5,825	220,062	105,277
97	0.139	16,565	10,742	5,822	224,398	107,351
98	0.135	16,511	10,703	5,808	229,396	109,742
99	0.132	16,571	10,747	5,824	235,356	112,594

Table 11. Summary of stochastic projections of F, SSB, catch (=OFL), landings and discards by sex, and comparisons with biomass reference points for spiny dogfish under a constant F harvest strategy equal to the target $F=F_{msy}$ proxy = 0.2439 for 2016 to 2039. The estimated F in 2015 is estimated by assuming that the catch in 2015 is equal to catch in 2014 =16,498 mt. Table entries are means of predicted values.

Year	Average											Probability			
	F on females	F on males	SSB (mt)	Total Catch (mt)	Total Landing (mt)	Female Landings (mt)	Male Landings (mt)	Total Discards (mt)	Female Discards (mt)	Male Discards (mt)	SSB(t)/SSB_target	SSB>SSB_target	SSB>SSB_thresh	F>=Fthresh	F>=Ftarget
2015	0.26879	0.00413	139,112	16,542	10,726	10,082	644	5,816	3,731	2,086	0.873	0.344	0.888	0.538	0.844
2016	0.2439	0.01258	132,790	24,277	13,513	11,503	2,010	10,763	4,257	6,506	0.834	0.310	0.844	1.000	1.000
2017	0.2439	0.01258	120,443	25,120	14,078	12,044	2,034	11,042	4,457	6,585	0.756	0.208	0.802	1.000	1.000
2018	0.2439	0.01258	112,307	25,805	14,626	12,614	2,011	11,180	4,668	6,512	0.705	0.142	0.768	1.000	1.000
2019	0.2439	0.01258	108,978	26,660	15,332	13,360	1,972	11,328	4,944	6,384	0.684	0.116	0.752	1.000	1.000
2020	0.2439	0.01258	130,452	27,761	16,244	14,324	1,920	11,517	5,301	6,216	0.819	0.282	0.848	1.000	1.000
2021	0.2439	0.01258	154,933	28,884	17,196	15,339	1,857	11,688	5,676	6,012	0.973	0.470	0.908	1.000	1.000
2022	0.2439	0.01258	178,947	29,979	18,147	16,362	1,785	11,832	6,055	5,777	1.123	0.614	0.942	1.000	1.000
2023	0.2439	0.01258	212,829	30,732	18,871	17,169	1,701	11,861	6,353	5,508	1.336	0.752	0.968	1.000	1.000
2024	0.2439	0.01258	206,369	31,059	19,282	17,663	1,619	11,777	6,536	5,241	1.296	0.732	0.966	1.000	1.000
2025	0.2439	0.01258	200,987	31,085	19,464	17,923	1,541	11,621	6,633	4,988	1.262	0.714	0.964	1.000	1.000
2026	0.2439	0.01258	193,967	30,639	19,288	17,818	1,470	11,351	6,594	4,758	1.218	0.684	0.958	1.000	1.000
2027	0.2439	0.01258	185,125	29,938	18,905	17,497	1,408	11,034	6,475	4,559	1.162	0.644	0.948	1.000	1.000
2028	0.2439	0.01258	175,129	29,140	18,432	17,076	1,356	10,708	6,319	4,389	1.099	0.594	0.936	1.000	1.000
2029	0.2439	0.01258	164,710	28,330	17,936	16,626	1,310	10,393	6,153	4,241	1.034	0.534	0.922	1.000	1.000
2030	0.2439	0.01258	156,734	27,600	17,492	16,224	1,268	10,108	6,004	4,105	0.984	0.482	0.910	1.000	1.000
2031	0.2439	0.01258	152,417	27,012	17,145	15,916	1,229	9,868	5,890	3,978	0.957	0.452	0.902	1.000	1.000
2032	0.2439	0.01258	152,870	26,744	17,030	15,840	1,190	9,713	5,862	3,852	0.960	0.456	0.904	1.000	1.000
2033	0.2439	0.01258	158,464	26,717	17,091	15,939	1,152	9,627	5,898	3,729	0.995	0.494	0.914	1.000	1.000
2034	0.2439	0.01258	165,586	26,856	17,267	16,151	1,116	9,589	5,977	3,613	1.040	0.540	0.924	1.000	1.000
2035	0.2439	0.01258	172,349	27,071	17,495	16,412	1,082	9,577	6,073	3,503	1.082	0.578	0.934	1.000	1.000
2036	0.2439	0.01258	177,192	27,280	17,713	16,662	1,051	9,567	6,166	3,401	1.112	0.606	0.940	1.000	1.000
2037	0.2439	0.01258	180,421	27,417	17,873	16,852	1,022	9,544	6,236	3,308	1.133	0.622	0.944	1.000	1.000
2038	0.2439	0.01258	181,287	27,451	17,952	16,956	996	9,500	6,274	3,225	1.138	0.626	0.944	1.000	1.000
2039	0.2439	0.01258	180,301	27,378	17,945	16,971	974	9,434	6,280	3,153	1.132	0.622	0.944	1.000	1.000
2040	0.2439	0.01258	177,640	27,208	17,860	16,905	955	9,348	6,256	3,093	1.115	0.608	0.940	1.000	1.000
2261	0.2439	0.01258	171,725	26,114	17,400	16,607	793	8,713	6,146	2,568	1.078	0.576	0.934	1.000	1.000
2262	0.2439	0.01258	171,726	26,114	17,400	16,607	793	8,713	6,146	2,568	1.078	0.576	0.934	1.000	1.000
2263	0.2439	0.01258	171,727	26,114	17,401	16,607	793	8,713	6,146	2,568	1.078	0.576	0.934	1.000	1.000
2264	0.2439	0.01258	171,728	26,114	17,401	16,608	793	8,713	6,146	2,568	1.078	0.576	0.934	1.000	1.000
Grand Total	0.24473	0.012298	165,308	27,305	17,150	15,822	1,328	10,155	5,855	4,300	1.038	0.518	0.912	0.985	0.995
Ave '13-22	0.246	0.012	149,716	26,682	15,801	14,046	1,755	10,880	5,198	5,683	0.940	0.397	0.869	0.954	0.984
Ave '23-32	0.244	0.013	170,599	28,406	18,005	16,701	1,304	10,401	6,180	4,221	1.071	0.559	0.928	1.000	1.000
Ave '32-40	0.244	0.013	176,580	27,004	17,705	16,747	958	9,299	6,197	3,102	1.109	0.602	0.939	1.000	1.000
Formula	A	B	C	D=E+H	E=F+G	F	G	H=I+J	I	J	K	L	M	N	O

Table 12. Projected percentiles of total catch , landings , discards and female spawning stock biomass in 2016-2018 with an fishing mortality rate equal to the Fmsy proxy of 0.2439. Catches in 2015 are assumed to be equal to catches in 2014= 16,542 mt.

Percentile	2016				2017				2018			
	Catch	Landings	Discards	Female SSB	Catch	Landings	Discards	Female SSB	Catch	Landings	Discards	Female SSB
1	12,163	4,671	7,491	30,149	12,528	4,888	7,641	27,555	12,721	5,084	7,636	26,156
2	12,904	5,213	7,692	36,435	13,301	5,451	7,849	33,248	13,524	5,670	7,854	31,444
3	13,527	5,668	7,860	41,714	13,949	5,925	8,024	38,029	14,199	6,162	8,037	35,882
4	14,069	6,063	8,006	46,302	14,512	6,336	8,176	42,182	14,785	6,589	8,195	39,737
5	14,551	6,415	8,136	50,388	15,013	6,702	8,312	45,882	15,306	6,969	8,336	43,169
10	16,427	7,784	8,643	66,285	16,964	8,125	8,839	60,269	17,333	8,448	8,885	56,516
15	17,829	8,807	9,022	78,161	18,421	9,189	9,232	71,017	18,847	9,552	9,295	66,484
20	18,992	9,656	9,336	88,019	19,630	10,071	9,559	79,937	20,103	10,468	9,636	74,756
25	20,016	10,403	9,612	96,690	20,693	10,847	9,846	87,783	21,208	11,273	9,935	82,030
30	20,946	11,082	9,864	104,570	21,660	11,552	10,107	94,913	22,212	12,005	10,207	88,641
35	21,817	11,718	10,099	111,950	22,565	12,213	10,352	101,591	23,152	12,691	10,461	94,832
40	22,647	12,324	10,323	118,982	23,427	12,842	10,584	107,953	24,048	13,344	10,704	100,731
45	23,451	12,910	10,540	125,791	24,262	13,452	10,810	114,114	24,916	13,977	10,939	106,444
50	24,247	13,492	10,755	132,543	25,090	14,056	11,034	120,222	25,775	14,604	11,172	112,106
55	25,041	14,072	10,970	139,269	25,915	14,658	11,256	126,308	26,632	15,229	11,404	117,749
60	25,847	14,660	11,188	146,096	26,752	15,269	11,483	132,485	27,502	15,863	11,639	123,475
65	26,682	15,269	11,413	153,170	27,619	15,902	11,717	138,884	28,402	16,519	11,883	129,406
70	27,554	15,905	11,648	160,557	28,525	16,563	11,961	145,568	29,342	17,205	12,138	135,601
80	29,508	17,331	12,176	177,111	30,554	18,045	12,510	160,544	31,451	18,742	12,708	149,485
95	33,962	20,583	13,379	214,851	35,182	21,422	13,760	194,688	36,257	22,247	14,010	181,135
96	34,442	20,933	13,509	218,912	35,680	21,786	13,894	198,362	36,775	22,625	14,150	184,544
97	34,988	21,332	13,656	223,542	36,248	22,200	14,048	202,550	37,364	23,054	14,310	188,425
98	35,623	21,795	13,828	228,924	36,907	22,681	14,226	207,418	38,048	23,553	14,495	192,935
99	36,365	22,336	14,028	235,205	37,678	23,244	14,434	213,101	38,849	24,137	14,712	198,206

Table 13. Summary of stochastic projections of F, SSB, catch, landings and discards by sex, and comparisons with biomass reference points for spiny dogfish under a constant Pstar harvest strategy for 2016 to 2018. The estimated F in 2015 is estimated by assuming that the catch in 2015 is equal to the estimated catch in 2014. Table entries are means of predicted values. Pstar was adjusted for the ratio of SSB(t)/SSB_target. The sequence of ABC estimates was derived iteratively by estimating the OFL in year t under Fmsy, computing the ABC under Pstar, and then replacing the estimate of OFL in year t with the ABC(t).

Year	Average											Probability			
	F on females	F on males	SSB (mt)	Total Catch (mt)	Total Landing (mt)	Female Landings (mt)	Male Landings (mt)	Total Discards (mt)	Female Discards (mt)	Male Discards (mt)	SSB(t)/SSB_target	SSB>SSB_target	SSB>SSB_thresh	F>=Fthresh	F>=Ftarget
2015	0.2687899	0.00413	139,112	16,542	10,726	10,082	644	5,816	3,731	2,086	0.873	0.344	0.888	0.432	0.742
2016	0.26978296	0.00413	132,790	16,775	10,858	10,196	662	5,917	3,773	2,144	0.834	0.310	0.844	0.388	0.660
2017	0.27183262	0.00413	122,352	16,518	10,642	9,966	676	5,876	3,688	2,188	0.768	0.248	0.784	0.338	0.566
2018	0.2853246	0.00413	117,099	16,608	10,712	10,038	674	5,897	3,714	2,182	0.735	0.230	0.742	0.314	0.510
2019	0.2439	0.01258	117,214	28,008	16,211	14,189	2,022	11,797	5,251	6,546	0.736	0.246	0.726	1.000	1.000
2020	0.2439	0.01258	138,038	28,999	17,047	15,079	1,968	11,952	5,580	6,372	0.867	0.378	0.804	1.000	1.000
2021	0.2439	0.01258	161,772	30,005	17,917	16,013	1,904	12,088	5,926	6,162	1.016	0.514	0.866	1.000	1.000
2022	0.2439	0.01258	184,960	30,986	18,788	16,958	1,829	12,198	6,275	5,922	1.161	0.624	0.906	1.000	1.000
2023	0.2439	0.01258	218,070	31,635	19,439	17,694	1,745	12,196	6,548	5,648	1.369	0.740	0.942	1.000	1.000
2024	0.2439	0.01258	210,753	31,873	19,788	18,127	1,661	12,085	6,708	5,377	1.323	0.722	0.942	1.000	1.000

Table 14. Projected percentiles of total catch , landings , discards and female spawning stock biomass in 2014-2016 with an fishing mortality rate equal to the Pstar based harvest strategy. Catches in 2015 are assumed to be equal to catches in 2014 = 16,542 mt. (see Table 10).

Percentile	2016						2017						2018					
	F	Catch (mt)	Landings (mt)	Discards (mt)	Female SSB (mt)	Exploitable Female Biomass (mt)	F	Catch (mt)	Landings (mt)	Discards (mt)	Female SSB (mt)	Exploitable Female Biomass (mt)	F	Catch (mt)	Landings (mt)	Discards (mt)	Female SSB (mt)	Exploitable Female Biomass (mt)
1	1.114	16,775	10,858	5,917	30,149	16,493	1.595	16,517	10,641	5,876	17,605	12,083	2.524	16,619	10,723	5,896	8,531	8,178
2	0.887	16,776	10,859	5,917	36,435	19,855	1.124	16,516	10,640	5,875	23,853	15,912	1.514	16,619	10,723	5,897	14,473	12,322
3	0.757	16,779	10,861	5,918	41,714	22,680	0.898	16,517	10,641	5,876	29,154	19,154	1.112	16,623	10,725	5,898	19,736	15,929
4	0.671	16,775	10,858	5,917	46,302	25,134	0.763	16,515	10,640	5,875	33,793	21,988	0.897	16,621	10,723	5,897	24,430	19,121
5	0.610	16,770	10,855	5,916	50,388	27,320	0.673	16,519	10,643	5,876	37,940	24,519	0.764	16,622	10,724	5,898	28,664	21,988
10	0.450	16,774	10,857	5,917	66,285	35,825	0.460	16,513	10,638	5,875	54,127	34,394	0.480	16,627	10,728	5,900	45,420	33,284
15	0.376	16,764	10,850	5,914	78,161	42,179	0.372	16,527	10,648	5,878	66,279	41,802	0.375	16,628	10,728	5,900	58,089	41,799
20	0.332	16,777	10,859	5,917	88,019	47,454	0.321	16,522	10,645	5,877	76,361	47,947	0.316	16,605	10,710	5,894	68,651	48,889
25	0.300	16,779	10,861	5,918	96,690	52,093	0.286	16,532	10,652	5,880	85,245	53,361	0.279	16,639	10,735	5,904	77,960	55,133
30	0.276	16,766	10,852	5,915	104,570	56,309	0.260	16,533	10,653	5,880	93,340	58,294	0.251	16,626	10,726	5,901	86,459	60,832
35	0.257	16,771	10,855	5,916	111,950	60,258	0.240	16,514	10,639	5,875	100,907	62,905	0.230	16,630	10,728	5,902	94,429	66,174
40	0.241	16,761	10,848	5,913	118,982	64,021	0.224	16,537	10,656	5,881	108,134	67,308	0.212	16,605	10,710	5,895	102,006	71,254
45	0.228	16,787	10,867	5,920	125,791	67,664	0.210	16,538	10,656	5,881	115,097	71,553	0.198	16,631	10,729	5,903	109,333	76,167
50	0.215	16,765	10,851	5,914	132,543	71,277	0.197	16,526	10,648	5,878	122,053	75,789	0.186	16,636	10,732	5,904	116,662	81,075
55	0.204	16,755	10,843	5,911	139,269	74,876	0.187	16,517	10,641	5,876	128,972	80,005	0.175	16,636	10,731	5,904	123,954	85,960
60	0.195	16,782	10,863	5,919	146,096	78,530	0.177	16,538	10,657	5,882	135,957	84,262	0.165	16,601	10,706	5,895	131,289	90,878
65	0.185	16,767	10,853	5,915	153,170	82,314	0.167	16,513	10,638	5,875	143,238	88,695	0.156	16,631	10,728	5,903	138,979	96,025
70	0.176	16,770	10,854	5,916	160,557	86,267	0.159	16,497	10,627	5,871	150,825	93,318	0.147	16,607	10,710	5,897	146,986	101,387
80	0.159	16,784	10,864	5,919	177,111	95,124	0.143	16,522	10,645	5,877	167,821	103,673	0.131	16,597	10,702	5,895	164,871	113,369
95	0.131	16,803	10,878	5,924	214,851	115,319	0.115	16,530	10,651	5,879	206,594	127,295	0.105	16,655	10,743	5,912	205,730	140,736
96	0.128	16,756	10,844	5,912	218,912	117,493	0.113	16,548	10,664	5,884	210,819	129,868	0.103	16,659	10,746	5,913	210,166	143,707
97	0.126	16,812	10,885	5,927	223,542	119,970	0.110	16,497	10,627	5,871	215,519	132,733	0.100	16,589	10,695	5,894	215,174	147,060
98	0.122	16,742	10,834	5,908	228,924	122,848	0.107	16,485	10,618	5,867	221,125	136,142	0.098	16,656	10,744	5,912	221,090	151,012
99	0.119	16,789	10,868	5,921	235,205	126,211	0.104	16,503	10,631	5,872	227,534	140,052	0.095	16,654	10,742	5,912	227,835	155,539

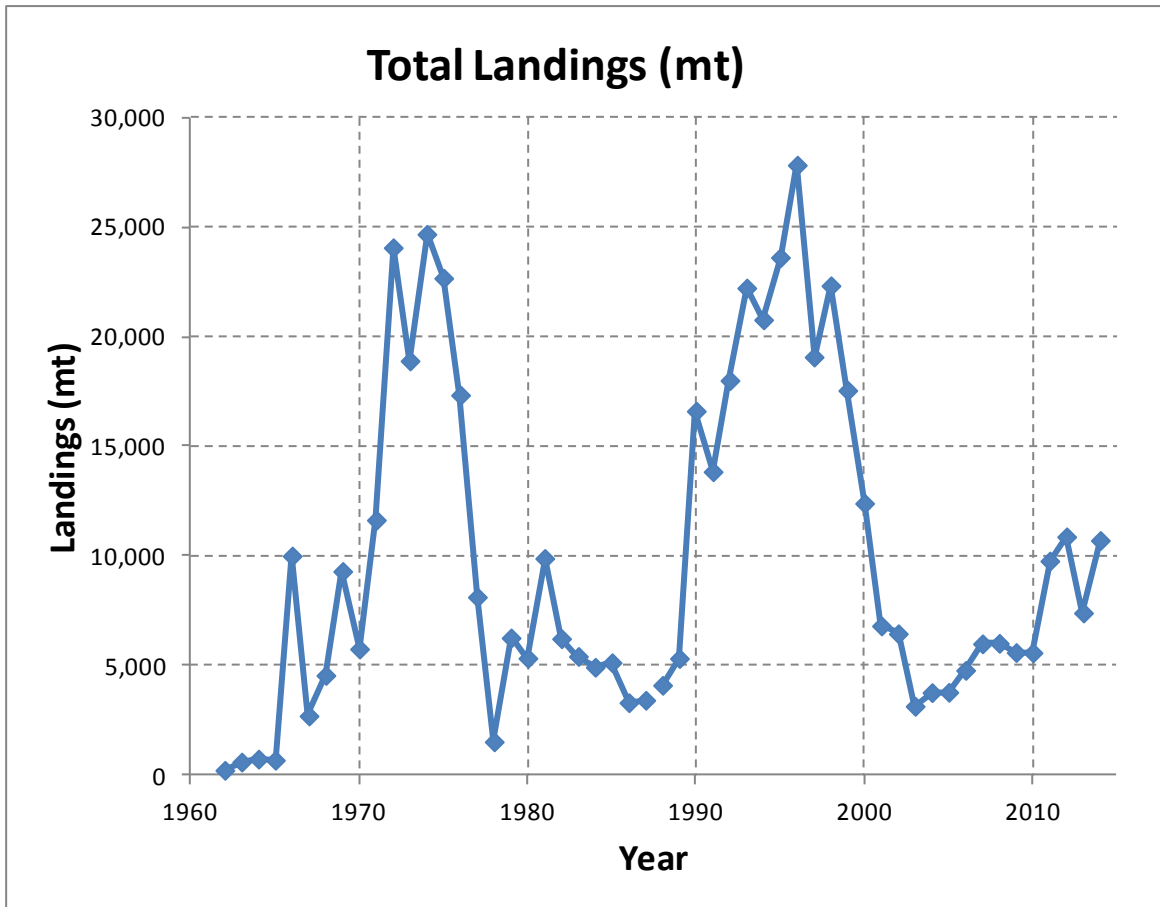


Figure 1. Estimated total landings (mt, live) of spiny dogfish in NAFO Areas 2 to 6, 1962-2014.

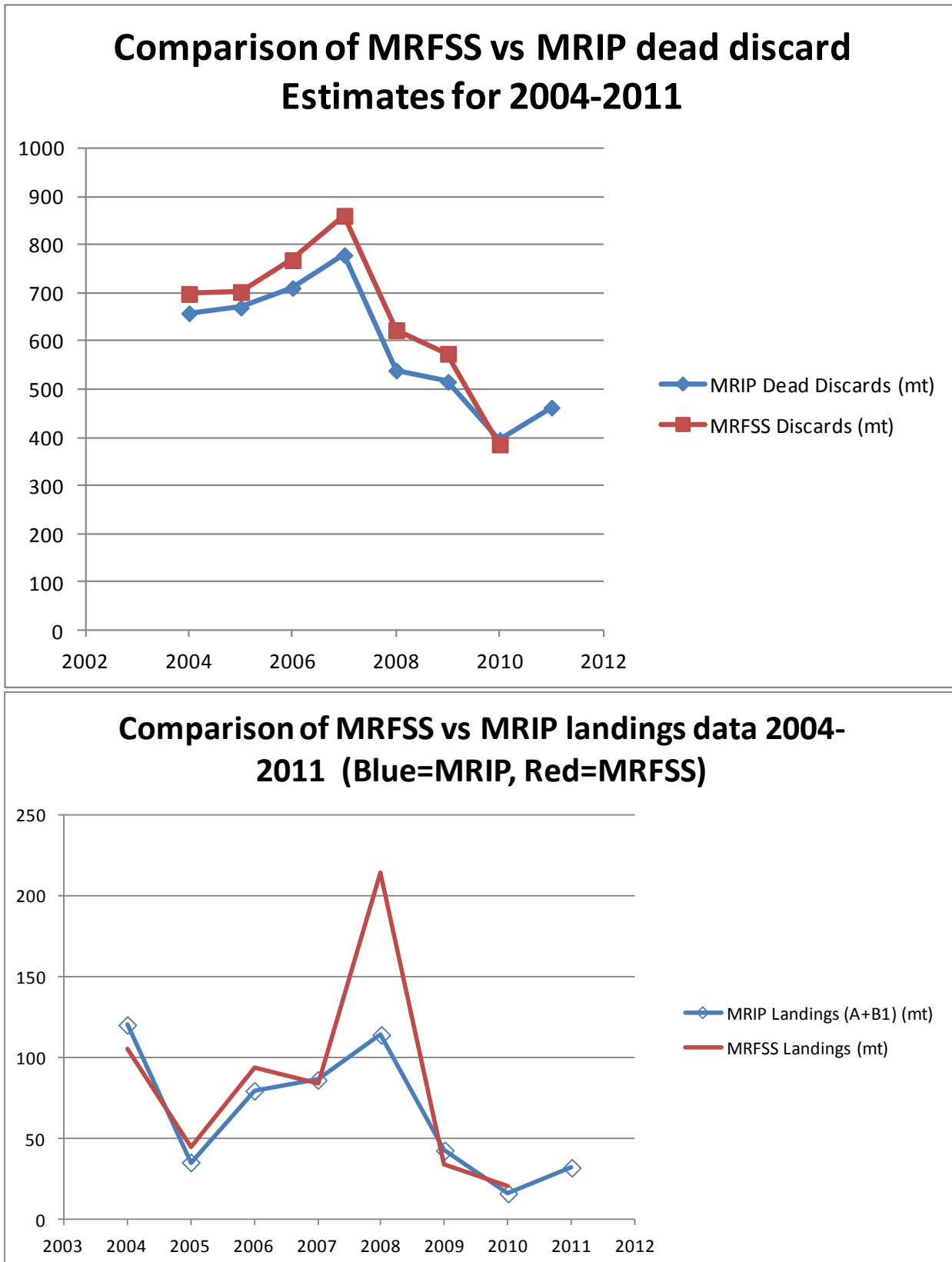


Figure 2. Comparison of MRFSS and MRIP estimates of total recreational landings and dead discards, 2004-2011.

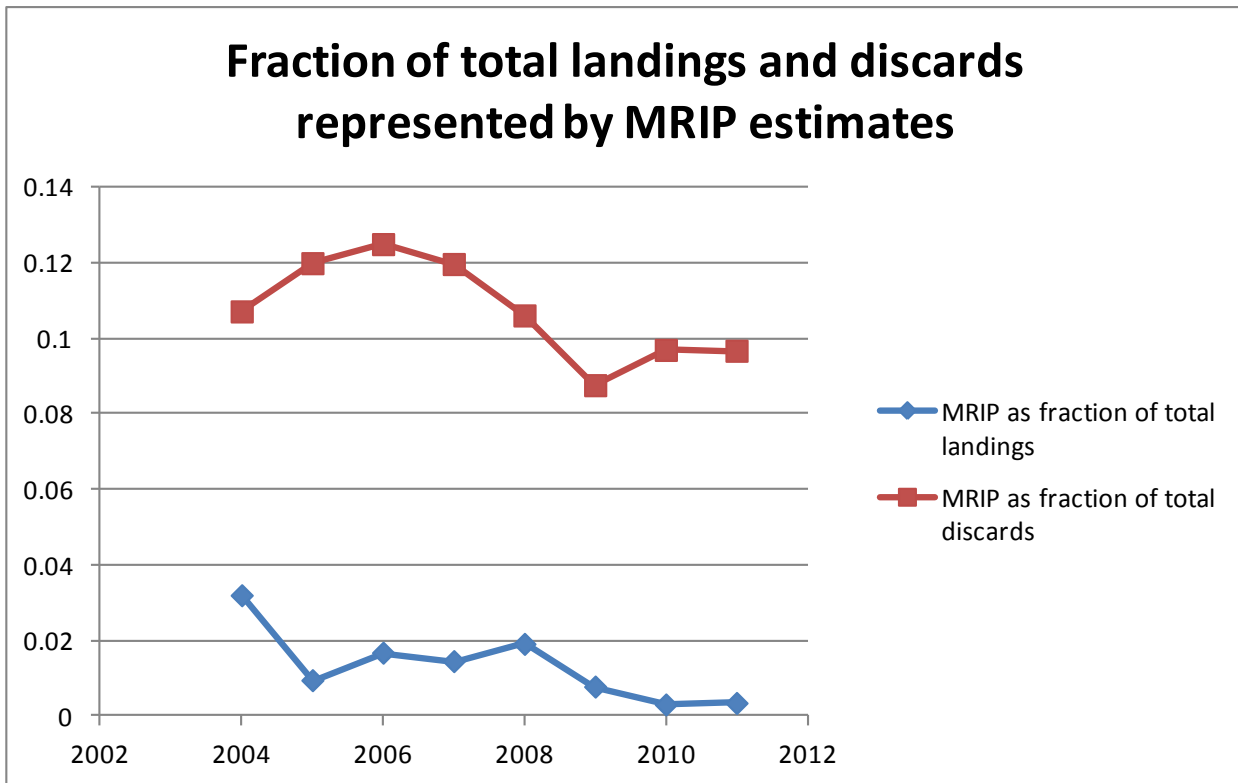


Figure 3. Estimated fraction of landings and discards in recreational fisheries relative to total landings and total discards respectively.

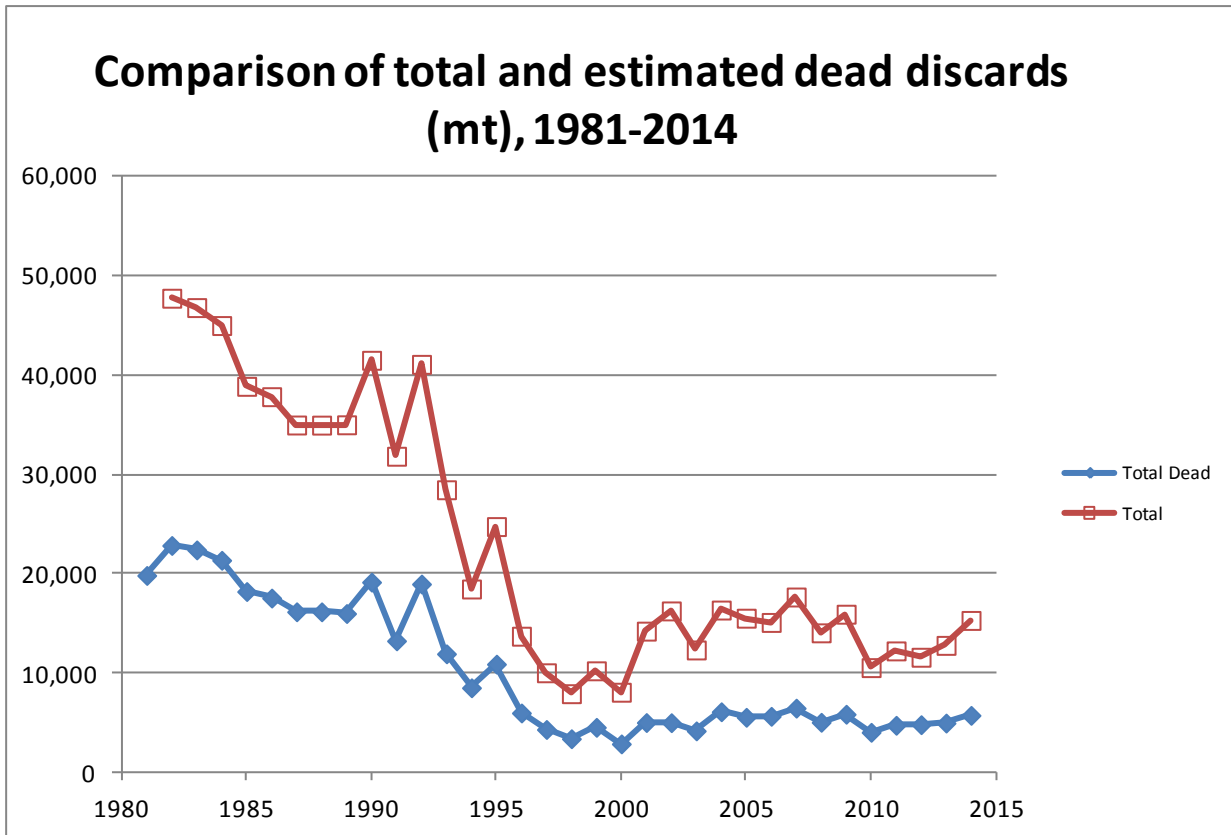


Figure 4. Estimated total and total dead discards in US, 1981-2014. Estimates for 1981 to 1989 are hindcast estimates rather than direct observations.

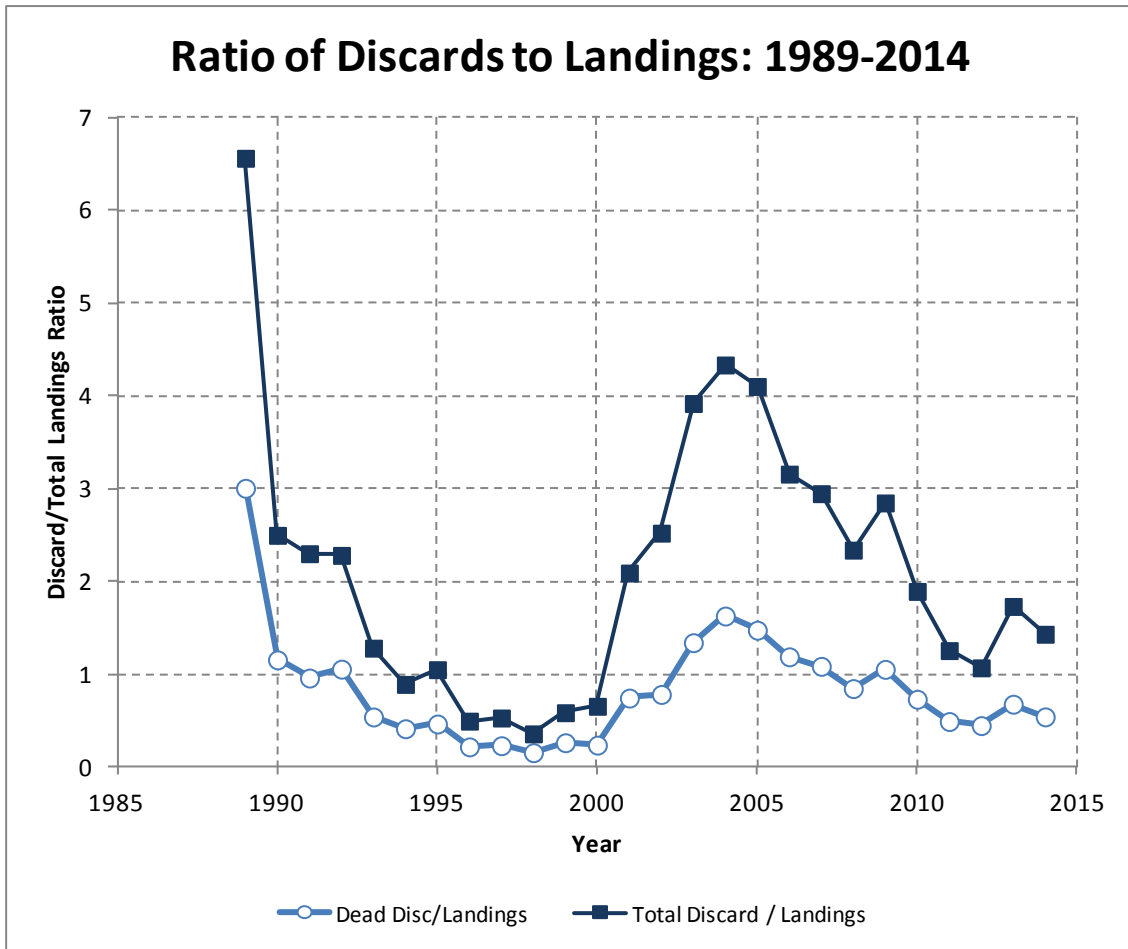


Figure 5. Trends in the ratio of total discards to landings and total dead discards to landings for spiny dogfish, 1989-2014.

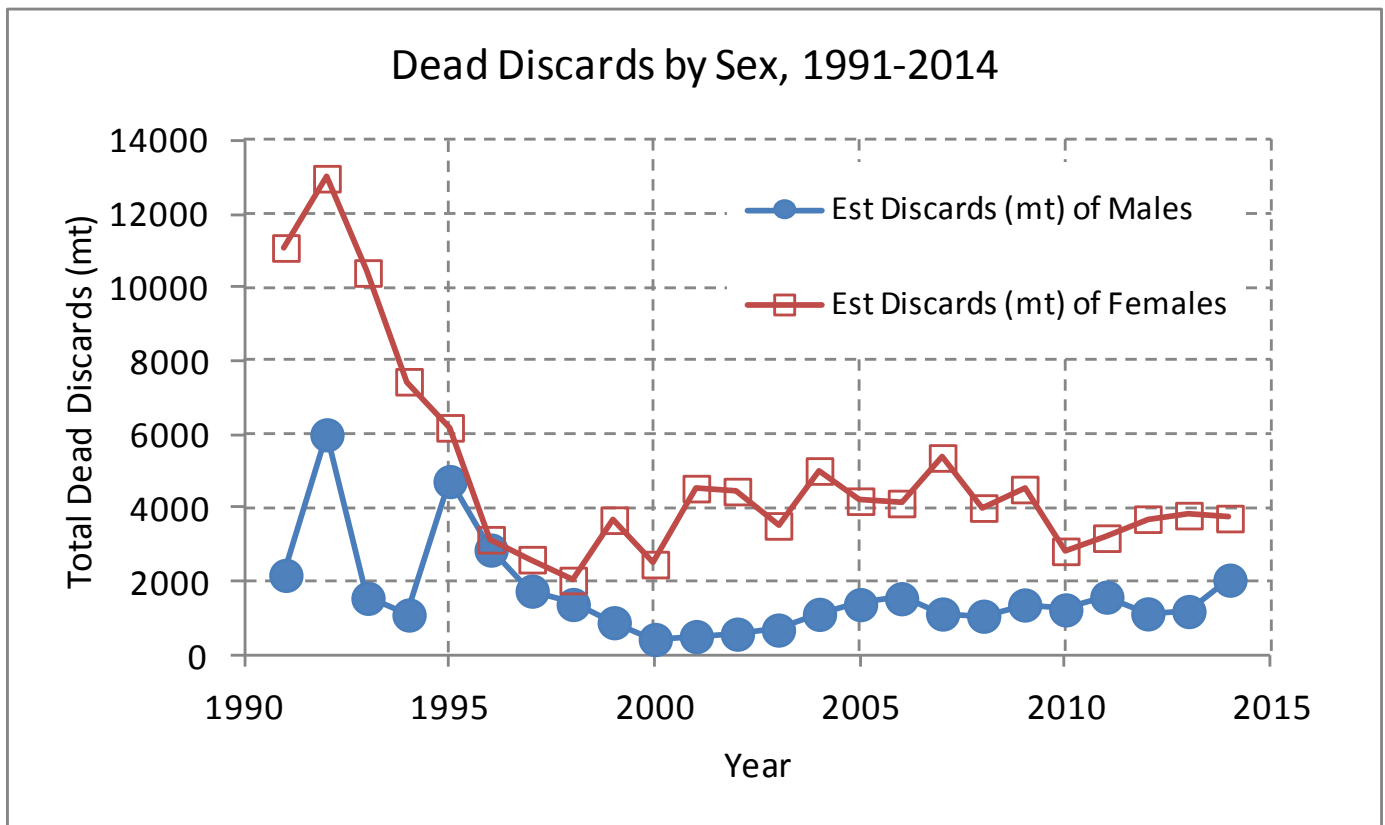
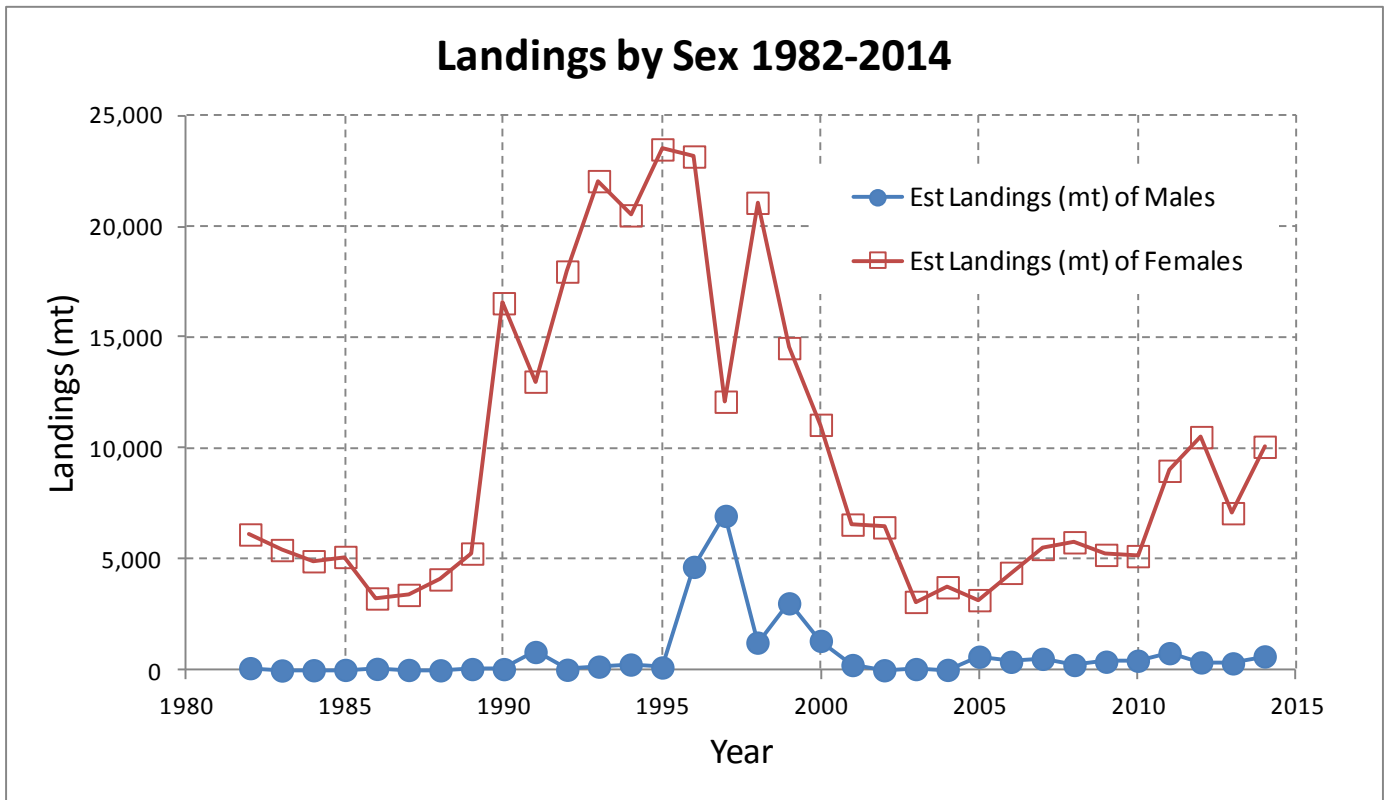


Figure 6. Estimated total landings, 1982-2014(top) and total dead discards (bottom) by sex, 1991-2014.

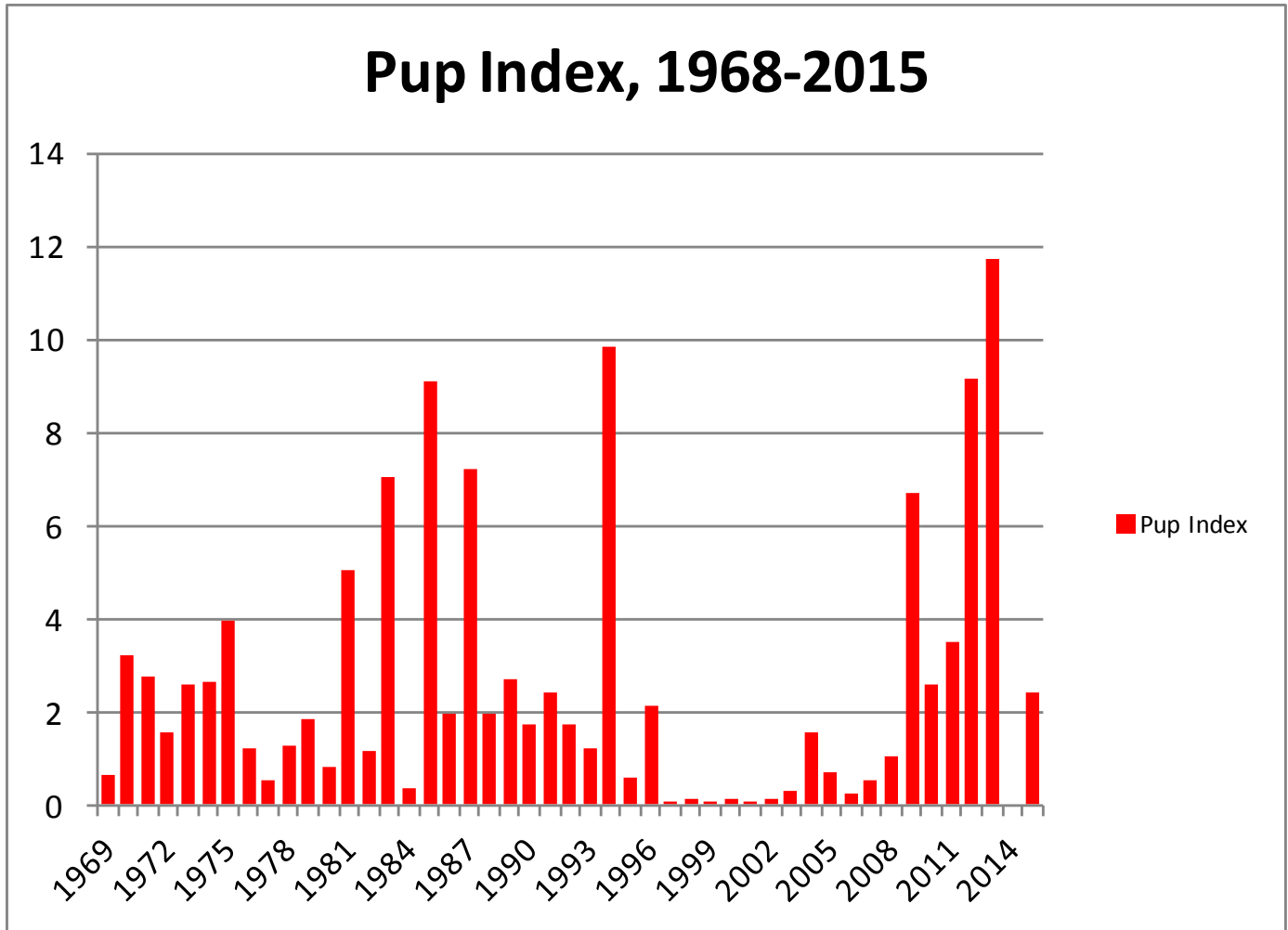


Figure 7. Estimated swept area biomass (mt) of total pups (spiny dogfish < 36 cm) captured in the NEFSC spring bottom trawl survey, 1968-2015. No survey data available for 2014.

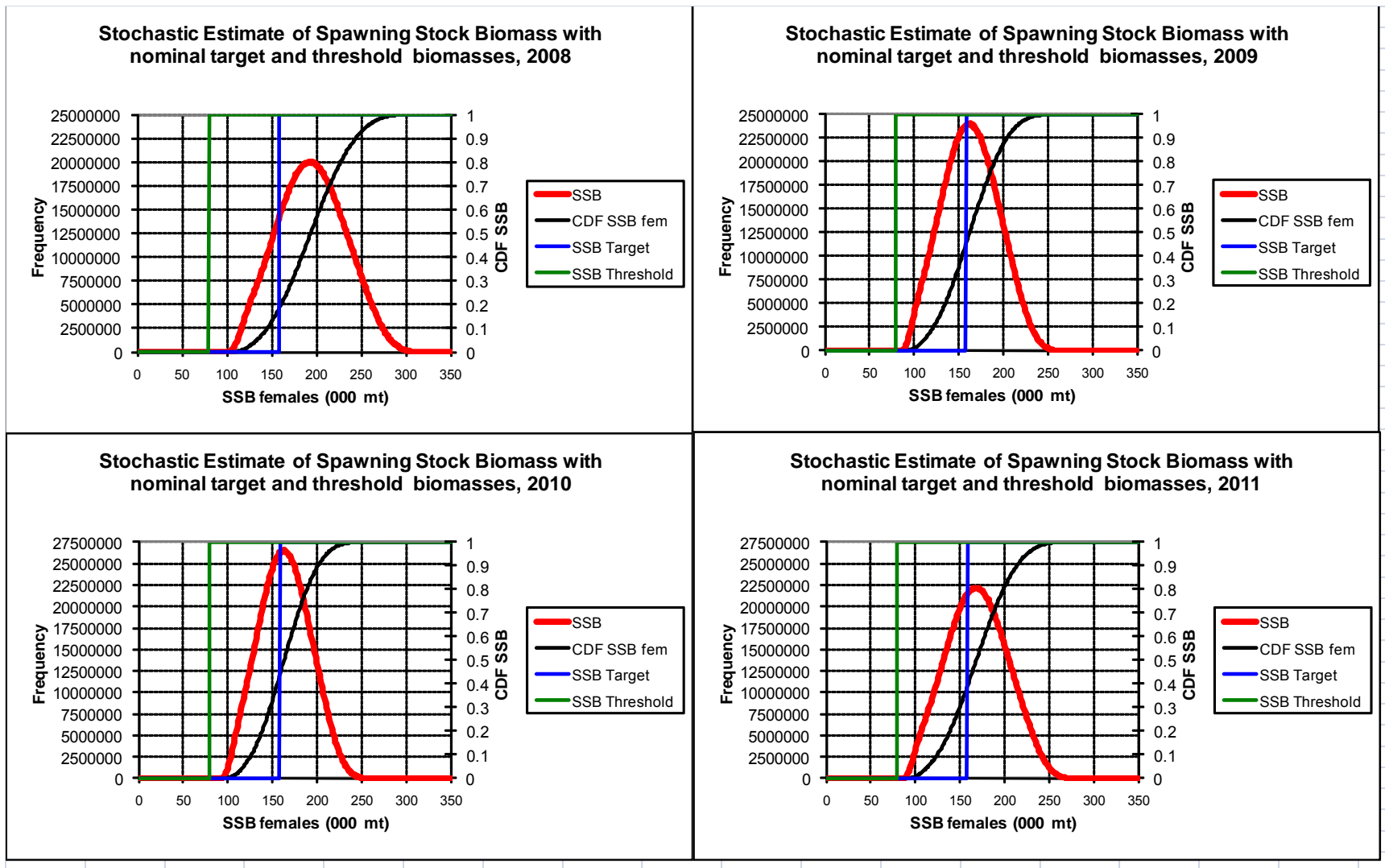


Figure 8a. Stochastic estimates of female spiny dogfish spawning stock biomass , 2008 to 2011, and comparison with target and threshold biomass reference points. Year refers to terminal year of 3 point moving average of swept area estimate.

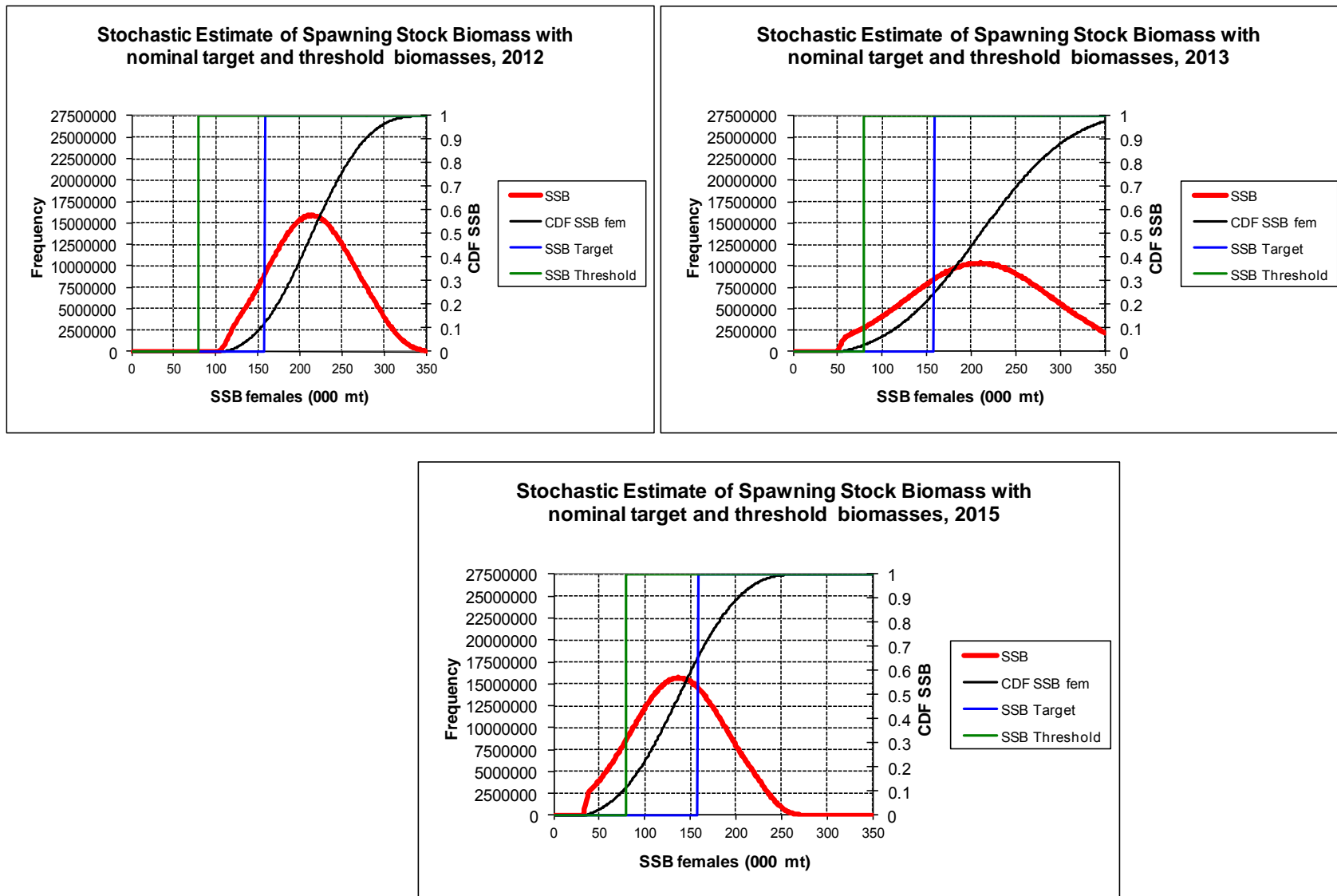


Figure 8b. Stochastic estimates of female spiny dogfish spawning stock biomass , 2012, 2013 and 2015, and comparison with target and threshold biomass reference points. Year refers to terminal year of 3 point moving average of swept area estimate. Estimates for 2014 are not available.

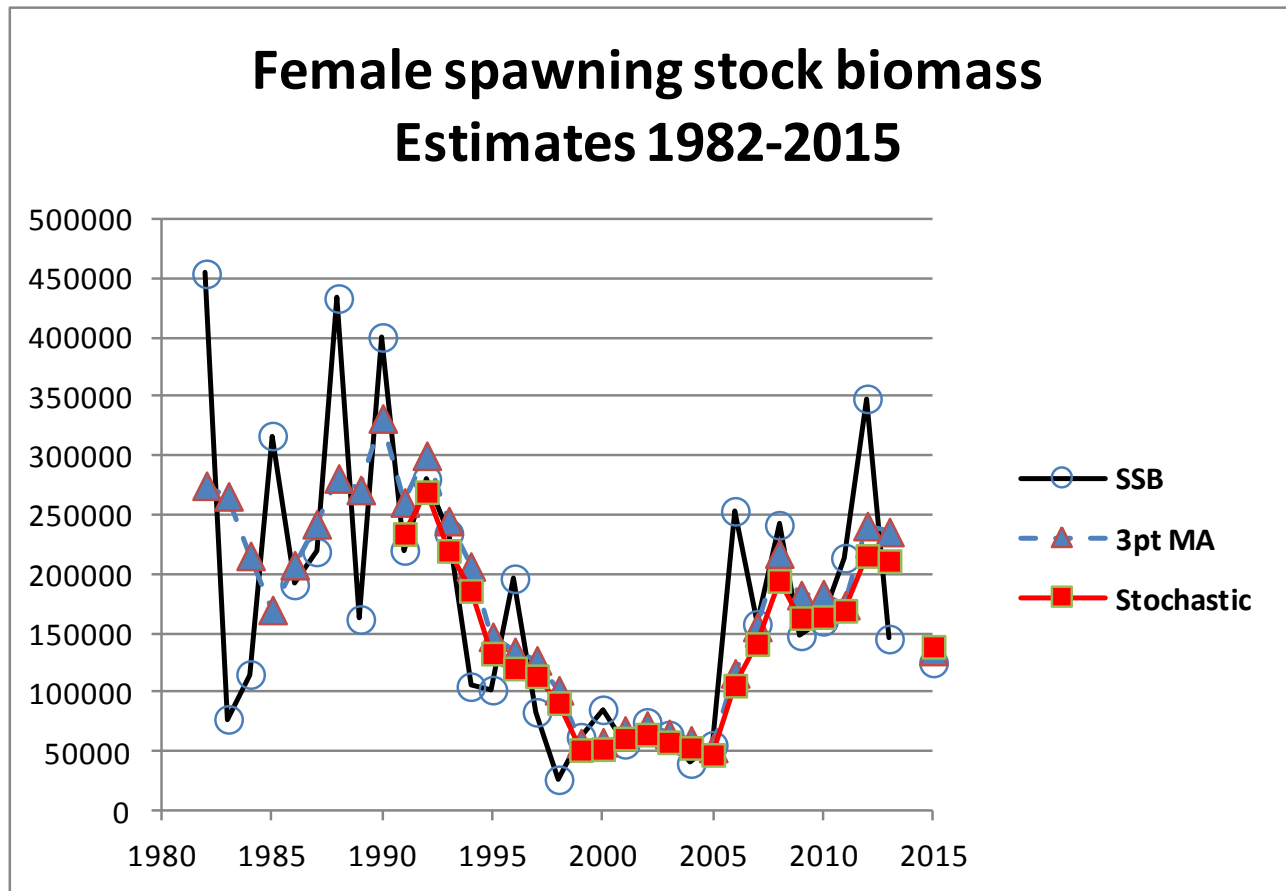


Figure 9. Comparison of alternative swept area estimates of female spawning stock biomass, 1982-2015. Stochastic SSB estimates are available for 1991 to 2015, except 2014. Year refers to the terminal year in a 3 point moving average.

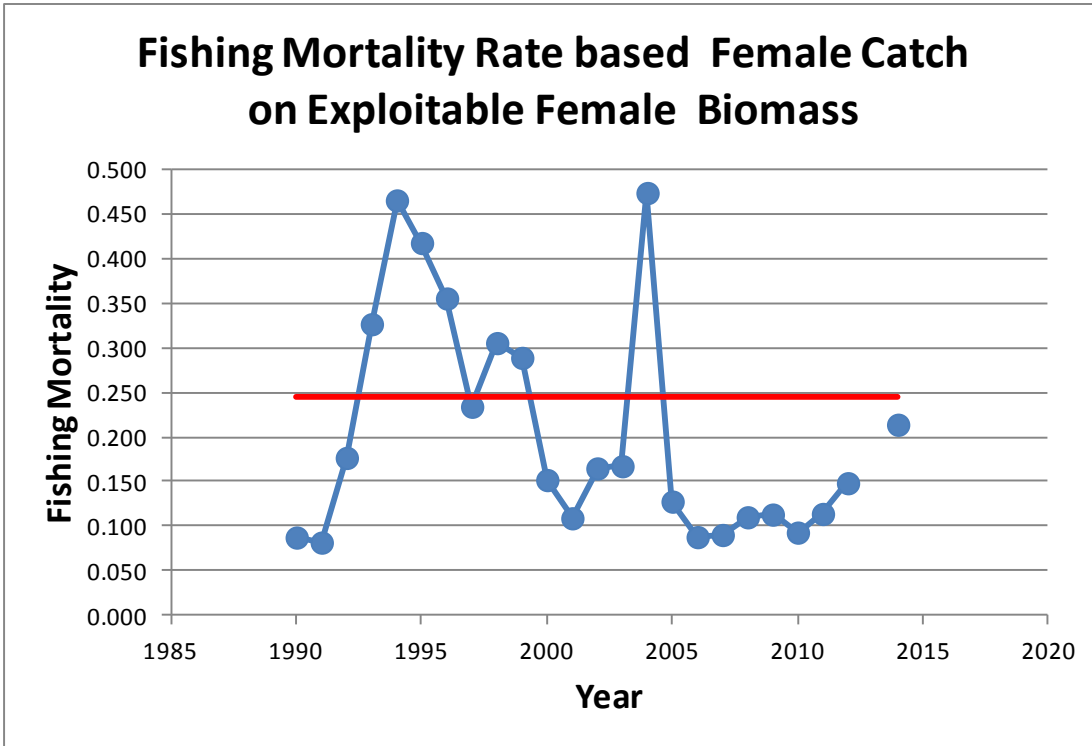


Figure 10a. Estimated stochastic fishing mortality rates for female catch from the exploitable female stock biomass, 1990-2014. Estimate for 2013 not available. F threshold is defined as 0.2439.

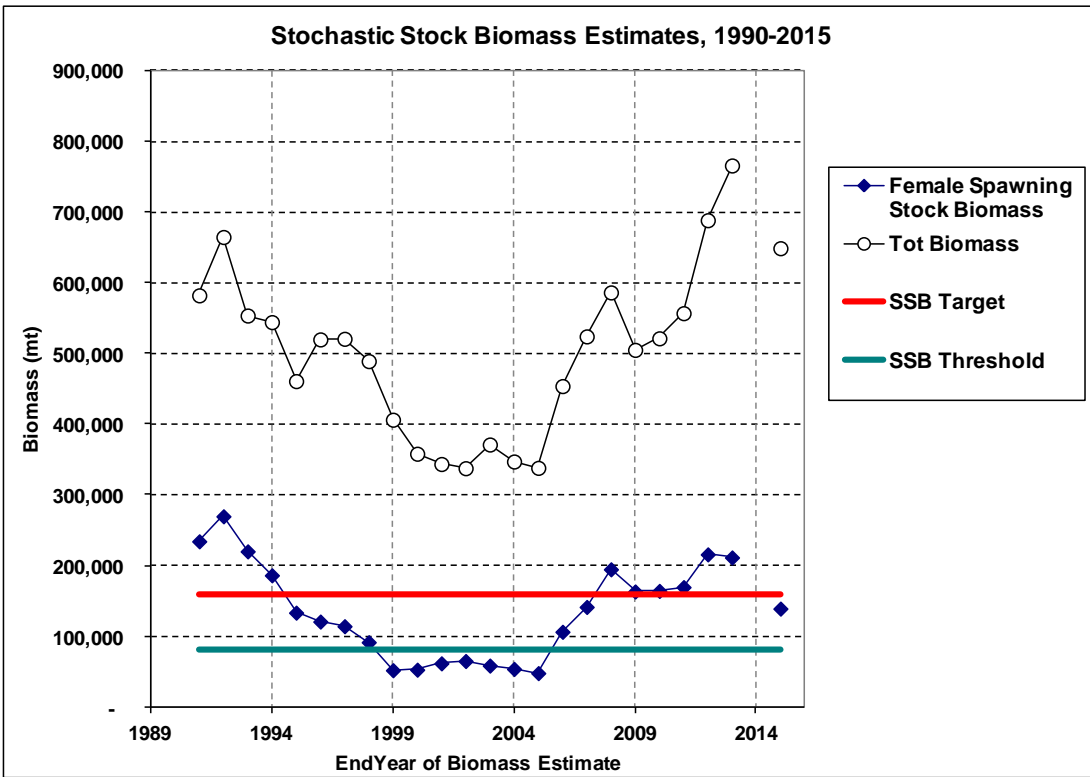


Fig 10b. Comparison of stochastic female SSB with target and threshold biomass values for 1991-2015. Estimate for 2014 not available. SSB target is defined as 159,288 mt. SSB threshold is 79,644 mt.

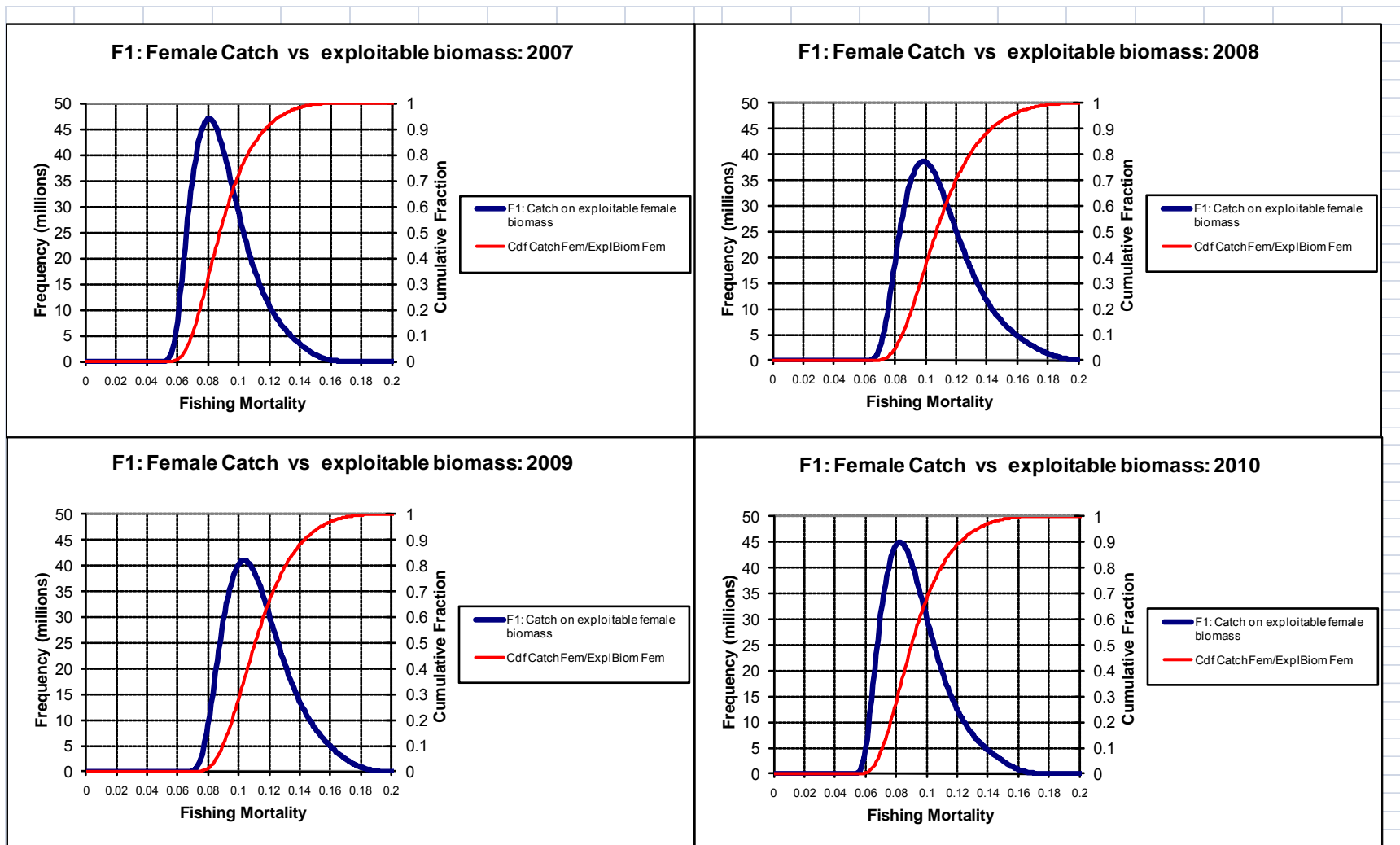


Figure 11a. Stochastic estimates of fishing mortality rates on female spiny dogfish, 2007 to 2010. Year refers to the calendar year in which catches occurred. Fishing mortality rates are based on the ratio for total catch in year to the 3 point moving average from year $t-1$ to $t+1$.

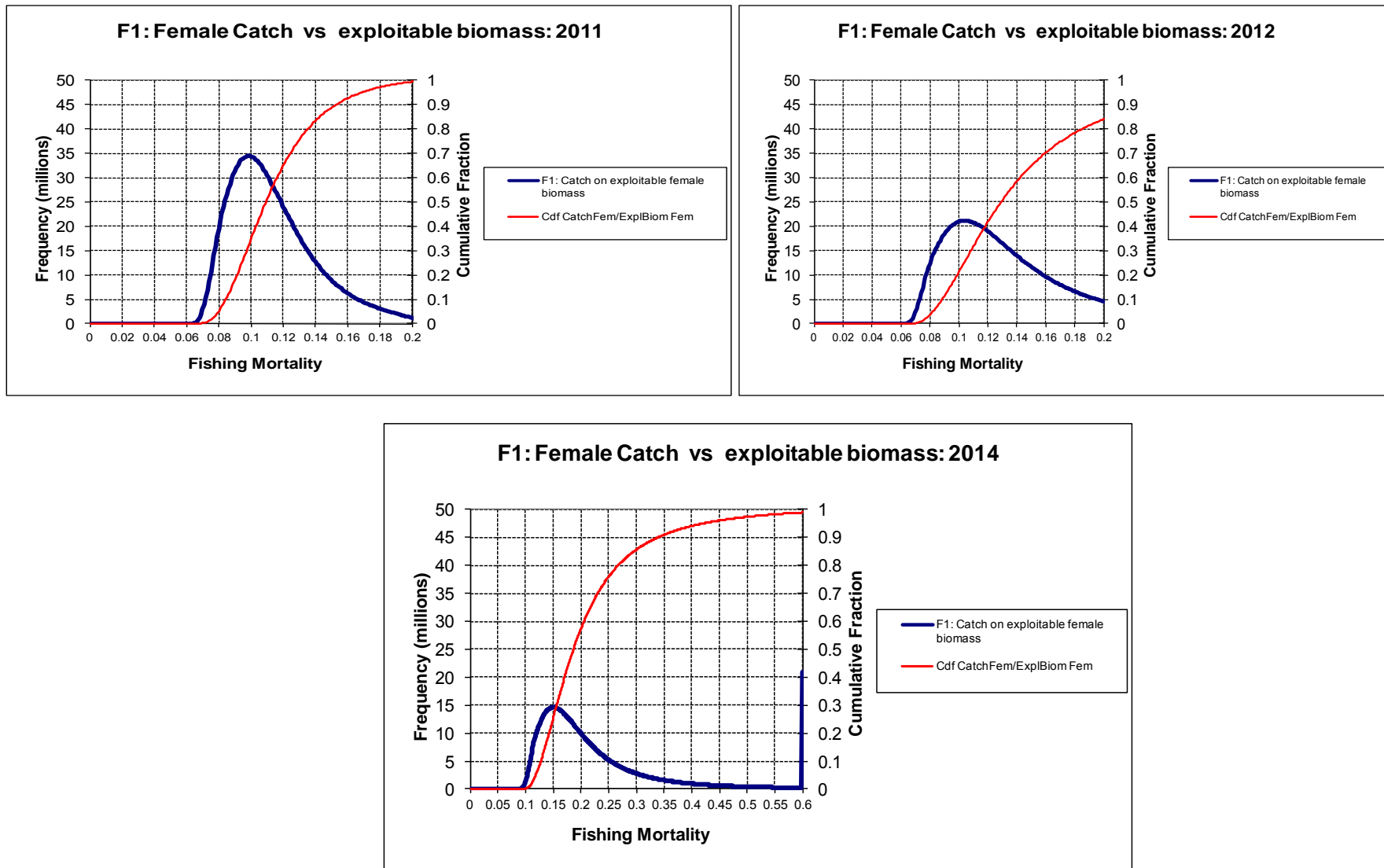
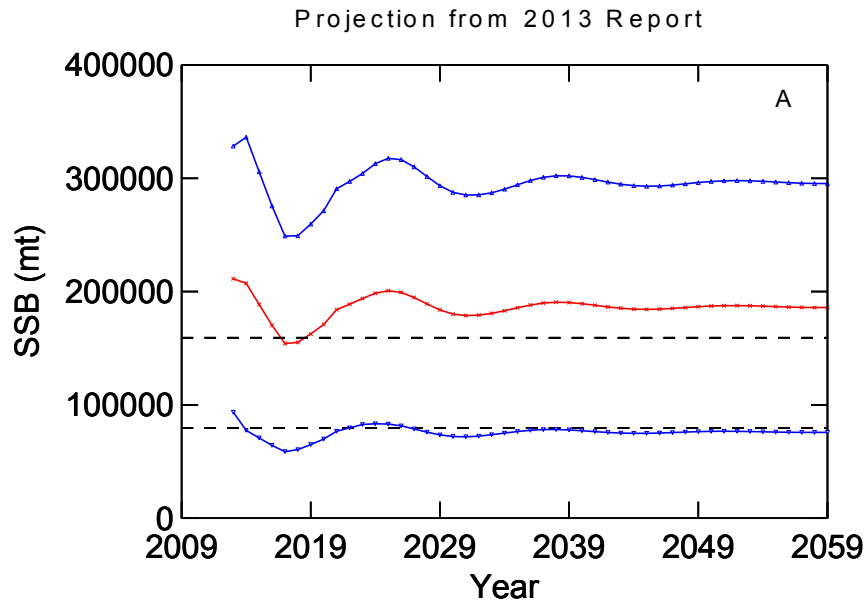


Figure 11b. Stochastic estimates of fishing mortality rates on exploitable female spiny dogfish, 2011, 2102 and 2014. Estimates for 2013 not available. Note change in scale for X axis in 2014. Year refers to the calendar year in which catches occurred. Fishing mortality rates are based on the ratio for total catch in year to the 3 point moving average from year $t-1$ to $t+1$.

Stochastic SSB Projections at $F=F_{msy}$: 90% CI



Stochastic SSB Projections at $F=F_{msy}$: 90% CI

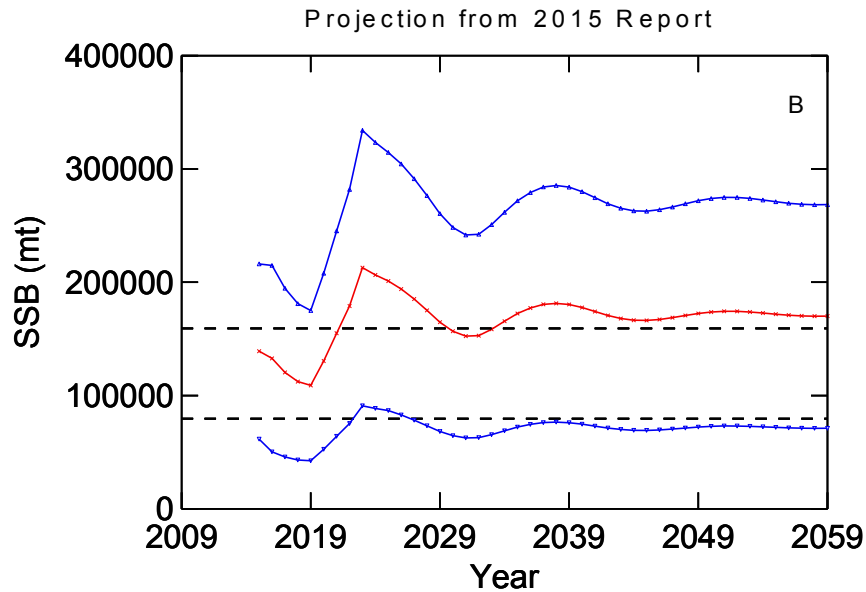


Figure 12. Comparison of Stochastic projections of SSB at current fishing mortality MSY proxy ($F=0.2439$) for 2013 (A) and 2015 (B). F_{msy} proxies are based on results in Rago(2011). Horizontal dashed lines represent biomass target and threshold values of 159,288 mt and 79,644 mt, respectively. Projections depict 5%, 50% and 95% ile for each scenario. The expected finite rate of population increase at $F=0.2439$ is 1.000 or 0% change per year. The finite rate of population increase at $F=0.19235$ is 1.01283 or about a 1.28% increase per year.

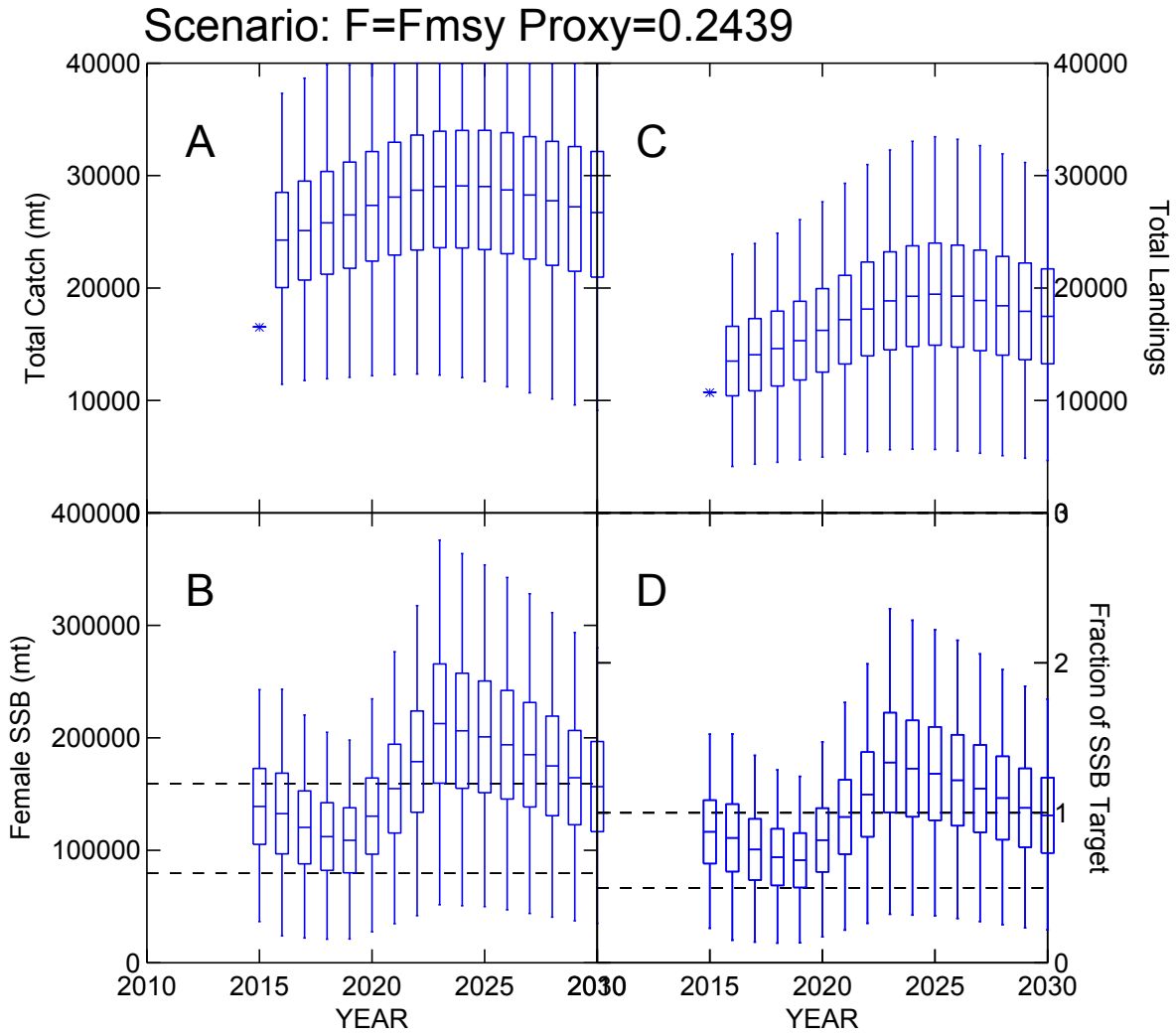


Figure 13a. Projection model estimates of (A) Total catch (mt), (B) Female spawning stock biomass (mt), (C) Total Landings(mt), and (D) fraction of target SSB, 2015-2030 for a harvest scenario based on a constant fishing mortality rate equal to the target $F = 0.2439$. Panel D reflects the probability of being overfished.

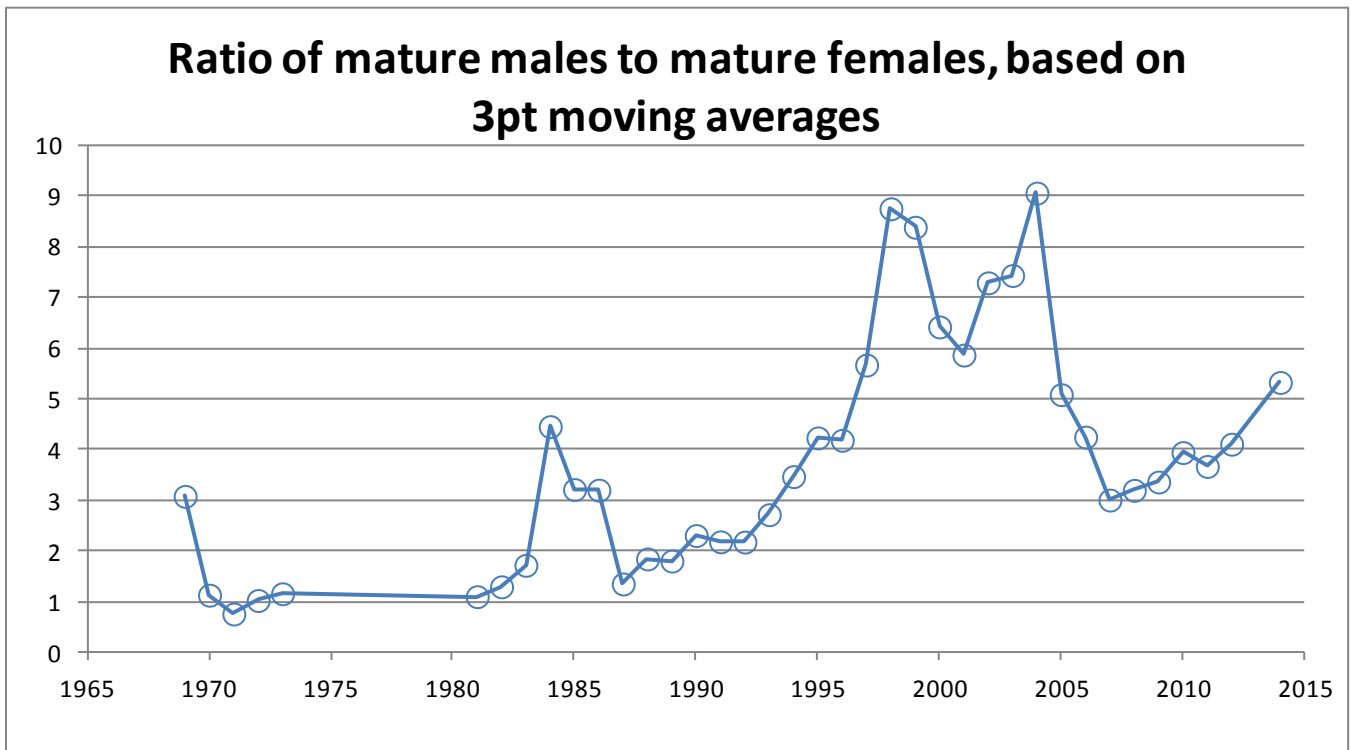


Figure 14. Ratio of mature males (>60 cm) to mature females (>80 cm) in NEFSC spring bottom trawl survey, 1968-1972, and 1980-2015. The 2014 survey was incomplete and no estimates were generated. Year represents the mid-point of 3 year average except for 2015 which is average of 2013 and 2015. Spiny dogfish sex was not recorded in the NEFSC database for 1973 to 1979.

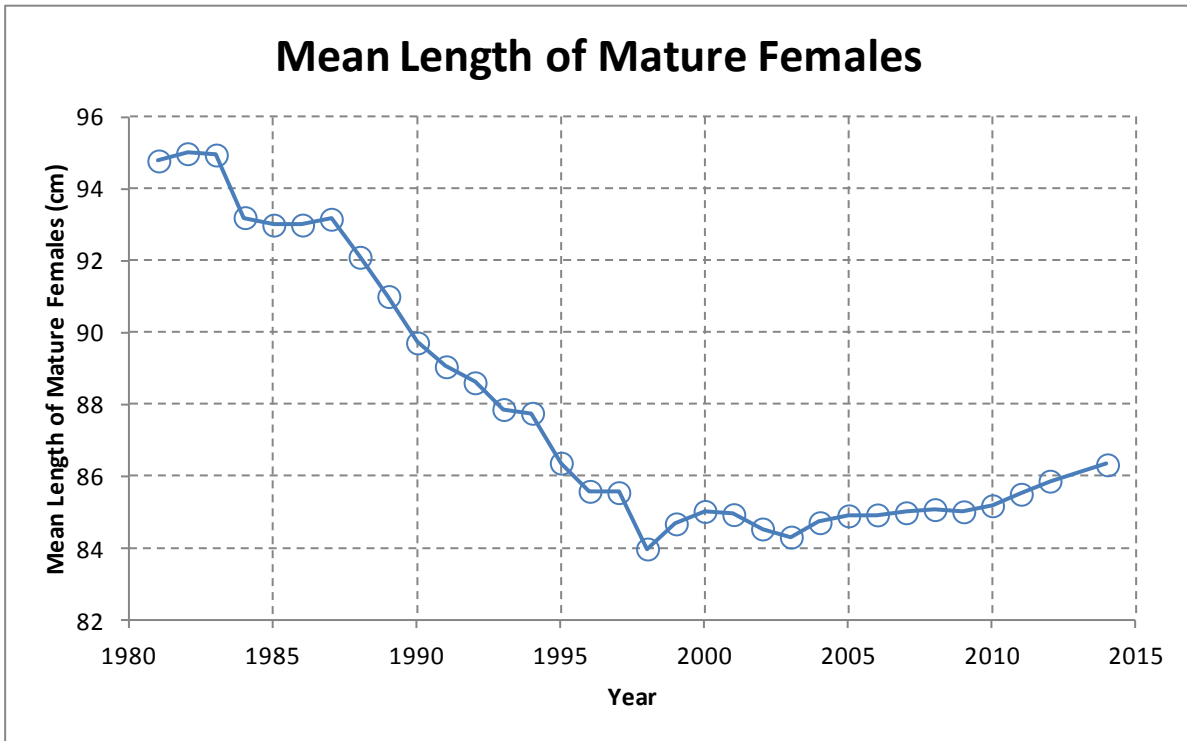


Figure 15. Mean Length of mature female spiny dogfish in NEFSC Spring bottom trawl survey, 1980-2015. Survey in 2014 was incomplete.

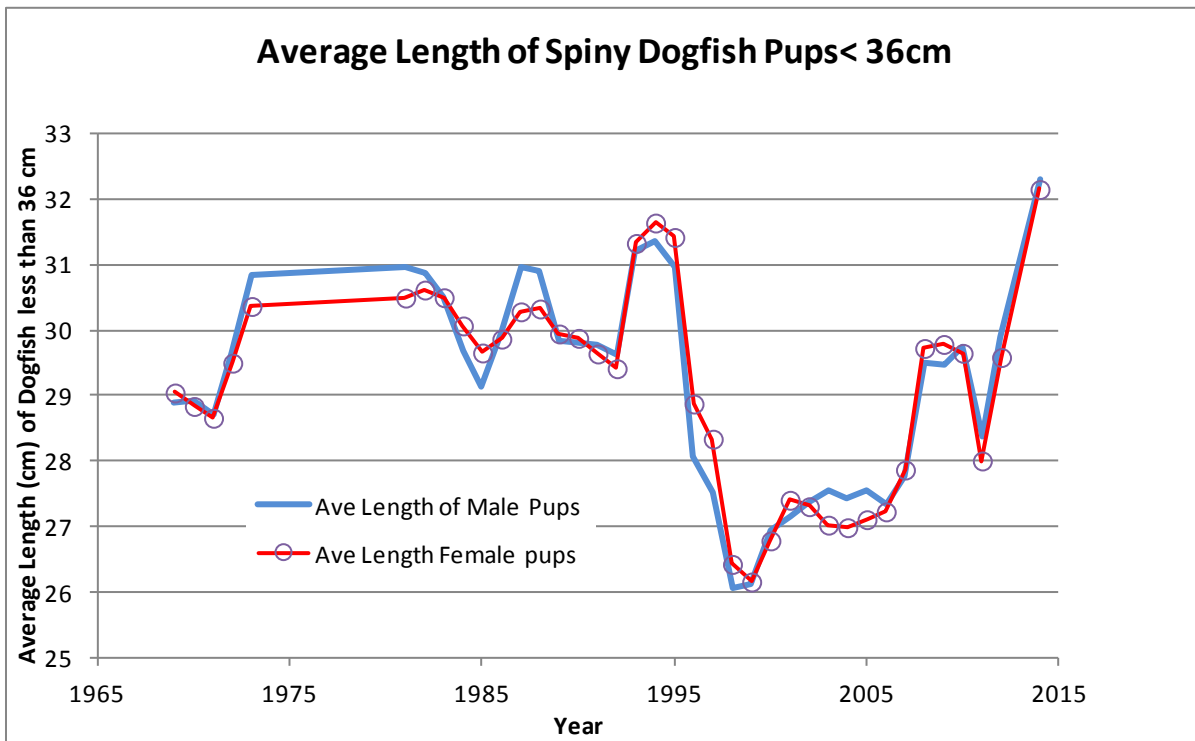


Figure 16. Three year moving average of mean length of male and female spiny dogfish pups (<36 cm) in spring bottom trawl survey 1968-2015. Sex data unavailable for 1973 to 1979, and survey in 2014 was incomplete.

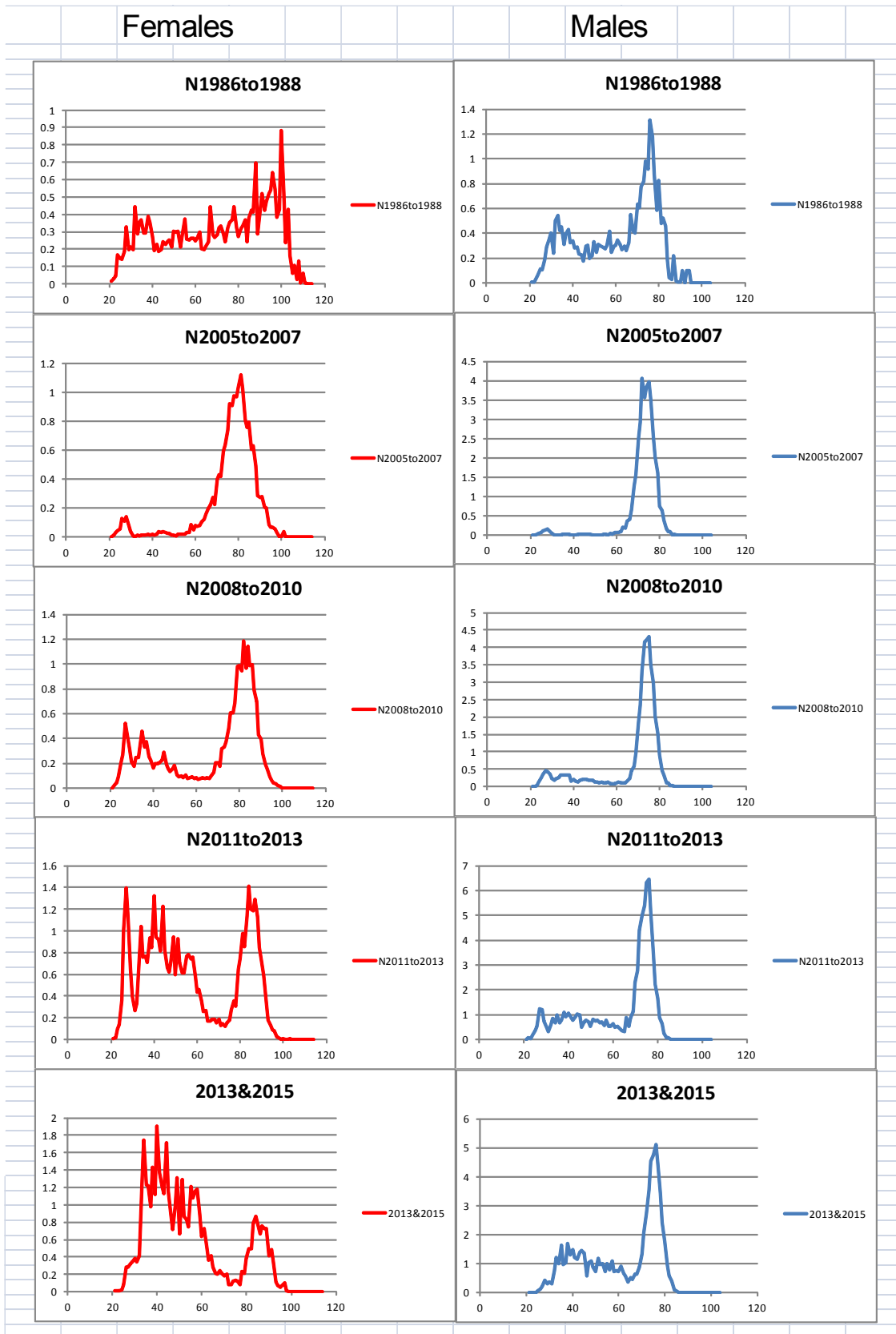


Figure 17. Composite size frequencies for female and male spiny dogfish in NEFSC spring bottom trawl survey. Y axis is average number per tow. Note scale differences among years.
Draft Working Paper for Predissemination Peer Review Only

Appendix 1. Approximate upper bound on efficiency of R/V Albatross for capturing spiny dogfish derived from comparison of capture rates with the FSV Bigelow.

An inter-vessel calibration experiment attempts to relate the average catchability of vessel A to vessel B by comparing paired tow catch rates over a variety of habitats, bottom types and species densities. If we conveniently let subscript A refer to the Albatross and B refer to the Bigelow, then the expected index catch rate I can be expressed as

$$I_A = e_A a_A D$$

$$I_B = e_B a_B D$$

Where e represents efficiency, a is the average area swept and D is the true density. The ratio of the index catches can be used to compute a calibration coefficient γ expressed as the ratio of I_B to I_A .

$$\frac{I_B}{I_A} = \gamma = \frac{e_B a_B D}{e_A a_A D} = \frac{e_B a_B}{e_A a_A}$$

The estimate area swept per tow can be expressed as a function of the distance between the wings of the net or as a function of the distance between the doors. The latter distance is important for schooling species like dogfish that herd between the sand clouds created by the trawl doors. The nominal areas swept by the Bigelow and Albatross nets are provided below.

<i>Parameter</i>	<i>Albatross</i>	<i>Bigelow</i>
Tow speeds(knots)	3.8	3
Tow duration (min)	33	20
Door width (ft)	68.6	104.9867
Wing width(ft)	35.93	39.37
Door Swept area ft ^2	871140.4	637899
Wing Swept area ft^2	456269.3	239212.1

Plugging the swept areas into the equation for γ gives:

$$\gamma = 1.1468 = \frac{e_B a_B}{e_A a_A} = \frac{e_B 637,899}{e_A 871,140}$$

$$\frac{e_A}{e_B} = 0.6385$$

If the Bigelow net were 100% efficient for spiny dogfish between the doors then the maximum possible Albatross efficiency would be 64%.

Appendix 2

Table 1. Summary of average and precision of female and male spiny dogfish numbers per tow in NEFSC spring bottom trawl survey, 1991-2015. Survey in 2014 incomplete; 2015 is average of 2013 and 2015.

year	Female Number per Tow				Male Number per Tow			
	3-yrMean	3-yrVar	3-yr SE	3-yrCV	3-yrMean	3-yrVar	3-yr SE	3-yrCV
1991	33.706	83.772	9.153	27.155	36.553	264.203	16.254	44.468
1992	38.436	108.291	10.406	27.075	39.436	260.409	16.137	40.920
1993	33.210	51.384	7.168	21.585	34.362	124.089	11.140	32.418
1994	35.917	55.805	7.470	20.799	41.395	122.204	11.055	26.705
1995	30.492	33.013	5.746	18.843	37.238	108.926	10.437	28.027
1996	35.924	121.007	11.000	30.621	43.926	99.099	9.955	22.663
1997	32.905	113.778	10.667	32.417	35.994	82.357	9.075	25.213
1998	28.275	104.634	10.229	36.177	38.193	96.530	9.825	25.724
1999	20.517	12.907	3.593	17.510	32.466	45.638	6.756	20.808
2000	15.972	13.574	3.684	23.068	30.015	47.662	6.904	23.001
2001	15.885	16.390	4.048	25.485	26.012	35.641	5.970	22.951
2002	15.025	17.836	4.223	28.109	24.920	34.523	5.876	23.578
2003	15.709	11.709	3.422	21.783	28.323	31.235	5.589	19.732
2004	15.417	9.718	3.117	20.221	27.647	29.073	5.392	19.503
2005	12.610	8.016	2.831	22.453	29.580	131.932	11.486	38.831
2006	16.287	19.015	4.361	26.773	35.521	194.964	13.963	39.309
2007	18.618	22.879	4.783	25.691	38.873	194.480	13.946	35.875
2008	23.214	23.687	4.867	20.965	38.628	87.551	9.357	24.223
2009	22.528	21.958	4.686	20.801	38.805	42.131	6.491	16.727
2010	23.933	19.818	4.452	18.601	42.684	56.562	7.521	17.620
2011	24.233	27.798	5.272	21.758	49.269	74.682	8.642	17.540
2012	30.915	54.960	7.414	23.981	65.949	584.183	24.170	36.649
2013	47.612	330.553	18.181	38.186	82.130	718.985	26.814	32.648
2014	NA	NA	NA	NA	NA	NA	NA	NA
2015	41.294	422.861	20.564	49.798	66.743	443.670	21.063	31.559

Appendix 2

Table 2. Summary of total dead discards and standard errors for trawl, gill net and recreational discards for spiny dogfish by sex for 1990 to 2014.

Year	<i>Trawl Discards (mt)</i>				<i>Gill Net Discards (mt)</i>				<i>Recreational Discards (mt)</i>				<i>Landings (mt)</i>	
	<i>Male</i>		<i>Female</i>		<i>Male</i>		<i>Female</i>		<i>Male</i>		<i>Female</i>		<i>Males</i>	<i>Females.</i>
	<i>Total</i>	<i>SE</i>	<i>Total</i>	<i>SE</i>	<i>Total</i>	<i>SE</i>	<i>Total</i>	<i>SE</i>	<i>Total</i>	<i>SE</i>	<i>Total</i>	<i>SE</i>		
1990	7636.00	1918.55	9485.0	2382.9	256.00	65.12	1563.00	397.55	58.068	8.478	354.497	51.757	61.9	16,378.1
1991	4309.00	843.49	5352.0	1047.6	466.00	54.53	2843.00	332.91	56.413	7.616	344.394	46.493	824.4	12,878.6
1992	7274.00	1971.88	9034.0	2449.1	251.00	24.09	1535.00	147.10	58.890	6.242	359.514	38.108	32.5	17,721.5
1993	3855.00	993.13	4788.0	1233.5	414.00	78.23	2530.00	477.57	48.101	7.456	293.651	45.516	173.0	21,908.0
1994	3102.00	786.56	3852.0	976.9	122.00	36.74	744.00	224.31	48.975	7.444	298.982	45.445	266.3	20,354.7
1995	2275.00	444.94	6224.0	1217.3	957.00	314.93	1062.00	349.68	90.048	10.356	99.983	11.498	137.0	23,536.0
1996	1683.00	465.96	3018.0	835.9	599.00	181.61	568.00	172.39	53.432	6.839	50.719	6.492	4,679.8	23,213.2
1997	1716.00	566.41	1637.0	540.4	220.00	54.14	478.00	117.73	67.339	8.215	146.416	17.863	6,941.6	12,070.4
1998	1077.00	363.50	1558.0	525.9	239.00	69.66	351.00	102.48	65.098	8.593	95.770	12.642	1,254.4	21,059.6
1999	982.00	340.73	2860.0	992.3	117.00	31.19	485.00	129.44	30.914	3.586	128.314	14.884	3,082.3	14,798.7
2000	644.00	156.37	720.0	174.7	149.00	43.50	1256.00	367.38	13.277	2.191	112.138	18.503	543.8	11,792.2
2001	428.00	68.78	2031.0	326.2	185.00	55.76	1977.00	596.91	38.062	3.464	407.459	37.079	242.3	6,483.7
2002	533.00	168.91	2237.0	708.6	107.00	23.23	1392.00	301.06	40.479	4.291	524.542	55.601	114.7	5,954.3
2003	524.00	101.64	1402.0	272.0	172.00	22.41	1452.00	189.62	67.346	5.455	569.759	46.150	63.1	3,053.9
2004	1261.00	201.44	2888.0	461.3	127.00	11.85	1083.00	101.38	81.937	7.374	700.708	63.064	26.3	3,623.7
2005	994.46	111.79	2762.9	310.6	192.57	24.29	808.89	102.03	125.441	15.053	526.908	63.229	488.4	2,491.6
2006	790.81	88.89	2123.0	238.6	244.21	29.30	655.59	78.67	177.048	21.246	475.301	57.036	385.6	4,330.3
2007	704.25	84.51	3353.0	376.9	290.54	34.86	1383.29	166.00	155.874	18.705	742.126	89.055	512.5	5,339.9
2008	589.80	97.20	2212.2	364.6	307.15	55.13	1152.02	206.79	131.127	12.510	491.818	46.919	242.0	5,652.1
2009	883.00	90.36	2895.0	296.4	361.00	52.52	1185.00	172.28	134.000	16.490	439.745	54.100	396.0	5,201.0
2010	893.00	70.86	2036.0	161.6	234.00	23.19	533.00	52.89	118.000	13.130	268.687	29.950	440.0	5,154.0
2011	1143.00	110.49	2296.0	222.0	294.00	15.27	591.00	30.67	154.000	22.440	309.000	45.070	781.0	8,998.0
2012	859.00	77.80	2808.0	254.3	212.00	13.35	693.00	43.64	64.000	11.400	210.000	37.260	364.0	10,516.5
2013	825.87	59.21	2622.13	188.01	223.23	21.90	708.77	69.53	127.19	15.14	403.81	48.05	321.0	7,089.0
2014	1432.85	105.74	2602.30	192.05	254.41	23.99	462.05	43.57	336.84	176.84	611.76	321.17	634.0	10,081.0

Appendix 2.

Table 3. Summary of selectivity parameters used to estimate length-specific fishing mortality for spiny dogfish, 1991-2014.

	<i>Females</i>			<i>Males</i>			<i>Comment</i>
	<i>a</i>	<i>b</i>	<i>L50</i>	<i>a</i>	<i>b</i>	<i>L50</i>	
1991	2.777	-0.025	111.1	20.25	-0.45	45.0	
1992	4.762	-0.043	110.7	20.25	-0.45	45.0	
1993	7.397	-0.067	110.4	28.32	-0.593	47.8	
1994	8.831	-0.08	110.4	43.75	-0.879	49.8	
1995	11.99	-0.137	87.5	24.67	-0.533	46.3	
1996	11.85	-0.137	86.5	41.27	-0.829	49.8	
1997	11.59	-0.135	85.9	41.27	-0.812	50.8	
1998	10.69	-0.138	77.5	7.626	-0.076	100.3	Lack of fit for male data
1999	9.083	-0.116	78.3	7.699	-0.077	100.0	Lack of fit for male data
2000	11.27	-0.155	72.7	760.7	-16.9	45.0	
2001	15.72	-0.218	72.1	549.4	-12.21	45.0	
2002	17.34	-0.217	79.9	549.4	-12.21	45.0	
2003	14.83	-0.175	84.7	547.4	-12.16	45.0	
2004	15.57	-0.17	91.6	548	-12.18	45.0	
2005	12.45	-0.14	88.9	28.23	-0.627	45.0	
2006	10.35	-0.12	86.3	8.513	-0.085	100.2	Lack of fit for male data
2007	9.722	-0.113	86.0	32.97	-0.733	45.0	
2008	8.867	-0.099	89.6	32.99	-0.733	45.0	
2009	8.867	-0.099	89.6	32.99	-0.733	45.0	
2010	8.867	-0.099	89.6	32.99	-0.733	45.0	
2011	8.867	-0.099	89.6	32.99	-0.733	45.0	
2012	8.867	-0.099	89.6	32.99	-0.733	45.0	
2013	8.867	-0.099	89.6	32.99	-0.733	45.0	
2014	8.867	-0.099	89.6	32.99	-0.733	45.0	

Appendix 3.

Comparison of ratio of full survey mean catch weight per tow in the complete survey to mean weight per tow in the truncated survey for 2014.

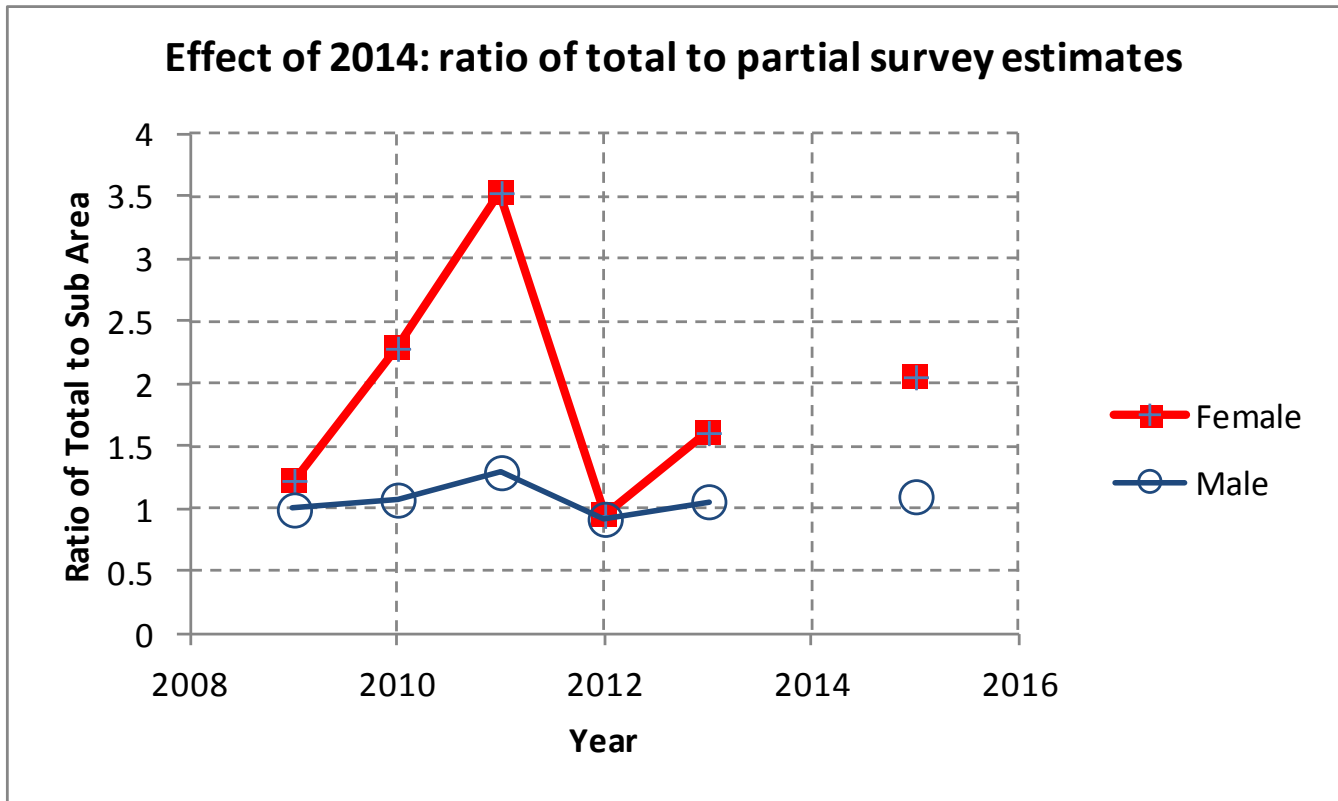


Fig 1. Effect of missing 2014 survey. Ratio of survey abundance estimate for mature female spiny dogfish in the complete survey strata to the biomass estimate for the truncated survey area. For male dogfish, which are primarily offshore of the survey area missed in 2014, the effect was minimal. For females, the ratio was far more variable suggesting caution when extrapolating for 2014. Results suggest that an extrapolation of biomass in 2014 was not warranted .

Appendix 4. Distribution of Commercial landings and survey catches by 10 minute square.

DOGFISH, SPINY

Squalus acanthias

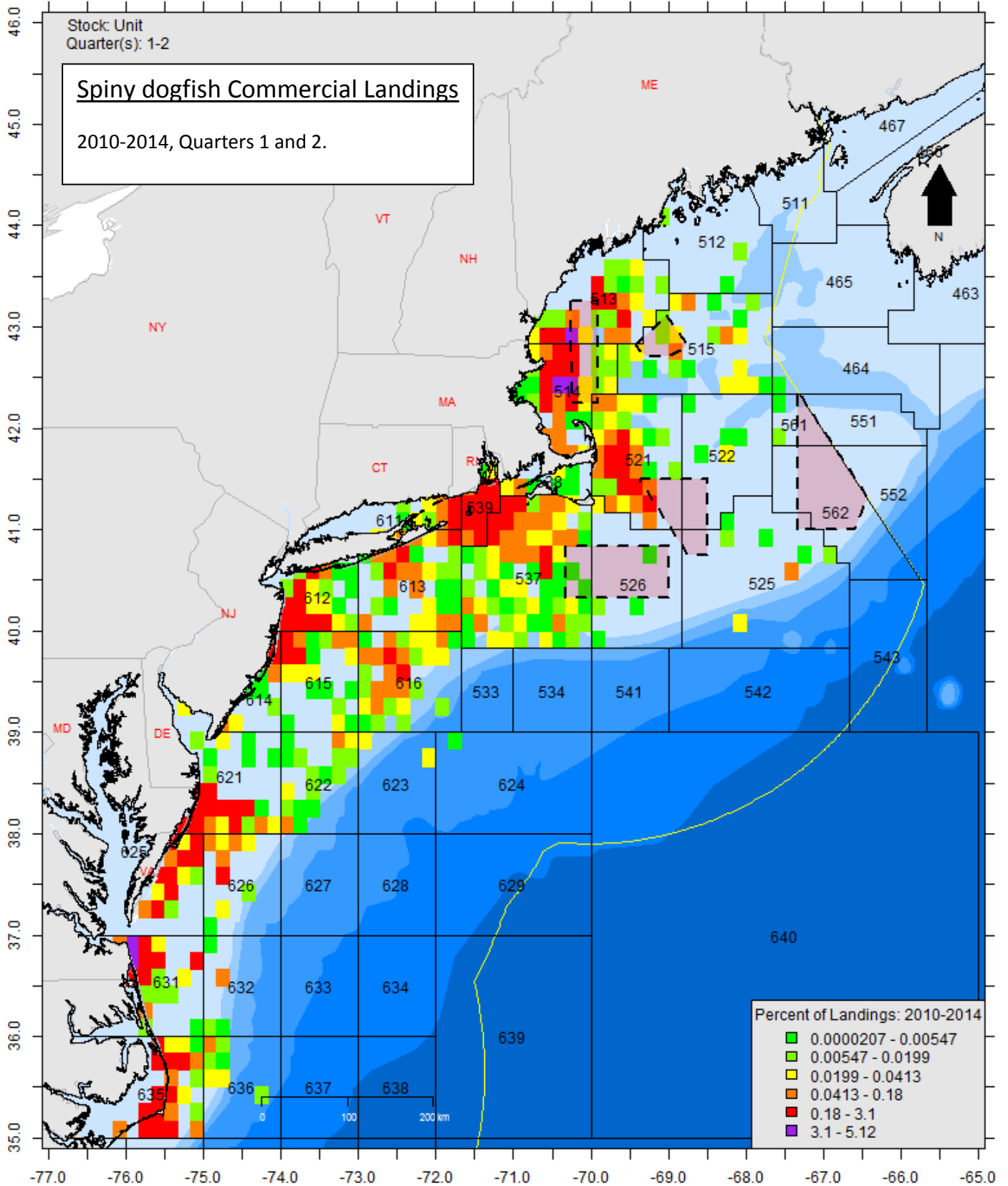


Fig. 1. This map represents commercial landings for DOGFISH, SPINY, *Squalus acanthias*. Landings were reported via Dealer reports. Data have been restricted to dealer trips matched to a Vessel Trip Report (VTR) (ALEVEL=A) to ensure gear and area information is as accurate as possible.

Landings from quarters 1 and 2 are displayed. Due to incomplete location data, the map depicts 48% of the total catch reported for the species and time frame noted.

Northeast Fisheries Science Center statistical areas are represented by numbered polygons and bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference.

Data queried on August 25, 2015

DOGFISH, SPINY

Squalus acanthias

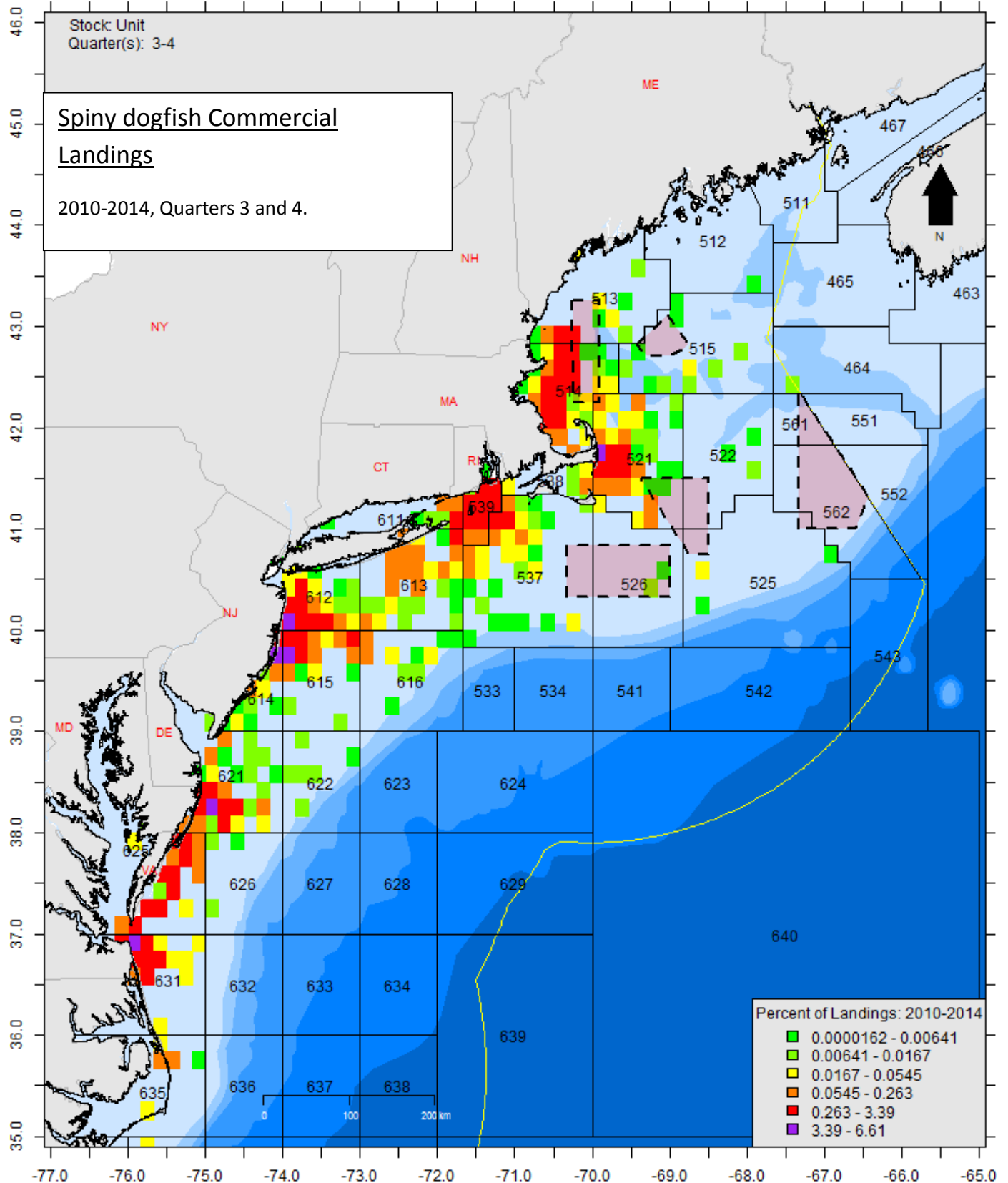


Fig 2. This map represents commercial landings for DOGFISH, SPINY, *Squalus acanthias*. Landings were reported via Dealer reports. Data have been restricted to dealer trips matched to a Vessel Trip Report (VTR) (ALEVEL=A) to ensure gear and area information is as accurate as possible.

Landings from quarters 3 and 4 are displayed. Due to incomplete location data, the map depicts 72.44% of the total catch reported for the species and time frame noted.

Northeast Fisheries Science Center statistical areas are represented by numbered polygons and bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference.

Data queried on August 25, 2015

DOGFISH, SPINY

Squalus acanthias

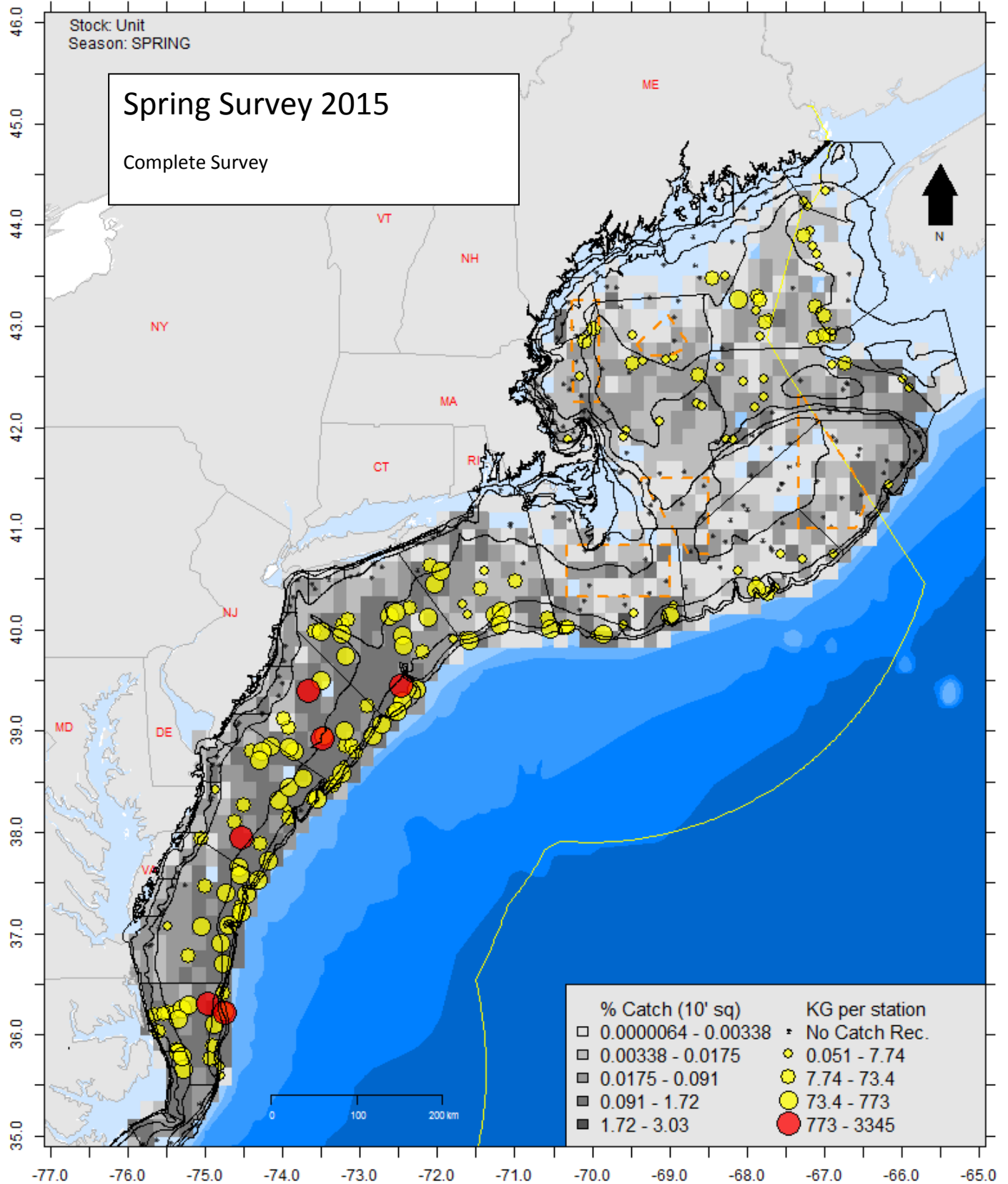


Fig 3. This map represents survey catches for DOGFISH, SPINY, *Squalus acanthias*.

The shaded cells represent the percentage of catch per ten minute square for the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series, from 1971 - 2015.

The points represent catch weights for year(s): **2015 - 2015**

Of the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series. The RED points show the locations of the 6 largest tows in the set.

Weights have not been calibrated.

Bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference.

Data queried on August 21, 2015

DOGFISH, SPINY

Squalus acanthias

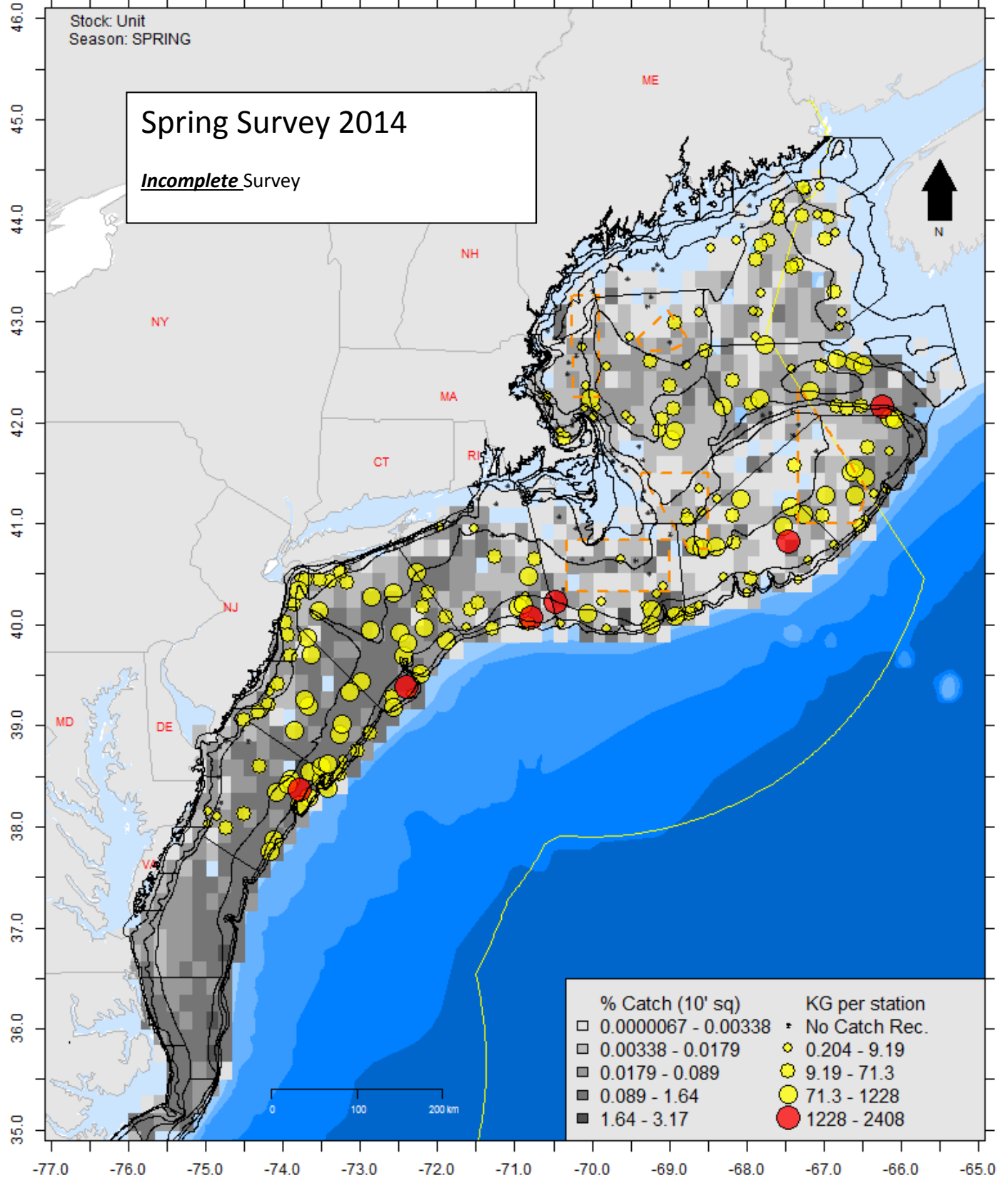


Fig. 4 This map represents survey catches for DOGFISH, SPINY, *Squalus acanthias*.

The shaded cells represent the percentage of catch per ten minute square for the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series, from 1971 - 2014.

The points represent catch weights for year(s): **2014 – 2014**

Of the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series. The RED points show the locations of the 6 largest tows in the set.

Weights have not been calibrated.

Bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference.

Data queried on August 21, 2015

DOGFISH, SPINY

Squalus acanthias

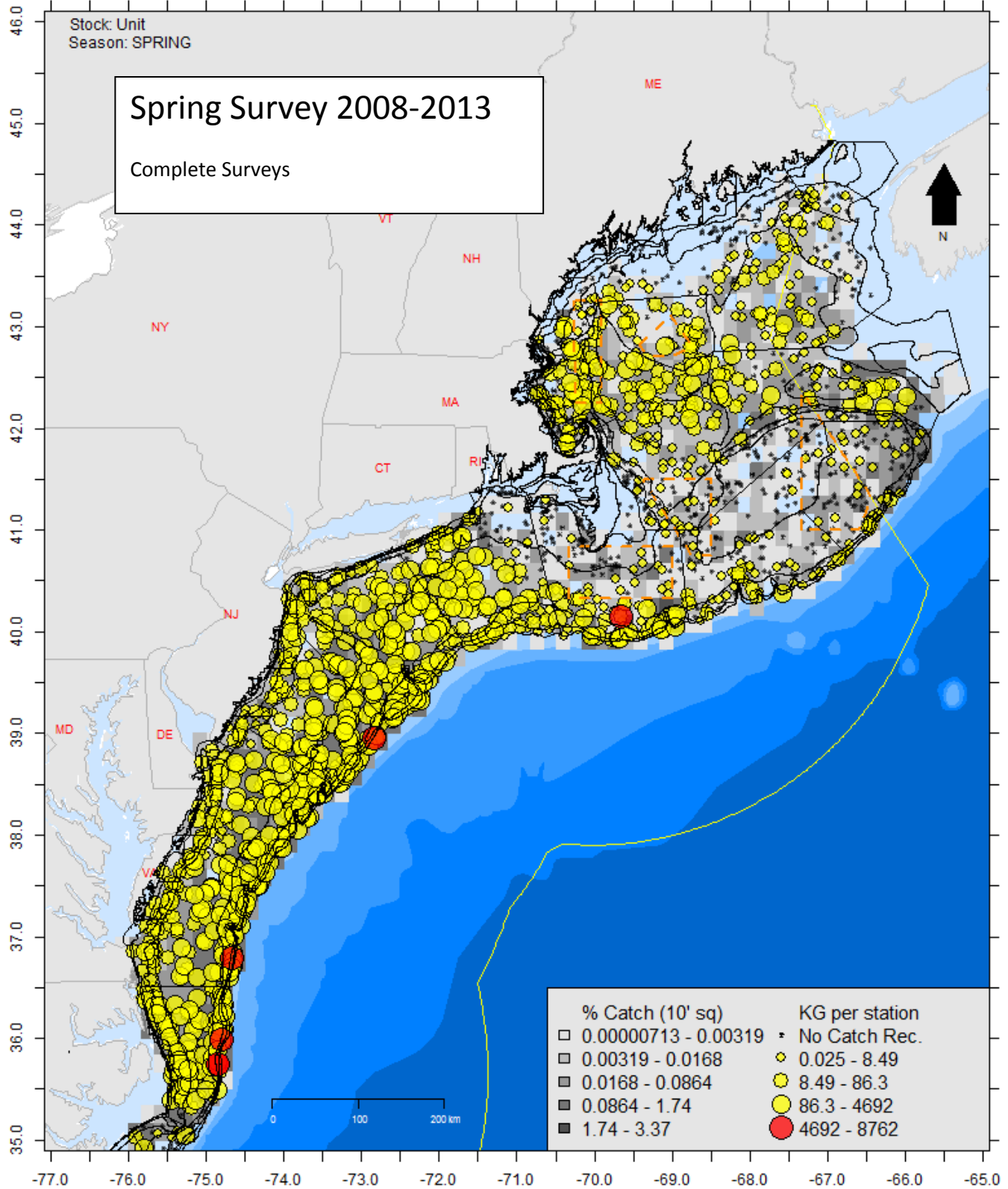


Fig. 5. This map represents survey catches for DOGFISH, SPINY, *Squalus acanthias*.

The shaded cells represent the percentage of catch per ten minute square for the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series, from 1971 - 2013.

The points represent catch weights for year(s): **2008 - 2013**

Of the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series. The RED points show the locations of the 6 largest tows in the set.

Weights have not been calibrated.

Bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference.

Data queried on August 21, 2015

DOGFISH, SPINY

Squalus acanthias

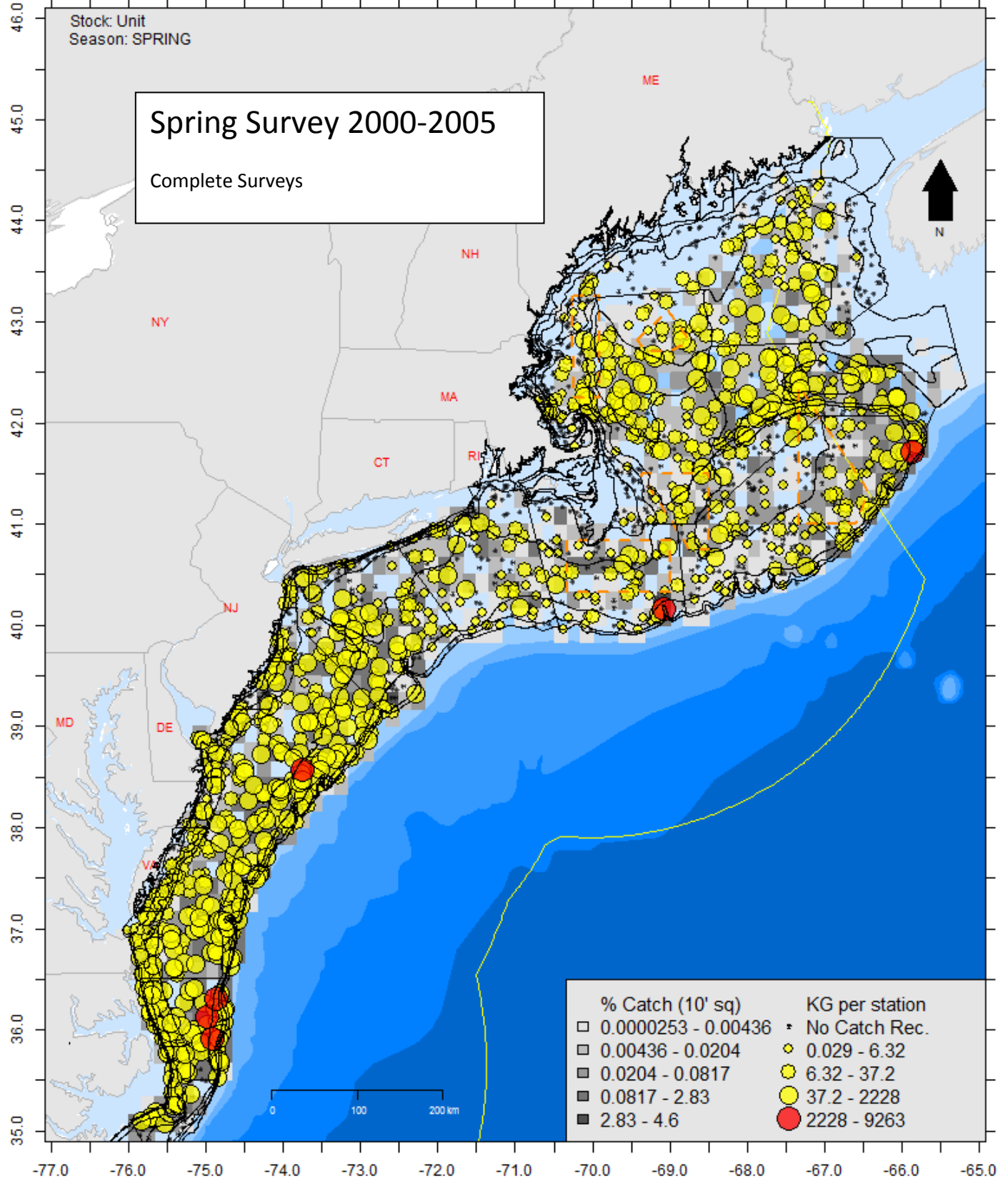


Fig. 6. This map represents survey catches for DOGFISH, SPINY, *Squalus acanthias*.

The shaded cells represent the percentage of catch per ten minute square for the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series, from 1971 - 2005.

The points represent catch weights for year(s): **2000 - 2005**

Of the spring NMFS NEFSC BOTTOM TRAWL SURVEY time series. The RED points show the locations of the 6 largest tows in the set.

Weights have not been calibrated.

Bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference.

Data queried on August 21, 2015



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901-3910

Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org

Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman

Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: September 24, 2015

TO: Joint Spiny Dogfish Committee, Council

FROM: Jason Didden *JDD*

SUBJECT: Spiny Dogfish 2016-2018 Specifications, Monitoring/Technical Committees Summary

On October 6, 2015, the Council will meet as a Joint Spiny Dogfish Committee of the Whole to set Spiny Dogfish Specifications for 2016-2018. This memo summarizes the results of the September 22, 2015 Spiny Dogfish Monitoring Committee (MC) meeting (webinar), which was held in conjunction with the ASMFC's Spiny Dogfish Technical Committee (TC). The purpose of the meeting was to review management measures for the upcoming fishing years and make recommendations as appropriate. Monitoring Committee members in attendance included Jason Didden (MAFMC staff, Chair), Fiona Hogan (NEFMC staff), *Tobey Curtis (NMFS-GARFO), Eric Schneider (RI-DEM), Dan McKiernan (MADMF), Angel Willey (MDDNR), Jack Musick (VIMS), and Chris Hickman (NC, Industry – ex officio/non-voting). Members of the TC (but not on the MC) that were in attendance included Ashton Harp (ASMFC staff), Greg Hinks (NJ) Matt Cieri (ME DNR), Greg Skomal (MADMF), and Scott Newlin (DNREC). Others in attendance included Chris Batsavage, Ted Ligenza, Ali Donargo, Greg DiDomenico, John Whiteside, Katie May Laumann, Kevin Wark, and Rob O'Reilly.*

There was also a public informational webinar held in the evening of September 22, 2015. Public comments from both meetings are summarized separately in this tab immediately after this memo.

Stock Status / OFL / ABC

Jason Didden provided an overview of the 2015 spiny dogfish assessment update and the findings of the Council's Scientific and Statistical Committee (SSC). The stock is not overfished and overfishing is not occurring. However, compared to the last update (2013), the stock is estimated to be lower (87% of target in 2015) compared to 2013 (135% of the target). The primary cause of the reduction in the biomass estimate is that the last update was driven by survey data points that were above average (2011), very above average (2012), and near average (2013) while the current update is driven by survey data points that are near average (2013) and below average (2015). There is no NMFS survey value (and therefore no stock size estimate) for 2014 because important spiny dogfish areas were skipped by the Bigelow trawl survey due to a mechanical breakdown.

Discussion during the call highlighted that the 2012 data point, in addition to being extremely high, had a very high variance, and an appropriate interpretation may be that we are moving away from an erroneously estimated increase in estimated stock size tied to the 2012 data point, rather than actually having a rapid increase followed by a rapid decrease. This interpretation would also align with the previously-predicted declines in stock size for the current year given the low pup indices from 1997-2003. As a follow up, Council staff notes that the current estimate in 2015 is somewhat lower but relatively close to the projected stock size for 2015 done in 2011 (before the high 2012 data point began to influence estimates). Discussion also pointed out that after 2019, the spawning stock is still predicted to start increasing due to higher recent pup indices.

Based on the updated assessment, the overfishing level (OFL) catch for 2016 is estimated based on application of F_{msy} ($F = 0.2439$), and is 53,455,485 pounds (24,247 mt). Based on the projections in the assessment using the Council's risk policy, the Acceptable Biological Catches (ABCs) for 2016, 2017, and 2018 would be 37.0 million pounds (16,765 mt), 36.4 million pounds (16,526 mt), and 36.7 million pounds (16,636 mt), respectively. The risk of overfishing in these years from the Council's risk policy would be 33%, 30%, and 28%. The risk of overfishing is less than 40% because the Council's risk policy requires a lower chance of overfishing when stock size is below the reference target for spiny dogfish female spawning stock biomass. Relative to the 2015 ABC, the recommended ABCs represent reductions of 41%, 42%, and 41% for 2016, 2017, and 2018, respectively. Additional details on the

assessment update and recent fishery performance may be found at the SSC meeting site at <http://www.mafmc.org/ssc-meetings/2015/sept-16-17> and in the staff memo included later in this tab.

Calculation of Existing 2014 Federal TAL and commercial quota

The federal spiny dogfish TAL is calculated using the process outlined in Amendment 2 to the Spiny Dogfish FMP (i.e., Omnibus Annual Catch Limit (ACL)/ Accountability Measures (AM) Amendment). The current (starting May 2015) fishing year's values corresponding to the steps in the process are given in Table 1. The Total Allowable Landings (TAL) and commercial quota are the remaining catch available for landings after accounting for management uncertainty and all other types of removals specified in the fishery management plan. The other types of removals include Canadian commercial landings and U.S. discards (commercial and recreational). The commercial quota is the remaining landings available after a further reduction from the TAL to account for expected U.S. recreational landings. The recommended values for 2016-2018 are provided in Table 2, and were endorsed by all participating members of the Monitoring Committee except for Chris Hickman, the ex officio industry representative on the Monitoring Committee, who believed that the quotas should not be reduced. He indicated that there are many fewer participants, that the current fleet cannot hurt the spiny dogfish population under the current regulations, and that too many assumptions are being used to make quota decisions.

Several modifications to how the various reductions from ABC were proposed by staff and accepted by the Monitoring Committee. While the absolute quantities for these reductions (discards, recreational landings) did not change appreciably, correlation analysis suggested different methods of using recent years' values were more appropriate for determining the amounts to subtract for expected discards and recreational landings. Additional discussion of these changes can be found in the staff memo to the SSC and MC, which is included later in this tab.

Table 1. Spiny dogfish management measures for 2015 fishing year as currently specified.

Specifications	Basis	2015 (pounds)	2015 (mt)
OFL	Projected Catch at Fmsy		
ABC	Constant F	62,412,866	28,310
Canadian Landings	= avg last 3 years (09,10,11)	143,300	65
Domestic ABC	= ABC – Canadian Landings	62,269,566	28,245
ACL	= Domestic ABC	62,269,566	28,245
Mgmt Uncert. Buffer	Average Overages 2010-11	0	0
ACT	= ACL - mgmt uncertainty	62,269,566	28,245
U.S. Discards	2002-2011 average	11,605,133	5,264
TAL	ACT – Discards	50,664,432	22,981
U.S. Rec Landings	2010-2011 average	52,911	24
Comm Quota	TAL – Rec Landings	50,611,522	22,957

OFL = Overfishing Level

ABC = Acceptable Biological Catch

ACL = Annual Catch Limit

ACT = Annual Catch Target

TAL = Total Allowable Landings

Table 2. Proposed spiny dogfish management measures for 2016-2018 fishing years.

Specifications	Basis	2016 (pounds)	2016 (mt)	2017 (pounds)	2017 (mt)	2018 (pounds)	2018 (mt)
OFL	Projected Catch at Fmsy	53,455,485	24,247	55,313,982	25,090	56,824,148	25,775
ABC	Council Risk Policy	36,960,498	16,765	36,433,593	16,526	36,676,102	16,636
Canadian Landings	= avg last 3 years (10,11,12)	143,300	65	143,300	65	143,300	65
Domestic ABC	= ABC – Canadian Landings	36,817,198	16,700	36,290,293	16,461	36,532,801	16,571
ACL	= Domestic ABC	36,817,198	16,700	36,290,293	16,461	36,532,801	16,571
Mgmt Uncert. Buffer	Ave pct overage since 2011	0	0	0	0	0	0
ACT	= ACL - mgmt uncertainty	36,817,198	16,700	36,290,293	16,461	36,532,801	16,571
U.S. Discards	=3 year average 12-13-14	11,494,167	5,214	11,494,167	5,214	11,494,167	5,214
TAL	ACT – Discards	25,323,030	11,486	24,796,126	11,247	25,038,634	11,357
U.S. Rec Landings	= 2014 estimate	68,343	31	68,343	31	68,343	31
Comm Quota	TAL – Rec Landings	25,254,687	11,455	24,727,782	11,216	24,970,291	11,326

The Monitoring and Technical Committees also reviewed and/or discussed a variety of other issues, as described below.

Management Uncertainty and Calculation of the ACT

Because there have been no recent overages of the ACL in this fishery, and the existing trip limits should allow accurate quota monitoring, no management uncertainty buffer is proposed. Thus the Domestic ABC = ACL = ACT.

Discards

The discard levels recommended by Council staff are slightly different than those used in the assessment update, but total mortality would be the same so the projections would not be impacted. Earlier discussions with Paul Rago suggested that a recent three-year average was a reasonable approach given the strong correlations observed. If discards are higher than predicted this will increase the chance of ACL overages (there is no management uncertainty buffer). In the event that the ACL is exceeded in a given fishing year, the overage is deducted (as soon as possible) from a subsequent single fishing year ACL.

Trip Limits

The MC did not make a recommendation on trip limits. The MC did discuss trip limits at length, but came to the conclusion that there is no biological basis for recommending alternative trip limits at this time. Discussion noted that states can set higher trip limits in state waters, for example North Carolina increased its state trip limit to 20,000 pounds effective February 19, 2015. There was discussion that the current trip limits may not be optimal for some participants but that changing trip limits impacts various fishery participants differently, especially depending on their location relative to processors. Some constituents may want consideration of different trip limits in a separate action (where the impacts throughout the fishery can be more fully evaluated).

Missing 2014 Data Point

The MC discussed whether different approaches to impute/fill-in the missing 2014 data point were considered. Council staff relayed that there were some discussions with Science Center staff but there were concerns that generating and selecting imputation methods were outside the scope of this assessment update. Council staff is recommending that an assessment update be conducted again next year and include additional consideration of ways to impute the missing 2014 data point.

Benchmark

There was discussion of whether the time was right for another benchmark assessment given the current assessment draws heavily on the results of the last peer-reviewed stock assessment vetted at SARC 43 in 2006 and the revised biomass reference points peer-reviewed by the Transboundary Resource

Assessment Committee in April 2010. Council staff noted that spiny dogfish is not currently on the SAW/SARC calendar for assessments.

Management Priorities

There was a discussion whether the MC/TC should flag management priorities other than specifications for managers to consider via a separate action(s). Given that was not the advertised purpose of the call, Council staff was hesitant to conduct such a prioritization exercise during this call but noted that a prioritization process could be conducted/requested by the Council.

Selected References

MAFMC staff memorandum from Jason Didden to Chris Moore: “Spiny Dogfish Specifications for 2016-2018 fishing years,” dated September 11, 2015.

NEFSC (Rago & Sosebee). 2015. Update on the Status of Spiny Dogfish in 2015 and Projected Harvests at the Fmsy Proxy and Pstar of 40%. Report to MAFMC SSC, August 26, 2015. Available, with recorded presentation, at <http://www.mafmc.org/ssc-meetings/2015/sept-16-17>.

Spiny Dogfish Assessment - SARC 43 (2006), available at <http://www.nefsc.noaa.gov/saw/reports.html>.

Spiny Dogfish Assessment - TRAC 2010, Status Report available at http://www2.mar.dfo-mpo.gc.ca/science/trac/TSRs/TSR_2010_02_E.pdf.

Mid-Atlantic Council Votes to Reduce Spiny Dogfish Quota for 2016

October 15, 2015

At [last week's meeting](#) in Philadelphia, the Mid-Atlantic Fishery Management Council recommended a substantial cut in the spiny dogfish commercial quota for next year. Following a review of the most recent scientific information, public comments, and advice from the Scientific and Statistical Committee (SSC) and Spiny Dogfish Advisory Panel, the Council voted to set the 2016 commercial quota at 25.3 million pounds, a 50% reduction from the 2015 quota of 50.6 million pounds. If approved by the National Marine Fisheries Service, the new measure will go into effect May 1, 2016.

The Council's decision was driven by the recent [spiny dogfish stock assessment update](#), which estimated the stock's biomass to be at 87% of the rebuilt target in 2015. Although the stock was found to be neither overfished nor subject to overfishing, the new estimate of stock biomass was a marked decrease from the 2013 update, which indicated that the stock's biomass was at 135% of the target.

The Council received a considerable number of comments from the fishing industry, with the majority in opposition to the proposed cuts. Several commenters expressed concern about the accuracy of the trawl survey data used in the assessment update and requested that the Council maintain status quo regulations until a benchmark assessment for the stock has been completed.

After extensive discussion, the Council approved the SSC's recommended acceptable biological catch (ABC) limit of 37.0 million pounds. After accounting for management uncertainty, projected discards, Canadian landings, and recreational landings, this ABC translates into a commercial quota of 25.3 million pounds for 2016. However, because the fishery has not taken the full quota in recent years, the recommended quota for 2016 would still be 11% above the landings in the most recent fishing year.

Given that the survey data from 2014 was not included in the 2015 update due to a mechanical breakdown in the NEFSC trawl survey, the Council also requested that the SSC determine an overfishing limit (OFL) and ABC for 2016 using averaged data to fill in the missing 2014 data point. The SSC will meet later this year to consider this request.

Finally, because the spiny dogfish fishery is managed jointly, the [New England Fishery Management Council](#) must also make recommendations for spiny dogfish specifications at its upcoming meeting in December.

<http://www.mafmc.org/newsfeed/2015/mid-atlantic-council-votes-to-reduce-spiny-dogfish-quota-for-2016>



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901-3910

Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org

Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman

Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: 22 September 2015

TO: Richard M. Robins, Jr., MAFMC Chairman

FROM:  John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee

SUBJECT: Report of the September 2015 Meeting of the MAFMC SSC

The SSC met in Annapolis, MD, on 16-17 September 2015 for the main purpose of developing new ABC recommendations for Spiny Dogfish and revisiting the ABC recommendations for Black Sea Bass. The SSC also reviewed a draft of the MAFMC research plan, discussed establishing clearer criteria for setting the coefficients of variation on overfishing limits (OFLs), discussed the composition of membership of the SSC and participation of SSC members in the SAW/SARC process, and were updated on summer flounder modeling efforts by Pat Sullivan, actions being taken by the South Atlantic Fishery Management Council with regard to Blueline Tilefish, and the status of the report from the most recent National SSC Workshop. The final meeting agenda is attached (Attachment 1).

A total of 13 SSC members were in attendance on September 16th for the discussions on setting ABCs for Black Sea Bass and Spiny Dogfish, which constituted a quorum (Attachment 2). Also in attendance were staff from the NMFS Northeast Fisheries Science Center (by phone), and staff from the Council, NMFS Northeast Regional Office, and ASMFC; no representatives from the fishing industry and general public were in attendance. Discussion of ABC recommendations for each species began with a review of supporting information by the MAFMC staff lead and/or NEFSC assessment lead, then the SSC species leads (Attachment 3), followed by SSC deliberations. Documents cited in this report can be accessed via the MAFMC SSC website (<http://www.mafmc.org/council-events/2015/ssc-meeting-2>).

Black Sea Bass

The SSC discussion on revisiting the Black Sea Bass ABC recommendation made by the committee at its July 2015 meeting began with a presentation by Tom Miller on the results of the 10 September 2015 peer review of the McNamee et al. (2015) white paper (Miller 2015). Members of the peer review panel were Tom Miller (SSC member and panel chair), Olaf Jensen (SSC member), John Wiedenmann (Rutgers University), and Katie Drew (ASMFC).

The McNamee et al. white paper used the Caruthers (2015) DLMtool in R to develop reference points and catch level recommendations. DLMtool evaluates the performance of 47 different fishery management procedures in an operating model, which is parameterized to represent a particular species defined by a suite of biological and fisheries related parameters. Many of the 47 different management

procedures are alternative “flavors” of the same approach, only with slightly different parameterizations. The selected management procedures are evaluated against a set of user defined performance measures in a closed loop management strategy evaluation (MSE) that projects a population forward under a defined management procedure by sampling from distributions of biological, fishery, and observation processes. The MSE assumes perfect implementation of each management procedure. From the output of the MSE, the management procedures that are determined to perform “best” are identified. The values of these “best” management procedures are then estimated based on the real data.

The white paper applied the DLMtool approach to Black Sea Bass. McNamee et al. used the probability of overfishing < 0.3 , the probability that the biomass will be less than 10% of the BMSY < 0.2 , and the relative yield should be > 0.5 as performance measures. The closed loop MSE evaluation was undertaken and a suite of “best” management policies identified. The reference points derived from these best management procedures were then estimated for Black Sea Bass by using data from 1982-2014.

The peer review panel concluded, based on the evidence presented in the McNamee et al. white paper, that three methods used to estimate reference points provide a reasonable foundation for providing an ABC for Black Sea Bass. All three methods use recent catch levels combined with the recent trend in stock abundance to derive an ABC recommendation. After a lengthy discussion, the SSC concurred with the panel’s recommendation, and added a fourth method that is solely based on a constant catch (the method that the SSC is currently using to develop ABC recommendations for Black Sea Bass) that met the same criteria as the three methods selected by the panel. The SSC determined that using these four methods would provide an ABC recommendation that is based on the best scientific information available. Therefore, the SSC revisited the MAFMC’s terms of reference used for its July 2015 deliberations (terms of reference (TORs) provided by the Council are in *italics*).

For Black Sea Bass, the SSC will provide a written report that identifies the following for fishing years 2016-2017:

1) The level of uncertainty that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment.

The SSC determined that the OFL could not be specified given the current state of knowledge.

2) If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy.

Because no OFL was accepted for this species, the level of catch cannot be derived given the current state of knowledge.

3) The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.

The SSC determined the ABC to be **3,024 MT (6.67 million pounds)**. This value is calculated from the results of the application of data limited approaches given by Caruthers (2015). The approach established three performance measures that each data limited method must achieve (probability of overfishing during any year in the modeled period < 0.3 , probability of B

$<0.1B_{msy}$ in the modeled period < 0.2 and the relative yield > 0.5). From the methods that met these criteria, the SSC used only those methods for which values for Black Sea Bass could be reliably determined. For Black Sea Bass, four methods met this standard, each having its own estimate of ABC. One method relies on a constant catch strategy and three combine, in different ways, information on total catch and the NEFSC spring survey to calculate an ABC. Because there was no a reliable foundation on which to weight the alternative methods, the SSC used the simple average of the estimates derived by the four methods to calculate the ABC.

It is not possible to provide an estimate of the probability of overfishing associated with the ABC.

At its July 2016 meeting, the SSC will revisit the ABC for 2017 based on information on the total catch and the spring NEFSC survey index for 2016.

The SSC expects to maintain this approach to setting ABCs until a revised assessment is completed (expected December 2016) that will be reviewed by the SAW/SARC by Spring 2017 in time for ABC determination for 2018.

4) The most significant sources of scientific uncertainty associated with determination of OFL and ABC.

- The application of data limited methods is associated with significant uncertainty;
- The lack of an analytical assessment prevents the estimation of an OFL reference point;
- Lack of data on abundance and fishing mortality rate estimates limited the range of approaches that could be used to generate reference points;
- The reliability of the NEFSC spring survey to serve as an index of abundance for Black Sea Bass is unknown;
- Atypical life history strategy (Black Sea Bass is a protogynous hermaphrodite) means that determination of appropriate reference points is difficult;
- Tagging analyses suggest incomplete mixing throughout the stock range;
- There is evidence of changes in the spatial distribution of the species (Bell et al. 2015), and;
- Uncertainty exists with respect to M — because of the unusual life history strategy the current assumption of a constant M in the model for both sexes may not adequately capture the dynamics in M.

5) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations.

No additional ecosystem considerations were included in the determination of ABC.

6) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.

1. Develop a first principles foundation for establishing reference points and assessment methods to account for Black Sea Bass life history characteristics.
2. Explore the utility of a spatially structured assessment model for Black Sea Bass to address the incomplete mixing in the stock.
3. Continue and expand the application of data limited methods to Black Sea Bass as a default should an accepted analytical assessment model not be available. Specifically, the SSC recommends performance testing of the ensemble of data limited methods used by the SSC.

The committee also reference the recommendations developed by the peer review panel on Data Limited Methods for Black Sea Bass (Miller 2015).

4. Develop a reliable fishery independent index for Black Sea Bass beyond the existing surveys. This may require development and implementation of a new survey.
5. Additional monitoring and compliance investments to control ABCs at recommended levels are necessary if predicted scientific outcomes for future stock biomasses are to be realized.
6. Consider a directed study of the genetic structure in the population north of Cape Hatteras.
7. Evaluate the implications of change in distribution to stock and fishery dynamics.

7) *The materials considered in reaching its recommendations.*

- McNamee, J., G. Fay, and S. Cadrin. 2015. Data limited techniques for Tier 4 stocks: an alternative approach to setting harvest control rules using closed loop simulations for management strategy evaluation. RI Division of Fish and Wildlife and University of Massachusetts Dartmouth. 57pp.
- J. McNamee, G. Fay, and S. Cadrin. 2015. Memo to SSC, dated 18 July 2015, entitled “Recommendation for an ABC for Black Sea Bass based on the Data Limited analysis.” 4 pp.
 - Data and code (zip file)
 - Data Limited Techniques For Level 4 Stocks (PowerPoint presentation by Jason McNamee)
- Miller, T. 2015. Memo to John Boreman, dated 12 September 2015, entitled: “Review of McNamee et al “Data Limited Techniques for Tier 4 Stocks....” 7 pp.
- Bell, R. J., D. E. Richardson, J. A. Hare, P. D. Lynch, and P. S. Frantantoni. 2015. Disentangling the effects of climate, abundance, and size on the distribution of marine fish: an example based on four stocks from the Northeast US shelf. ICES Journal of Marine Science 72(5): 1311-1322.

8) *A certification that the recommendations provided by the SSC represent the best scientific information available.*

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

Spiny Dogfish

Paul Rago (NEFSC) briefed the SSC on the latest update to the Spiny Dogfish assessment, followed by Jason Didden’s presentation summarizing recent management actions and the fishery performance report developed by the advisory panel. Since no public were present at the meeting, Yan Jiao (SSC species lead) then led the SSC deliberations in developing ABC recommendations for 2016 and beyond. Deliberations followed the order of the terms of reference provided by the MAFMC (in *italics*).

For Spiny Dogfish, the SSC will provide a written report that identifies the following for fishing years 2016-2018:

1) The level of uncertainty that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment.

The assessment includes an acceptable OFL, but the SSC deemed that the assessment uncertainty

level requires an SSC-derived coefficient of variation (CV) for the OFL. The SSC applied its default assumptions regarding the distribution around the OFL – that is, OFL is lognormally distributed with a mean as specified and a coefficient of variation of 100%.

2) *If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy.*

The F_{msy} proxy is calculated from a projection model for which the finite rate of population increase = 1.0. For spiny dogfish, the F_{msy} proxy = 0.2439. This is equivalent to **OFL = 24,247 mt**, based on the projected biomass in 2016 and the assumption that the catch in 2015 will be equal to 16,542 mt, which is equal to the 2014 catch.

3) *The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.*

The SSC recommends a three-year specification of ABC. The SSC applied the Council's risk policy for a typical life history¹, an estimated B_{201x}/B_{msy} ratio < 1 for all three years, and a CV of the OFL distribution of 100% assuming a lognormal distribution. Using these parameters, the P* values and the associated ABC are as follows:

Year	P*	ABC (mt)
2016	0.326	16,765
2017	0.297	16,526
2018	0.282	16,636

The SSC notes that the stock biomass is projected to continue to decline from 2016 to 2019 because of poor recruitment in earlier years, before recovering again. This is consistent with the findings of the SSC 2013 determination of Spiny Dogfish stock status.

The SSC will examine Spiny Dogfish discard rates, survey abundance trends (size composition, sex ratio and pup size), average size and sex in commercial landings, agreement between observed and predicted catch and survey forecasts, changes in Canadian landings, and the spatial distributions of catch and survey abundances each year of the specification to determine if the multiyear ABC should be abandoned.

4) *The most significant sources of scientific uncertainty associated with determination of OFL and ABC.*

- The incomplete 2014 NEFSC bottom trawl survey. The assessment model uses a three-year running average, and the lack of data for 2014 means that estimates for the years surrounding 2014 are estimated from only two years of data.
- The assessment relies heavily on an assumed efficiency of the survey gear in developing minimal swept area estimates of biomass.
- Inter-annual differences in availability of the stock to the survey gear.

¹ The SSC notes that the assessment for spiny dogfish has been structured to account for many aspects of the unique life history of this species

- F_{msy} proxy is based on a projection model that relies on a time-invariant selectivity estimated from data up to 2008. The assessment assumes selectivity has not changed subsequently, but may be variable.
- Both the F_{msy} proxy and the projections rely on a model that assumes constant pup survival and pup production rates. Empirical evidence suggests pup survival correlates positively with maternal size.
- Inconsistency between the estimation model and the projection model.
- Potential changes in fishery selectivity. Large increases in catches could induce changes in the overall selectivity pattern in the fishery.
- Potential inconsistency between the life history-based estimates of fishing mortality rates and the biomass reference points derived from the Ricker stock recruitment curve.
- Total discard estimates and estimated mortality of discarded dogfish.

5) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations.

No explicit or specific ecosystem considerations were included in the assessment. Furthermore, no additional ecosystem considerations were applied in calculating the ABC.

6) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.

1. Revise the assessment model to investigate the effects of stock structure or distribution, sex ratio, and size of pups on birth rate and first year survival of pups.
2. Explore methods of imputing the 2014 survey-based abundance estimate. The 2014 survey was partially completed, but areas of the survey important to the estimate of abundance of Spiny Dogfish were not sampled as a result of vessel mechanical problems. Accordingly, the SSC recommends exploration of model-based methods to derive 2104 survey indices for Spiny Dogfish.
3. Continue large scale (international) tagging programs, including conventional external tags, data storage tags, and satellite pop-up tags, to help clarify movement patterns and migration rates.
4. Investigate the distribution of Spiny Dogfish beyond the depth range of current NEFSC trawl surveys, possibly by using experimental research or supplemental surveys.
5. Continue aging studies for Spiny Dogfish age structures (e.g., fins, spines) obtained from all sampling programs (include additional age validation and age structure exchanges), and conduct an aging workshop for Spiny Dogfish, encouraging participation by NEFSC, Canada DFO, other interested state agencies, academia, and other international investigators with an interest in dogfish aging (US and Canada Pacific Coast, ICES).
6. Evaluate ecosystem effects on Spiny Dogfish acting through changes in dogfish vital rates.

7) The materials considered in reaching its recommendations.

- Rago, P., and K. Sosebee. 2015. Update on the Status of Spiny Dogfish in 2015 and Projected Harvests at the F_{msy} Proxy and P_{star} of 40%. Northeast Fisheries Science Center. 73 pp.
- MAFMC Staff. 2015. 2015 Spiny Dogfish Advisory Panel (AP) fishery performance report (FPR). 4 pp.

- MAFMC Staff. 2015. Spiny Dogfish Advisory Panel (AP) Informational Document - August 2015. 7 pp.
- Didden, J. 2015. Memo to Chris Moore, dated 11 September 2015, entitled: “Spiny Dogfish Specifications for 2016-2018 fishing years.” 9 pp.

8) *A certification that the recommendations provided by the SSC represent the best scientific information available.*

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

Summary of Species Information Requests

The following is a summary of the information requests made at the meeting by the SSC for next year’s round of ABC deliberations. Questions about specifics can be directed to the SSC species leads (Attachment 3).

Black Sea Bass: At its July 2016 meeting, the SSC will revisit the ABC for 2017 based on information on the total catch and the spring NEFSC survey index for 2016. The SSC expects to maintain this approach to setting ABCs until a revised assessment is completed (expected December 2016) that will be reviewed by the SAW/SARC by Spring 2017 in time for ABC determination for 2018.

Spiny Dogfish: The SSC will examine Spiny Dogfish discard rates, survey abundance trends (size composition, sex ratio and pup size), average size and sex in commercial landings, agreement between observed and predicted catch and survey forecasts, changes in Canadian landings, and the spatial distributions of catch and survey abundances each year of the specification to determine if the multiyear ABC should be abandoned.

Criteria for OFL CV Specification

An updated document detailing the background on the MAMFC ABC Control Rule and development of the default 100% coefficient of variation (CV) for the overfishing limit (OFL) applied by the SSC (previously termed Level 3 based ABCs) was supplied by Mike Wilberg prior to the meeting. Based on this document, the SSC discussed two related issues: first, how can the SSC clarify criteria for applying OFL CV lower than 100%; and second, what guidance can the SSC give to assessment teams in estimating OFL CV to strive for analytically-based and expert-based OFL probability distributions (what were previously termed Level 1 and Level 2 assessments)? These issues are related and should be consistent.

The SSC has included some or all of the following considerations in estimating the OFL CV:

- Uncertainty in the estimate of current biomass, including observation error and process error carried through the assessment;
- Uncertainty in the estimate of the F_{msy} reference point, including process error estimated at the same time as biomass (B) is estimated in an integrated fashion;
- Covariation in the B and F_{msy} estimates;

- Sources of uncertainty that could not be included in an individual assessment model, which could include:
 - Model structural uncertainty (e.g., structured vs biomass dynamic models; single species vs multispecies models);
 - Parameter uncertainty (e.g., as currently included in sensitivity runs); and
 - Uncertainty in current state of nature (e.g., ecosystem production regime).

The SSC discussed using measures of model forecast error in determining the OFL CV, based upon information provided by NEFSC for several recent assessments, by comparing projected stock status from a past assessment to stock status estimated from a more recent assessment. Differences between past projections and current estimated could be used to derive a “forecast error” that could also be applied in estimating the OFL’s CV.

The SSC discussed establishing “bands” of OFL CV levels, associated either with different levels of uncertainty treatment within an assessment and/or with a simulation analysis of the best possible CV expected under certain data availability and stock life history conditions compared with the level of uncertainty treatment within an assessment. Simulation analyses could also address where investments in data or assessment model improvements would be most likely to result in reduced OFL CV.

Based on this discussion, the SSC formed a subcommittee (T. Miller, S. Gaichas, O. Jensen, and B. Rothschild) to develop a white paper for discussion at the March 2016 SSC meeting. This white paper would outline criteria for using different CV levels, as well as a decision table aligning managed species with current forms of assessment, ABC level, and assumed OFL CV. Over the longer term, this subcommittee would outline simulation analyses to investigate appropriate OFL CV levels to achieve the Council’s risk policy for each of its managed species, given available information.

Council Research Plan

Rich Seagraves gave an overview of the draft Comprehensive Five Year Research Plan, which will be presented to the Council at its October 2015 meeting. The Council, in consultation with its Scientific and Statistical Committee, first developed a research plan to meet this requirement in 2008 through examination of research needs identified in numerous stock assessments, Council FMP/Amendment documents, and through the Council’s Research Set-Aside Program. The revised document was reorganized to address the science and research needs identified by the Council during its recent Visioning Project in its Strategic Plan.

A major SSC criticism of the Council’s Strategic Plan (and the associated Research Plan) is that it lacks clear articulation of the Council’s fundamental social and economic objectives for MAFMC fisheries. For example, most of the fishermen participating in MAFMC fisheries have access to numerous fisheries. The Council has not explicitly identified measurable social and economic objectives relative to flexibility of participants in multiple fisheries. In addition, the current risk policy was developed almost entirely based on biological considerations with little or no consideration of social and economic factors. Analyses supporting the Councils current risk policy should be greatly expanded to include policy analysis based on social and economic considerations.

The SSC noted that another major topic of research that needs to be addressed relates to the current practice of assessment and management on a single species basis. While the Council has made some inroads into addressing the need to take an ecosystem approach to assessment and management in its EAFM effort, some fundamental changes to the current paradigm are required. The SSC recommended

that the Council develop an Operational Plan to allow for the transition from the current single-species approach to an ecosystem-based approach. This plan should include the development of Integrated Ecosystem Assessments that include clearly stated social and economic objectives.

The SSC also recommends that the Council consider conducting a thorough evaluation of the management performance of its current FMPs. Research and analyses are needed to define OY using an objective function in the same way other reference points are developed and evaluated. This would allow the Council to evaluate management performance based the objective criteria which define OY.

Finally, the SSC noted that the funding levels that were available through the RSA program are far from adequate relative to addressing the extensive list of research needs identified in the current research plan. Since all of the needs identified cannot be addressed given existing funding, it is critical that the Council prioritize its research needs and leverage funding opportunities with those of its management partners to maximize benefits given the limited pool of available research funds.

Summer Flounder Modeling

Pat Sullivan (Cornell University) briefed the SSC on the status of his summer flounder modeling project. He is attempting to configure a model that incorporates variability in sex, size, and age, with an even longer-term goal of eventually factoring in spatial differences as well. SSC members provided him some feedback and suggestions for consideration as he develops the model. Dr. Sullivan will be making a similar presentation at the upcoming MAFMC meeting in Philadelphia.

Other Business

SSC Membership

Given the likelihood that there may be vacancies on the SSC, the committee discussed future composition of SSC membership. The SSC cautions the Council to make sure there is a role to fill on the SSC before selecting new members with a specific scientific background. There was general agreement that the SSC needs to maintain a strong social sciences component. A sociologist or cultural anthropologist would bring a unique perspective in human dimensions to the SSC, but a lot depends on how the Council envisions utilizing the committee. An expert in quantitative risk assessment would also be a useful addition.

The SSC sees its role as going beyond simply responding to requests from the Council. Many of the SSC members see participation on the committee as a means of providing direction to their own research programs, thus expanding the influence and benefits of participating in the SSC's deliberations. Committee members also expressed interest in adding socio-economics and ecosystems topics as regular agenda items in SSC meetings in order to further engage and benefit from the members who are experts in these disciplines.

NSSC V Report

John Boreman and Rich Seagraves updated the SSC on progress being made on the report of the Fifth National Stock Assessment Workshop, held last February in Honolulu. In an August 12th conference call, the report's authors informed the workshop's steering committee that a draft report is still being

prepared; final comments on the draft meeting summary from the individual SSC's were due in early September.

Blueline Tilefish Update

John Boreman briefed the SSC on the recent SAFMC SSC webinar that reviewed updated projections of the stock status of Blueline Tilefish that were prepared by the Southeast Fisheries Science Center. Given the continued problems with large uncertainty in the data sources, as well as in the assessment itself, the SAFMC SSC decided not to use projections based on the assessment model as a basis for providing an ABC recommendation to the SAFMC, instead choosing to base the ABC recommendation on catch at 75% of F_{msy} . At our next SSC meeting in March 2016, the MAFMC SSC working group on Blueline Tilefish, under the leadership of Doug Vaughan, will be presenting several options for determining the ABC for this species in the mid-Atlantic region.

Participation of SSC members on SAW Working Groups

Olaf Jensen raised concern that SSC members might no longer be allowed to participate on the stock assessment working groups in the SAW/SARC process under the new guidelines developed by the Northeast Region Coordinating Council. MAFMC staff assured the SSC that this is not true. The SSC agreed that SSC members should be allowed to participate on the working groups on a case-by-case basis, depending on their expertise on the species being addressed (as well as continue being able to chair the SARCs).

cc: SSC Members, Lee Anderson, Chris Moore, Rich Seagraves, Kiley Dancy, Jason Didden, Jason McNamee, Kirby Rootes-Murdy, Paul Rago

Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee Meeting
September 16-17, 2015
Final Agenda

Wednesday, 16 September 2015

- 0900 Receive Report of Black Sea Bass Data Limited Methods Analysis Review (Miller)
- 1000 SSC Discussion on data limited methods relative to MAFMC Ad hoc ABC Species
 - Consider/recommend alternative ABC specification approaches for Black Sea Bass
- 1200 Presentation on Status Update for Spiny Dogfish (Rago)
- 1245 Working Lunch
- 1300 Continue Discussion on ABCs for Black Sea Bass
- 1430 2016-2018 Spiny Dogfish ABC Specifications (Didden and Jiao)
- 1600 Criteria for OFL CV Specification (Boreman)

Thursday, 17 September 2015

- 0900 AFMC Research Priorities (Seagraves)
- 1020 Report on Sex-specific Modeling for Summer Flounder
- 1115 Other Business
 - SSC Membership
 - NSSC V Report
 - Blueline Tilefish Update
 - Participation of SSC members on SAW Working Groups
- 1200 Adjourn

MAFMC Scientific and Statistical Committee
16-17 September Meeting
Annapolis, MD

<u>Name</u>	<u>Affiliation</u>
<i>SSC Members in Attendance:</i>	
John Boreman (SSC Chairman)	NC State University
Tom Miller (SSC Vice-Chair)	University of Maryland - CBL
Doug Lipton	NMFS
David Tomberlin	NMFS Office of Science and Technology
Mark Holliday	NMFS (Retired)
Doug Vaughan	NMFS (Retired)
Sarah Gaichas	NMFS Northeast Fisheries Science Center
Sunny Jardine (9/16 only)	University of Delaware
Rob Latour	VIMS
Olaf Jensen	Rutgers University
Ed Houde	University of Maryland – CBL
Brian Rothschild	UMass – Dartmouth
Yan Jiao	VA Tech
 <i>Others in attendance:</i>	
Rich Seagraves	MAFMC staff
Kiley Dancy (9/16 only)	MAFMC staff
Jason Didden (9/16 only)	MAFMC staff
Paul Rago (by phone, 9/16 only)	NMFS Northeast Fisheries Science Center
Kirby Rootes-Murdy	ASMFC staff
Jason McNamee	RI F&W
Pat Sullivan (9/17 only)	Cornell University
Moira Kelly (by phone, 9/16 only)	NMFS Northeast Regional Office
Tobey Curtis (by phone, 9/16 only)	NMFS Northeast Regional Office

Species and Topic Leads for MAFMC SSC Members

Species/Topic	Biology/Assessment Lead	Socio-economics Lead
Atlantic Mackerel	Dave Secor	Mark Holliday
Atlantic Surfclam	Wendy Gabriel	Bonnie McCay
Ocean Quahog	Ed Houde	Bonnie McCay
Spiny Dogfish	Yan Jiao	David Tomberlin
Bluefish	Cynthia Jones	Doug Lipton
Butterfish	Rob Latour	Mark Holliday
Black Sea Bass	Tom Miller/Olaf Jensen	Marty Smith
Golden Tilefish	Doug Vaughan	Marty Smith
Scup	Wendy Gabriel	Mark Holliday
Summer Flounder	Mike Wilberg	Doug Lipton
Long-finned Squid	Mike Frisk	Sunny Jardine
Short-finned Squid	Tom Miller	Sunny Jardine
Ecosystems	Ed Houde	Doug Lipton
Deep Sea Corals	John Boreman	Bonnie McCay
Blueline Tilefish	Sarah Gaichas	David Tomberlin

Spiny Dogfish Advisory Panel (AP) Informational Document - August 2015
Prepared by Jason Didden, Council Staff

****Note - Data Sources for the following are generally from unpublished standard NMFS databases unless noted...everything should be considered preliminary at this point.**

Basic Biology

Spiny dogfish (*Squalus acanthias*) is a coastal shark with populations on the continental shelves of northern and southern temperate zones throughout the world. It is the most abundant shark in the western north Atlantic and ranges from Labrador to Florida, but is most abundant from Nova Scotia to Cape Hatteras, North Carolina. Its major migrations on the northwest Atlantic shelf are north and south, but it also migrates inshore and offshore seasonally in response to changes in water temperature. Spiny dogfish have a long life, late maturation, a long gestation period, and low fecundity, making them generally vulnerable to depletion, as they cannot quickly rebuild their numbers. Fish, squid, and ctenophores dominate the stomach contents of spiny dogfish collected during the Northeast Fisheries Science Center (NEFSC) bottom trawl surveys but they are opportunistic and have been found to consume a wide variety of prey. More detailed life history information can be found in the essential fish habitat (EFH) source document for spiny dogfish at: <http://www.nefsc.noaa.gov/publications/tm/tm203/tm203.pdf>.

Status of the Stock

Reports on “Stock Status,” including Stock Assessment Workshop (SAW) reports, Stock Assessment Review Committee (SARC) panelist reports and peer-review panelist reports are available online at the NEFSC website: <http://www.nefsc.noaa.gov/nefsc/saw/>. The NEFSC is currently updating the dogfish stock assessment, but at this point the 2013 assessment update provides the most recent scientific characterization of stock conditions. An assessment update was not done in 2014 because of mechanical issues with the survey vessel in 2014 that led to incomplete sampling. The 2013 assessment update (available at <http://www.mafmc.org/ssc-meetings/september-2013>) indicated that the spiny dogfish stock was not overfished, and that overfishing was not occurring. In updating the assessment, the NEFSC estimated a 97% probability that the stock is not overfished and a 91% probability that overfishing was not occurring. Female spawning stock biomass and pup indices are provided below. When the 2015 update becomes available it will be forwarded to the AP.

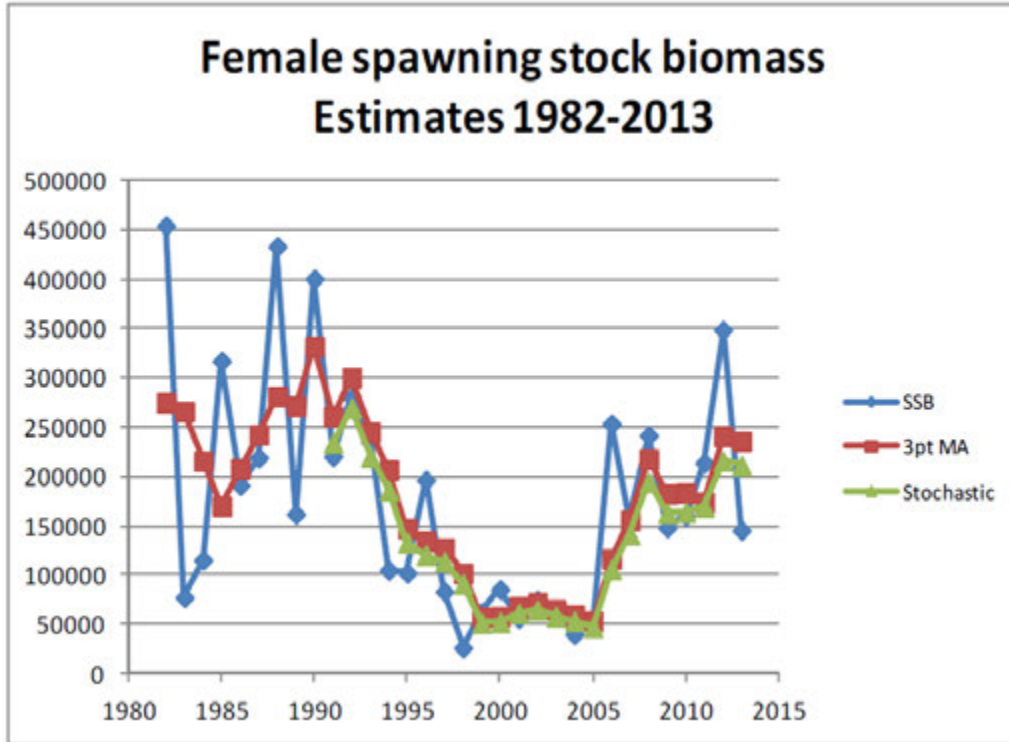


Figure 1. Comparison of alternative swept area estimates of female spawning stock biomass, 1982-2013. Stochastic SSB estimates are available for 1991 to 2013. Year refers to the terminal year in a 3 point moving average.

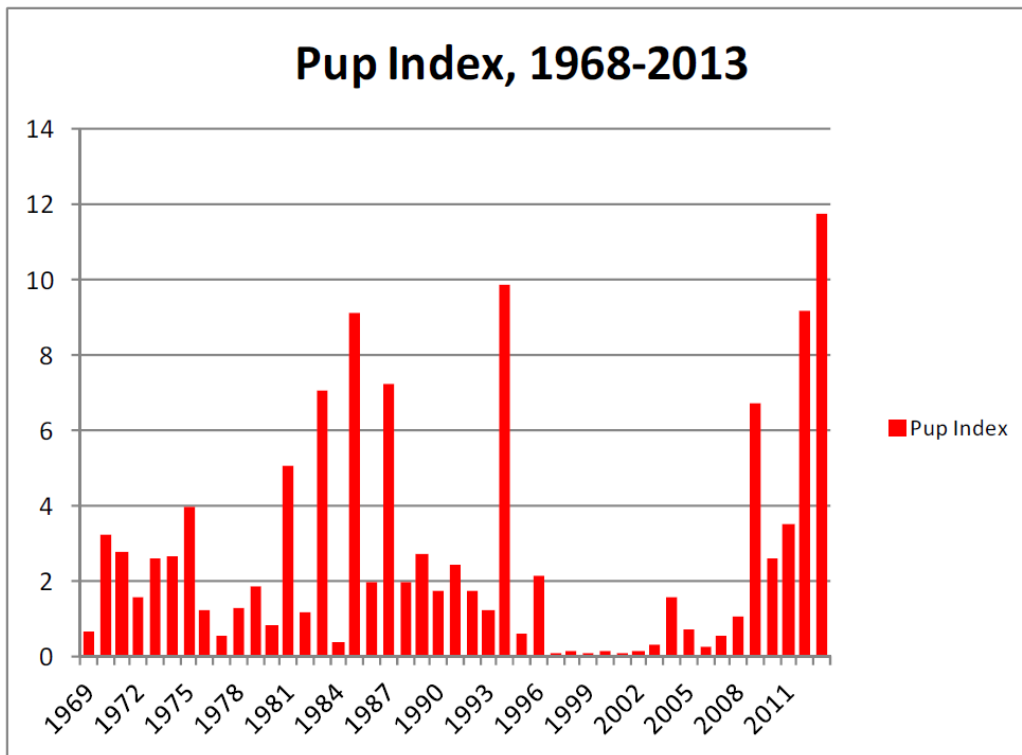


Figure 2. Estimated swept area biomass (mt) of total pups (spiny dogfish <36 cm) captured in the NEFSC spring bottom trawl survey, 1968-2013.

Fishery Performance

At the onset of the domestic commercial fishery in the early 1990's, population biomass for the Northwest Atlantic stock of spiny dogfish was at its highest estimated level (approx. 1.2 billion lb). A large scale unregulated fishery developed and quickly depleted the stock of mature female spiny dogfish such that in 1997 a stock assessment showed that the stock was overfished (NEFSC 1997). The Spiny Dogfish FMP was developed in 1998 and implemented in 2000 in order to halt further depletion of mature female spiny dogfish and allow the stock to recover to a sustainable level. Because the directed commercial fishery concentrated on mature females, rebuilding required elimination of that directed fishery. The rebuilding program was successful and in 2010 NMFS communicated the rebuilt status of the stock to the Councils.

The current (2015) quotas are derived from the recommendations of the Council's Scientific and Statistical Committee (SSC) for Acceptable Biological Catch (ABC), and how various components of fishing mortality are handled by the spiny dogfish fishery management plan, as described in the table below. The trip limit is 5,000 pounds in Federal waters however individual states may set more restrictive possession limits.

Table 1. May 2015 to April 2016 Spiny Dogfish Specifications

2015 Measures	Basis	M lb
OFL		
ABC	<i>Constant F (0.19528)</i>	62.413
Canadian Landings	<i>= ave 2009-2011</i>	0.143
Domestic ABC	<i>= ABC - Canadian Landings</i>	62.270
ACL	<i>= Domestic ABC</i>	62.270
Mgmt Uncertainty Buffer	<i>Ave of quota overages (pct) in 2010-2011</i>	0.000
ACT	<i>= Domestic ACL - management uncertainty</i>	62.270
U.S. Discards	<i>= ave 2002-2011</i>	11.605
TAL	<i>ACT - Discards</i>	50.664
U.S. Rec Landings	<i>= ave 2010-2011</i>	0.053
Comm Quota	<i>TAL - Rec Landings</i>	50.611522

OFL = Overfishing Level; ABC = Acceptable Biological Catch; ACL = Annual Catch Limit; ACT = Annual Catch Target; TAL = Total Allowable Landings; Rec = Recreational; Comm = Commercial; M lb = Millions of pounds.

The following pages provide information landings and prices since 2000 (page 4), the progression of landings through the year for the last several years (page 5), landings by state, month, and gear for 2012-2014 (page 6), and vessel activity by several categories of vessels based on landings since 2000 (page 7).

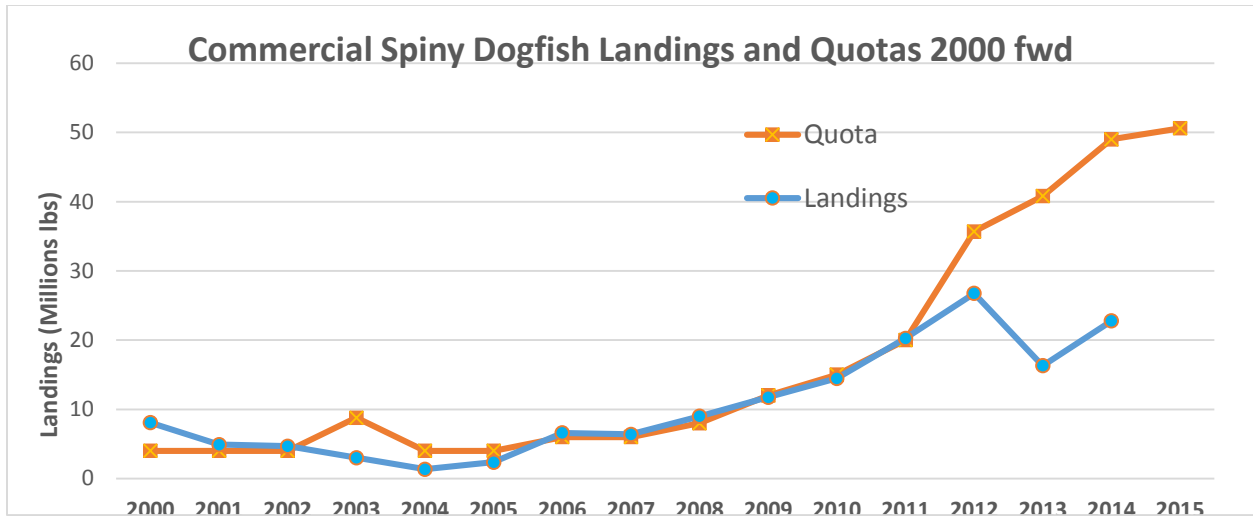


Figure 3. Spiny Dogfish Landings and Quotas 2000-2014. 2014 = May 1, 2014 to April 30, 2015.
 Source: Unpublished NMFS dealer reports

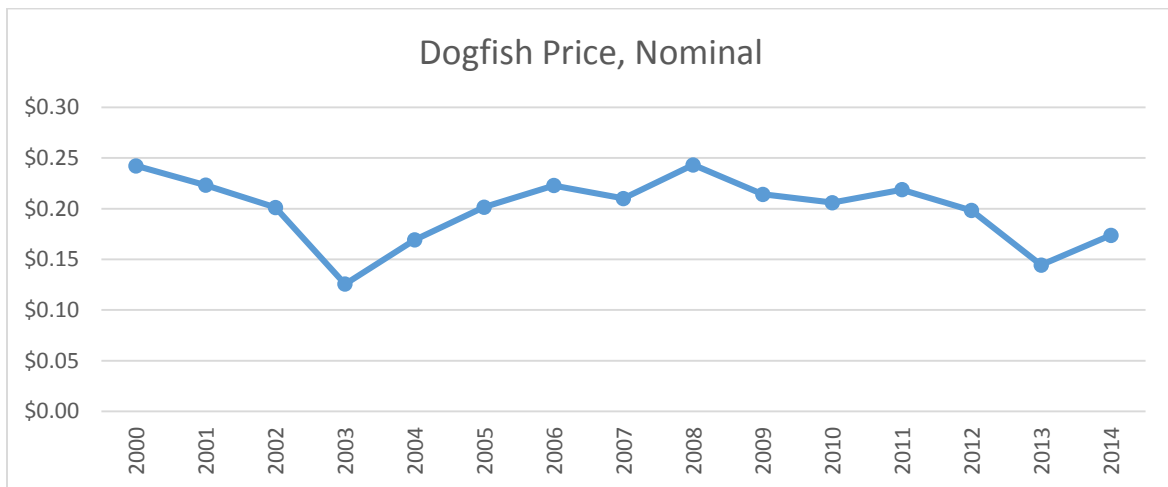


Figure 4. U.S. Spiny Dogfish fishing year ex-vessel prices (Nominal)
 Source: Unpublished NMFS dealer reports

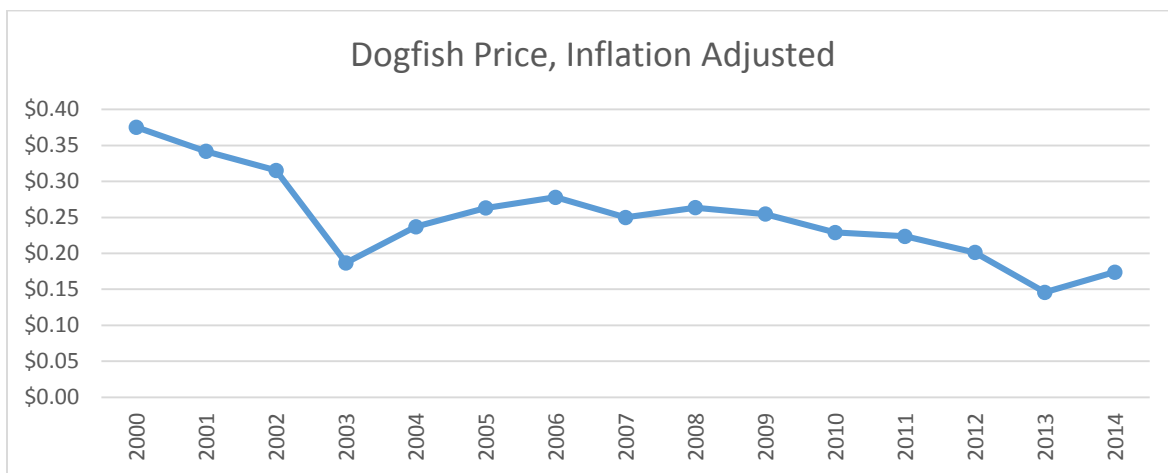


Figure 5. U.S. Spiny Dogfish fishing year ex-vessel prices (Producer Price Index adjusted, 2014 dollars)
 Source: Unpublished NMFS dealer reports

Spiny Dogfish Quota Monitoring Report

August 12, 2015

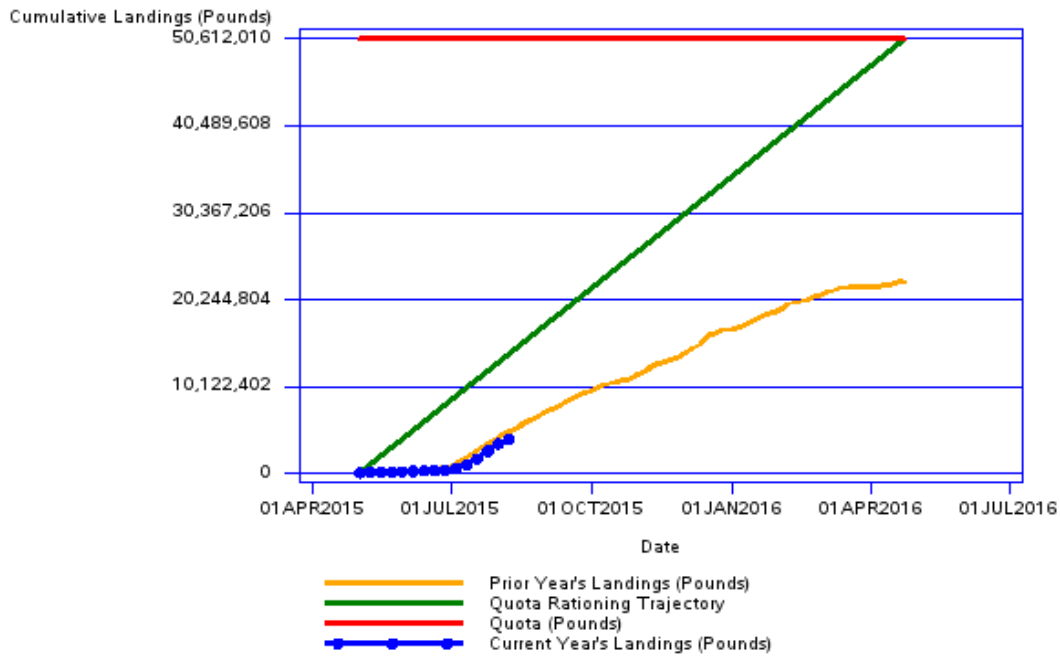


Figure 6. Spiny Dogfish Landings (Blue = 2015-2016 Fishing Year; Orange = 2014-2015 Fishing Year) (Current and Last Year)

Spiny Dogfish Quota Monitoring Report

April 29, 2015

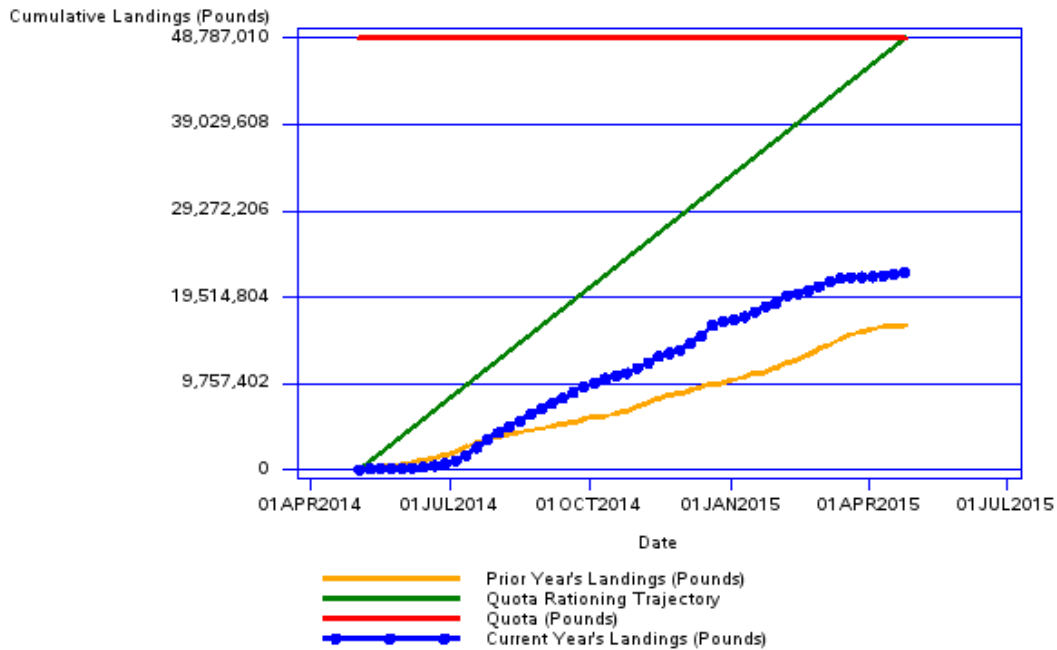


Figure 7. Spiny Dogfish Landings (Blue = 2014-2015 Fishing Year; Orange = 2013-2014 Fishing Year) (Last Year and Year Before)

Table 2. 2012-2014 Calendar Year dogfish landings by state

YEAR	CT	MA	MD	ME	NC	NH	NJ	NY	RI	VA	Other/NA	Total
2012	97,312	13,116,375	1,146,921	226,770	2,177,177	1,811,900	1,531,811	304,486	1,351,344	1,580,651	12,654	23,357,401
2013	21,990	6,216,753	1,121,019	106,610	3,134,810	515,448	1,780,265	82,291	1,000,503	2,157,096	141	16,136,926
2014	21,779	9,436,021	1,049,183	206,933	5,460,146	1,704,651	2,202,747	69,194	694,527	2,553,537	8,857	23,407,575

Source: unpublished NEFSC dealer reports

Table 3. 2012-2014 Calendar Year dogfish landings by month.

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012	2,455,965	96,632	134,576	78,289	634,001	1,447,374	3,748,793	3,828,929	4,153,819	2,056,165	2,288,758	2,434,100
2013	1,900,676	1,604,985	1,721,861	942,463	598,222	1,124,305	1,906,873	978,338	1,218,308	1,258,877	1,615,281	1,266,737
2014	1,311,494	2,405,429	1,923,287	696,878	189,940	634,675	3,142,880	2,917,483	2,832,268	1,816,382	2,187,645	3,349,214

Source: unpublished NEFSC dealer reports

Table 4. 2012-2014 Calendar Year dogfish landings by gear.

YEAR	GILL_NET_SINK_ OTHER	GILL_NET_S ET_STAKE __SEA_BAS S	UNKNOWN	LONGLINE_ _BOTTOM	TRAWL_OTTER_ BOTTOM_FISH	HAND_LINE_ OTHER	POTS_ TRAPS_ OTHER	DREDGE_ OTHER	Other
2012	11,828,026	2,038,129	1,943,624	3,665,784	1,470,162	1,679,561	375,722	92,292	264,101
2013	8,839,470	2,707,710	1,548,630	858,259	1,335,529	634,092	27,215	85,129	100,892
2014	10,106,427	5,404,446	2,915,679	1,753,834	1,831,855	983,672	29,619	82,222	299,821

Table 5. Number of vessels active in various annual landing ranges (pounds per vessel per year)

YEAR	Vessels 200,000+	Vessels 100,000 - 200,000	Vessels 50,000 - 100,000	Vessels 10,000 - 50,000
2000	30	24	25	122
2001	4	12	11	32
2002	2	14	8	31
2003	4	5	3	11
2004	0	0	0	43
2005	0	0	2	65
2006	0	0	8	117
2007	1	5	17	74
2008	0	11	18	107
2009	0	11	42	191
2010	0	22	42	124
2011	2	55	71	140
2012	20	40	56	181
2013	10	29	42	83
2014	29	34	40	86

Source: unpublished NEFSC dealer reports

Atlantic States Marine Fisheries Commission

Horseshoe Crab Management Board

*November 5, 2015
8:00 – 9:00 a.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change;
other items may be added as necessary.

1. Welcome/Call to Order (*J. Gilmore*) 8:00 a.m.
2. Board Consent 8:00 a.m.
 - Approval of Agenda
 - Approval of Proceedings from February 2015
3. Public Comment 8:05 a.m.
4. Horseshoe Crab Technical Committee Report (*S. Doctor*) 8:15 a.m.
 - Shorebird and Horseshoe Crab Survey Reports Summary
 - Adaptive Resource Management (ARM) Framework Harvest Output for 2016
 - Double-loop Review of the ARM Model in 2016
 - Maryland Harvest Proposal
 - Biomedical data and jurisdiction concerns
5. Set 2016 Delaware Bay Horseshoe Crab Specifications 8:35 a.m.
(*K. Rootes-Murdy*) **Final Action**
6. Update on the Virginia Tech Horseshoe Crab Trawl Survey 8:45 a.m.
(*K. Rootes-Murdy*)
7. Discuss Gulf of Mexico Biomedical Fishery (*K. Rootes-Murdy*) 8:50 a.m.
8. Consider Approval of 2015 FMP Review and State Compliance 8:55 a.m.
(*K. Rootes-Murdy*) **Action**
9. Other Business/Adjourn 9:00 a.m.

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

Horseshoe Crab Management Board Meeting
Thursday November 5, 2015
8:00 a.m. – 9:00 a.m.
St. Augustine, Florida

Chair: Jim Gilmore (NY) Assumed Chairmanship: 10/14	Horseshoe Crab Technical Committee Chair: Steve Doctor (MD)	Law Enforcement Committee Representative: Messeck (DE)
Vice Chair: Robert Boyles (SC)	Horseshoe Crab Advisory Panel Chair: Dr. Jim Cooper (SC)	Previous Board Meeting: October 30, 2014
Shorebird Advisory Panel Chair: Dr. Sarah Karpanty (VA)	Delaware Bay Ecosystem Technical Committee Chair: Greg Breese (FWS)	
Voting Members: MA, RI, CT, NY, NJ, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (16 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 30, 2014

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Horseshoe Crab Technical Committees Report (8:15 – 8:35 a.m.)

Background

- The Delaware Bay Ecosystem and Horseshoe Crab Technical Committees (TCs) jointly met on October 9, 2015
- The TCs Reviewed the Adaptive Resource Management (ARM) harvest output, horseshoe crab surveys and discussed a few other issues including an alternative harvest proposal from Maryland, the double loop review of the ARM and biomedical data (**Briefing Materials**)

Presentations

- TCs Report by S. Doctor

5. Set 2016 Delaware Bay Horseshoe Crab Specifications (8:35 -8:45 a.m.) Final Action

Background

- The ARM subcommittee met by conference call in August and September 2015 (**Briefing Materials**)
- In the absence of the Virginia Tech Trawl Survey data in recent years, the ARM subcommittee considered a composite index to inform Horseshoe Crab abundance in the Delaware Bay region.

Presentations

- Overview of the ARM harvest output and TCs recommendations by K. Rootes-Murdy

Board Actions for Consideration

- Consider ARM harvest recommendations and set specifications for the Delaware Bay states in 2016.

6. Update on the Virginia Tech Horseshoe Crab Trawl Survey (8:45 -8:50 a.m.)

Background

- The Virginia Tech Horseshoe Crab Trawl Survey has not been conducted in recent years due to lack of funding
- While funds were available for the 2015 fishing season, the survey was unable to be carried out due to timing

7. Discuss Gulf of Mexico Biomedical Fishery (8:50 -8:55 a.m.)

Background

- In October 2015 the Commission received a letter from an IUCN subcommittee expressing concern over the development of biomedical fishery in the Gulf of Mexico for export to Biomedical Markets in Asia. (**Briefing Materials**)
- The authors of the letter request that ASMFC and the Gulf States Marine Fisheries Commission (GMFSC) consider developing a horseshoe crab management plan for the region.

8. Consider Approval of 2015 FMP Review and State Compliance (8:55 -9:00 a.m.) Action

Background

- State Compliance Reports are due March 1.
- The Plan Review Team reviewed each state report and compiled the annual FMP Review. (**Supplemental Materials**)
- The Potomac River Fisheries Commission, South Carolina, Georgia, and Florida have requested and meet the requirements for *de minimis* status.

Presentations

- Overview of the FMP Review Report by K. Rootes-Murdy

Board Actions for Consideration

- Accept 2015 FMP Review and State Compliance Report.
- Approve *de minimis* requests

9. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

HORSESHOE CRAB MANAGEMENT BOARD

Hilton Mystic
Mystic, Connecticut
October 30, 2014

These minutes are draft and subject to approval by the Horseshoe Crab Management Board
The Board will review the minutes during its next meeting

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INDEX OF MOTIONS

1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of February, 2014** by Consent (Page 1).
3. **Move to accept the report and the specification of harvest package 3 for the Delaware Bay region for 2015** (Page 9). Motion made by Bill Adler; second by Stewart Michels. Motion carries unanimously (Page 9).
4. **Move to accept the compliance reports, the FMP Review, and *de minimis* status for the states of NH, PRFC, SC, GA, and FL** (Page 10). Motion made by Bill Adler; second by David Simpson. Motion carries unanimously (Page 10).
5. **Move to nominate Dr. Malcom Rhodes as Vice-Chair to the Horseshoe Crab Board** (Page 11). Motion made by Mr. Woodward; second by Russ Allen. Motion carried unanimously (Page 11).
6. **Motion to adjourn**, by Consent (Page 12).

ATTENDANCE

Board Members

Bill Adler, MA (GA)	Stewart Michels, DE, proxy for D.Saveikis (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Bernie Pankowski, DE, proxy for Sen.Venables (LA)
Robert Ballou, RI (AA)	Roy Miller, DE (GA)
David Borden, RI (GA)	Tom O'Connell, MD (AA)
Rick Bellavance, RI, proxy for Sen. Sosnowski (LA)	Bill Goldsborough, MD (GA)
David Simpson, CT (AA)	Russell Dize, MD, proxy for Sen. Colburn (LA)
Lance Stewart, CT (GA)	John Bull, VA (AA)
Rep. Craig Miner, CT (LA)	Rob O'Reilly, VA, Administrative proxy
James Gilmore, NY (AA)	Robert Boyles, Jr., SC (AA)
Emerson Hasbrouck, NY (GA)	Malcolm Rhodes, SC (GA)
Tony Rios, NY, proxy for Sen. Boyle (LA)	Spud Woodward, GA (AA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Pat Geer, GA, proxy for Rep. Burns (LA)
Tom Fote, NJ (GA)	James Estes, FL, proxy for J. McCawley (AA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Mike Millard, USFWS
Russ Allen, NJ, proxy for D. Chanda (AA)	Derek Orner, NMFS
	Martin Gary, PRFC

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Penny Howell, Technical Committee Chair

Staff

Robert Beal	Marin Hawk
Toni Kerns	Kirby Rootes-Murdy

Guests

Doug Grout, NH (AA)	John Clark, DE DFW
Dennis Abbott, NH	Jack Travelstead, CCA
Sherry White, USFWS	Raymond Kane, CHOIR
Brandon Muffley, NJ DFW	

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Grand Ballroom of The Mystic Hilton, Mystic, Connecticut, October 30, 2014, and was called to order at 8:30 o'clock a.m. by Chairman James J. Gilmore, Jr.

CALL TO ORDER

CHAIRMAN JAMES J. GILMORE, JR.: Good morning, everybody. Welcome to the Horseshoe Crab Management Board. My name is Jim Gilmore; I'm the administrative commissioner for New York. I will be chairing the meeting and I'm actually taking over the chair from Dave Simpson of Connecticut. We thank Dave for his two years of service to the board.

APPROVAL OF AGENDA

CHAIRMAN GILMORE: We're starting a little late so for all the people not at the Striped Bass Meeting yesterday, please indulge the folks that were there. The first order is approval of the agenda. Any changes to the agenda? Seeing none; we will take that as accepted.

APPROVAL OF PROCEEDINGS

CHAIRMAN GILMORE: We have the Proceedings from the February 2014 meeting. Are there any changes to the proceedings? Seeing none; we will list those as accepted.

PUBLIC COMMENT

CHAIRMAN GILMORE: Before every meeting, we take public comment on any issues not on the agenda. Are there any comments from the audience on things not on the agenda? Seeing none; we'll move right along. Our next order of business is the technical committee met with the Delaware Bay Ecosystem Technical Committee to discuss the Shorebird and Horseshoe Crab Survey Report Summary and ARM Framework Harvest Output for 2014. Penny Howell is going to go through a report on that and we will have some action after this.

HORSESHOE CRAB TECHNICAL COMMITTEE REPORT

SHOREBIRD AND HORSESHOE CRAB SURVEY REPORTS SUMMARY

MS. PENNY HOWELL: Okay, the technical committee reviewed the Horseshoe Crab Abundance Indices from six sources of information. I'm just going to summarize a few here and highlight two principal sources of indices. The first would be the Delaware Bay Horseshoe Crab Spawning Survey. The indices show that there is a fairly steady abundance.

The males were increasing slightly but with no statistical significance. The females were slightly decreasing but again with no statistical significance. The next source I just want to review is the Delaware Trawl Surveys. There is actually more than one. The first one is the 30-foot trawl catch summarized over all months; and you can see that the overall population is fairly steady.

It is below levels in prior years, but the last few years have been – there is no trend. The highlight is the 16-foot trawl catch of adults. Again, it is a steady trend; slight increase in the last year; again, lower than prior years but no trend in recent data. For juveniles, the picture looks a little better. There is an increase in recent years.

We had a little drop in the last few, but 2013 bounced up a bit. Both the Horseshoe Crab and Shorebird Technical Committees agreed that the surveys reflect little change in the status of horseshoe crabs in the Delaware Bay Region and the population has been stable since 2009.

Moving on to the red knot status, the Horseshoe Crab and Shorebird Technical Committees reviewed the red knot abundance in the Delaware Region and in Tierra del Fuego in Argentina. The abundance in the main wintering areas in Tierra del Fuego has not increased during the study period of 2004 to 2013.

Moving closer to home, the abundance of red knots in the Delaware Bay has remained low but relatively stable over the last decade. The proportion of red knots reaching the trigger weight

of 180 grams, which is most important for horseshoe crab management, has improved in four of the last five years in the previous survey.

ARM FRAMEWORK HARVEST OUTPUT FOR 2015

MS. PENNY HOWELL: Okay, moving on to the ARM Framework Procedure for 2015; the ARM Framework requires two data estimates on an annual basis; horseshoe crab abundance and red knot abundance. Since the framework process started, the Virginia Tech Trawl Survey has provided the estimates for horseshoe crab abundance.

However, funding in 2013 was not received; so the Virginia Tech Trawl Survey was not conducted in 2013. In the absence of the abundance estimates from this survey, the ARM Working Group decided to use the Horseshoe Crab Catch Indices from the Northeast Area Monitoring Assessment Program, or NEAMAP, to estimate abundance.

The Virginia Tech Trawl Survey was designed specifically to obtain an estimate of the horseshoe crab abundance; and while the NEAMAP Survey is not directed toward horseshoe crabs, that is the first slight problem here. In addition the surveys were conducted during different times of day and used different gear.

There are several structural reasons why the two datasets may not be compatible even though the NEAMAP data was honed down to match as much as possible the original Virginia Tech Survey Dataset. The results found that the correlation between the two surveys was not consistent, significant and positive for females while insignificant and negative for males.

Since the fishery harvests only males at this time, this was a critical flaw. The ARM Working Group presented four options for the technical committee for their consideration. While both technical committees agree that the annual datasets are the core of the ARM Framework, there was too much uncertainty in the accuracy of the NEAMAP data to recommend Option 2 or Option 3, which use the

NEAMAP abundance estimates to calculate the equivalent Virginia Trawl Survey Abundance Estimate.

The technical committee agreed that Option 1 or status quo was the best available option to use for this year's ARM Framework and specification-setting process in the absence of the Virginia Tech Trawl Survey data. However, the technical committees agreed that this option should be used as a stopgap for 2014 and not extend it into the future and strongly recommends that more reliable estimates of abundance should be investigated for the 2016 analyses.

Some suggestions include finding funding for the Virginia Tech Trawl Survey; investigate abundance indices to estimate abundance or adapt the sampling design of the NEAMAP Survey to better accommodate the ARM Framework data needs. That last option is highly unlikely. In light of the structural dependence of the ARM Framework on the Virginia Tech Trawl Survey data as it was originally developed, the ARM Working Group has also agreed to investigate adapting the ARM Framework methodology to the NEAMAP data by reconfiguring the model. They're going to be looking into that in their next meetings.

As a result, the ARM Framework recommendation is based on the status quo. The selected Harvest Package 3 allows 500,000 Delaware Bay male horseshoe crabs and zero female horseshoe crabs in the following quota. The last topic to look into is the artificial bait trails. So far Connecticut has successfully completed two trials.

The board directed the technical committee to conduct field trials in the conch and eel fisheries to quantitatively compare the effectiveness of an artificial bait product developed by La Monica Fine Foods of Millville, New Jersey, to compare it to the presently used horseshoe crab bait in the fishery.

Although Massachusetts, Rhode Island, Connecticut and New Jersey all volunteered to participate in the trials, only Connecticut has

successfully completed the trials to date. Two trials sets were made in early summer with one fisherman. The fisherman carried out his useful fishing methods using the artificial bait alternating trap by trap with whatever bait product that he usually used.

Although these initial trials appear to demonstrate that this alternate bait product is an adequate substitute for whole horseshoe crabs, full analysis of the catch data should not be done until more than two trials are completed. That gets to the point that the major stumbling block with completion of this study was the lack of cooperation by La Monica Foods in delivering the product.

After several discussions with ASMFC staff, technical committee members and the product company people highlighting the importance of catering to the needs of fishermen in order to successfully promote the use of this alternative bait to the conch and eel fishing industry, company officials were completely inflexible as to where, when and how the product would be made available. For these reasons the trials were suspended, Massachusetts and Rhode Island withdrew; and until these issues can be resolved, I'm not sure that these trials are going to be able to go forward. That's the end of my report.

CHAIRMAN GILMORE: Any questions for Penny? Bob Ballou.

MR. ROBERT BALLOU: Penny, I want to explore what you just reported on regarding the inflexibility of the company that provides the artificial baits. Why would it not be an incentive for a company to try to work with the fishermen given the potential profits that they might make by having their product utilized? I want to try to drill deeper into what is going on there; and if you add a little bit more to your report on that, thank you.

MS. HOWELL: In my opinion the company is not ready for primetime. I don't think they realize the position that they're putting us in and the position that fishermen are in, which is unbelievable. I don't understand why they don't. We've had

many discussions. Marin had many discussions with them.

The product was supposed to be delivered – we were told and given instructions, which were passed on to the fishermen, that would be in blocks. They weren't in blocks. The first product that was delivered had been sitting at the dock. They insisted that we go to New Bedford to pick it up even though they go right past Connecticut and could have just gone off an exit on the highway. We would have met them on the highway if need be and they refused. They only would deliver it on Mondays and – or two days of the week – I don't remember which one it was – and we had to tell them the Friday before.

Well, the fisherman wasn't sure when he would be setting gear; so that meant that the product that we got at best was a few days old. This is a mixture of clams and a few other things. If can imagine what old bait smells like, you're there. This had the consistency of thick oatmeal; so getting it into a bait bag was a little problematic. The fisherman ended up using more than what was supposed to be this very small amount. He was concerned about what the price was going to end up being. It was all kind going downhill very quickly.

MR. WILLIAM A. ADLER: Mr. Chairman, a couple of things. First of all; did you say that the horseshoe crab levels are stable? That was my first question; overall?

MS. HOWELL: In Delaware Bay. Those reports were just for Delaware Bay.

MR. ADLER: Okay, and my second thing goes to the artificial bait thing. Was there any result from the one trial that was done as to whether it worked?

MS. HOWELL: Yes; as I say, I hesitate to be too quantitative because the sample is so small; but, yes, the bait is viable. The fisherman was satisfied with its performance. He was not satisfied with what he to go through and get it; but once he got it and used it, it worked.

DR. DAVID PIERCE: Two questions. The first one is with regard to NEAMAP. I'm a member of the NEAMAP Board; and I continue to hope that we will be in a position to use the results from NEAMAP for indices of abundance for a wide variety of species. We do see some positive information coming out relative to that use.

I note that the technical committee has indicated that the NEAMAP information cannot be used at this time; and there is a recommendation that we work with the NEAMAP Survey to modify equipment and procedures to better sample horseshoe crabs. My question is has there been any communication with the NEAMAP Team, the researchers involved with NEAMAP to determine if this is a recommendation that actually can be used; that they can be guided by? They can really modify the equipment and procedures to do that?

MS. HOWELL: Yes; I under there has been discussion. They offered to make slight modifications; but on the other side of the table, the modeling group also wanted to look into modifying the model procedures as well. Since the model was really formulated around the Virginia Tech Trawl Data, a lot of this is data imprecision issues.

There are two ways to get at this. One is modifying the – actually, not so much modifying it. I think it is getting more sampling in the areas that need to be done and a gear change. But not to put it all on NEAMAP, the other side of it is the modelers are going to look into the model format and see whether some statistical analyses can be used that are more compatible with the NEAMAP procedures.

DR. PIERCE: Then, finally, in your discussion on the review of the Shorebird Surveys, I note from the report itself that abundance of red knots in the Delaware Bay has remained low but relatively stable over the last decade. Then the concluding statement is “lacking a rise in abundance, red knots may be listed as threatened in the near future.” The important point made by the technical committee is that a boost in crab

productivity is needed to change this trend. Obviously, crabs are important, as we all know.

Was any work done by the technical committee recently or even in the past that will give us some guidance as to what sort of change in crab productivity is needed to change this trend in red knot abundance that would move us away from the possibility of there actually being a listing of red knot as threatened?

MS. HOWELL: The shorebird technical people have felt that unless we get the spawning abundance back up to what it was in the early nineties; that the birds are still in jeopardy of not making adequate weight. The Horseshoe Crab Technical Committee is not so sure that is really the limiting factor. That is an open question.

MR. ROY MILLER: Thank you, Penny, for the report. There are three things in your report, unfortunately, that I find disturbing; and I'd like to list them. One is our inability to fund the Virginia Tech Trawl Survey; that has already been discussed. The other thing that disturbs me is the apparent lack of cooperation of the artificial bait supplier.

Those of us in the Mid-Atlantic Region and especially those of us on the Delaware Bay placed a great of the Department of Natural Resources money to support the development of artificial bait into the hands of the scientists that were conducting our research; so naturally we would like to see that investment pay off some day and was disappointed that thus far it hasn't translated into suitable field trials. The third thing I find disturbing is the apparent lack of recovery of female horseshoe crabs. None of this is your fault, Penny; please don't take this personally.

MS. HOWELL: I don't.

MR. MILLER: But I'm wondering if you would care to offer any speculation in your opinion why there has been – in spite of years now of conservation on the parts of the resource agencies why there has been no apparent recovery of female horseshoe crabs and even the male horseshoe

crabs are not showing perhaps the depth of recovery that we would have liked. Care to speculate on that in any way? Thank you.

MS. HOWELL: As long as you recognize that it is speculation; my speculation is that this is a slow-growing animal that really is going to take at least ten years to get one generation of mature females into reproducing. The fact that we're seeing juveniles coming up I think is indication that the conservation efforts are successful; maybe not successful enough; but the biology of the animal is not going to speed that up too fast.

The other part of it is I think that the stock recovers like almost spreading out; so it is not a pinpoint recovery. You will see numbers go up slightly and then it will spread out geographically. As it builds, it builds a slow base, if you will, and then the numbers will go up from there. The animals do migrate in small amounts; and I think you're going to have to see a recovery of the entire Chesapeake, Delaware and New Jersey sub-stock before you'll see really good numbers coming into the bay. That is my speculation.

MR. MILLER: Thank you for that; and if I could just follow up, Mr. Chairman, very quickly. The other disturbing thing, of course, is the failure of red knots to recover at least in the Delaware Bay area and it also sound like the Tierra del Fuego population hasn't recovered either. There are a lot of potential reasons for that, let's put it that way, and we've heard them all over the years.

Do you personally feel that the failure of the female horseshoe crab population and the failure of the recovery of the female horseshoe crab population or at least, let's put it this way, perhaps the slow nature of the recovery; do you really think that is continuing to depress the red knot numbers or do you think the external factor is driving the red knot numbers?

MS. HOWELL: You're really going to push me to the line here. Again, as long as you recognize that it is personal speculation; I think that the linkage between the weight gain and the horseshoe crab egg abundance is real and a limiting factor.

The fact that the weight gain is adequate and increasing is reflective of the conservation efforts and the slow increase in the stock.

That is the slow increase. It is not fast enough and it is not overriding the other limiting factors that the birds have that I'm not in any position to comment on. Maybe if we flooded the entire Delaware Bay with tons and tons of horseshoe crab eggs, it would override the other limiting factors or maybe it wouldn't. That is an experiment that I don't think anybody is going to be able run. There is a linkage; they both are stable and increasing in incremental ways. I feel like I'm the president talking about the economy. We're getting there but very slowly.

MR. STEWART MICHELS: Penny, that was a great report and an excellent summary, by the way. I was just wondering has the technical committee had a chance to look into using some of the other existing surveys and modifying them in place of the Virginia Tech Trawl Survey, like the Delaware Bay Spawning Survey or the New Jersey Clam Survey; or is it just too early yet that you guys haven't gotten to that?

MS. HOWELL: They are going to be looking into that. I did skim over the fact that the New Jersey surveys, the Ocean Trawl Survey, the Delaware Bay Surf Clam Survey was looked at. The Maryland Horseshoe Crab Spawning Survey, the Delaware Bay Horseshoe Crab Egg Survey and the Delaware Bay and Atlantic Fly-Away Red Knot; I mean, there is a whole lot more information we're looking at. I just didn't want to give this long laundry list.

The thing is that the framework was built around the Virginia Tech Trawl Survey; and for better or worse, it went forward that way. Now there is some possibility – and I'm putting a lot of weight on the working group to come up with a better statistical analysis. After they build this really nice model, now we're asking them to completely change it.

DR. MICHAEL MILLARD: I want to follow up on Stew's comment to note that – and, of course,

the loss of the Virginia Tech Trawl Survey is of concern and it would be nice to have it funded again; but if it comes back in a mode of a year-to-year funding, that's not really a model for a successful effort. We can't live under that uncertainty I think year to year.

To follow up on Stew, then I think we should look to these other surveys. The technical committee should consider developing some kind of index from these ongoing, more secure surveys and somehow work that into the model. If we can make NEAMAP work, so much the better; but I was at that one meeting and it didn't sound very promising to me at least at that point. I would encourage the technical committee to look at these other ongoing surveys and somehow move those or move the modeling effort towards them so they can meet in the middle.

MS. HOWELL: Just to follow up briefly on that; Mike makes a very good point. The thing that is most important to getting this management model to work is a long-term trend because of the lengthy nature of the biology and the interaction with that and the birds. We feel like we're stepping on rocks in a river that which survey is going to be the long-term survey that we can depend on is the question.

MR. GILMORE: Just a question maybe to Bob; yesterday at the executive committee meeting, it was talked about they're pursuing additional funding. Is that a one-shot deal or was that something that was longer term?

EXECUTIVE DIRECTOR ROBERT E. BEAL: Well, we'll take whatever we can get I guess is the short answer. Yes; we've been up on the Hill having discussions about this over the last month or so. There are a few congressional offices on the House side and Senate side from New Jersey and Delaware that are interested in finding some money for this project.

We're going to keep working with them. We're on a continuing resolution and we're kind of all in a holding pattern, but we're going to keep working on it and hopefully we'll be able to come up with

some money. Again, it is definitely not a guaranteed long-term source; but it is one of those things if you can get it woven into the federal budget enough times, then people get used to it and it kind of becomes a long-term funding. We're trying to get that going. We've had some pretty successful meetings and there is a lot of interest and a few letters flying around or being drafted right now, anyway. We're going to keep pushing, but it is not guaranteed long term.

MR. ADLER: Other factors in the red knot; I didn't know what they amount to, but I have heard over the years that there are other factors that can be limiting the growth of the red knot stock; and it might not just be the horseshoe crab. Do they eat other things other than horseshoe crab eggs was one of my questions? Do they know whether they have another food source besides horseshoe crab eggs?

MS. HOWELL: Yes, there is other food out, but the key is with this long-term migratory bird by the time it gets up to Delaware, it is almost physiologically exhausted. Many of these birds actually digest part of their organs in order to keep flying. They could eat other foods, but other foods are much more difficult to digest, such as small clams or even worms and stuff.

They really need the equivalent of white bread to eat. Eggs are the ideal for them, very high energy, very easy to digest. There are other food options but this one really nutritionally is far superior given their deteriorated state when they finally make it from Argentina all the way up. You can understand that a small bird that migrates from Argentina to the Arctic Circle is exposed to all kinds of other mortality factors.

MR. ADLER: Can we develop an artificial food for the red knots? Maybe we could call Lamonica or whatever it is. I didn't know, Mr. Chairman, if you needed a motion to accept this report?

CHAIRMAN GILMORE: Not yet, Bill; I think we're going to go through a presentation on that and we'll get into that. Lance Stewart.

DR. LANCE STEWART: Penny, one of the things I was wondering if it has been followed up in the trawl survey is nocturnal studies. I had suggested about two or three years ago that if the Virginia Trawl Survey was going to have any real relevance – I think what I've seen in many years of studying lobster at night with scuba gear is that horseshoe crabs come out of the sediment at night. You could have orders of abundance greater in your trawl surveys if they had tried that. Since the amount of leverage that trawl survey has on the condition of red knot and everything else, I would think that would have been a variable that would have been tried to be corrected.

MS. HOWELL: I'm sorry, Lance; I don't understand the question you're asking.

DR. STEWART: If the Virginia Trawl Survey had been directed at conducting nocturnal trawl surveys; I would suggest – and I don't know because it hadn't been done – that their abundance indices per trawl would be extremely higher than during a day survey. I don't know if you have corrected for that or anything.

MS. HOWELL: Yes; the working group did do a correction for the day/night. That is the whole process they went through to try to make the NEAMAP data match by doing corrections for just what you're discussing.

DR. STEWART: I've never seen that and I just wondered.

MS. HOWELL: We had a report that just summarized the end result. They didn't make a report of all the internal steps that they made.

DR. STEWART: So in summary it didn't make any difference at all?

MS. HOWELL: It did; and they adjusted it. Even with the adjustment, the indices didn't – they were looking for trends and not actual numbers. They were trying to get a trend match. You're right; the NEAMAP numbers were lower than the Virginia Tech, which would be understandable, but they were looking to get a trend match. It matched for

the females but it did not match for the males and reasons for that are varied.

MR. BALLOU: So, Penny, it seems clear the board shares your frustration regarding the problems with the artificial bait trials. Do you have a recommendation as to what might be done or what could be done to get that back on track?

DR. STEWART: The product has to be made available. At least for a trial basis, they've got to be able to deliver it to us somewhere close, like within the state, especially when they're going right by. Their insistence that it only be delivered to New Bedford was a real impediment. The other thing is they've got to work out the consistency of the product.

They said that it couldn't be frozen. Our fisherman froze it and said it worked fine. It is unfortunate that it has to be frozen because that was going to be one of the things that would bring the price down if they could buy it in large quantities and not have to freeze it. Running a freezer is expensive; but if that is the case, they ought to have told us that is how it needed to be handled.

They need to be more honest about how we're supposed to handle this stuff rather than telling us that it is in a nice neat block and then giving us stuff that you have to scoop out with an ice scoop; and making it available in more locations and more readily when we can use it and get it to the fisherman.

MR. BALLOU: I wasn't aware, frankly, that there had been some funding perhaps provided to help get this going. Now that I'm aware of that connection, is this something that the board might want to consider writing a letter? I mean is there something we can do other than just looking to you to try to do your best; and I understand you are. I just think I speak for the board in saying that we would be more than willing to try and do whatever we can to back you in your efforts to try to get this company to do what apparently they really to do and should be doing, particularly

given the funding that has been provided. Thank you.

MS. HOWELL: I'd appreciate that help, yes.

MS. TONI KERNS: Just to give a little further detail, Marin and I did have several conversations, Marin more than myself, with the gentleman that owns the company to try to sort of help foster this partnership that we were going through with them. We did pay for the bait itself. We were not paying for delivery or else it was an added cost into the slabs of bait that we were paying for.

They were delivering other products up to New Bedford, and so that is why it was every Monday and Wednesday or every Monday and Thursday because that is when they made their regular deliveries. We can try to have some more conversations. I'm not sure a letter is going to have that much influence over the company itself. I don't know if the conversations will help. Marin has probably had at least five conversations with this gentleman about deliveries and product quality, et cetera.

MS HAWK: I also think one of the largest issues is communication; so I'm not sure how successful a letter would be.

MR. DAVID V. BORDEN: Mr. Chairman, I arrived a little late this morning; so if I ask a question that has already been handled, just move me along.

CHAIRMAN GILMORE: Well, you get the last question because we're getting ready to move on after this.

MR. BORDEN: I'm just curious about this issue about freezing the product. At least in New England – I can't speak on behalf of the Chesapeake states; but in New England every single conch dealer that I know of has freezer facilities. They freeze their horseshoe crabs. They have frozen crabs and they have frozen mussels that they're all selling to the conch fishermen. If the product were frozen, it would be just an absolutely natural addition. They would just put it

in the freezer; and when the fishermen come in, they dole it out. If it is frozen, they could keep it in coolers for days. It is like there is a disconnect here somewhere. Thank you..

MS. HOWELL: Yes; that is probably the way it is going to happen. We were just hoping that this product would – because there is a cost; that the cost would be offset by not having to freeze it. It looks like you're right; that it is going to have to be frozen just like every other bait product. That wasn't what the company told us ahead of time; so that had to be added. In fact, they were given instructions not to freeze it because it wouldn't work; and that is not true. It does work; it does work fine frozen. There is a little disconnect here.

MR. BORDEN: Is the formula private property or is this a formula that the commission has come up with?

MS. HAWK: There was a study at the University of Delaware; and there is actually a paper and the recipe for it is in the paper. Some of the ingredients are difficult to obtain.

SET SPECIFICATIONS FOR 2015 DELAWARE BAY FISHERY

CHAIRMAN GILMORE: Okay, I think we're going to move on now to setting the 2015 Delaware specifications. Marin is going to do a PowerPoint first and then we'll get into it.

MS. HAWK: This will be very brief. As Penny mentioned, the ARM Framework is what we use to set specifications. Usually we use the Virginia Tech Trawl Survey data as the horseshoe crab abundance index. We did not have that data this year so that was a hurdle. We also use the shorebird abundance that Penny went over.

Since we don't have that benthic trawl survey data, the ARM Working Group and the technical committee recommend status quo for the 2015 fishery. That is ARM Harvest Package Number Three, 500,000 male horseshoe crabs in the Delaware Bay Region. This is the horseshoe crab quota by each state in that region. Thank you, Mr. Chairman.

CHAIRMAN GILMORE: Any questions for Marin? Okay, I'm going to need a motion to move this forward? Bill Adler.

MR. ADLER: A motion for what? I mean, do you need a motion to accept all these reports?

CHAIRMAN GILMORE: To set the specifications; essentially the recommendations of the technical committee.

MR. ADLER: **Okay, I so move that we accept the report and the specifications.**

CHAIRMAN GILMORE: Stew Michels seconded the motion. Bill, could we specify that it is Harvest Package Three under that so it is clear?

MR. ADLER: Yes; add that in.

CHAIRMAN GILMORE: Is there any discussion on the motion? **Motion to accept the report and the specification of Harvest Package Three for the Delaware Region for 2015. Motion by Bill Adler and seconded by Stew Michels. Is there any objection to the motion? Seeing none; we will accept that as unanimously approved.**

FMP REVIEW AND STATE COMPLIANCE

CHAIRMAN GILMORE: Okay, moving on, the next agenda item is FMP Review and State Compliance. Marin.

MS. HAWK: This will also be very brief. This is the total harvest for horseshoe crabs by biomedical and the bait industry. I'm going to break it down a little bit for you. For the bait fishery there was a total harvest of 796,939 crabs, which is an increase of 18 percent from 2012. However, the harvest is still well below the coast-wide quota, which is 1.4 million crabs.

In terms of the biomedical harvest, the number of crabs that were brought to biomedical facilities was 549,937 crabs. This a 3 percent decrease from the previous five-year average. There was a total of 60,622 crabs that were used in the biomedical industry and bled that was transferred

from the biomedical industry to the bait industry. That is actually a 33 percent decrease from the past five-year average. The coast-wide mortality estimate was 78,007 crabs.

In terms of state compliance, all states submitted reports. The PRT found that all state management measures were consistent with the FMP. The District of Columbia did not submit a report. As in years past, the PRT recommends that the District of Columbia as well as the Potomac River Fisheries Commission take steps to be removed from this board.

In addition, the PRT strongly recommends the continuation of the benthic trawl survey. I think the board agrees with that, so we'll continue working on that. Finally, there were five jurisdictions that requested de minimis. New Hampshire, Potomac River Fisheries Commission, South Carolina, Georgia and Florida all qualified and requested it. New Hampshire has been removed from the board. New Jersey qualified but did not request it. The PRT recommends granting all requests for de minimis. Thank you, Mr. Chairman.

CHAIRMAN GILMORE: Any questions for Marin? Bill Adler.

MR. ADLER: If the Potomac River Fisheries and D.C. are de minimis; do they still have to put in that report that they didn't put in?

MS. HAWK: The Potomac River Fisheries Commission submitted their report. They do have to submit one; but D.C. has not submitted one for at least two years.

MR. ADLER: And if they are de minimis, do they have to put that report in?

MS. HAWK: Yes, they do.

CHAIRMAN GILMORE: Other questions for Marin? Robert Boyles.

MR. ROBERT H. BOYLES, JR.: Mr. Chairman, is it an action by this board or is it an action by the commission to remove D.C. and PRFC?

MS. HAWK: I believe D.C. has to come to the commission and ask to be removed.

MR. BOYLES: I guess it is untoward to say anything about Washington ignoring the needs and the wants of the states. I guess that is out of line and out of order, right?

MR. BALLOU: Marin, it is nice to see a report that doesn't have any holes in it due to confidentiality issues. Is that because with regard to the biomedical figures that you put up there is at least three or more companies; is that why we're able to see the full report?

MS. HAWK: That is correct; there are five biomedical companies along the coast; so we can smoosh them all together.

CHAIRMAN GILMORE: Anymore questions for Marin? Okay, I'm going to need a motion to accept the compliance reports. Go ahead, Robert.

MR. BOYLES: Just a technical question; D.C. is required to submit a compliance report but has not?

MS. HAWK: That is correct; and this now the third year in a row where they have not and have not responded to any inquiries as to submitting a report.

MR. BOYLES: Mr. Chairman, I think that warrants some action by this board; would you agree?

CHAIRMAN GILMORE: Yes, I would, Robert, if essentially we're into the third year on this. I'm not sure of the procedure on this. Normally they would request to be removed from the board; but I guess we could put a motion up to remove them if the board sees fit.

MR. THOMAS O'CONNELL: In regards to this issue, Marin, you said that they haven't been

responsive to inquiries. Has that been a letter or has there been a phone call? They were here this week; and I was wondering if the issue was brought up to them personally. I would think that they would be responsive but maybe I'm wrong.

MS. HAWK: It was not brought up this week. I have called and e-mailed but with no response.

MR. O'CONNELL: I would recommend maybe another follow-up call; and if they don't respond, then the board consider taking some action.

MS. HAWK: I also believe about a year ago when all the states declared interest in these boards; they were non-responsive in terms of horseshoe crabs as well.

CHAIRMAN GILMORE: Toni, would a letter be more appropriate on this because obviously they have talked to and a phone call is probably going to have the same result. Maybe something in writing might be more beneficial.

MS. KERNS: We can send a letter and an e-mail with that exact same letter and see what we can do.

CHAIRMAN GILMORE: Does that sound good for everybody on the board? Go ahead, Craig.

REPRESENTATIVE CRAIG A. MINER: If I could suggest that maybe someone as high up in our food chain as possible could make a phone call rather than sending a letter; I think that might be a better step. It is amazing what happens when somebody gets the wrong letter.

CHAIRMAN GILMORE: Who do you suggest in the food chain?

REPRESENTATIVE MINER: Maybe a director or maybe the head of our council. It may just not be getting somebody's attention; but if somebody gets a letter from this group, it may not be the kind of attention that we want I guess is my point.

MS. KERNS: Why don't Bob or I give Bryan a call first to see if we can work it out; and if not,

then we may ask for assistance from Tom since I know Tom does talk to Brian on a fairly regular basis. We know we might get a response from there. How about we try that?

CHAIRMAN GILMORE: That sounds like a great plan. Are you okay with that, Tom? Okay, that sounds like a good approach. Okay, I'm back to we need a motion to accept the compliance reports and the de minimis. Bill Adler.

MR. ADLER: I make a motion to accept the compliance reports and the FMP Review.

CHAIRMAN GILMORE: And the requests for the de minimis for the states up on the board?

MR. ADLER: I'll that, the de minimis states of New Hampshire and Potomac River Fisheries Commission.

CHAIRMAN GILMORE: Seconded by Dave Simpson. Is there discussion on the motion? David Pierce.

DR. DAVID PIERCE: Just a clarification, Mr. Chairman, regarding de minimis. Maybe there is a sequence I'm not quite appreciating here; but under the management plan review there is an action item. It indicates that Massachusetts and New York have also requested de minimis. Should this be modified to include New York and Massachusetts or is that the subject of another motion?

CHAIRMAN GILMORE: That actually was the subject of a typo. When I saw that, I thought that was a test to see if I was actually reading the material. I don't think I'm going for de minimis. I don't know if Massachusetts is interested in de minimis. I think those were just typos in the original agenda.

DR. PIERCE: Well, I must admit I'm sitting in for my colleague, Dan McKiernan, and I didn't think we were requesting de minimis. When I see Massachusetts here in the list, it is a bit confusing, to say the least.

I'm going to assume that we're not requesting de minimis and that this is also mistake that we've been lumped in with our friends from New York. Unless someone in the room from Massachusetts knows differently, I'm not going to make a motion to include Massachusetts.

CHAIRMAN GILMORE: Rest assured, David, I've looked at it and Massachusetts and New York do not meet the requirements for de minimis. Any other discussion on the motion? Move to accept the compliance reports, the FMP Review and de minimis status for the states of New Hampshire, PRFC, South Carolina, Georgia and Florida. Motion by Mr. Adler; seconded by Mr. Simpson.

Is there any objection to the motion? **Seeing none; the motion is approved by unanimous consent.**

ELECTION OF VICE-CHAIR

CHAIRMAN GILMORE: Now we can move on to I believe our last order of business, which is we have to elect a vice-chair. Since I just took over and we don't have a vice-chair, we need to get one. There are some fabulous perks with this job, incredible travel. You can see great place on the east coast of the U.S. and a great species. Are there any nominations for vice-chair? Mr. Woodward.

MR. SPUD WOODWARD: Mr. Chair, I would like to nominate Dr. Malcolm Rhodes from South Carolina as vice-chair.

CHAIRMAN GILMORE: Wonderful; is there a second to that motion; Russ Allen. Robert.

MR. BOYLES: Mr. Chairman, I move we close the floor to nominations and that Dr. Rhodes be appointed as vice-chair by acclamation.

CHAIRMAN GILMORE: I think everyone agrees with that. Thank you, Mr. Boyles. **Congratulations, Dr. Rhodes, welcome to the team.**

ADJOURNMENT

Is there any other business to come before the Horseshoe Crab Board? Seeing none; a motion to adjourn. So moved. Thank you, everyone.

(Whereupon, the meeting was adjourned at 9:25 o'clock a.m., October 30, 2014.)

DRAFT



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

ASMFC Horseshoe Crab and Delaware Bay Ecosystem Technical Committees Meeting Summary

Arlington, VA
October 9, 2015

Technical Committee Members: Steve Doctor (HSC TC Chair, MD DNR), Penny Howell (CT DEEP), Greg Breese (DBETC TC Chair, US FWS), Mike Millard (phone, US FWS), Joanna Burger (Rutgers), Derek Perry (MA DMF), Jeff Brust (phone, NJ DFW), Tiffany Black (FL FWC), Amy Fowler (SC DNR), Rachael Maulorico (VMRC), Steve Poland (NC DMF), Jim Page (GA DNR), Derek Orner (phone, NOAA), Rachel Systak (NY DEC), Dr. Amanda Dey (NJ DFW), Eric Hallerman (Virginia Tech), Dave Smith (USGS), Wendy Walsh (US FWS), Ed Hale (phone, DE FW), John Sweka (phone, US FWS), Chris Wright (phone, NOAA)

ASMFC Staff: Kirby Rootes-Murdy

Public: Richard Lambird

The Horseshoe Crab Technical Committee and Delaware Bay Ecosystem Technical Committee (TCs) held a joint meeting on September 9, 2015 in Arlington, Virginia to review the Adaptive Resource Management (ARM) Framework harvest recommendations. The TCs also reviewed horseshoe crab and shorebird abundance data, was updated on biomedical activities in the Gulf of Mexico, and received a report on the artificial bait trials. Below is a summary of their discussion.

1. ARM Framework Optimal Harvest Recommendation for 2015

Virginia Tech Trawl Survey Update: Eric Hallerman provided an update of the Virginia Tech Horseshoe Crab Trawl Survey for 2015. While funding is available for the 2015 season from ASMFC through the Saltonstall-Kennedy grant funds, there have been some administrative hurdles in getting the survey started and the window for conducting the survey this season is shrinking. The grant agreement is for the survey to be conducted in both the core area from Atlantic City, NJ through Wachapreague, VA; including inside the Delaware Bay) and peripheral stations (similar to 2012 year; when full funding was available) for the 2015 survey. The group expressed concern over whether the survey would effectively sample horseshoe crabs much later in the season given movement patterns. ASMFC Staff notes that they will work with Virginia Tech to sort out the grant finalization issue so the survey can proceed this year.

Composite Index: John Sweka walked the group through the composite index developed for the ARM model in 2015. The ARM model requires single estimates of adult male and female horseshoe crab abundance in the Delaware Bay region- therefore, the surveys needed were combined into a single composite index. A linear mixed random effects model was used to generate the composite index for each year from 1998-2014. In this type of model, each

individual survey within the year represented a random effect. The final set of surveys used in the composite index were the Delaware 30 ft trawl survey, the New Jersey Delaware Bay trawl survey, and New Jersey Ocean trawl survey. These surveys were selected because they had; 1) sex-specific abundance indices; 2) had overlapping years of data with each other and the Virginia Tech (VT) trawl survey; 3) and are understood to be likely continued into the future. Surveys considered but ultimately not used in the composite index were the Maryland Coastal Bays Trawl Survey, NJ Surf Clams Dredge Survey, and Delaware 16ft trawl survey). The New Jersey Surf Clam dredge survey was eliminated because it has ended. The Maryland Coastal Bay trawl survey was eliminated because catches of horseshoe crabs were low making sex-specific indices of abundance questionable. The Delaware 16 ft trawl survey was eliminated because it samples juveniles. Finally, the Delaware Bay Spawning Survey was eliminated because it is a completely different type of survey compared to the trawl surveys included. John pointed out that he scaled up the population estimates to the composite index, that the composite index doesn't overly weight any of the surveys, and that there is good overlap between 2002-2011 when comparing the composite index against the VT trawl survey. In deriving a population estimate from the composite index, the estimate is approximately 16.3 million males and 8.4 million females for 2014.

The group discussed a few elements of the surveys considered, specifically whether they were occurring during the non-breeding period, how indices of abundance for the surveys were created as the surveys occur multiple times over the year and lastly how the abundance estimates tracked with the VT trawl survey. It was noted that the 2014 estimate of female crabs (8.4 million) using the composite index was nearly double the 2012 estimate (4.5 million) from the VT trawl survey. John explained this large difference was attributed to variability in the surveys used for the composite index and that estimates may vary higher and lower in a given year. The group did not note any issues with the methodology and felt this was a good approach in lieu of the VT trawl survey in recent years.

Red Knot mark-resight population estimates: Kirby Rootes-Murdy briefly walked the group through the mark-resight data and stop-over population estimate for Red Knots that Jim Lyons (ARM subcommittee member) developed for the 2015 ARM model. The population size of the marked birds was estimated using the Jolly-Seber model. The proportion of the population that is marked was estimated with a binomial model and the count of marked birds. Overall, estimated resighting probability of red knots in 2015 appeared to be lower than in 2014. The estimated proportion of the stopover population with marks was lower in 2015 than during 2011-2014 (9% in 2015, relative to 10-11% from 2011-2014). The stopover population for 2015 was estimated at 60,727 birds (95% CI, 55,568-68,732) a 38% increase from the 2014 estimate (44,010) and a 25% increase from the 2013 estimate (48,955). As noted in Jim's report, part of this increase may be due to the record number of flagged birds detected in the Delaware Bay area in 2015. The number of flagged birds detected each year is a function of the size of the banded population, the proportion of the *rufa* population that stops in the Delaware Bay area in a given year, and the resighting probability. The record number of the

flagged birds detected suggests that a greater proportion of the *rufa* population may have stopped in Delaware Bay area in 2015 than in recent years.

Some of the TC members noted concern over the 2015 estimate, noting that small little changes in other variables in the aerial and ground count surveys would likely not result in a large increase in the population. Specifically, a systematic resights protocol should be followed to ensure the data collected are representative (i.e. covers all locations used by birds and the full period of the migration stopover in May). These concerns were raised during the initial review by the ARM subcommittee, but an alternative estimate was not put forward so it remained unchanged. Noting this and the subsequent lack of change in harvest level outputs from the 2015 ARM, the group was in agreement with this estimate moving forward.

Review of model output & Recommendation to Board/Discussion: In considering the two previous items as inputs to the model, the group reviewed the outputs of the 2015 ARM model. The model outputs for harvest levels in 2016 remained unchanged from 2015. Last year (2014), the TCs recommended staying status quo with the previous year’s harvest levels. The 2015 ARM outputs for 2016 harvest mark three years (2014-2016) of consistent harvest levels (see below).

Decision matrix was optimized incorporating recommendations on red knot stopover population estimates and associated calibration of red knot threshold⁴.

Recommended harvest package	Male harvest (×1,000)	Female harvest (×1,000)
3	500	0

Table 1: Harvest recommendations based on harvest package three of the ARM model.

Allocation of allowable harvest under ARM package 3 (500K males, 0 females) was conducted in accordance with management board approved methodology in *Addendum VII to the Interstate Fishery Management Plan for Horseshoe Crabs*. Note: Maryland and Virginia total quota refer to that east of the COLREGS line.

State	Delaware Bay Origin HSC		Total State Quota	
	Male	Female	Male	Female
Delaware	162,136	0	162,136	0
New Jersey	162,136	0	162,136	0
Maryland	141,112	0	255,980	0
Virginia	34,615	0	81,331	0

The TCs were in agreement with maintaining these harvest levels with the addition of the composite index in place of the VT survey, but noted that the following items needed to be addressed moving forward:

- i. The ARM Model as specified in Addendum VII (2012) is to be reviewed and updated as needed through the double- loop process every 3-4 years; 2015-2016 falls on the end of

this cycle. **The TCs recommend that the double-loop review process is the highest priority in 2016.**

- ii. In conducting the double-loop review process, the ARM's Objective, Predictive, Monitoring (three parts of the model) would need to be re-considered. The TCs recommend that the ARM subcommittee develop draft terms of reference for the double-loop of the ARM and subsequent timetable for the scope of work on specific items to be reconsidered through the double-loop.
- iii. As part of the double-loop review process, the TC notes two items that specifically need to be reconsidered- the mark-resight estimate and ratio, and the population threshold for allowing the harvest of female crabs. If the Double loop process is not done in 2016, analysis of these two items need to be done in 2016.
- iv. The need for a coastwide benchmark stock assessment remains as the last one fully completed was in 2009. The group felt that an assessment update without the inclusion of the data from the biomedical catch is not useful. The TC recommends that benchmark assessment be conducted as soon as biomedical data confidentiality issue can be resolved.

The TCs further discussed the role of the biomedical data and data confidentiality. The group noted that post-release mortality from biomedical bleeding needs to re-evaluated and considered for the next assessment. **With the addition of new biomedical facilities in the Delaware Bay region in recent years, ASMFC staff will check whether the 'rule of three' would still apply.**

One final note: last the TCs found the use of NEAMAP data problematic for use with the ARM and instead used the option of status quo harvest at the previous year's level. This year the TCs accepted the findings from the composite horseshoe crab index, and were able to allocate harvest using the ARM model.

2. Maryland proposal for 2016 harvest alternative

Steve Doctor went through the Maryland harvest proposal for 2016. Maryland's bait quota was 170,653 horseshoe crabs from 2007-2012 (2:1 ratio of male to female from 2009-2012). Starting in 2013, Maryland's quota was increased to 255,980 crabs, but only males could be harvested. The increased quota was intended to make up for the financial loss of no female harvest in the state. Female crabs fetch a higher market price than males due to their production of eggs and their appeal in the conch fishery. However, without some females in the catch the increased allowable male harvest has not offset the loss of harvesting females, and the fishery is currently underutilizing its current bait quota due market timing and demand for females crabs caught by other states. Maryland's proposal is to reduce their overall bait quota for 2016 from 255,980 to 170,653 with the aim to catch approximately 34,130 female horseshoe crabs. As part of the proposal, the TCs were asked: 1) what the current estimate of the adult female

population size for the Delaware Bay Horseshoe crab stock? And 2) what the biological impact of harvesting approximately 34,000 females from the MD coast where approximately 35% of crabs harvested in the MD coastal region are from the Delaware Bay stock?

The TCs discussed the proposal and were in agreement on the following points;

- The group felt that the proposal of harvesting approximately 34,000 female crabs was a relatively small number of the crabs from the DE Bay population (assumption being 1/3 of crabs harvested from MD coast would be from DE Bay population). The VT trawl survey (2002-2011) annually estimated female abundance between 2,900,000-9,530,000 females. The composite index of female abundance for 2012-2014 ranged between 5,950,225-8,407,654 females.**

- Maryland's stipulation that the harvest would be from the open ocean and not allowed from spawning beaches may be more conservative than taking crabs from the Chesapeake Bay. Steve Doctor noted concern over allowing harvest of females in the MD portion of the Chesapeake Bay due to uncertainty in the population size.**

- A small female harvest from Maryland may be beneficial in decreasing pressure on areas outside of Delaware Bay that are currently experiencing higher fishing pressure for female crabs because of the closure of female harvest in the Delaware Bay region.**

- The sex ratio has become more skewed in recent years under the no female harvest (from 2:1 to 4:1) and the taking of females may negatively affect the current demographic.**

Concerns:

- The TC noted that the proposal is not technically consistent with the ARM process, which creates more variables thus leading to less certainty in the performance of the ARM model.**

- The TC also raised concerns that this creates a slippery slope/precedent setting for other states such as Delaware to begin harvest of females.**

- The TC also noted there hasn't been an increase in the abundance estimate from the spawning survey in recent years with the no harvest of females allowed. While that may indicate stability in the population, it is unclear what impact it may have on the population.**

- Lastly, there was a minority opinion regarding the methodology and accuracy of the female population estimate from the composite index.**

The TC noted that the decision for change to the harvest limits in the Delaware Bay was ultimately a Management Board decision, but that these consideration should be understood and communicated.

One further point was that with the review of the ARM (see above) there will be an opportunity to re-evaluate the harvest allocation to the states, which could take new information regarding genetics, market demand and impact on the fishermen into account.

3. Review of Horseshoe Crab Surveys

The following reports were reviewed by the TCs:

- 1) Delaware Bay Trawl Surveys (Delaware 16 - foot and 30 - foot) Report
- 2) New Jersey Surveys (Ocean Trawl, Delaware Bay Trawl) Report
- 3) Delaware Bay Horseshoe Crab Spawning Survey Report
- 4) Maryland Horseshoe Crab Spawning Survey Report
- 5) Delaware Bay Horseshoe Crab Egg Survey Evaluation and Report
- 6) Delaware Bay and Atlantic flyway Red Knot Survey Report

Delaware Surveys: Ed Hale went through the spawning survey. In the Delaware Bay, there was no change in Baywide spawning. The DE 16 ft Trawl Survey has been an index for a number of species, and 2014 was our biggest bump in abundance since 1996.

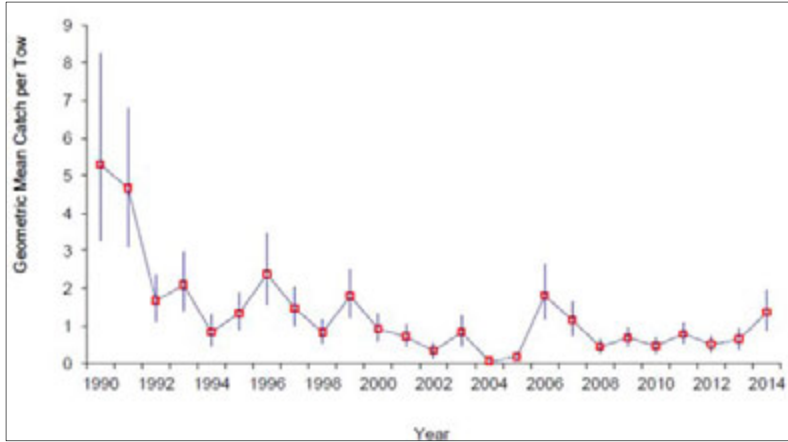


Figure 1. Index of horseshoe crab relative abundance from Delaware’s 30ft trawl survey (all months sampled)

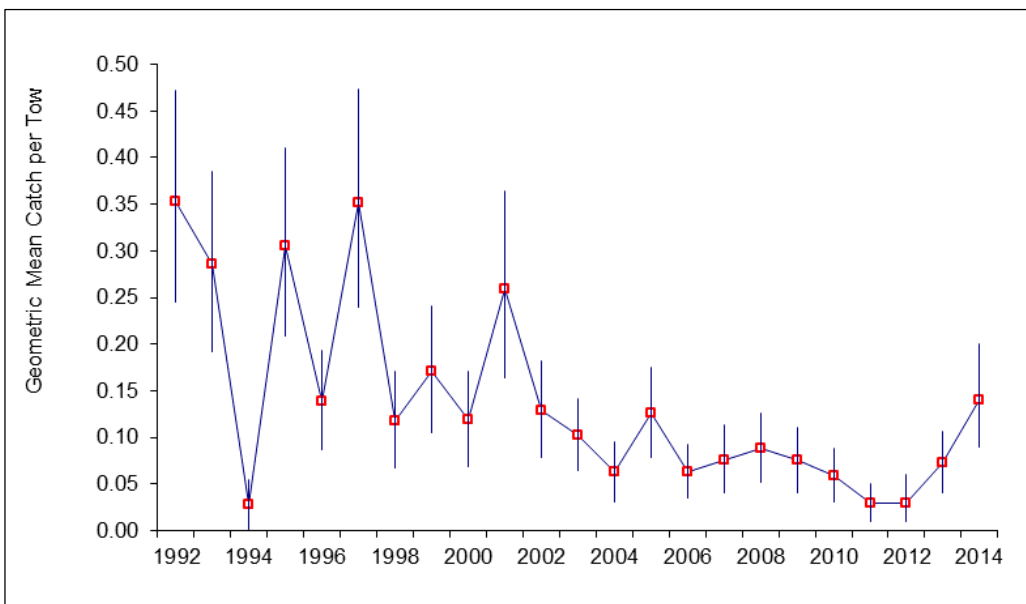


Figure 2. Index of adult horseshoe crab relative abundance from Delaware’s 16ft trawl survey- Delaware Bay results

Maryland Surveys: Steve Doctor walked the group through the MD Coastal Bays Trawl Survey and presented data from a commercial offshore trawler. MDNR continues to collect the required horseshoe crab data from the Maryland Coastal Bays Trawl Survey. Data are collected monthly with a 16 ft otter trawl from April to October. The index shows an increasing trend in recent years (2008-2014).

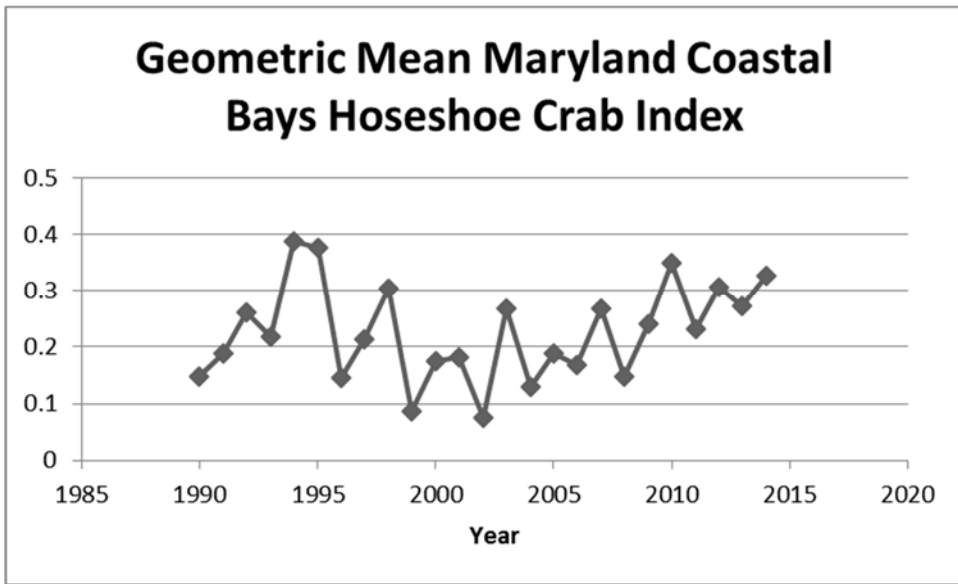


Figure 3. Horseshoe Crab trawl index of relative abundance (geometric mean) 1990-2014.

New Jersey Surveys: Jeff Brust went over the New Jersey survey results. NJ started counting crabs (sexing them) in 1999 and have done so through the present. The Delaware Bay Trawl Survey samples from April through August and has shown no significant trend, some trending upwards but not significant. 2003 seems to be the low point in the bay survey. NJ lost funding for the surf clam index, although they got funding to do in 2015.

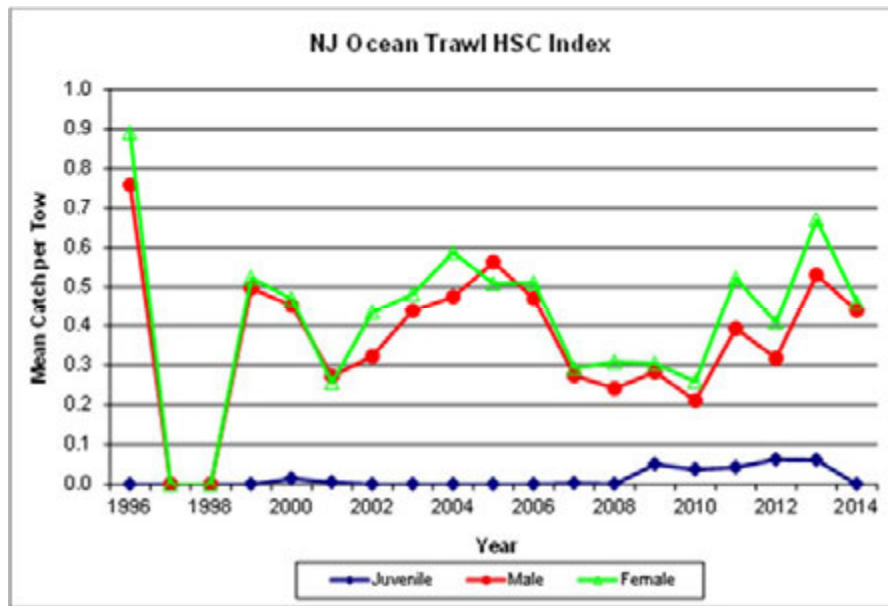


Figure 4. Geometric mean number of horseshoe crabs caught per tow in the New Jersey Ocean Trawl Survey.

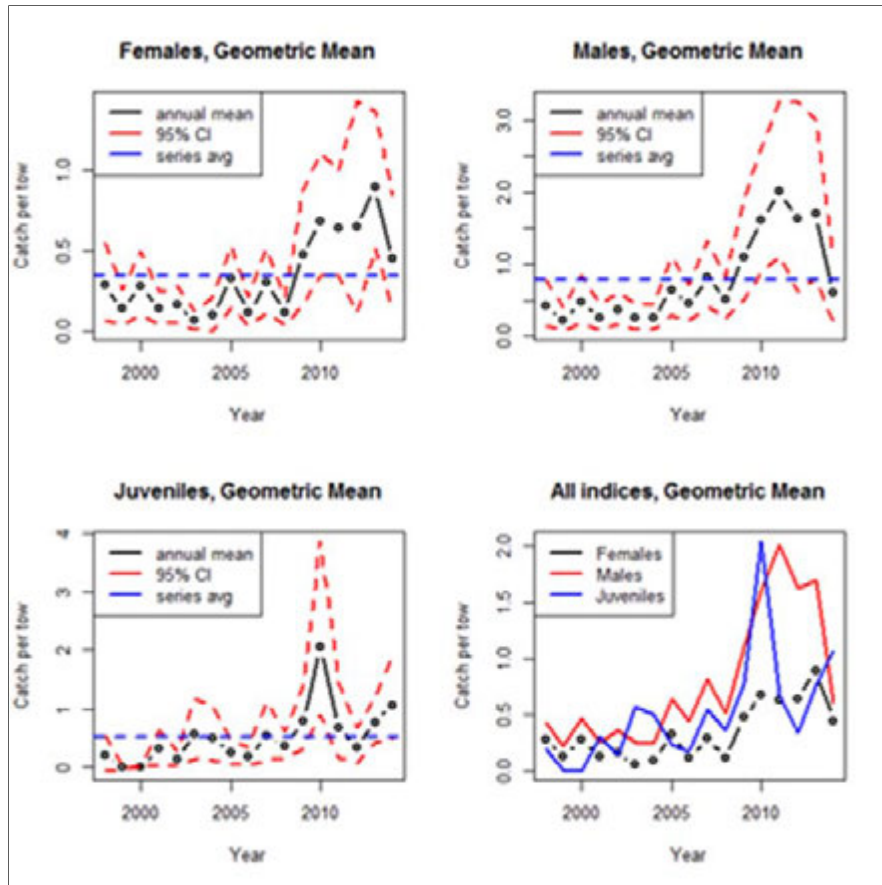


Figure 5. Geometric mean number of horseshoe crabs caught per tow in the New Jersey Delaware Bay Trawl Survey.

Generalized summary results for all states- surveys have been stable or increasing from the 2008-2014, but interannual variability

4. Shorebird Surveys and Egg Surveys

Amanda Dey went through the shorebird surveys (with data from NJ, DE, and MD). Shorebird stopover and winter population estimates have remained low but stable over the last few years (2010-2014). The proportion of red knots reach adequate weight (180 grams) improved in 2015. Surface densities of horseshoe crab eggs (top 5 cm) also improved, but not significantly. Other indices of shorebird foraging conditions have remained stable (female spawning crab index).

Wendy Walsh explained to the group the USFWS's efforts to address the listing of red knots as threatened.

5. Gulf-crab bleeding research update & IUCN letter

Dave Smith walked the group through the IUCN letter. The IUCN subgroup has raised concern over the recent development of a biomedical fishery in the Gulf of Mexico that is primarily for export to Asian markets. Currently there is permit holder who resides on the Gulf Coast of Florida but their permit encompasses the entire state; they can harvest from either the Atlantic

or Gulf coasts of Florida. Without a current Gulf States Marine Fisheries Commission (GSMFC) FMP on horseshoe crabs and limited regulations on harvesting of horseshoe crabs in the Gulf of Mexico, the subgroup urges that the ASMFC offer any technical assistance needed for guiding the development of a regulatory framework for the biomedical fishery. Recently a harvester in FL was issued a permit to harvest horseshoe crabs on FL's Gulf coast, but both USGS and FLFWC staff are concerned that there are not effective mechanisms in place to monitor this harvest and potential impacts to regional population.

The TCs were in agreement with the information presented and had the following recommendations:

1. The TCs are supportive of opening up a line of communication with the GSMFC on guidance for the development of a Fishery Management Plan in the Gulf of Mexico as well as providing additional information on the Best Management Practices (BMPs) for biomedical facilities in the handling, treatment, and release of Horseshoe Crabs.
2. While the biomedical facility BMPs are largely adhered to (developed by the ASMFC Horseshoe Crab Ad-hoc Working Group in 2011), the current coastwide harvest mortality (15% mortality on 570,000 crabs) threshold have been exceeded annually in recent years. Both items are currently not compulsory in the FMP and the TCs feel that both the underlining assumptions of acceptable mortality from bleeding (bleeding mortality may range from 5-30% based on recent research) and the biomedical harvest levels should be considered in the next Addendum to the FMP.
3. The TCs would like further clarification on the jurisdictional bounds within the ASMFC Horseshoe Crab FMP regarding requirements that could be imposed on biomedical facilities.

6. Gulf-crab bleeding, Marine Life Landings, and additional mortality in FL

Tiffany Black followed Dave's presentation regarding her experience in the permitting process regarding the Biomedical Permit issued to the mobile facility. Additionally Tiffany presented current mortality issues that have developed from intake pipes at Cape Canaveral Power & Light facility. Horseshoe crabs have been reported being removed from the intake grates and disposed of at a nearby landfill- it has been estimated that approximately 109,000 crabs been taken from the Power Plant stations in the Indian River Lagoon system annually from the 1970s through the early 2000s (Ehlinger & Tankersly, 2007). Cape Canaveral Power & Light facility has proposed to address this mortality through placing barriers in their intake value areas that would prevent Horseshoe Crabs from becoming trapped. While this has been reported for one facility, there is concern that a similar level of mortality may be occurring at other power plants on FL's east coast (there are at least 5 other power points where this may occurring).

The second item Tiffany presented on was the marine life harvest vs bait harvest. Currently Florida's bait harvest quota is 9,455 crabs annually. While Horseshoe Crabs aren't considered marine life species in Florida (designation given to commercial species used for aquaria and research) there are significant higher numbers of crabs that are taken outside of the bait fishery. On the west coast, the marine life harvest of horseshoe crabs is closer to 20,000 individuals annually.

The TC shared concern over the likely higher mortality of horseshoe crabs along the Florida coast. The TC would like the Board to be aware of the higher mortality and consider it in the *de minimis* status requests annually.

7. Artificial Bait Trials Results

Kirby Rootes-Murdy briefly went over the artificial bait trial timetable and results. At the February 2014 Board Meeting, the Horseshoe Crab Management Board tasked the TC with conducting artificial bait trials. A working group was formed with representatives from the states of Massachusetts, Rhode Island, Connecticut, and Delaware. In April 2014, the working group met by conference call to develop a proposal process for the states to conduct the bait trials with LaMonica Foods. The work was to be completed during the 2014 fishing year. The Management Board was to be updated at the February 2015 Board Meeting, but was not ultimately reviewed due to timing.

In terms of the results, Rhode Island and Connecticut were able to conduct the trials- data are still being written into more formalized reports. Massachusetts and Delaware were unable to conduct the trials due to issues with securing the artificial bait from LaMonica Foods.



Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor
Mark J. Belton, Secretary
Mark L. Hoffman, Acting Deputy Secretary

Maryland Proposal to Reduce the Commercial Horseshoe Crab Quota for 2016

The horseshoe crab harvest limit in Maryland was 170,653 horseshoe crabs from 2003 until 2012 (Table 1). On June 8, 2013 the regulations were changed by public notice to reflect a new harvest limit of 255,980 male only horseshoe crabs, and this quota remained in 2014 and 2015. The increased harvest of males was intended to make up for the financial loss of female harvest in the state.

Table 1. Summary of Maryland's 2007 - 2014 Horseshoe Crab Bait Fishery Quotas.

Year	2007	2008	2009	2010	2011	2012	2013	2014
Quota	170,653	169,189	170,653 2♂:1♀	170,653 2♂:1♀	170,653 2♂:1♀	170,653 2♂:1♀	255,980 ♂ only	255,980 ♂ only

Table 2. Summary of Maryland's 2007 - 2014 Horseshoe Bait Fishery Landings, n=1,391,397.

Harvest Category	2007	2008	2009	2010	2011	2012	2013	2014
# Males	70,768	97,237	114,134	119,207	131,375	114,306	240,688	148,269
# Females	101,349	66,258	50,698	42,338	35,568	54,760	0	0
# Unsexed	0	0	602	602	110	21	0	0
Total #	172,117	163,495	165,344	161,545	167,053	169,087	240,688	148,269
Total lbs.	653,732	535,444	496,040	463,139	455,309	503,441	529,513	314,330
% Females	59	40	31	26	21	32	0	0

The tradeoff was never fully attained and the horseshoe crabs harvest continues to decline in Maryland. As of Mid-August, 2015 the total harvest so far is approximately 4,000 horseshoe crabs. There is a very limited market for male horseshoe crabs in Maryland when the commercial season opens, as other states have taken up the harvest of female crabs that Maryland used to supply. Many horseshoe crabs supplied by other states were harvested early- before June 6th before Maryland opened their directed horseshoe crab fishery. This has created a financial burden for the 10 permitted horseshoe crab harvesters in Maryland.

Maryland has a large indigenous spawning population of horseshoe crabs and is mindful of protecting that population. There are Islands with beaches in the Coastal Bays that are protected during the spawning season. Maryland does not allow directed commercial harvest of horseshoe crabs until after June 6th, the date established by ASMFC as protecting spawning horseshoe crabs. Maryland also does not allow beach harvest and restricts biomedical bleeding to males only until after June 6th to allow female horseshoe crabs to be as fit as possible when spawning.

The purpose of eliminating the female harvest in Maryland was to protect horseshoe crabs of Delaware Bay origin; however, not all of them are of Delaware Bay origin. Genetic analysis of horseshoe crabs along the Maryland coast by Virginia Tech indicated that 34.2% (Eric Hallerman-personal communication)

of the horseshoe crabs found off the coast of Maryland are genetically predicted to be of Delaware Bay origin.

Maryland is proposing to reduce the horseshoe crab quota back to 170,653 animals and allow a modest female harvest. The intent is to offer some economic relief to the fishermen that have been affected by the quota changes that were instituted in 2013. Maryland is also proposing a four males to one female harvest which translates to 34,130 female horseshoe crabs. Maryland intends to track the catch as carefully as in the past and retain the other conservation measures as outlined above.

As part of a technical committee review of this proposal, there are a few questions that may help inform a decision:

- What is the current estimate on adult female population size for the Del Bay stock of HSCs?
- What is the biological significance of removing 34 thousand female horseshoe crabs from Maryland coast on the Delaware Bay horseshoe crab population- keeping in mind that only approximately 35% are actually Delaware Bay origin?



IUCN SSC
HORSESHOE CRAB
Specialist Group

Paul K.S. Shin, South East Asia Co-Chair
Mark L. Botton, North America Co-Chair

October 5, 2015

Mr. Robert Beal, Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street
Suite 200 A-N
Arlington, VA 22201
rbeal@asmfc.org

cc: Kirby Rootes-Murdy, Chair, Horseshoe Crab Fishery Management Plan
(krootes-murdy@asmfc.org)
Dr. James Cooper, Chair, ASMFC Horseshoe Crab Advisory Panel
(JIMANDFRAN2426@OUTLOOK.COM)
Dr. Mike Millard, US Fish & Wildlife Service (mike_millard@fws.gov)
Dr. David R. Smith, US Geological Survey (drsmith@usgs.gov)
Dr. H. Jane Brockmann, University of Florida (hjb@ufl.edu)
Dr. Ruth H. Carmichael, Dauphin Island Sea Lab (rcarmichael@disl.org)

Dear Director Beal,

As Co-Chairs of the Horseshoe Crab Specialist Group of IUCN, the International Union for the Conservation of Nature, we are writing to alert you to our serious concerns about the emergence of a biomedical fishery for American horseshoe crabs (*Limulus polyphemus*) in the United States Gulf of Mexico.

We have been strong supporters of the ASMFC Horseshoe Crab Management Plan for the horseshoe crab [1], which has balanced the multiple uses of the animals for biomedical and bait fisheries, while seeking to maintain a suitable resource of eggs for migratory shorebirds in the Delaware Bay region. However, horseshoe crab populations on the Gulf of Mexico coast of Florida, as well as those in Alabama, Mississippi, Louisiana and Texas, are not under the jurisdiction of ASMFC.

It has come to our attention that a Horseshoe Crab Biomedical Collecting Permit was issued in August 2015 by the Florida Fish and Wildlife Conservation Commission, Tallahassee Office. While Florida Regulation 68B-46.002 stipulates a daily bag limit of 100 horseshoe crabs, it also indicates that “persons possessing a valid Horseshoe Crab Biomedical Collecting Permit are exempted from bag and possession limits specified in paragraph (a) of this subsection if the horseshoe crabs collected are maintained and released alive” [2]. The ASMFC assumes a 15% mortality caused by biomedical bleeding and associated handling [3], based on best practices.

We have a number of specific concerns about the emergence of a biomedical fishery for horseshoe crabs in the Gulf of Mexico that we would like to bring to your attention.

1. Although Florida statutes limit the number of horseshoe crabs that can be collected by those with a Saltwater Products license to 100 horseshoe crabs per day, the State does not have an overall limit on the number of horseshoe crabs that can be collected in the State.
2. The permit holder states that he is using a “mobile trailer facility for temporary holding.” The details of this facility are not spelled out and it is not clear that this is an appropriate facility for storing horseshoe crabs prior to and after bleeding to meet the needed standard for best practices. The permit suggests, *but does not require*, that the permit holder follow best practices for biomedical bleeding as detailed in the 2011 Best Management Practices developed by the ASMFC. We are concerned that the mortality due to bleeding could greatly exceed the presumed level of 15%.
3. In Florida, the biomedical permit allows the holder to take horseshoe crabs from their spawning grounds. Fisheries managers do not allow harvest to take place on most spawning grounds because of the inevitable effect on the population
4. There is no management structure for the West Coast of Florida (or other parts of the US Gulf of Mexico coast) because the Gulf States Marine Fisheries Commission does not have a horseshoe crab management plan. Horseshoe crabs are declining in Asia, and the diminishing supply of Chinese horseshoe crabs (*Tachypleus tridentatus*) for the biomedical market will increase demand for American horseshoe crabs [4]. With the ever-increasing demand for horseshoe crabs by the biomedical industry, and the lack of management of horseshoe crabs along the Gulf Coast, it seems likely that additional watermen will seek to acquire permits to exploit these populations. Fishery managers throughout the Gulf of Mexico should consider their response proactively, *before* the problem becomes serious by developing a horseshoe crab management plan and conservation-focused regulations.
5. We acknowledge that data on the size of Gulf of Mexico populations is limited in comparison to the Mid-Atlantic and New England States [5], and only the population from Seahorse Key, FL has been studied for a long enough period of time to discern temporal trends [6]. However, we emphasize that the lack of long-term data for the Gulf of Mexico should not preclude management; indeed, following the precautionary principle, caution should be exercised in allowing the exploitation of population(s) of uncertain size. A similar situation existed on the U.S. Atlantic coast during the early days of developing a horseshoe crab management plan for that region.
6. Gulf of Mexico populations are genetically distinct with no interchange with Atlantic Coast populations; moreover, there appear to be some genetic differences between southern and northern Florida Gulf Coast animals [7]. Some regions of the Gulf Coast remain unstudied. We do know that the smaller, more isolated horseshoe crab populations in New England have proven to be more vulnerable to overfishing than the

larger, more interconnected Mid-Atlantic populations [8]. This experience suggests that caution be exercised with regard to the Gulf of Mexico fishery.

We therefore urge that ASMFC and GSMFC work together to consider development of a horseshoe crab management plan for the region and enact the necessary rules and regulations to ensure the long-term viability of horseshoe crab populations in the Gulf of Mexico. Our Horseshoe Crab Specialist Group has individuals with expertise on the Gulf of Mexico and the ASMFC management process for horseshoe crabs. We are happy to provide whatever input or other support you might require.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark L. Botton", written over a horizontal line.

Mark L. Botton, Ph.D., Co-Chairman
Horseshoe Crab Species Specialist Group
Department of Natural Sciences
Fordham University
113 West 60th Street
New York, NY 10023 USA
botton@fordham.edu

A handwritten signature in blue ink, appearing to read "Paul K. S. Shin", written over a horizontal line.

Paul K. S. Shin, Ph.D., Co-Chairman
Horseshoe Crab Species Specialist Group
Department of Biology and Chemistry
City University of Hong Kong
Kowloon, Hong Kong
bhpshin@cityu.edu.hk

Notes

[1] ASMFC (Atlantic States Marine Fisheries Commission) (2015). Fishery management plans and FMP reviews. <http://www.asmfc.org/species/horseshoe-crab>

[2] Chapter 68B-46 HORSESHOE CRABS. Horseshoe Crabs Harvest Restrictions: License Requirements, Gear Specifications, Daily Bag and Possession Limits.

[3] Subcommittee, ASFMC. (2013). Horseshoe Crab Stock Assessment Update. Atlantic States Marine Fisheries Commission, 68pp.

[4] Gauvry, G. (2015) Current horseshoe crab harvesting practices cannot support global demand for TAL/LAL: The pharmaceutical and medical device industries' role in the sustainability of horseshoe crabs. In: Carmichael, R. H. et al. [eds.], *Changing Global Perspectives on Horseshoe Crab Biology, Conservation and Management*. Springer International, Switzerland, pp.475-482.

[5] Rudloe, A. (1980) The breeding behavior and patterns of movement of horseshoe crabs, *Limulus polyphemus*, in the vicinity of breeding beaches in Apalachee Bay, Florida. *Estuaries* 3: 177–183; Fulford, R. S. and Haehn, R. A. (2011) An evaluation of Mississippi barrier islands as spawning and nesting habitat for the American horseshoe crab, *Limulus polyphemus*, with implications for island restoration. *Gulf and Caribbean Research* 24: 51-62; Carmichael, R. H. Dauphin Island Sea Lab, AL, personal communication, September 2015.

[6] Brockmann, H. J. and Johnson, S. L. (2011) A long-term study of spawning activity in a Florida Gulf Coast population of horseshoe crabs (*Limulus polyphemus*). *Estuaries and Coasts* 34: 1049-1067.

[7] King, T. L. et al. (2015) Conservation genetics of the American horseshoe crab (*Limulus polyphemus*): Allelic diversity, zones of genetic discontinuity, and regional differentiation. In: Carmichael, R. H. et al. [eds.], *Changing Global Perspectives on Horseshoe Crab Biology, Conservation and Management*. Springer International, Switzerland, pp. 65-95.

[8] Smith, D. R. et al. (2009) Comparative status and assessment of *Limulus polyphemus* with emphasis on the New England and Delaware Bay populations. In: Tanacredi J. T. et al. [eds.], *Biology and Conservation of Horseshoe Crabs*. Springer, New York, pp. 361–386

Atlantic States Marine Fisheries Commission

ISFMP Policy Board

*November 5, 2015
9:15-11:15 a.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

- | | |
|---|------------|
| 1. Welcome/Call to Order (<i>L. Daniel</i>) | 9:15 a.m. |
| 2. Board Consent (<i>L. Daniel</i>) | 9:15 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2015 | |
| 3. Public Comment | 9:20 a.m. |
| 4. Executive Committee Report (<i>L. Daniel</i>) | 9:30 a.m. |
| 5. Habitat Committee Report (<i>J. Kritzer</i>) Action | 9:50 a.m. |
| 6. Discuss Revisions to ASMFC Guidance Documents (<i>T. Kerns</i>) | 10:05 a.m. |
| 7. Review MSTC/BERP Committee Structure (<i>T. Kerns</i>) | 10:35 a.m. |
| 8. Law Enforcement Committee Report (<i>M. Robson</i>) | 10:40 a.m. |
| 9. Progress Report on the Atlantic Sturgeon Stock Assessment (<i>K. Drew</i>) | 10:50 a.m. |
| 10. Review Non-Compliance Findings, if Necessary | 11:00 a.m. |
| 11. Other Business | 11:05 a.m. |
| 12. Adjourn | 11:15 a.m. |

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

ISFMP Policy Board Meeting
Thursday, November 5, 2015
9:15-11:15 a.m.
St. Augustine, Florida

Chair: Louis Daniel (NC) Assumed Chairmanship: 10/13	Vice Chair: Doug Grout (NH)	Previous Board Meeting: August 6, 2015
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (19 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 6, 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Executive Committee Report (9:30-9:50 a.m.)
Background <ul style="list-style-type: none">• The Executive Committee will meet on November 3, 2015.
Presentations <ul style="list-style-type: none">• L. Daniel will provide an update of the committees work
Board direction for consideration at this meeting <ul style="list-style-type: none">• none

5. Habitat Committee Report (9:50-10:05 a.m.) Action
Background <ul style="list-style-type: none">• The Habitat Committee will meet on November 3, 2015.• The Habitat Committee developed a white paper on habitat bottlenecks to focus both research and management on habitat areas likely to yield the greatest returns.
Presentations <ul style="list-style-type: none">• J. Kritzer will present an update of the committees work.• J. Kritzer will present the Habitat Bottlenecks White Paper (Briefing Materials)
Board actions for consideration at this meeting <ul style="list-style-type: none">• Approve the Habitat Bottlenecks Paper.

6. Discuss Revisions to ASMFC Guidance Documents (10:05-10:35)
Background <ul style="list-style-type: none"> The Executive Committee has been updating Commission Guiding Documents (e.g. Charter, Rules and Regulations, TC Guidance Documents) to reflect the current practices of the Commission.
Presentations <ul style="list-style-type: none"> Staff will review the progress of the Executive Committee
Board guidance for consideration at this meeting

7. Review MSTC/BERP Committee Structure (10:35-10:40 a.m.)
Background <ul style="list-style-type: none"> The Biological Ecological Reference Point (BERP) Working Group started as a spin-off of the Multispecies Technical Committee (MSTC) which reported to the Policy Board. The committee is now solely working on the menhaden reference point issue. Given this change how should the BERP's products be reported to the Commissioners.
Presentations <ul style="list-style-type: none"> T. Kerns will present an overview of the current committee structure and suggested changes.
Board action for consideration at this meeting <ul style="list-style-type: none"> None

8. Law Enforcement Committee Report (10:40-10:50 a.m.)
Background <ul style="list-style-type: none"> The Law Enforcement Committee will meet on November 4, 2015 The Policy Board tasked the LEC to provide information regarding regulations or laws that address "landing in whole condition" or related rules that allow partial or complete filleting of fish prior to landing. The LEC will review this information (Briefing Materials)
Presentations <ul style="list-style-type: none"> Update on LEC activities by M. Robson
Board action for consideration at this meeting <ul style="list-style-type: none"> None

9. Progress Report on the Atlantic Sturgeon Stock Assessment (10:50-11:00 a.m.)
Background <ul style="list-style-type: none"> The Benchmark stock assessment for Atlantic sturgeon is schedule to undergo peer review in 2017.
Presentations <ul style="list-style-type: none"> K. Drew will present an update on progress for the sturgeon assessments
Board actions for consideration at this meeting <ul style="list-style-type: none"> None

11. Review Non-Compliance Findings, if Necessary

12. Other Business

13. Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ISFMP POLICY BOARD**

The Westin Alexandria Hotel
Alexandria, Virginia
August 6, 2015

These minutes are draft and subject to approval by the ISFMP Policy Board
The Board will review the minutes during its next meeting

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Adjournment..... 24

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PAGE 13: Motion to approve the LEC Enforceability Guidelines. Motion carried on Page 19.

PAGE 18: On behalf of the American Eel Management Board move that the ISFMP Policy Board recommend to the commission that the State of Delaware be found out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel.

Delaware has not implemented the following regulations required by Addendum III: the nine-inch minimum size for yellow eel recreational and commercial fisheries; one-half by one-half inch minimum mesh size for yellow eel pots; allowance of four inch by four inch escape panel in pots of one inch by one inch mesh for 3 years (beginning on January 1, 2014); recreational 25 fish bag limit per day per angler; crew and captain involved in for-hire are exempt and allowed 50 fish bag limit per day.

The implementation of these regulations is necessary to achieve the conservation goals and objectives of the FMP to rebuild the depleted American eel stock. In order to come back into compliance the State of Delaware must implement all measures listed above as contained in Addendum III to the Fishery Management Plan for American Eel. Motion carried on Page 31.

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)	Thomas Moore, PA, proxy for Rep. Vereb (LA)
Doug Grout, NH (AA)	John Clark, DE, proxy for D. Saveikis (AA)
Ritchie White, NH (GA)	Roy Miller, DE (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Dr. David Pierce, MA (AA)	Lynn Gegley, MD, proxy for D. Goshorn (AA)
Bill Adler, MA (GA)	Bill Goldsborough, MD (GA)
Robert Ballou, RI (AA)	David Sikorski, MD, proxy for Del. Stein (LA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	John Bull, VA, (AA)
David Simpson, CT (AA)	Kathryn Davenport, VA (GA)
Craig Miner, CT (GA)	Louis Daniel, NC (AA)
Lance Stewart, CT (GA)	Robert Boyles, Jr., SC (AA)
Katherine Heinlein, NY, proxy for Sen. Boyle (LA)	Ross Self, SC, proxy for R. Cromer (LA)
Jim Gilmore, NY (AA)	Patrick Geer, GA, proxy for Rep. Burns (LA)
Emerson Hasbrouck, NY (GA)	Spud Woodward, AA (GA)
Brandon Muffley, NJ, proxy for D. Chanda (AA)	Jim Estes, FL, proxy for J. McCawley (AA)
Tom Fote, NJ (GA)	Sen. Thad Altman, FL (LA)
Adam Nowalsky, NJ, proxy for Rep. Andrzejczak (LA)	Wilson Laney, USFWS
Loren Lustig, PA (GA)	Kelly Denit, NMFS
Leroy Young, PA, proxy for J. Arway (AA)	Martin Gary, PRFC

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Staff

Bob Beal	Pat Campfield
Toni Kerns	Mike Waive

Guests

Draft Proceedings of the ISFMP Policy Board Meeting August 2015

The ISFMP Policy Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 6, 2015, and was called to order at 8:00 o'clock a.m. by Chairman Louis B. Daniel, III.

CALL TO ORDER

CHAIRMAN LOUIS B. DANIEL, III: Good morning. Welcome to the Policy Board.

APPROVAL OF AGENDA AND PROCEEDINGS

CHAIRMAN LOUIS B. DANIEL, III: Everyone should have a copy of the agenda. I'm going to add one piece of other business where Kevin Chu is going to give us an update on regional planning. You should have our agenda and our proceedings from our May meeting. Are there any corrections to those minutes or any additional items that we need to consider on the agenda? Seeing none; they will be considered approved by consent.

PUBLIC COMMENT

CHAIRMAN LOUIS B. DANIEL, III: The first item on our agenda is public comment.

UPDATE FROM THE EXECUTIVE COMMITTEE MEETING

CHAIRMAN LOUIS B. DANIEL, III: Our other item is our executive committee report. The executive committee met to discuss some policy guidance issues that have been brought up by various commissioners over time. Staff put together a white paper with the Administrative Oversight Committee to address various issues from compliance findings to amendment and addendum processes and other such things.

We did not get through all of those in our meeting and so we will be working on that at the annual meeting and hopefully have a document to provide to you there that summarizes these guidance changes. That was really the main focus of the executive committee other than providing our executive director with his performance evaluation for the past year.

That was an outstanding review by consensus; and so we certainly appreciate the job that our executive director is doing and the staff that you have put together over the last year with a lot of folks leaving.

You guys need to stick around a little longer than six or eight months now. We need you to be here with us for at least a couple of years.

I do want to thank you all for coming out last night to the hospitality. It was great staff come out to that. It gives a great opportunity to get to meet you and talk with you. I think it makes us a more cohesive bunch; so thank you to the staff and especially to Bob. We didn't really have a chance to talk about the annual meeting, but we will be meeting in Florida.

I didn't know if there was anything else we needed to brief the commission on in terms of the annual meeting. I don't believe there is. Are there any questions for me on the executive committee report? If not, that concludes my report; and I will turn it over to Toni to do a review of the stock rebuilding performance.

REVIEW OF STOCK REBUILDING PERFORMANCE

MS. TONI KERNS: Each year as part of the strategic plan, the commissioners have asked that staff put together a review of each of our species' performance and looking at how well that stock is doing in terms of its health as well as how well are we responding to the scientific advice in each of the species' management boards and sections. We started this in 2009 and carried it through into the 2015 Action Plan.

The objective is to validate the status and the rate of progress that we're making on each species; and if it is not acceptable, to identify corrective action for those species. What we hope to find at the end of the day here today is to get direction and feedback to species' management boards if necessary and also to have information so that staff can put together the 2016 Action Plan.

We have five categories for our species; and we finally did revise these and changed the definitions and those new definitions are now being used to put together the report from the last Policy Board meetings. Our five categories are rebuilt/sustainable, recovering/rebuilding, concerned, depleted and unknown.

For our rebuilt and sustainable and recovering and rebuilding stocks; we have a couple here. The Gulf of Maine and Georges Bank lobster, Atlantic herring, bluefish, scup, spiny dogfish were all in the rebuilt and sustainable category last year and new to this category is menhaden, black drum and I believe

Draft Proceedings of the ISFMP Policy Board Meeting August 2015

Spanish mackerel. Red drum also was recovering and rebuilding last year.

I'm not going to go through any information on those species – they're doing well. The boards are responding well to their statuses – unless somebody has questions on those. For species of concern, we have Atlantic croaker, striped bass, black sea bass, coastal sharks, horseshoe crab, tautog, summer flounder and the Gulf of Maine winter flounder.

I'm going to go through some details on species that we have new scientific information or the board has taken additional action since last year. There are some species that we don't any new scientific information nor have we taken any actions; so I'm not going to go through those species unless commissioners have questions at the end on them.

First we have Atlantic croaker. Later this morning the South Atlantic Board will get the updated traffic light information, which is presented here. The traffic light is another way of looking at how well the stock is doing in between assessments. The analysis is for the 2014 fishing year, and the results showed that there is declining trends in the fishery-independent indices as well as a drop in both the commercial and recreational landings.

The harvest index was above the 30 percent threshold, which is the black line in the top graph with the red proportion of 44.5 percent for the management measures. The management measures were not tripped since both the abundance index was below the threshold at the 14.2 percent, which is the bottom graph.

In order for management measures to be triggered, both the harvest and the adult composite have to go above the threshold. Although the plan review team was concerned about the declines that we're seeing in croaker, there is going to be an assessment coming out next year and so the plan review team is going to suggest to the South Atlantic Board that they wait until they see the results of those assessments before taking action.

Next we have Atlantic striped bass. The assessment showed F in the terminal year was above the new F target and the spawning stock biomass had been declining steadily below the target since 2006. This indicates that even the stock is not overfished and overfishing is not occurring, the spawning stock biomass is approaching its overfished threshold and stock projections show the spawning stock biomass

will likely fall below the threshold in the coming year because of the poor year classes from 2005 to 2010.

The 2011 year class was strong and will mature into the spawning stock in 2016 and 2017. The Striped Bass Board responded to the scientific advice and implemented new reference points as well as state-level regulations to reduce F to a level that was at or below the new F target for the 2015 fishing season. The final implementation of all the state regulations are projected to reach the 25 percent reduction in F.

For black sea bass, the unique life history characteristics, for example, that the species changes sex from female to male, contribute to uncertainty regarding the stock size and the response to exploitation. Therefore, an overfishing limit can't be specified for the fishery, which means the level of catch cannot be derived from the model results and we use a constant catch harvest strategy for this species based on information that we get from the scientific committee coming out of the Mid-Atlantic Council.

The major sources of uncertainty are that the assessment assumes a completely mixed stock; but we have tagging evidence that suggests otherwise. We have seen changes in the spatial distribution of the stock that we think may be due to warming waters; and we're seeing expansion of black sea bass into the north.

Due to the life history, strategy of the species, the assumptions of a constant F mortality in the model may not actually be adequately capturing the dynamics of natural mortality. Again, the unique life history makes the determination of appropriate reference points very difficult for this species.

We've pulled together prioritized research to reduce the scientific uncertainty; and some of these items are being worked on with the new assessment that we're doing jointly with the Mid-Atlantic Council in the upcoming years. Those are to develop reference points and assessment method to account for the unique life history of the species, to explore a spatially structured stock assessment to address the incomplete mixing of the stock and to evaluate implications of range expansion to the stock and fishery dynamics.

For coastal sharks, we looked at and worked with HMS on these species. There is a couple of changes that we have seen in some of the statuses of the stocks. The porbeagle is now overfished but overfishing is no longer occurring. The smoothhound

assessment was recently released; and it found that overfishing was not occurring nor was it experiencing overfishing. The board has been working collaboratively with NOAA Fisheries in both management measures to be consistent with the measures that they're putting out as well as the Shark Conservation Act.

For summer flounder, the reported 2014 landings in the commercial fishery were approximately 8 percent over the commercial quota; and the recreational harvest in 2014 was approximately 6 percent over the recreational harvest limit. We had a recent update that came out for summer flounder in the past couple weeks.

It found that the stock was not overfished but overfishing is occurring. There has been low recruitment since 2010; and there is a retrospective pattern that is evident in the assessment. It has substantial implications on the reliability of the model projections. The projections are made assuming that the ABC will be harvested fully but not exceeded. The harvest trends that we have been experiencing have been actually exceeding some of our measures.

This indicates that the likelihood of catches exceeding the ABCs is high. In 2016 and 2017 the probability of overfishing is higher than what the Mid-Atlantic Fishery Management Council's risk policy dictates. There has been a recommendation for the upcoming fishing year of a reduction in catch from the 2015 harvest levels for this species. The Summer Flounder, Scup, Black Sea Bass Management Board will be taking on this issue next week with the Mid-Atlantic Council jointly at their meeting in New York.

For tautog, the overfished and overfishing is occurring on a coast-wide basis. We had an assessment that came up earlier this year. The assessment recommended that we look at tautog in a regional manner.

It gave two options to look at the stock on a regional basis. Those stock statuses vary depending on how you combine the two regions. The Tautog Management Board has initiated an amendment to address the results of the assessment and look at these new regional approaches and that process will be occurring through this fall.

Moving on to the depleted species; for depleted we have American eel, the Southern New England lobster stock, American shad, northern shrimp, river

herring, weakfish and then the Southern New England/Mid-Atlantic winter flounder stocks. For Southern New England lobster, it was found that the resource is depleted but overfishing is not occurring.

While overfishing is not occurring, the peer review panel recommended that effort must be curtailed in order to have any possible improvements in the stock. The inshore proportion of the stock is showing a dramatic decline in the spawning stock abundance and that the offshore stock is highly dependent on the recruits that are coming from the inshore stock.

There is concern that if we don't see any increase in recruitment; that the offshore stock in Southern New England will suffer. The technical committee advises to use output controls in the past, but the board has continued to use input measures in order to manage the fishery. In the past, before we had this new assessment, the technical committee had advised 50 to 75 percent reductions in Southern New England; and the board approved 10 percent reductions.

For northern shrimp, due to failed recruitment, the stock is not expected to recover until at least 2017. We are at some of the lowest biomass levels that have come from the northern shrimp summer survey. The stock assessment that was done last year did not pass peer review, so we used a series of indices to look at the status of the stock.

Most of those indices are similar to a traffic light approach that we see with the croaker and spot approach. Most of the indices are in the red and yellow and northern shrimp. The section implemented a moratorium for the second year in 2014 and initiated an amendment to look at limited entry for the fishery in response to the poor stock status.

For species that are unknown, we have Atlantic sturgeon, Jonah crab, spot and spotted seatrout. Jonah crab is a new FMP that the full commission will be considering for approval later today. Jonah crab landings have increased almost six and a half fold since the early 2000's with over 17 million pounds of Jonah crab landed in 2014. The status of the Jonah crab resource is relatively unknown; and there is currently no data on juvenile recruitment.

It has been recommended that we conduct age-at-maturity studies in order to produce an assessment for the Jonah crab species as well as to investigate the extent of the annual migration patterns of the species. The FMP does have monitoring requirements that will help us get better information for Jonah crab as

well as puts in place some size limits, permitting and trip limits for the species in order to cap harvest at its current levels.

Lastly, we have spot. Spot is also undergoing a traffic light approach. The management board had followed the recommendations for the peer review team to monitor the stock. The traffic light analysis showed a decline in harvest primarily driven by a fall in the commercial landings. The adult abundance also fell and was above the 30 percent threshold at 45.3 percent.

The management measures were not tripped since the harvest index was just below the threshold at 29.4 percent. This is similar to croaker in the sense that one of the triggers was hit but not the other; so therefore the PRT did not recommend to make changes in management. The assessment will come out at the same time as the croaker assessment so we can do a full analysis of what to do. Currently we don't have any management measures in the FMP for spot. States themselves do have management measures, but we don't have any coastwide measures, which may be something that the South Atlantic Board will think about after those assessments have been released. That is all.

CHAIRMAN DANIEL: Very good report. Loren.

MR. LOREN W. LUSTIG: Thank you very much, Mr. Chairman, and thank you for the excellent report. We are wondering about the northern shrimp. Could you put back that northern shrimp slide, please? Can you offer any explanation for that dramatic increase that occurred a couple of years ago followed by a stunning plunge? We're wondering if that is symptomatic of any condition that we should know about. Thank you.

CHAIRMAN DANIEL: I will look to Mr. Grout to provide some insight on that.

MR. DOUGLAS E. GROUT: Loren, northern shrimp are at the southern limit of their range; and it is very temperature dependent. We had a very cold winter that spawned that big spike. We've seen this in the past. When we have very cold winters, we get increases in abundance. Following that cold winter, it is believed in winters of '11 and '12, I think it was, we had some of the warmest ocean temperatures on record, which has precipitated the inability for recruitment to occur. We're hoping because we've had a couple of cold winters; that a couple of years from now we may be seeing a rebound.

DR. DAVID PIERCE: Toni, could you put the summer flounder slide back up? As you noted, the board is going to meet next week with our Mid-Atlantic counterparts and we're going to discuss what to do about summer flounder. My question is wouldn't it be appropriate to include in this particular report the way it used to be prior to about a couple of months ago in order to give commission members and others a better perspective as to what is going on? When looking at this figure, one would conclude that we did okay relative to rebuilding back in the 1990's.

We've been in neutral since 2002 and not really working very hard to get to our target; but as we all know, we have been or at least we thought we were – according to the assessment advice we have been rebuilt for many years and now we see where we are. It is a startling reversal of fortune. This is a document that has a lot of people look at it and it gives kind of a false picture of the good work that we have done to achieve our objectives to be – well, to reach our goals, our goals towards summer flounder. Do you think it would be useful to put that figure in, the previous figures showing how we done responding to biomass relative to the target?

MS. KERNS: If the Policy Board would like me to add that figure, we can. I don't know if it would cause confusion to the public to have two figures with two sets of numbers in there in the sense that for summer flounder it is one of the unique species where the reference points change as you do the updates depending on the results of the assessment.

Yes, I think it was 2011 we declared summer flounder rebuilt and it was above its SSB level at that time. I think it only was above that SSB level for one year and then we started to see the declines in SSB. I just don't know if it would be confusing to the public to have one set of reference points in one figure and then see another totally different figure now. If you don't think it is confusing, then I'm happy to include it.

DR. PIERCE: I would suggest, then, not necessarily a figure but a bit more text that would explain the reversal of fortune; because again this board, we did some great work and the industry had to go through a lot of sacrifice to get to where we thought we were; and now it has all come undone and we're looking at cuts in quota and changes in the recreational limits that are going to be met with great resistance, fierce resistance when we meet next week in New York City, which happens to be the interesting state for us to be in for this meeting because of a number of politicians who are concerned about fluke. Anyway,

additional text to explain what happened would be useful.

MR. THOMAS FOTE: Unlike Dave, the table I would like included in this document on summer flounder is the recruitment table based on where the stock was at periods of time. If you look at that table – I pointed it out to the SSC when I went down to the SSC meeting is the fact that when we were at 40 million pounds, 60 million pounds, we had great rebuilding.

When we reached the plateau, it was about 80 or 90 million pounds where recruitment seems to actually decrease with the larger the spawning stock biomass got to. We had great reproduction when we had a small spawning stock biomass. As a matter of fact, the benchmark assessment says the spawning stock biomass is not tied into recruitment and thus is not the key player there.

I think that would be important to put there. What I also would like is a table with the size of the spawning stock biomass and the quotas going back to '96 when we start implementing these plans. This fishery, when you look at what was going on in '94, '96, '98 and you look at the size of it and the quotas we are fishing at and the stock was still rebuilding very dramatically and increasing and recruitment was good, we were basing our fishing on quotas of 22 million pounds, even up to 28 million pounds.

I'm trying to think of the last time we were at a quota that was 16 million pounds; and I think that was pretty much when the stock was all the way down at the end of this curve. When we basically tell fishermen that we have rebuilt the stock, that the numbers look great – these are the highest numbers that we have recorded if you look back at the time period on the spawning stock biomass; and yet we're not rebuilding more. There are other factors involved, whether it is environmental, whether we're trying to rebuild all the stocks where it is competition of food and everything else. It's not I think in this case really based on fishing.

I can't explain 2010 and 2011 for the poor recruitment; but I can explain 2012 and '13. There was a little thing called Sandy that washed every fluke out of the bays in New York and New Jersey and probably in Delaware that had just come in starting in October to basically spend the winter over and actually grow that half inch until they're nine inches, and they all got washed out with Hurricane Sandy. That is a really natural occurrence.

I know we don't put that in tables and we never consider hurricanes in a stock assessment. We have never done that; but it is a place to start looking at it. This discussion is going to be interesting next week. I'm bringing a lot of extra Granola Bars to sit there and listen through it. It should be going on good; but I think we should put that information out there. I really would like a chart on all the quotas and where we were from '96 on because that's really when we starting the plan.

MS. LYNN FEGLEY: Mr. Chairman, it might be overcomplicated, but it strikes me that there is two ways that as stock can change its status; and one is that it changes status just in the process of a turn-of-the-crank assessment where you watch the trend of the stock. The other is when it changes stock status based on a new benchmark, as happened with menhaden and as happened with summer flounder.

I wonder if it is worth making a distinction between those two situations; and when stock status changes as a result of a new benchmark, maybe providing a couple of sentences about the things that were different in the new model. We should all be grateful that science changes and grows and evolves and we learn more and we use the new information; but it is confusing I think to the public when on one side of an assessment everything is fine and then you come out of the assessment and you've got big problems. I think maybe a little bit more explanation there could be helpful.

MS. KERNS: Just a question for you, Lynn. The purpose of this document in the past has not been a piece for the public to see all of that history but more to here is what the latest information is and here is how the management boards have been responding to that information to be able to judge whether or not boards are actually responding to scientific advice from the Policy Board's perspective and whether or not they need to have discussions with those particular species' boards about additional actions that need to be taken or less actions that need to be taken.

I guess it could go both ways. I'm happy to add that other information in here as well; but we do have that type of information that you're speaking of in our statuses of the stock, one-pagers, as well as when we do benchmark assessments we do the primers that are a couple of pages that explain all the differences and the changes in the assessments.

Just for everybody's knowledge, summer flounder actually didn't go through a benchmark; it was just an

update. Technically it is still considered rebuilt; but we moved it into a species of concern since SSB levels were declining and overfishing is now occurring; so staff moved into a species of concern even though technically it is rebuilt. It doesn't fall out of that rebuilt category unless the SSB were to fall below the threshold as well as the fishing mortality is above the threshold.

MR. JAMES J. GILMORE, JR.: Lynn and everyone, the Mid-Atlantic put out a fact sheet last evening that actually describes a little bit of this more in laymen's terms as to how the assessment was done in a little bit more detail to make it more understandable. I think that will help with that; so if you don't have a copy of it, Chris Moore had sent it out last evening, so we should probably get a copy of that for everybody. I will say I don't agree with everything in it, but at least it gives some basic information.

CHAIRMAN DANIEL: That's good to know. Bob.

MR. ROBERT BALLOU: Thank you Toni and to staff for doing this work. I think it is a really excellent job to have these snapshots available for the public in particular. On lobster, there is a little black line on the lower right; is that supposed to be there; what does that mean?

MS. KERNS: It is a three-year average; it is the total three-year average. The technical committee has cautions about using the terminal year estimate for abundance. They average the last three years and that's what that value is. If it is not labeled, I can label that.

MR. BALLOU: Thank you and I think it does need to be labeled. I think that is really my point. Then I just would also just up under assessment findings, the first bullet, depleted and overfishing not occurring, it just seems to be sort of a mixed – it is just sort of hard I think for the public to wrap their heads around those two concepts, which really don't relate very well.

I think it might be easier to speak to the depleted aspect of the stock and then note perhaps in sequence overfishing not occurring, current exploitation below threshold. It just seems it is mixing things there; depleted and overfishing not occurring. If overfishing were occurring, the two would kind of work well together perhaps. I'm just trying of a way to convey information to the public in a way they can get their heads around; and to me that mixes things up just a little bit. I just think a slightly restructuring of those bullets might be helpful. Thank you.

MS. KERNS: And the peer review did touch on this in they do believe that this overfishing that is not occurring is slightly misleading in terms of management responses because it seems to indicate that you wouldn't need to have a management response there. The reference points probably aren't really set up in a way that you're at the lowest stock level that we've ever had and so therefore your abundance indicators aren't going to be able to go up unless you curtail fishing effort. That is what they did say in their peer review report.

MR. G. RITCHIE WHITE: To that point, Bob, the technical committee and review panel believe the stock has little chance of recovering unless fishing effort is curtailed; so maybe something like that could be added to the not overfishing and then have that is out of the stock assessment report, have that in quotations or something. Clearly, we're not formally overfishing but the stock is not standing the fishing pressure we're exerting on it.

MR. FOTE: Mr. Chairman, I have two questions on lobster; and I don't know whether we should do this under other business. One is that we need to stop calling it the Southern New England stock because really it is three states in New England and five in the Mid-Atlantic. We really need to do a name change. It is just very confusing to the states when you tell your lobstermen, well, it is Southern New England and they say, "Wait a minute; we're in the Mid-Atlantic" – whether we call it the Mid-Atlantic and Southern New England Fishery or something like that. The other one was where there was talk about voting on the board. I don't know if you want to cover that now or whether you want to do that later.

CHAIRMAN DANIEL: Much later.

MR. FOTE: Okay, but I would like to put it on the agenda under other business.

CHAIRMAN DANIEL: I would like for the Lobster Board to decide what to call lobsters.

MR. FOTE: But about the voting; I would like to cover that.

CHAIRMAN DANIEL: I'm not sure what that issue is.

MR. FOTE: It was an issue where I have never seen on a board where a council actually voted on the board; and it was a call for that. I think it might have been a mistake and we need to straighten that out

because the only voting members on the board are the states. We usually let members from the council basically be officio members but not voting members on the board. There was a lot of concern over that especially on lobster.

CHAIRMAN DANIEL: What I'd like to do with that, Tom, is move that into the executive committee's guidance criteria and have that discussed so that it is consistent under guidance policies that we're going to be bringing back to the commission. Is that satisfactory, Bob?

EXECUTIVE DIRECTOR ROBERT E. BEAL: I was having a sidebar conversation, Louis.

CHAIRMAN DANIEL: It is just that Tom has raised a concern about voting on the Lobster Board; and I just said that instead of discussing that today I would like to discuss that in our group that is discussing the guidance policy processes.

EXECUTIVE DIRECTOR BEAL: We will add that to the white paper that we're working on.

MR. DAVID SIMPSON: Toni, what you're presenting today is just a summary for this meeting. It is not necessarily for broad public consumption or to send a main message out is my understanding.

I was going to say the press release on lobster, for example, that Tina sent out yesterday was very comprehensive and very detailed and provided a really good summary of the findings, where we are, the difference between the technical depleted but not overfishing with the follow-up information, but this stock is still in terrible shape and things need to be done. I think that's the message that went out to the public; and I think some of the other documents that you've mentioned and even the plan review I think spells out some of the details that may be missing in a summary slide that you put together for us today. Is that fair?

MS. KERNS: That's correct. The objective today is, is there anything that the Policy Board wants to bring back to any of the particular species' management boards; that they're not reacting in ways that the Policy Board feels they should be or is there anything in the action planning for the upcoming year that the Policy Board thinks needs to be addressed for any particular species and staff can add that as part of our planning process for the annual meeting.

CHAIRMAN DANIEL: And that's a very important point; so I don't think we necessarily need to go in and spend too much time wordsmithing or

modifying. This is really for us. I think there is one issue that I'll – and just due to some scheduling difficulties that I had, I won't be able to be at the South Atlantic Board.

I know we have received some comments on spotted seatrout. Again, with some of the concerns that have been raised about being more restrictive than the feds in certain states; it may reasonable to consider removing spotted seatrout from the South Atlantic Board's purview and not have a fishery management plan for spotted seatrout. That would be one issue that I think is important at least to have that discussion at the South Atlantic Board instead of dealing with these issues that we're dealing with now. I think that kind of information is sort of the intent and purpose. Eric.

MR. ERIC REID: Mr. Chairman, when it comes to summer flounder, fluke, there was a discussion earlier about what to supply the public with as far as information because you didn't want to confuse anybody. Before the May meeting I was part of the public; and when it comes to summer flounder, I'm confused.

It is a mess; and I really think that this body would be remiss if it didn't supply every bit of information that it had so somebody can try to figure out how we went to let's have a 46 percent reduction and then somehow we do a math problem and we look at our risk factor and now we're down to a measly 29 percent. I really think that the public should have access to every bit of information to try to digest what is going to happen. That would be my recommendation to this board.

CHAIRMAN DANIEL: I think that's good advice. I think we're putting together that information; and I think it would be helpful, perhaps – and I think Dr. Pierce is the chairman of the Summer Flounder, Scup, Black Sea Bass Board – my understanding, Eric, is that these years of poor recruitment that may have been environmentally induced or storm-induced resulted in this decline in spawning stock biomass that has put us into an overfishing situation that we're supposed to stop.

The question is I think, Dr. Pierce, if you could perhaps provide the Policy Board with your understanding of the options that may be considered next week by your board and the Mid-Atlantic Council. Everything I've heard is a 43 percent reduction in the quota. I'm hearing some additional things and I don't know if you have any insight into what those might be.

DR. PIERCE: Again, I could call on Mike Luisi if he is here. He is not here; okay. The Mid-Atlantic Council apparently already has had some updating as to what has happened and what might happen at the board meeting next week when we meet with our council counterparts. My understanding is – and I'm still trying to get a clear understanding.

My understanding is that the SSC of the council has offered up some advice regarding the nature of the cuts we should have and that we will be looking at; not a large cut initially but a much less cut, two or three years of cuts, I think. Toni, has perhaps more insight into this. It is not as bad as it could be but it is bad and frankly it is embarrassing for all us, I suspect, because as already indicated there will be great uncertainty and concern.

Even though there have perhaps been some environmental effects and poor recruitment or below average recruitment in the last few years, that doesn't provide an understanding of why certainly all of the data going back in time have been adjusted so that we're no longer rebuilt and going down. We've never been rebuilt.

At least an explanation I guess has already been provided as noted by the executive director of the Mid-Atlantic Council. I haven't seen that announcement yet. It is as bad as it is going to be, but it is still not good. If you could turn to Toni, Mr. Chairman, she may have some additional insight into that.

MS. KERNS: I don't have all the percentages off the top of my head, David; but I can say that originally when the assessment update came out this early summer, it indicated that we would need a 43 percent reduction. That is what originally went to the SSC. The SSC is the scientific body, for those of you that don't know, that look at the – to give recommendations to the council and commission on an ABC.

The council staff put together a memo that looked at an alternative way to get at the necessary reductions that came out of the assessment update, and that was to spread those reductions over a three-year time period. Relative to 2015, next year, the first reduction would be around 28 or 29 percent and then in the following two years there would be two more additional reductions that are also in the twenties.

I don't know the exact numbers off the top of my head; but the 20 percent is relative to the 2015

allocation. The SSC looked at that staff memo and found that it can work. To my understanding, the GARFO staff office said that falls within the purview of Magnuson and what the council can work with; and so that is the recommendation that is being put forward to council staff. I also believe that there has been a recommendation to do another assessment update for the upcoming year so we would get fresh and new information for the 2017 fishery in 2016.

CHAIRMAN DANIEL: Is that helpful and is there more information that we think we can provide to the public or to address Eric's concerns?

MS. KERNS: The meeting materials for the Mid-Atlantic Council has the SSC documents, the Monitoring Committee documents, the assessment update, staff memos. All of that information, just like we do our meeting materials, they provide the same meeting materials. Those meeting materials should have been provided to the Summer Flounder, Scup and Black Sea Bass Board for folks to review. That is available to the public for them to have as well.

We do try to put out a press release after the meeting to explain what happened and why it happened. We have in the past put together white papers with fact sheets to explain different things that are going on in the Summer Flounder, Scup, and Black Sea Bass Fishery when things have been difficult to comprehend and understand. I just tried to open up that white paper that the council put out and I can't get it open; but we'll look at that and see if there is something similar that we can put out on the website as well.

MR. GILMORE: Toni, I'm not sure if it is in the materials, but the Most Frequently Asked Questions we're getting and that most of the public doesn't understand is that the SSC sets the ABC and they're bound by Magnuson; so there are a lot of questions about, well, we're not going to like stand for this, correct? I said, No, it is based in federal law; so once they set that, the council really can't adjust that. If we could have a little bit – if they're not in there already – some description about the legal requirements under this; because nothing is going to change next week at this meeting other there is going to be a lot of unhappy people.

CHAIRMAN DANIEL: I hear that; a lot of unhappy people. Tom.

MR. FOTE: And that brings up a bigger question is that we're going to a meeting which we have really

no choice in doing anything but rubber stamping with the SSC; and that is the way it has gone on since the SSC was put in charge and basically the rules were set in talking about it. So, really, why are we having this meeting especially on summer flounder?

Maybe black sea bass and scup we can have some discussion; but if we're stuck with a quota, we're going up there just to rubber stamp whatever has been done. A couple of years ago because we got so up upset, we actually voted against the SSC; and, of course, the federal government decided that they would shut the EEZ down if we did that for commercial and recreational fishing; and we basically reversed the vote. We said that we would set a separate quota.

Now that's probably not going to happen to us again because again with the fear of shutting down the EEZ, how it affects both the commercial and the recreational fishing industry because a lot of it takes place in the EEZ, there would be a lot of concern on doing that. We're spending all this time, effort and money to go to a meeting on summer flounder, which has already been set, which the rules are already in there, and we're not going to be able to appeal any of that at this meeting.

I'm trying to figure out why we're going to this meeting. I mean if it is a conclusion that is already established, I don't feel comfortable. I mean we could basically vote no confidence of what you're doing, and that would be interesting to see what happens; but just for me to go up and rubber stamp what the SSC did, I don't feel comfortable doing that. We have been doing that for the last five or ten years.

MS. KERNS: The only thing I can provide, Tom, is that it is a jointly managed species so we do in every effort try to work collaboratively with the council through the process in working with them. That said, if the board is not in agreement, they can try to suspend the rules with the council. That takes concurrent votes from both the council and the board to suspend the rules that we work in conjunction with each other, so having like motions.

If you can suspend the rules, then the board can provide their own motions unique to the commission. That does pose issues down the line where state waters will have different quotas and measures than federal waters; and if a person has a federal permit, then they are bound by those federal water measures regardless of where they're fishing. In the past the board steered away from suspending the rules and to continue in their effort to work collaboratively with

the council through the process that we're under with these jointly managed species.

MR. FOTE: Yes; but how likely is the Mid-Atlantic Council going to basically vote to suspend the rules because all they have to do is vote no and we're stuck again. I mean you're talking about a true Catch-22 and this is ridiculous. I've been complaining about this for a long time. Winter flounder, we go our separate ways.

They did just the opposite on winter flounder when they opened up the EEZ for 5,000 pound trip limits; and now with summer flounder, we're going the opposite direction than I think a lot of us sitting around this table feel like that we should be doing, and we have no control over it. I'm not happy with the way the plans are jointly managed. I've asked to put that under discussion. You're going to probably tell me we need to push that up to the executive committee, but we really need to do something about this because it is not working.

Again, I don't know if we have to put this in the document; but I really want to see a list of the quotas that we started with from '96 on; because to tell me that this stock is that big and we're going to a 16 – because that is what the new proposal is under the 29 percent reduction. I think it was at the SSC meeting; it is going to be about 17 million pounds.

That is unacceptable with this size of stock. The strain we're going to put on both commercial and recreational sectors – I mean, probably if they had said 43 percent, they would probably have said shut the EEZ down because we'll fish in state waters and catch whatever quota we have because we're doing this and we're upset on it.

Now they gave us a little taste at 29 percent, so, oh, we're only going to reduce you by 29 percent; and the frustration at 29 percent is huge. Also, some of this is MRIP data that we look at and problems. I can just look at the number of trips in the Mid-Atlantic Region, if you can trust MRIP, that we're down a total of 8 million trips just from 2007. In 2013 we had 900,000 less summer flounder trips and we caught more fish than the year before. It just doesn't make any sense.

DR. PIERCE: Tom is giving us a preview of what he is going to say next week and others will repeat what he just said. He makes many good points; they're very valid points. As board chair I'm going to be asking the states in particular at the meeting to offer up some opinions regarding the extent to which we as

contributing states, the degree to which we can reduce management uncertainty; because if we can come up some compelling arguments that there are some things the states can do to reduce management uncertainty, then that will put the National Marine Fisheries Service, I suspect, and the council in a far better position to justify cuts that are not as severe.

Obviously if we reduce the quotas to account for management uncertainty, this has always been an issue and now I think it has become an even more important issue; so it will be up to us as states to try to make some convincing arguments; and if we can't, then I suspect we will be going down to do the will of the council. Of course, many state members here are members of the council. We have dual hats.

CHAIRMAN DANIEL: It is a tough gig. It is going to be particularly difficult for – you know, in North Carolina we're dealing with a southern flounder/summer flounder issue, too, and we're looking at the potential of even further lowering our size limit on southern flounder to try to harvest more male fish.

We're not harvesting any male southern flounder and so it is going to put our state in a very difficult position if they come back with increasing size limits or however we end up with disparate management actions in inside waters versus ocean waters. It is just a taste of our discussion for next week, I guess. Last word on this issue, Tom.

MR. FOTE: Yes; I mean if you look at what we're doing on summer flounder is that we're harvesting all the females. We're not harvesting males either because we raised the size limit; and that has been a lot of consternation by the community that says by raising the size limits; because the only thing we're going to be doing at a 29 percent reduction is we're going to have raise limits and cut seasons; and so we're going to fish on more females and less males. We're doing the same thing on summer flounder as you're doing with southern flounder.

CHAIRMAN DANIEL: It is going to be a mess. All right, any other burning words on something other than summer flounder for this report? Bill.

MR. WILLIAM J. GOLDSBOROUGH: Mr. Chairman, just an observation and maybe a note to file away for maybe next time we evaluate these criteria; and that is they struck me as being pretty much single-species oriented; what is the status of sustainability trends for that one population. Maybe that doesn't capture the complete picture for certain

species for which we have identified broader ecological roles.

As we come to grips with those roles – and I know that is a challenging thing we've spent a lot of time on and hopefully we'll make progress on in the future – perhaps those components can be incorporated into our stock evaluations as well.

CHAIRMAN DANIEL: With that, Toni has indicated that it is her opinion that the discussion that we had related to summer flounder handles Agenda Item 8 unless there is other discussion; so think about that before we get to that item. If you feel we've had a good discussion that issue and if not, we will take it up. With that, I'm going to move to Mark Robson to review and consider the Law Enforcement Committee Enforceability Guidelines.

CONSIDER LEC ENFORCEABILITY GUIDELINES

MR. MARK ROBSON: I've been asked to present you with a revised enforceability guidelines document that the Law Enforcement Committee has prepared for your consideration. To give you a little bit of background, the charge to the Law Enforcement Committee in this regard – I wasn't here in 2009, but the original guidelines, which are called "Guidelines for Resource Managers on the Enforceability of Fishery Management Measures"; that document was prepared in 2009 with the help of you, the members of the commission and the staff and also the Law Enforcement Committee.

They were designed to provide you with enforcement advice and some guidance information in designing and crafting various management plans and management options for fisheries. They included some pretty general enforcement precepts; and also through a ranking or rating survey that was done at the time of the Law Enforcement Committee provided some ratings for various management strategies that you might employ, things like bag limits or closed areas.

We were asked in 2015, through the direction of the commission's action plan for that year, to take a look at that document and provide any updates or revisions as needed. We were able to do that and that new revision has been provided to you today. I believe it is in the briefing documents. We here today to kind of review that with you in general and also to seek your direction or any approval you have of that revised document.

To give you just a real brief background, the Law Enforcement Committee reviewed the original document. We went through it and made some edits, updates and changes at one of our meetings. After that, we had a re-survey or reranking process that we went through online with LEC members where we reranked the management strategies and then revised and changed the presentation of that as sort of a matrix table of the ranking of those various management options.

I'll show that to you later. After that survey was done, we incorporated that new matrix table into the revision. We also took a look at a very similar document that had been prepared after our 2009 enforceability guidelines that was prepared by the U.S. Coast Guard and some of the other federal partners. They had some additional material that we incorporated into our revision.

Very quickly, the guidelines' format that we employed now in this revision, if you'll look at the document you'll find three basic sections. The first one is sort of a general outline of the enforcement precepts that we often bring to you or talk about when we're discussing management strategies and their enforceability.

Those general precepts lay out in terms of what we consider the need for simplicity, consistency, stability, effectiveness and safety of management regulations or management options that are employed. You can walk through that and see some general ideas about how those things can apply to your thinking when you're developing management options as regards their enforceability.

The second section is a simple presentation of that matrix table, which again I'll get to here in a second – you can just take a look at it, but it is in the document – which lays out from that survey result the overall enforceability ratings that we give to the various management strategies that were looked at.

We also break down those strategies in terms of their ratings by an overall numerical score and then more or less a qualitative score of yes, no, neutral on a particular management option for dockside enforcement, at-sea enforcement and also for airborne enforcement considerations. Then the third section is a more detailed sort of run-through or listing of various management options that we looked at in the document and provides that overall rating for each of those strategies with some additional more specific recommendations that could enhance enforceability of a particular management strategy.

I wasn't able to blow the size of this very well, but it is in the document. On the left you can see this is the revised ranking matrix that we came up with in our survey. On the left is a list of the management strategies or options that we took a look at. There is an average numerical score. Then you can see kind of a red, green, yellow approach to evaluating the enforceability of those various management options. Again, this is in your document. With that, that concludes my general overview of this report. Toni, we certainly would welcome any comments or suggestions for changes or any concerns that you might have about this revision. We seek your guidance and direction. Thank you.

CHAIRMAN DANIEL: Thank you, Mark. It would probably be good to have that table back up on the screen, if we can get it up there. Tom

MR. FOTE: As most of you here remember Rob Winkle that was Chief of Law Enforcement of the New Jersey, Rob's big concern was always – I'm looking at Page 9, right at the top; but it talks about how fish should remain intact and basically states how fish, if you fillet them at sea, that you need skins and things like that.

Rob's concern was that a lot of states had not done that. Without doing that enforcement, once you fillet a fish and you don't keep the skin and the rack and bring it in, how do basically make sure that it has basically been done. Rob asked me the same question every time I see him until this day when are we going to straighten this out. I wonder if we have surveyed all the states and looked at their filleting regulations, whether it is striped bass or summer flounder, to make sure that the fillet size are what should be done on summer flounder.

I know in New Jersey if you're allowed to have filleting at sea, you have to bring in the racks. That's only really on partyboats; it might be on charterboats now, I don't remember. You basically still need the racks to bring it in; and you've got to dump those racks before you make the next trip so you have the racks, and it has got to correspond to the number of fillets.

I would like to know how many states do that because that's the only way you can reinforce what is going on with the size limits. If you don't have that, then according to him, who was chief of law enforcement, you really don't have an actual enforceable law. I have never seen a survey done of all the states to actually where they're filleting laws at sea are on the recreational sector. I would like to

see that report when we get a chance; so I can have Rob stop yelling at me every time he sees me.

CHAIRMAN DANIEL: Well, I'm not so worried about Rob yelling at you; but it is an interesting – and this just shows my ignorance; I didn't know that we allowed that anywhere. I mean, in North Carolina that's considered a mutilated finfish if you don't bring it in intact. Anything with a size limit has to be landed whole. That's a surprise to me.

MR. FOTE: Some states don't do that.

CHAIRMAN DANIEL: That's interesting is the best way I can put that. I would imagine that would be very difficult. Are we wanting to look at all commission species; is this something that the Policy Board wants to look at? This kind of hits me by surprise.

MR. FOTE: My suggestion is to turn it back to the Law Enforcement Committee and ask them to survey each state where they are about their filleting laws at sea; and then we can look at this and see if it is a problem.

CHAIRMAN DANIEL: I think that is a good suggestion to the Law Enforcement Committee if there is no objection from the board. So ordered; good point. Any further direction or comments to the Law Enforcement Committee and specifically Mark Robson? This is an action item so we will need to approve this guidelines' document. Mr. Clark.

MR. JOHN CLARK: Mark, thank you for the report. I was just curious; I didn't see under here whether the Law Enforcement Committee had taken any opinion as to when would be the best time to tag a fish in those fisheries that require the fish to be tagged that are landed such as striped bass. I mean while they're at sea, while they're landed, at a dealer; was there any opinion offered on that?

MR. ROBSON: I will have to review the document to see if that's addressed. I know in the past, particularly when we were discussing the Striped Bass Tagging Program the recommendation was that the fish should be tagged as soon after harvest as possible; and so I think that would probably be the recommendation in such a guideline as this.

CHAIRMAN DANIEL: Yes, before landing or you could run into some problems, I would think.

MR. WHITE: Excellent report. I'd just like to suggest – I'm sure staff is going to take law

enforcement's comments about conservation equivalency in their preparation of the white paper they're working on, so I just would make sure that happens. Thank you.

CHAIRMAN DANIEL: Are there any specific changes or modifications to this document? If not, I would accept a motion to approve the enforceability guidelines. Tom.

MR. FOTE: So moved.

CHAIRMAN DANIEL: Motion by Mr. Fote; second by Loren Lustig. Is there any further discussion on the guidelines? Mr. Abbott.

MR. DENNIS ABBOTT: It is a very good document and I appreciate the efforts. There is truly a lot of information in there; but following our acceptance of it, what are we going to do with it? Are we going to incorporate this in some way into our fisheries' management plans; that as we prepare them that we would not forward – we do forward the plan to law enforcement, but have them review it against the matrix and give us an indication or an overall indication of the enforceability of the management plan?

CHAIRMAN DANIEL: I think it is what it is. It is a guidance document that folks could use to say you don't feel that this is an enforceable action or it is not as enforceable as another option and it would be used in your argument for a certain management measure over another, I would think.

MR. ABBOTT: It would be helpful if we had a definite position from the Law Enforcement Committee on every issue that we're dealing with.

MS. KERNS: Dennis, I don't think this precludes getting law enforcement recommendations at board meetings. I think there is two ways that this document gets used. One, as Louis just said, as you're building your arguments, if you don't have a law enforcement recommendation yet or the committee wasn't tasked to look at something, you can go and look to see, oh, well, this seems to be in general more enforceable because of what it says in the guidelines.

Secondly, sometimes technical committees will discuss certain things and enforceability can come up. If the committee hasn't talked about something, the staff could say, well, this is their general guideline on this type of issue and they can use the guidelines that way.

MR. ROBSON: I think what we can do as the Law Enforcement Committee; we try to make sure we work with staff to coordinate any comments on any particular commission action that is coming up. One of the benefits of this document is to hopefully use it in earlier stages of a plan or amendment development or addenda development so that you can kind of get an advanced idea of what might work and what might not work really well as far as enforceability.

I think what we can do now with this revised document is make sure that when we look at various issues for the commission; that we ourselves, as a committee, go back and look at the guidelines' document; and when we do come back to you with recommendations, we very clearly point out where in this document or where in these enforceability ratings a particular management option stands and how strongly we might feel about the enforceability based on that document. There are always, as you deal with in your own deliberations, even in enforcement sometimes there is not a real black and white answer for what is enforceable and what is not.

It may depend a little bit on the condition of the fishery or the species or the location. We might say something is particularly unenforceable in the document or not as enforceable as some other option; but that may be mitigated somewhat by the fishery or the circumstance. I think what we need to do as a committee is also use this document and when we come back we point out specifically in the ratings or the rankings where a particular management stands.

MR. ABBOTT: Thank you; that is what I was wanting to hear.

MR. WHITE: To follow up on that, I think a board, when we're creating a PID, I think a board could look at adding that to options in the PID; so we get one fish 28 inches; is that red, green or yellow law enforcement if a board chose. That's something clearly I think we can think about going forward.

CHAIRMAN DANIEL: All good comments. I had one issue with the document; and I may be the only one looking at it this way; so if I am, just tell me. I would hate for somebody to look at this table and conclude that airborne is not important, because it is critically important. That would be my only concern. I think if maybe there could be some statement in there that indicates the critical nature of enforcing shellfish closures, EPA requires certain things, to make sure it is very clear in the document how important air support is.

MR. ROBSON: That is a very good point, Mr. Chairman, and it was pretty surprising to see how that stood out in the matrix. You're absolutely right; it doesn't imply that airborne enforcement is not effective or valuable because a couple of members pointed out there are certain kinds of management activities it is essential to have airborne coverage particularly with closed areas and things like that. I think what we need to do is make that point, and we'll make sure we add that to the document.

MR. ROY MILLER: Mr. Chairman, I would just add to the comments already made that this is potentially a very useful document. As we consider future deliberations, if Mark would bring it with him or remind us of its content and we could refer to it regularly, it would be helpful rather than a one-time exposure and trying to remember what it said. I would like to see this used regularly for our purposes in deciding on management measures. Thank you.

CHAIRMAN DANIEL: I think there are ways that we can do that so we have an LEC rating under each management option that is consistent with the table might be helpful.

MR. ROBSON: One point along those lines – it mentions it in the document, too, but this we consider somewhat of a living document; so at any point we can do a reranking or resurvey to include the latest thinking about how these different management options work out. I think we constantly want to be looking at those enforceability issues as things change like technology and so forth.

MR. GROUT: I assume if we approve this that this will go up on the website under our guidance documents and maybe we could include it with each meeting. In the meeting announcement we always put a series of guidance documents with links to them. We can include this so that we can all have access to it throughout the meeting.

MS. KERNS: We will get Tina to add that, too.

CHAIRMAN DANIEL: It will be done if it is approved. Any other comments on the motion on the floor, and I will read that: move to approve the LEC Enforceability Guidelines. Motion by Mr. Fote; second by Mr. Lustig. Further discussion? Any objection? Seeing none; the motion carries unanimously. Thank you, Mark; good piece of work. Next Katie is going to go over stock assessment updates on weakfish and sturgeon.

**STOCK ASSESSMENT UPDATES FOR WEAKFISH
AND ATLANTIC STURGEON**

DR. KATIE DREW: I know you're all excited to hear this. Weakfish had its assessment meeting last week, and we were scheduled for a November peer review through ASMFC's external process. At the assessment meeting we decided that the data gathering and finalization was not as far along as we would have liked although we're satisfied with where the models are in terms of model development and choice.

We are going to recommend that it actually be peer reviewed in January, which would give us additional time to complete the model runs and to finish writing the document. That will put us a few months back of where we were originally scheduled, but not a huge delay.

CHAIRMAN DANIEL: I was actually very excited to hear your report on the weakfish stock assessment because I'm anxious to see what happens with that thing. Any comments or questions about the schedule for weakfish? It sounds like we will have a January peer review; so we will have it in our winter – no?

MS. KERNS: Depending on the timing of the peer review, the peer reviews have – I believe we give them three weeks to get the report back to us. It is highly likely that we would have it at the February meeting; definitely at the May meeting. We can do our best to see if we could do February, but –

CHAIRMAN DANIEL: Yes; maybe if we could have February, that would be great, but understand some of that is beyond our control. Robert.

MR. ROBERT H. BOYLES, JR.: Mr. Chairman, I just wanted to echo your enthusiasm to see the results of the stock assessment. Those of us in the southern range are waiting with baited hooks.

CHAIRMAN DANIEL: Because they're everywhere, man, we can't get away from them. All right, sturgeon, is that good news, too?

DR. DREW: Sturgeon continues apace. We've worked with NOAA and they've agreed to dedicate some of their Northeast Fisheries Science Center scientists' time to working with the technical committee to develop bycatch estimates up through the most years of data from their data source.

In addition, we have also started reaching out to the owners of acoustic tags up and down the Atlantic coast in order to get their data, which we think is going to be a great source of information for the stock assessment. Obviously it is a huge network spread out through a lot of different people and it is a ton of data to actually work with; so hopefully we can get that started and get hold of that of information for the assessment.

CHAIRMAN DANIEL: I'm just sorry John Bullard is not here for this discussion. How are they using – if they are using it; how are they using our observer coverage information? We've got a very detailed time series or developing a time series of good observer coverage information for sturgeon in North Carolina.

DR. DREW: Absolutely; and North Carolina's data is definitely also being analyzed. We actually have Laura Lee from North Carolina who is doing a lot of the analysis on that; so she is leading the development of our own methods to analyze the bycatch data. Obviously North Carolina's data is very detailed, but it is a more limited spatial scale.

I think we're trying to figure out how to incorporate that more detailed information with a limited spatial scale into the larger, more broad coverage of the Northeast Fisheries Science Center observer data, which has a lower sample size and is less detailed than the North Carolina data; but they're both definitely used to complement each other in these analyses.

CHAIRMAN DANIEL: Good. Anything else on sturgeon? Thank you very much. Is there interest in continuing to discuss implications of jointly – David.

**DISCUSSION OF IMPLICATIONS OF JOINTLY
MANAGED ASMFC SPECIES**

MR. SIMPSON: Absolutely. Tom pretty well summarized the frustration that you feel as a commission member going to a joint meeting with the Mid-Atlantic Council when they hold all the cards. We're required to do what the SSC says and so forth. It is not at all that I don't appreciate and value the strength of Magnuson behind our plans.

I know I looked at the stock assessment summary as we were talking for summer flounder; and I don't think as the commission we would be in panic mode, in severe reaction mode, I will say. The F estimate is within the tolerance range. The biomass has declined a little bit, but still in the happy face zone. We would

probably make a little adjustment, corrective action, but not cause widespread panic.

I think what we've learned over the last few years in this partnership is that – and I've said it a number of times – the commission is a whole lot more nimble in implementing change; and the Mid-Atlantic Council has come to rely on the commission to actually handle the recreational fishery.

You guys do it, you know; we can't wait until May of the fishing year to know what we're doing. I'm hoping that in time we can move to something that is more like complementary management. I understand under Magnuson that they're set the bottom line for the quota and things like that; but how do we deal with it? I think the commission – if the relationship were different, complementary rather than joint, I think we could be more effective in addressing some of these issues and not frankly wasting time at an August and a December meeting when the information isn't available or we have no choice.

We'll go down in August and we'll hear what the quota is, you're right, and we'll go home. That's what we'll do; and in December – I've called them the crop reports from Toni for a number of years now where we're waiting for Wave 4 to come in. So you prepare for two weeks for a meeting, this is my strategy going in, this is what I think the problem is, and then you arrive and you meet Toni in the lobby and she tells you the numbers have changed completely and here is the new picture and here is what the Mid-Atlantic Council going to do.

It is a very frustrating process for everyone. The commission actually handles the recreational fishery. We stand around all day long and we talk about, okay, we'll do conservation equivalency, the states will go deal with it, and the commission takes care of it very effectively in February. It is not only a waste of time; but that complementary relationship, if we could move to that, would be I think a great time-saver and much more effective in the end.

Then finally is the big one, the allocation question. How on earth can we ever expect to get a real discussion of allocation going if half the affected parties don't have a voice? Louis is a charitable guy, but I don't think he would have his job very long if on his own he met other states' needs under the current structure.

Unless the National Marine Fisheries Service comes in – as I said to Kelly, unless mom and dad come in and tell the kids to get along better and share their

toys better, it is not going to happen. The summer flounder assessment I think is a good example. I think there were real things going on in that fishery that are causing the problem we have.

Here is another thing; Jim is on the Mid-Atlantic Council so he gets a letter. I'm still in the dark except that he shared it, right. Everyone north of New York is in the dark as far as what is going to happen next week. He is apparently attributing some of the problem, the retrospective pattern to illegal harvest, which I have no doubt is occurring.

I think we helped to partially correct that by getting rid of RSA. I think it is widely perceived, for good reason, that 3 percent RSA got caught several times during its tenure. That was just a license to cheat; and with that gone away at least for now, I think that helps. The other thing is dead discards; how can we address that in our current structure?

I think the commission could – and in this respect we need to work with the Mid; but with current trip limits – I mentioned during the executive committee on black sea bass, our commercial trip limit for black sea bass this summer was ten fish. That's our commercial limit. We're out of fish; we had to close on July 30th. That's an allocation issue. We're overrun by black sea bass, which is great but frustrating at the same time.

More importantly, almost, on summer flounder is dead discards. We have a fleet of boats that have access to very large landing limits that travel two or three hundred miles up the coast to fish and take several thousand pound limits and go back home. Our boats go out for their hundred pounds and in two hours have caught five hundred to a thousand pounds; so four hundred to nine hundred pounds go over dead; and they land their hundred pounds because they're picking up some other things.

Now, very, very small boats will quit at a hundred pounds and go home; a 25-foot boat will; but a 50-foot boat is not or an 80-foot boat is not. These are fundamental problems that aren't getting addressed because of our joint management structure and not fully coming to terms with the issues that we could be dealing with. I've said any number of times I think is the best venue we have.

The Grand Experiment I think, as Robert referred to the commission – Grand Experiment in Federalism – you always say things better than I do; but I thought he is exactly right. This is the one place you can come state to state and talk about how do we solve

common problems. Through the council process it is much more political; it is much more – it is just a much more difficult arena to get a desirable outcome.

I've said to people I don't think there is a better example than red snapper in the Gulf of Mexico where the Gulf Council made up of the five states that share the Gulf resource could all say this is a lousy plan, we reject it, we want authority. That's the difference between a council process and the commission process.

We're not going to solve it today, I know, but I do think we need to revisit this relationship with the Mid-Atlantic Council. I think we're trying to find our way with New England where we overlap. There are frustrations there, too, but at the end of the day the federal system holds all the cards in terms of quotas; and we're not taking enough advantage of what this body can do in terms of fairness and equity, in terms of flexibility to move more quickly and more effectively in management.

I hope we don't lose this idea of refining how we do things, refining the relationship and, yes, as a state that is not the Mid-Atlantic Council hoping that there will be a day when we have more opportunity to speak at an equal level, with equal ability to influence outcomes. Again, in the council process, I don't know if Dewey is still a member of the council from North Carolina, but I just take him as an individual that seems like a great guy, knowledgeable, but he is a commercial fisherman for North Carolina.

How could he ever vote for something that – even in his heart he knew was right, how could he vote for something that would take away from his state? He wouldn't be able to go back home again. That's the difference with the commission process versus the council. I do think we need to make some movement.

It may be this experience on summer flounder that helps that; because I think a great example is summer flounder. We're losing these fish, these missing fish that is causing a retrospective pattern. It is dead discards and sea sampling; it is probably some cheating; it is things that we can deal with better as a commission.

MR. FOTE: I think part of the problem is when we look at the federal-managed species on the east coast, one of the most information fisheries that we have is summer flounder. NMFS started that to me going back to Bill Hogarth when we put all these studies together back in nineties. We have more information

on summer flounder than we have on any other species; and yet when it comes to risk assessment, which the council puts in their management plan and then the SSC compounds that, we're putting it on a Tier 3, which means we get very precautionary along every move of the way and which we start reducing the quota.

That is not something that we discuss with the Mid-Atlantic Council when it comes towards a risk assessment move. That is basically what is happening with black sea bass, summer flounder and scup when it comes to the quotas because it is all three. The other problem with black sea bass is we are really still using the same biological information that we had in '94 with a few tweaks. What we really have done is now they're looking at a new model, which I applaud, to handle the bad information. That's all we've done for the last ten years is look at models that we handled bad information and try to get better models to do that instead of getting better information.

I think my other concern here is we have gone to a point – you know, when striped bass really worked in the nineties in the recreational sector is because they had trust in the system and rebuilding the stocks. That still goes on. There might have been discussion whether we vote one fish, two fish, whether we need a reduction or not; but the recreational anglers trusted the system.

That's how you get law enforcement. When the recreational anglers no longer basically trust the system, figures that are just going to get screwed – let's put it simpler – nobody what they do and nobody cares, then they're going to start breaking the law. I used to be invited on a lot of boats to go fishing; and these guys don't invite me anymore because they want me to be on the boat when they basically do things that are not on the up and up.

That's a shame because these people were conservation minded. They respect me enough to say, "Tom, you can't go on my trips anymore," and that's a shame. I'm sitting there, well, we've got to follow the rules, but you know what is going to happen. We're forcing people to basically feel like they have to poach when they go through 30 summer flounder to try to get a keeper.

That's my real concern; when we lose that; because then we're going to have all this mortality in there because once that breaks down in the recreational sector – unlike the commercial where you could basically do dockside landings, you're going to

enforce it there, a lot of what happens – we’ve got, what, eleven marine officers in New Jersey to basically enforce the laws in the whole state. You can’t basically supervise 1.3 million anglers with eight law enforcement.

It is mainly trusting the system, believe in what you’re doing, and it is peer pressure. I mean, a person walked off the jetty in Island Beach State Park with 23 tautog; and there was calls made immediately to law enforcement so when they got off the jetty and they started walking out of the beach, they got nailed immediately. If that was summer flounder, there wouldn’t have been that call and that is my concern when we really look at this. Then the law has become a joke.

CHAIRMAN DANIEL: Well, I had hoped that we wouldn’t get into this conversation because it makes my blood pressure go up. There is a different perspective here, Dave, and you gave a very good call for the issues that you have in the Mid-Atlantic with summer flounder. I don’t disagree with you; and it is so frustrating.

Where it is equally frustrating is where we don’t have any joint plans and have absolutely no say in the South Atlantic. I made an effort years ago to try to get something done with snapper grouper; and the council folks freaked out about that possibility. There is a lot of snapper grouper complex species that should be managed with a joint plan with the commission, in my opinion, but we can’t get it.

Then we get a decision that smooth dogfish are a highly migratory species from NMFS. The whole process is so inconsistent between how the Mid-Atlantic works, how the South Atlantic works, how HMS works, how they treat us, how they consider our comments, all these things. Thinking about it, that is really what we should have been talking to John Bullard about on Monday morning as raising these concerns maybe instead of talking some of the periphery stuff we talked about.

It is not that it was very valid, but these problems – you know, we had Roy on the phone; we had John on the phone. You couldn’t have two more different management strategies and styles that create all these concerns and problems, especially for states with overlapping jurisdictions. There are a few of us.

We sit on the Mid and the South Atlantic; totally different animals; but they’re the same agency. What is going to happen with sharks? We talked about that some at the state directors’ meetings, too. You saw

the table up here that had all these charts that hadn’t been assessed for some ten years and still listed as unknown; and we’re overrun with them.

We’ve got charterboats coming back with 40, 50 yellowfin tuna heads; can’t get a live fish to the boat for the dusky sharks that are supposedly not going to be rebuilt until 2700 or something, you know. We can’t seem to get that level of connection with our federal partners on this; and it is a major, major issue.

I really hope that this summer flounder issue will result in some positive change in all this; but I don’t have a whole lot of positive – I don’t have a good feeling about it not as long as the federal side is calling all the shots. Yes, Emerson.

MR. EMERSON C. HASBROUCK, JR.: Mr. Chairman, relative to the discussion of summer flounder and interaction with the councils, I would just like the Summer Flounder Board to realize there is going to be an impact from the New England Council and maybe some of the people around this table who also sit on the New England Council can provide more information.

The summer flounder fishery is likely to be severely impacted and in fact shut down by the sub-ACLs and the associated accountability measures that are set up for windowpane flounder. If the windowpane flounder meets its – and I’m not sure if it is the overall ACL or the sub-ACLs – the summer flounder fishery off New Jersey, New York and Rhode Island is going to be closed. We have no interaction on that issue at all.

CHAIRMAN DANIEL: Maybe this is a good topic for our next state directors’ meetings with our regional directors. I don’t know if John is planning to come to Ft. Lauderdale. We’ve already talked about getting together with Roy and Bonnie at the South Atlantic Board at the annual meeting. Perhaps we could expand that. I think it is a very important topic and clearly some folks are very passionate about it. Anything else on joint management? All right, the Atlantic Coastal Fish Habitat Partnership Report from Ms. Havel.

ATLANTIC COASTAL FISH HABITAT PARTNERSHIP REPORT

DR. LISA HAVEL: Just a brief update since the spring meeting. We received feedback from the U.S. Fish and Wildlife on our 2015 accomplishment report; and we reached a Tier 2 out of three. This is based on the number of the U.S. Fish and Wildlife

goals that we accomplished. This is the highest level that was achieved by any of the partnerships; nine of nineteen partnerships in Tier 2.

This is the first year that we have reached a Tier 2. Prior to 2015 we were always in a Tier 1.

Based on these accomplishments, we were able to fund an extra project. The projects that we did fund for 2015 consisted of our ACFHP operation; a fish passage project in Patten Stream Maine; a dam-removal project in East Bridgewater, Massachusetts; a river enhancement project in Cape Fear Rive in North Carolina; and in total over \$160,000 went directly to on-the-ground restoration; and this is almost \$100,000 more than in 2014. This is because we reached that Tier 2 position.

We also put out a request for proposals for the 2016 fiscal year back on July 22nd. This announcement was shared via our Facebook Page, mailing list. It was e-mailed out to the partners, it was put up on our website. We shared it with the U.S. Fish and Wildlife Coastal Program; and then ASMFC also put it on their Twitter, Facebook and sent out a press release.

The deadline for proposals is on September 21, 2015; and we will be sharing with you during the annual meeting which proposals we will be recommending to the U.S. Fish and Wildlife Service for funding. That is it and I will take any questions.

CHAIRMAN DANIEL: Questions on our update? Seeing none; very good; thank you very much. Next, Max, if you will give us a review of the Horse Creek Aquafarms Sturgeon Transfer. I think this is just an informational item, too, but one we need to know about.

REVIEW HORSE CREEK AQUAFARMS STURGEON TRANSFER

MR. MAX APPELMAN: I'll be just reviewing a memo that went out in the meeting materials. Essentially the memo informed the board that in February of this year 6,837 pounds of Atlantic sturgeon was sold from La Paz – live Atlantic sturgeon was sold from La Paz Aquaculture Facilities in North Carolina to Horse Creek Aquafarms in Florida.

Originally these fish were from Canadian sources and were exported to La Paz in 2005 and 2006 in accordance with Addendums 2 and 3 of Amendment 1 to the Atlantic Sturgeon Fishery Management Plan. Also, to fulfill the requirements of Addendum I, Horse Creek Aquafarms received approval from the

Florida Department of Agriculture and Consumer Services, essentially certifying that they meet the best management practices and state aquaculture regulations to culture Atlantic sturgeon for the production of sale of meat and caviar.

That letter of approval is enclosed in the memo. Also a bill of sale from La Paz to Horse Creek is included in the original certificate of non-indigenous origin that accompanied the sale. Also with that completed sale, La Paz no longer possesses Atlantic sturgeon and has no plans to do so in the foreseeable future; and, lastly, that Horse Creek is currently developing a methodology to easily distinguish their caviar from wild-caught sources and will require board approval at that time. Thank you, Mr. Chair.

CHAIRMAN DANIEL: Questions.

REVIEW NON-COMPLIANCE FINDINGS

MS. KERNS: Mike, can you please put the eel motion up on the board?

CHAIRMAN DANIEL: Marty, are you going to make this as the vice-chair of the Eel Board?

MR. MARTIN GARY: I'll read the following non-compliance findings into the record for the American Eel Board: On behalf of the American Eel Management Board move that the ISFMP Policy Board recommend to the commission that the State of Delaware be found out of compliance for not fully and effectively implementing and enforcing Addendum III to the Fishery Management Plan for American Eel.

Delaware has not implemented the following regulations required by Addendum III: the nine-inch minimum size for yellow eel recreational and commercial fisheries; one-half by one-half inch minimum mesh size for yellow eel pots; allowance of four inch by four inch escape panel in pots of one inch by one inch mesh for 3 years (beginning on January 1, 2014); recreational 25 fish bag limit per day per angler; crew and captain involved in for-hire are exempt and allowed 50 fish bag limit per day.

The implementation of these regulations is necessary to achieve the conservation goals and objectives of the FMP to rebuild the depleted American eel stock. In order to come back into compliance the State of Delaware must implement all measures listed above as contained in Addendum III to the Fishery Management Plan for American Eel.

CHAIRMAN DANIEL: Thank you; and that motion does not need a second. Kelly.

MS. KELLY DENIT: Just a reminder to the board that there are a couple of components – and I appreciate the motion on the board that references the nexus with the conservation goals of the commission and would certainly appreciate hearing additional comments, if there are any, from the members of the board just to further inform the process as that is one of the two criteria that we have to hit as part of the non-compliance requirements. I appreciate hearing any further thoughts that the board had to offer on that conservation nexus.

MR. GROUT: Kelly, the goal of Addendum III is to reduce mortality across all life stages; and both in Addendum III and Addendum IV we addressed all life stages with management measures to try and address that goal. The specific measure to increase the minimum size to nine inches was intended to delay mortality and to increase escapement of yellow eels.

The change in the mesh size was necessary to ensure escapement of undersized eels to match this new nine-inch minimum size requirement. Clearly, the reduction in bag limit was intended to reduce mortality on the recreational fishery. I think all of these things were that all of these measures up here were intended to achieve our goal here and not having them implemented makes it so that our achievement of this goal is in jeopardy.

MR. LUSGIG: In regards to the motion just addressed by Marty, I did not hear a time frame for expectation of compliance. Perhaps I missed it, but is there a time frame? Thank you.

MR. GROUT: Well, clearly, I think we've been made aware that if we decide to forward this non-compliance finding to the secretary, our executive director has ten working days to submit the letter. The Secretary of Commerce has 30 days to make a decision on it; and then he has up to six months to implement the moratorium if the state of Delaware does not come into compliance.

My thought is that I think this should put in as soon as practicable. Clearly, if by some time – the beginning of the fishery in 2016 they have not accomplished this, I would hope that the Secretary of Commerce would take action.

MR. CLARK: Delaware has acknowledged that we're out of compliance on this. If in my description

of how we got there has sounded like I was assessing blame for why that happened; that was not my intent at all. I just would like some clarification.

There are two paths our legislature could take to address this; either address it prescriptively in the legislation, which could happen in January, or they could give us the regulatory authority. If that happened it would delay actually coming into compliance because then we would have to promulgate the regulations and go through that process. I would just like to know if we would be considered back into compliance whether the law was changed either way.

Like even though the regulatory process would still take several more months to bring us into full compliance with the plan, the fact that the law is changed and the department would immediately start the process to bring us into compliance, if that would be a finding of Delaware being back into compliance; or whether we really do need to have everything in place to be considered in compliance.

CHAIRMAN DANIEL: I believe you would need to have everything in place to come into compliance. I think January is your best bet, because there will be concerns if a fishery opens in Delaware in 2016 and you're not in compliance. If there is another opinion about that; but that would be my recommendation. Bob Ballou.

MR. BALLOU: Mr. Chairman, I'm just curious about the step that we're at right now. As I remember from our meeting on Tuesday morning when we were discussing this process; there are three levels of review. This is the second, as I understand it. The third would be the full commission. Would that happen at –

CHAIRMAN DANIEL: It is going to happen here in just a minute.

MR. BALLOU: And then related thereto is the opportunity for the state, in this case Delaware – and, John, I realize you're in an awkward position because this is more of a legislative issue than anything else to be able to respond, is it your sense that the powers that be, in this case the Delaware Legislature, is aware of what is happening here today? Again, that is the whole point here is to make sure that the folks who hold the reins – in this case I think it is your legislature – are aware of the implications of what is happening today. Thank you.

MR. CLARK: I believe they are. Craig, would you like to add anything to that?

MR. CRAIG D. PUGH: Yes, I can elaborate on that. I guess part of that would be to explain how we got to this position. Most of that came through the hearing processes at the beginning of this. I think it was 2013, at the first hearing the public was told that we were data poor on this issue 15 times. The socioeconomic data was asked for at the time, which is a charter requirement under the Interstate Fisheries Management Program Charter. They failed to bring that to bear.

The following year the same hearing was in process again with a different presenter. That presenter offered that we were data poor on this issue twice. The socioeconomic data was also asked for at that time. Some was actually presented from our Delaware State Housing Authority to help this along, to show that we can provide this type of information quickly and easily.

It was ignored. The response again was no response. It is not hard to show our legislators. If we're not going to follow the charter, there are some issues here and credibility becomes an issue with this body. Along the same lines, it would take probably less than a day to convince any legislator.

As it was brought to bear at the legislative level with Director Beal's letter saying that the U.S. Fish and Wildlife Service was willing to put these eels on the endangered species list, it would take less than a day to show any legislator in our state that was an inaccurate statement. With that, we lose more credibility; and that is the direction that we're heading here. It is serious. It is not just for this plan. It is with many other plans that are trying to be implemented.

When you bring part of the science and not all of the science to the public, it is kind of like you bring your lunch but you forgot your thermos. You eat your sandwich but you're left with a bad taste in your mouth. If these scientific requirements of socioeconomic data are required, we expect to see that especially in the future.

I know there has been some talk of that here lately. We appreciate that but in the past there has been none. These people that are represented by these legislators are quite impoverished. They've worked all their lives or recreated in the same areas all their lives in these places; and they expect some sort of

real representation and the legislators are willing to do that for these people.

As I said, we take this as a very serious matter in the state of Delaware today. The process as described yesterday was inaccurate and not correct as the legislature had two years to look at this. That is not necessarily true. The legislature had one day to look at it two years ago. It was brought to bear on the last evening of the session and it failed.

This year it was brought during the last week. It was brought not as what you see on the screen, in those terms. It was brought as a full regulatory process, which our people in our state are happy with the state process that we have now. In saying all this, understand what your requirements are stating on the screen can be met very early next year.

We're in agreement with that and that is not an issue. It will not be an issue and I'll make sure it is not an issue. With that, I'm a simple man with a simple plan; but if you have certain charter requirements that this board is supposed to present, then our people are going to require that. It is as simple as that. If it doesn't, then we're going to go through this again. Any questions?

We'll fix the problem and it will be – what you see up there will be a law in the state of Delaware. How you follow through; that's up to you. If you want to follow through further, I welcome the conversation with the Secretary of Commerce. I expect them and I said that to these people at the meeting at the Legislative Hall at the day they presented their bill. I welcome that. Thank you.

CHAIRMAN DANIEL: I've got Dave Simpson next.

MR. SIMPSON: I just wanted to make sure when I heard it read – and I'm looking at it here – I just wanted to make sure it was clear for Delaware and everyone that there is a three-year time period to implement the escape panel so they would have until 2017 on that element; is that right?

MS. KERNS: It would have to be in place for January 1, 2017.

MR. PUGH: I'm sorry, for us the legislative session will not begin until January. I don't know if we can get an allowance when they start early or not. I have to work through that. I could get back with you on that; but somewhere in January should be a possibility; January 1st, probably not.

Draft Proceedings of the ISFMP Policy Board Meeting August 2015

MS. KERNS: And that is just a mesh requirement, Dave.

MR. SIMPSON: Yes; and to be clear it is January of 2017; so that one piece, there is actually – they're not technically out of compliance on that yet was my point.

MS. KERNS: They don't have an escape panel at all. There is an allowance for the four by four and then it needs to move to the new panel; but they don't have anything right now.

EXECUTIVE DIRECTOR BEAL: David, the three-year allowance that is mentioned here in the motion and in Addendum III allows all the states to use – instead of modifying the entire trap to be one-half inch by one-half inch, they can use a four inch by four inch panel of that larger mesh. That allowance to use that four inch by four inch panel is in effect now through January 1, 2017; and after January 1, 2017, the entire pot has to be modified and made out of that half inch by half inch mesh. Delaware has not implemented a provision to implement the four by four escape panel or a modification to the entire trap.

MR. BRANDON MUFFLEY: Mr. Chairman, I guess my question is not specific to Addendum III but Doug had brought it up and mentioned Addendum IV where there are additional measures that I think already needed to be place. I was just wondering if we're going to go down this same road with Addendum IV.

Those needed to be in place I think January 1, 2015, Addendum IV which addressed the silver eel fishery. Addendum III was primarily the yellow eel fishery. Are those in place in Delaware, the Addendum IV measures for the silver eels in place where you had to close essentially your silver eel fisheries?

MR. CLARK: Brandon, we don't have any silver eel fishery. I mean in the terms of having weirs or anything like that, there is nothing like that in Delaware. The escape panel is kind of a moot point. Even though we don't have a mesh requirement currently in our law, nobody is using anything other than half by half in their trap; so I don't see that as a problem. In terms of silver eel, are you talking about actually putting into the law that we do not allow the harvest of silver eel? We have not done that, no. We could do that, though, to add it to the suite of changes to our law.

CHAIRMAN DANIEL: Did you have something else, John; I have you next.

MR. CLARK: I was just going to mention about the mesh; that it is not really an issue.

MR. WHITE: Mr. Chair, just to follow up what Bob was saying, so as of January 1 Delaware will not have the ability to have the escape panel. Their fishermen will have to go to the one-half inch mesh on the whole pot – January 1, 2017, excuse me.

MR. PUGH: Our fishermen are already at that point. It doesn't say it in the law, but the common practice on the commercial side is half by half and it has been for a number of years. That part is simple; it is easy. It is actually already done; it just doesn't say it in the law; but we can make that happen.

CHAIRMAN DANIEL: Any further discussion on the motion from the Eel Board? Do we need to caucus? If not, we will do a roll call vote.

MS. KERNS: Maine.

MAINE: Yes.

MS. KERNS: New Hampshire.

NEW HAMPSHIRE: Yes.

MS. KERNS: Massachusetts.

MASSACHUSETTS: Yes.

MS. KERNS: Rhode Island.

RHODE ISLAND: Yes.

MS. KERNS: Connecticut.

CONNECTICUT: Yes.

MS. KERNS: New York.

NEW YORK: Yes.

MS. KERNS: New Jersey.

NEW JERSEY: Yes.

MS. KERNS: Pennsylvania.

PENNSYLVANIA: Yes.

MS. KERNS: Delaware.

DELAWARE: Yes.

MS. KERNS: Maryland.

MARYLAND: Yes.

MS. KERNS: District of Columbia. (No response)
PRFC.

POTOMAC RIVER FISHERIES COMMISSION:
Yes.

MS. KERNS: Virginia.

VIRGINIA: Yes.

MS. KERNS: North Carolina.

NORTH CAROLINA: Yes.

MS. KERNS: South Carolina.

SOUTH CAROLINA: Yes.

MS. KERNS: Georgia.

GEORGIA: Yes.

MS. KERNS: Florida.

FLORIDA: Yes.

MS. KERNS: U.S. Fish and Wildlife Service.

U.S. FISH AND WILDLIFE SERVICE: Abstain.

MS. KERNS: National Marine Fisheries Service.

NATIONAL MARINE FISHERIES SERVICE:
Abstain.

CHAIRMAN DANIEL: The motion carries unanimously with two abstentions. Thank you very much. Dave.

MR. SIMPSON: I will have to confess then that I have misunderstood this requirement of the plan and Connecticut has not been in compliance with the escape panel or escape mesh. I don't know what current practice is; but at the time we did not have declaration authority to change mesh. I have a regulation package that contains this provision, and we will be moving to implement that as quickly as possible. I wanted the board to know that is one element that we're not in compliance with.

CHAIRMAN DANIEL: All right, seeing no motions to find Connecticut out of compliance, we will move on to Mr. Chu.

OTHER BUSINESS

MR. KEVIN CHU: I'm Kevin Chu from NOAA Fisheries in GARFO. I asked for a little bit of time to make sure that the commission was aware of the development in the Mid-Atlantic Regional Planning Body. The Mid-Atlantic RPB is considering taking up fishing as one of its topics to discuss ways to improve interjurisdictional collaboration.

For those of you who are not familiar with the Mid-Atlantic Regional Planning Body, it is one of I think nine different regions of the ocean where by executive statute or executive order the regions have been brought together with states and federal agencies and interested tribes to try to improve interjurisdictional collaboration to look for ways in which the states and the federal government can work more closely together. The goal is to streamline processes; the goal is to make the decision-making process more effective, more efficient.

The Mid-Atlantic Regional Planning Body in particular includes all the coastal states from New York down to Virginia. North Carolina was spared being part of the Mid-Atlantic Regional Planning Body. It contains all of the federal agencies like NOAA, of course, and the Bureau of Ocean Energy Management, the Department of Defense, Coast Guard, EPA, et cetera, and one recognized tribe at the moment. There is another one that was just recognized and not yet a member.

It is charged with developing a plan by the end of 2016 for improving collaboration across state and federal boundaries. It is in the process right now of developing topics that it will look into. These topics include relatively broad issues like national security, sand and gravel management, wind energy development, marine transportation and it also includes fisheries' management.

The RPB has identified four areas of fishing management that they think are important for their further discussion. They include coordination of management of fisheries, data collection, research on fisheries and several specific issue areas. I would like to read those issue areas to give you a flavor of the kinds of things that they are thinking that the RPB might want to get involved in. There are only three of them.

One is federal agencies to provide states with better integration and analysis of fishing effort and stock data to help states identify and articulate state interests in federally managed stocks. Second is to consider changes in the collection and analysis of fisheries' data in response to accelerated changes in climate, habitat and population dynamics. Third is to consider ways to improve understanding of recreational fishing industry.

Next week at the Mid-Atlantic Fishery Management Council – Mike Luisi is the representative for the Mid-Atlantic Council on the Mid-Atlantic Regional Planning Body. He is going to make a presentation there that may in fact be a better forum for states and federal agencies to discuss the ways to collaborate better on fisheries' management.

The purview of the Regional Planning Body goes from the coastline through state waters and federal waters; so it seemed appropriate to call the attention of this body to make sure that they are aware that there is sort of a higher-level group that is beginning to think about ways to improve fisheries' management. I will stop there if there are any questions.

MR. FOTE: I've been part of this process when Paul Sandifer was basically talking about it; me and Bruce Freeman and a number of others. One of the things we basically always said clearly is we didn't want this body to get involved in fisheries' management. We said we have councils, we have NOAA, we had everything else involved and we didn't need another body to do this.

At the time it was strongly by both the commercial and the recreational sector. In many areas there was a lot of concern that they would because of their concerns with basically looking at sometimes not in the best interest of fishermen. Sand mining right now; we're basically sand mining lumps off New Jersey basically used for beach replenishment; and we have been turned down. The fisheries' implications have not been put forward on this.

There is a lot of concern what I have and the people that have expressed to me over this, and not just from New Jersey – it was up and down the coast. The same thing with a lot of the environmental groups because they figured because they're widespread what they're doing. Again, we have lost out when we get to the table sitting with the ports. The Port of New York basically superseding the governors when it comes to what they need to be done. There was a lot of concern. There is still that same concern. I

haven't heard – I attended a workshop and presentation and basically did my thing about what is going on in Rhode Island, about the cooperative between the wind farming and everything.

It was very interesting and a very interesting film. I saw the second film which they put out, which was also very interesting. The public doesn't need another group that it has to go sit through to make sure they're not getting the short end of the stick. We have now the council, we have HMS and we have to go directly to NMFS; and then we have the Atlantic States Marine Fisheries Commission.

That was the concern of the commercial and the recreational sector that I had and heard when I attended those meetings. I will be looking at this very, very concerned, I would say. I'm just not sure that is the proper body or where the money is coming. If they had a pot of gold which they could basically spend on all this research, then I would probably welcome them in, but they don't have the money to do any of what they're going to suggest and we don't have the money. I'm not holding out a lot of hope.

MR. CLARK: Just to follow up on what Tom said there; I'm appointed to the RPB from Delaware. Because of kind of the ambiguity of the charge there, it does not have regulatory authority. It does not have any funds to spend; and yet it is all these different bureaucracies that have an interest in ocean efforts.

There is a lot of concern because we had the same thing happen in the Delaware hearings where many of our fishermen were there thinking that this was an effort to get marine protected areas out there. I think the overall push for all the bureaucracies to coordinate better on ocean policy is a good one; but it still has been generating a lot of concern among the public.

CHAIRMAN DANIEL: We will stay tuned; and thank you for the update, Kevin. Bob.

EXECUTIVE DIRECTOR BEAL: A couple of commissioners have come up and asked me about the eel compliance review and the timing of the next full compliance review. The state compliance reports are due September 1st; so in a couple weeks we'll get a full suite of those. The plan review team will look over all the states' measures and have a full report at the annual meeting. All the states will get a memo from Mike in the next couple days detailing exactly what the states need to implement under Addenda III

and IV. That will be timing of the full review for all the other states.

CHAIRMAN DANIEL: So we will have that at the annual meeting?

EXECUTIVE DIRECTOR BEAL: Yes.

ADJOURNMENT

CHAIRMAN DANIEL: Okay, with that, I will adjourn the ISFMP Policy Board.

(Whereupon, the meeting was adjourned at 10:15 o'clock a.m., August 6, 2015.)

**Atlantic States Marine Fisheries Commission
Habitat Committee**

Whitepaper on Habitat Bottlenecks and Fisheries Management

October 2015

Introduction

There is little dispute among fishermen, scientists and fishery managers that the amount, quality, and availability of habitats utilized by diadromous, estuarine, and marine species is a critical determinant of a fish stock's productivity and resilience. However, despite the widespread recognition, conservation of fish habitat remains one of the biggest challenges in fisheries management. There are at least three important reasons for this.

First, patterns (seasonal and temporal) of habitat use by a given species typically vary considerably both within and among life stages. Many species exhibit strong dependence on one or a small number of habitats, but many also show an ability to utilize different habitats at a given life stage in response to prey availability, density, or other factors. Habitat sections of most FMPs illustrate the diversity and complexity of habitat use.

Second, quantifying the relationship between habitat metrics (i.e., % cover, patchiness, density of structural features, etc.) and stock productivity is difficult for most species¹. This means that decision-making often cannot be informed by estimates of an X% reduction in potential yield of a given species if Y acres of habitat are lost or degraded due to a proposed action (e.g., marina development, offshore energy facility, dredging, destructive fishing practice, etc.), or, conversely, that yield will increase due to habitat recovery through protection or restoration. The synergy of multiple impacts which degrade or improve habitat quality very often result in nonlinear or indirect responses in species' productivity.

Third, the range of impacts that affect habitat is broad, and fall under the purview of multiple agencies, not solely those responsible for harvest management. This creates a complex, and generally disconnected, governance structure that would likely have limited effectiveness even with a stronger and clearer scientific foundation.

In response to these challenges, the Atlantic States Marine Fisheries Commission (ASMFC) Habitat Committee has been working with the concept of *habitat bottlenecks* as a means of focusing both research and management on those areas likely to yield the greatest returns.

¹ An important exception is the generally strong relationship between abundance of anadromous species and accessible river miles.

Definition

A Habitat Committee work group developed a proposed definition, which was modified slightly by the full Committee at its April 2013 meeting. The current working definition is as follows:

A habitat bottleneck is defined as a constraint on a species' ability to survive, reproduce, or recruit to the next life stage that results from reductions in available habitat extent and/or capacity and reduces the effectiveness of traditional fisheries management options to control mortality and spawning stock biomass.

In other words, the concept of a habitat bottleneck is not meant to capture situations wherein the stock's response to changes in habitat conditions is gradual, incremental, or linear. Rather, a habitat bottleneck is a situation in which the response is sharp and pronounced, to a degree that it overwhelms the effectiveness of harvest control measures and creates excessive deviation from the constant or bounded conditions assumed by stock assessment models. Figure 1 illustrates potential relationships between habitat metrics and ecological responses in which a threshold exists at which the response is sharper and more sudden. Such thresholds are points at which habitat bottlenecks are likely to be created.

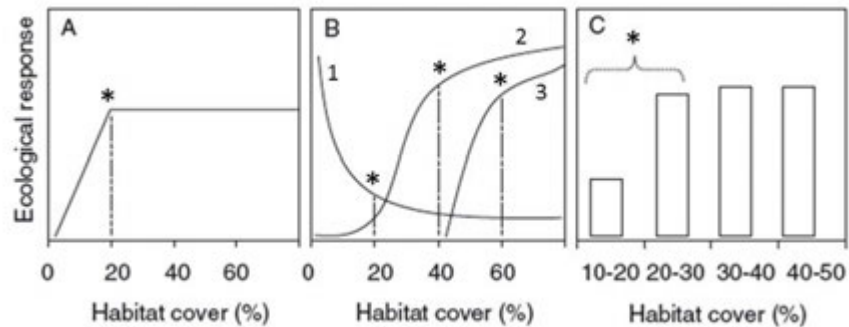


Fig 1. Possible functional relationships between habitat metrics and ecological response variables, such as key demographic rates (growth, mortality, recruitment). Asterisks mark thresholds at which a habitat bottleneck might be created. A and C represent situations in which the response variable is constant, or at least variable within bounds, over a wide range of habitat conditions, but then changes markedly past the threshold. B represents situations where there is an ecological response to habitat across all values, but the rate of change increases or decreases markedly at the threshold. Curve 1 in B represents a response variable that is inversely related to habitat, such as mortality rate. Curve 3 represents a response variable that is strongly tied to habitat, and for which the bottleneck is created when the habitat metric is still seemingly high. An example might be demographic rates during the juvenile stage when individuals are strongly dependent upon nursery habitat for shelter and feeding. (modified from Swift and Hannon 2010).

This is not to say that more gradual or linear changes are not important. If, for example, a 5% reduction in some key habitat metric causes a 5% reduction in growth rate² for a given species, but

² Although the definition proposed by the Habitat Committee does not explicitly include growth, among other important attributes (e.g., condition, behavior, etc.), those attributes affect survival, reproduction and recruitment, and therefore are implicit within the definition.

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the stock assessment model does not account for that change, then the actual dynamics will deviate from those predicted by the model and management will seem to underperform. However, such a deviation is modest and within the range of expected error and uncertainty, and a response to harvest controls would still likely be observed (assuming other errors and uncertainties are not excessive). A habitat bottleneck is the point at which the deviations from model assumptions are no longer minor, and prevent expected responses to management.

It is important to note that incremental or linear responses to changes in habitat metrics can lead to a habitat bottleneck if the changes are continuous, directional, and not detected scientifically or incorporated into management. For example, a 5% reduction in growth rate due a modest change in habitat might have tolerable effects, but if the reduction grew to 30% through sustained declines in habitat, then the deviation would be excessive even if the change did not look like crossing a threshold (per Figure 1). At that stage, it would also represent a habitat bottleneck. One response might be to take no action on the habitat conditions in the water, and instead adjust the assessment model to better account for the new reality (i.e., lower productivity and recoverability regime). Or, action could be taken to remove the bottleneck and restore the previous productivity regime.

Importantly, habitat bottlenecks can come and go for a given stock in response to changes in habitat condition as well as stock size. Habitat is a key determinant of carrying capacity, and adverse impacts on habitat can lower carrying capacity. However, if the stock size is below even the reduced carrying capacity, then a bottleneck will not be evident and the stock should respond to harvest controls. Once the stock approaches the new lower carrying capacity created by changes in habitat conditions, then the bottleneck will become evident as the stock no longer responds as expected under the (incorrectly) assumed conditions.

Categories of Habitat Bottlenecks

Habitat bottlenecks can be categorized as environmental and physical. The distinction differentiates bottlenecks that can be addressed by habitat management measures, such as barriers and direct human activities (physical), from those that cannot be as easily controlled, such as temperature changes (environmental).

Environmental Habitat Bottlenecks

Some species may require specific ranges of environmental conditions such as temperature, pH, salinity, and dissolved oxygen during crucial life stages. Accelerated shifts in these environmental conditions may create habitat bottlenecks that are more challenging, if not impossible, to address with management measures. However, these environmental habitat bottlenecks should be factored into management measures as risks that may compromise a species' ability to rebuild or recruit to the population.

Examples of environmental habitat bottlenecks are temperature shifts for American lobster, oxygen levels for summer and winter flounders, spawning beach availability for horseshoe crab, and access to spawning areas for Atlantic sturgeon (see case studies below). Management measures which accommodate these risks include fishery closures during high temperature months, restrictive size limits to preserve genetically adapting survivors, harvest and quota transfers among jurisdictions, and precautionary trip/bag limits which account for higher mortality rates for vulnerable size classes.

Physical Habitat Bottlenecks

Habitat bottlenecks related to substrate, depth, turbidity, light penetration, water flow, and other physical conditions can be more feasible to address with habitat management measures and activities than the environmental bottlenecks. For example, the New England Fishery Management Council (NEFMC) is proposing to update the winter flounder EFH to better protect spawning grounds from dredging activities in its Draft Omnibus Habitat Amendment 2.

Case studies

As the Habitat Committee continues to refine the habitat bottleneck concept, we are exploring the utility of new data presented in updates to the Habitat Sections of different FMPs. The following examples illustrate how the concept is being considered and applied in the management of different stocks.

American Lobster

The updated Habitat Section draft of the American lobster FMP identifies two observed potential habitat bottlenecks for the species. Neither relate to structural habitat attributes (i.e., benthic features such as vegetation, sessile fauna or sediment type). Instead, both relate to water quality attributes and the physiological and behavioral responses by individuals within the stock.

Habitat Bottlenecks

The first bottleneck is a temperature threshold effect that was most evident in Long Island Sound at the time of the massive 1999 lobster die-off. Fall water temperatures increased rapidly that year causing thermal stress and mortality, and also caused lobster to aggregate in deeper thermal refuges. These stressed animals were less resistant to several chronic diseases. The result was mortality on the order of 90% or more that year. In subsequent years, continued high temperatures during the fall season caused further physiological stress, overwhelming any expected benefits of fisheries management. Research has demonstrated that lobsters show a distinct and abrupt response to water temperatures above 20°C (Crossin et al. 1998) which field studies have shown can double observed mortality rates (Figure 2), making elevated temperature a true bottleneck for this species.

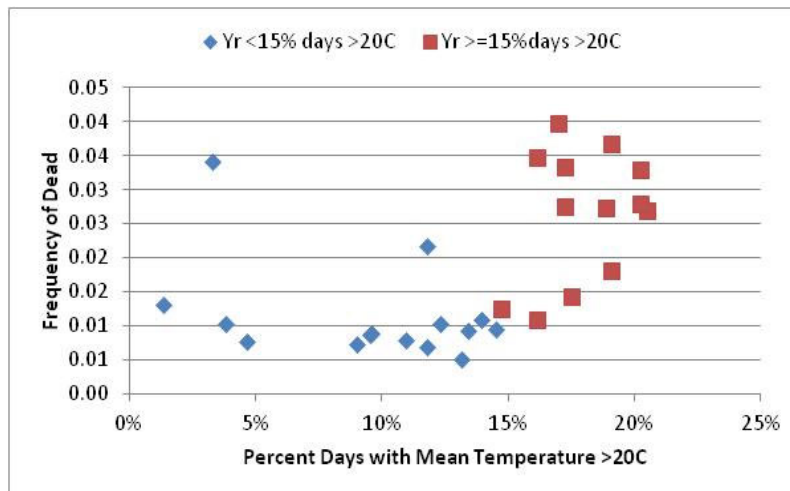


Fig 2. Relationship between the observed annual frequency of dead lobsters in research traps versus the percent of days that year with a mean bottom water temperature above 20°C. (Data provided by Millstone Environmental Laboratory, Dominion Nuclear Resources)

The second bottleneck is also linked to temperature, and involved the reduction and contraction of suitable thermal habitats in several locations off southern New England (Figure 3). This has caused lobster to be absent from traditional nearshore fishing grounds, reducing availability to the fleet and subsequent yield. There is some evidence that displacement of egg-bearing females into deeper water has resulted in newly hatched planktonic larvae being carried on currents out to open ocean waters where their survival rate is diminished. It is not clear whether and to what extent the stock has experienced a decrease in productivity as a result of these increases in temperature, or whether the change has primarily been one of distribution. Regardless, the effect is similar in that the fishery does not perform as expected.

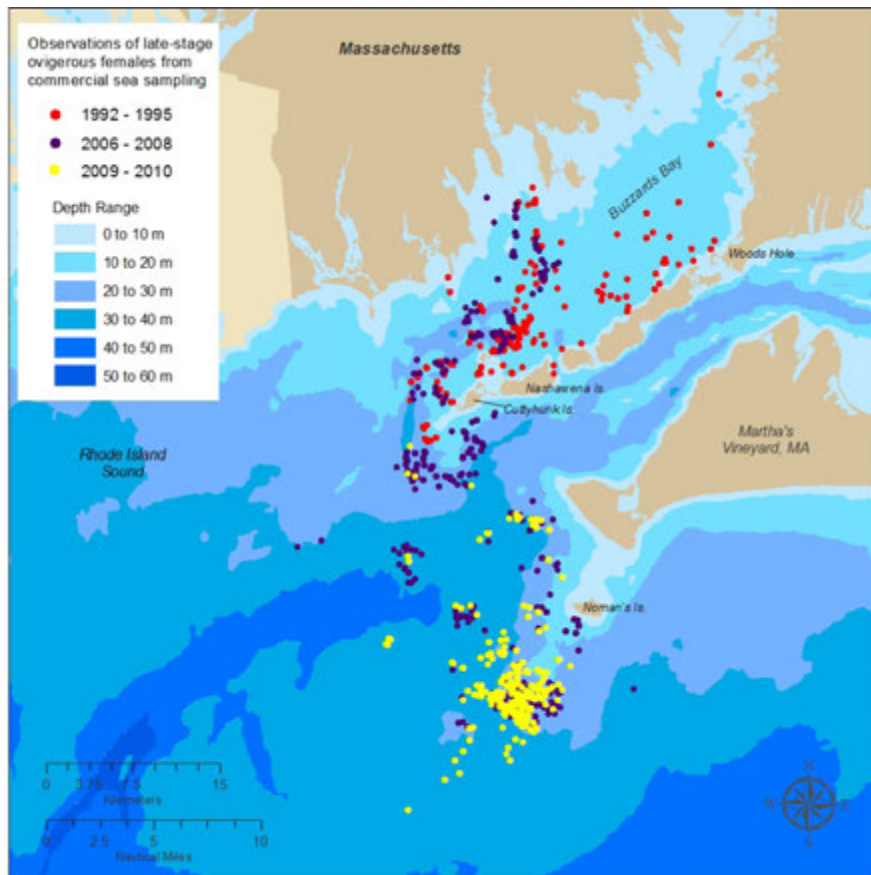


Fig 3. Map of distribution shift in late-stage egg bearing female lobsters in southern New England that has been related to changes in temperature. From: MA DMF 2011

Summer and Winter Flounder

Habitat Requirements

These two specialized flatfish rely on shallow estuaries for their nursery grounds, which contribute substantially to successful recruitment of juveniles to the adult population (Beck et al. 2001). A bottleneck, as defined above, can often develop when these nursery areas experience chronic

seasonal hypoxia due to excessive nutrient loading and eutrophication. Laboratory studies of juveniles of these two species (Stierhoff et al. 2006) show that growth of winter flounder at 20°C was reduced by ~50% at both 3.5 and 5.0 mg O₂ l⁻¹ (compared to growth at normoxia [7.0 mg O₂ l⁻¹]), and growth was completely halted at 2.0 mg O₂ l⁻¹. Similarly, summer flounder growth was reduced by ~25% at 3.5 mg O₂ l⁻¹ and by 50 to 60% at 2.0 mg O₂ l⁻¹. Importantly, there was no evidence of growth acclimation for either species after 7—14 d exposure to hypoxia, and these levels of hypoxia commonly persist in many coastal estuaries. The distinct drop in growth at DO levels below 3.5 mg O₂ l⁻¹ was attributed to reduced feeding rates under hypoxic conditions. These significant reductions in juvenile growth rates, at sizes and ages below those usually modeled for fishery management, can translate into significant reductions in the ultimate production of the entire population (Eby et al. 2005), resulting in overly optimistic model predictions under reduced fishing mortality on the adult stock.

Horseshoe Crab

Habitat Requirements

Horseshoe crabs are evolutionary survivors that have remained relatively unchanged physically for over 350 million years (Figure 4). Of four species worldwide, the one species (*Limulus polyphemus*) in North American waters is the most abundant and ranges on the Atlantic coast from Maine to the Yucatan Peninsula. Adults remain in larger estuaries or migrate to the continental shelf during the winter months, returning inshore in spring to beach areas to spawn. Spawning usually coincides with a high tide during full and new moon phases. Eggs are laid in clusters of a few thousand in buried nest sites along the beach, totaling as many as 90,000 eggs per female per year spread over several spawning events. Such a large number of eggs play an important ecological role in the food web for multiple species of migrating shorebirds specialized in digging them out of the sand. Juvenile crabs hatch from the beach environment and spend their first two years in near shore nursery grounds. Horseshoe crabs molt at least six times in their first year of life and about 17 times until they become sexually mature at ages 9—12 years. The average life span of adults reaching maturity has been estimated at 20 years.



Fig 4. Horseshoe crabs on a beach in Fairfield, Connecticut. Photo credit: Penny Howell, CT Department of Energy and Environmental Protection.

Habitat Bottlenecks

The most important structural habitat attribute dictating stock status, spawning success, and recruitment is the ready availability of high quality spawning beaches. Despite their primitive physiology, these animals have developed sensory organs that allow them to perceive and chose spawning beaches that promote successful egg development and juvenile survival. These beaches are sloped such that the tidal prism creates an intertidal band with variable inundation and they are thereby protected from strong winds and surf which disrupts the mating process. High quality beaches are composed of a sand/pebble mixture optimal for incubating horseshoe crab eggs in terms of aeration and moisture. From Massachusetts to Delaware, productive spawning beaches are typically coarse-grained and well-drained to maintain adequate oxygen levels; productive southern spawning beaches are typically fine-grained and poorly drained where desiccation is a larger mortality factor (Brockmann 2003).

Schaller et al. (2010) concluded that most horseshoe crabs in the Great Bay Estuary in New Hampshire tended to spawn on beaches nearer to where they overwintered. Landi et al. (2014) also found that the probability of a beach segment in Connecticut falling into a higher use category increased with increasing slope, decreasing wave exposure, and decreasing distance from offshore congregations of overwintering adults. Therefore the distribution of high quality spawning beaches, which are exposed to only minimal human disturbance, also presents a bottleneck to reproductive success for this species. Disruption to beaches during the spawning season should be minimized by both reducing direct (e.g. harassment of horseshoe crabs, eggs, or predatory birds, Figure 5) and indirect (e.g. bulkheads and riprap) human impacts. In addition to tightly managing horseshoe crab removals, an effective management strategy should recognize and accommodate linkages among offshore overwintering grounds, high quality spawning beaches, and juvenile

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nursery areas, maintaining priority beach habitat long term. Seasonal area closures designed with these linkages in mind would optimize horseshoe crab reproduction and recruitment, while also promoting their contribution to the regional food web. Restrictions on development and regulations on shoreline hardening, as well as enforcement of existing and future regulations are recommended. This includes the appropriate use of living shoreline designs to maintain beach slope and energy characteristics in the face of sea level rise.



Fig 5. Predation on horseshoe crabs by predatory birds is common on beaches. Photo credit: Penny Howell, CT Department of Energy and Environmental Protection.

Atlantic Sturgeon

The Atlantic Sturgeon is a highly migratory anadromous fish, and each estuary analyzed hosts one or more genetically distinct populations (Grunwald et al., 2007; Balazik and Musick 2015). Historically, Atlantic Sturgeon were documented in 38 rivers ranging from Labrador to the St. Johns River in Florida. Thirty-five of these historical rivers currently have Atlantic Sturgeon present, but only 21 (possibly only as few as 19) have one or more extant breeding populations (ASSRT, 2007, Table 1, p. 140; Hager et al. 2014; Balazik and Musick 2015).

Physical Bottlenecks

Dams – Spawning and recruitment appears to be most successful in rivers without dams blocking access to historical spawning habitat (hard surfaces such as cobble). These include the Hudson (NY), James (VA), and Altamaha (GA) rivers. The Cape Fear (NC), Santee-Cooper (SC), and St. Johns (FL) river systems have lost greater than 62% of the habitat historically used for spawning and development; only 42% of the historical habitat is available in the Merrimack River (MA, ASSRT, 2007). Barriers to spawning areas can cause females to resorb eggs and not spawn. Fish passage measures beneficial (i.e. safe, timely, and effective) to Atlantic Sturgeon have had limited success but alternate designs are being developed (Schilt 2007; Kynard et al. 2008; Katopodis and Williams 2012). In addition to being a physical barrier, dams can alter or degrade sturgeon habitat downstream by reducing water quality and availability of spawning habitat through temperature, flow, or oxygen content changes. Water flows (both seasonal flow timing and natural rate of flow delivery affect habitat suitability), water temperatures, and concentrations of dissolved oxygen (DO) are all affected by peaking operations from hydroelectric facilities.

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Dredging – Removal and displacement of sediment modifies the quality and availability of Atlantic Sturgeon habitat, mainly through sedimentation. It can alter overall water quality (salinity and dissolved oxygen) greatly reducing the value of foraging and nursery habitat. Dredging operations have also been documented capturing 14 Atlantic Sturgeon from 1990—2005 (ASSRT, 2007).

Environmental Bottlenecks

Secor and Gunderson (1998) noted a correlation between low abundance of Atlantic Sturgeon and decreasing water quality caused by increased nutrient loading and increased spatial and temporal frequency of hypoxic conditions. Frequent occurrences of low DO concentrations in combination with high summer water temperatures are a particular concern. A bioenergetics and survival model for Chesapeake Bay demonstrated that a combination of low DO concentration, water temperature, and salinity restricts available Atlantic Sturgeon habitat to 0—32.5% of the Bay's modeled surface area during the summer (Niklitschek and Secor, 2005). Sturgeon are more sensitive to low DO concentrations ($<5 \text{ mg l}^{-1}$) than other fish species (Niklitschek and Secor, 2009a, 2009b) and experience sublethal to lethal effects as DO concentration drops and temperatures rise. Summer mortality has been observed at $<3.3 \text{ mg l}^{-1}$ and at 26°C .

Final Thoughts

Over the course of writing this paper, the Habitat Committee discussed the role that humans play in the marine environment, both indirectly and directly. Arguably, humans have had some influence, either directly (e.g. shoreline hardening) or indirectly (e.g. through CO_2 emissions, thus increasing water temperature), on each habitat bottleneck addressed above. Because of the complex interactions among humans, habitat, and other environmental factors (both biotic and abiotic), it was at times difficult to focus on the effects of habitat bottlenecks without acknowledging other potential influences on spawning stock biomass. We ask that the reader please keep the intended scope of this paper in mind, as it is not a comprehensive examination of all of the variables that can impact fisheries, whether natural or anthropogenic.

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Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

MEMORANDUM

October 18, 2015

To: ISFMP Policy Board
From: Law Enforcement Committee
RE: Summary of Regulations for *Landing in Whole Condition*

At the August, 2015 meeting of the Interstate Fishery Management Program Policy Board (ISFMP), the Law Enforcement Committee (LEC) was asked to provide information regarding regulations or laws that address "landing in whole condition" or related rules that allow partial or complete filleting of fish prior to landing. Following are the pertinent sections of state regulations addressing these provisions. Some re-formatting of the source text from the various state regulations was done to provide consistent readability. The LEC is available at any time to address specifics of these regulations.

MAINE

[These are Maine's groundfish regulations. Striped bass must be whole with head on.](#)

(b) The minimum fish size applies to the whole fish or any part of a fish while possessed on board a vessel, except as provided in paragraph (c) of this section, and to whole fish only, after landing. Fish or parts of fish must have skin on while possessed on board a vessel and at the time of landing in order to meet minimum size requirements. "Skin on" means the entire portion of the skin normally attached to the portion of the fish or fish parts possessed.

(c) Exceptions:

- (i) Each person aboard a vessel may possess up to 25 lb. of fillets that measure less than the minimum size, if such fillets are from legal-sized fish and are not offered or intended for sale, trade, or barter. The exception, Chapter 34.10(1)(B)(1)(c)(i), shall not include Atlantic halibut.
- (ii) Vessels fishing exclusively with pot gear may possess multispecies racks used, or to be used, as bait that measure less than the minimum fish size, if there is a receipt for the purchase of those racks on board the vessel.

NEW HAMPSHIRE

Fis 603.08 Striped Bass.

(a) No person shall take, possess, or transport striped bass less than 28 inches in total length. Striped bass shall have head and tail intact while on or leaving the waters or shores of the state.

Fis 603.09 Groundfish Restrictions.

(f) Fillets of all groundfish species that are skinned shall retain at least 2 square inches of contiguous skin intact that enable the identification of fish species.

(g) Cod shall have head and tail intact or as fillets no less than 13 inches in length while on or leaving the waters of the state.

(h) Haddock shall have head and tail intact or as fillets no less than 13 inches in length while on or leaving the waters of the state.

MASSACHUSETTS

Striped Bass:

f) Exceptions for For-Hire Vessels.

1. At-Sea Filleting. Operators and crew onboard for-hire vessels permitted under the authority of 322 CMR 7.10(5) may fillet or process legal sized striped bass for their recreational customers at sea provided that:

a. The skin is left on the fillet; and

b. Not more than two fillets taken from legal striped bass are in the possession of each customer of that trip, representing the equivalent of one fish per angler.

However, it is unlawful for:

(e) a recreational fisherman to mutilate any striped bass in a manner that prevents the accurate measurement of the fish; such mutilation shall be prima facie evidence of a violation of this section;

(t) a commercial fisherman to fillet or process any striped bass other than by evisceration;

(u) a commercial fisherman to mutilate any striped bass in such a way as to interfere with or affect a proper or adequate measurement of the fish;

(2) Commercial Fishing

a. Possession of Fish Parts by Commercial Fishermen. When commercial fishermen, permitted pursuant to 322 CMR 7.01(2), are authorized at 322 CMR to fillet or mutilate fish at sea, those fillets and parts of fish will be multiplied by three to determine compliance with species specific commercial possession limits at 322 CMR. This regulation shall not apply to whole-gutted or gilled fish, cod parts regulated at 322 CMR 6.03(3)(b) and 322 CMR 6.03(6) and monkfish parts regulated at 322 CMR 6.03(10).

And finally:

(3) Recreational Fishing

a. Filleting Catch.

i. Black Sea Bass and Scup. Recreational fishermen may fillet black sea bass and scup, provided the recreational fisherman complies with the following conditions to determine compliance with the daily recreational bag limits:

1. it shall be unlawful to possess a fillet that does not have all the skin affixed until the recreational fisherman reaches their domicile or temporary residence; and

2. it shall be unlawful to possess more than two times the number of fillets than the recreational bag limits for black sea bass and scup specified at 322 CMR 6.28.

ii. Groundfish Species. Recreational fishermen may fillet any groundfish species, managed under the authority of 322 CMR 6.03, provided the recreational fisherman complies with the following conditions to determine compliance with the daily recreational bag limits:

1. it shall be unlawful to possess a fillet that does not have at least two inches of skin affixed to the fillet until the recreational fisherman reaches their domicile or temporary residence; and

2. it shall be unlawful for any person or vessel to possess more than two times the number of fillets than the species specific possession limits at 322 CMR 6.03.

b. Comingling of Recreational Catch. In instances where recreational fishermen have comingled their catch, the comingled catch will be divided by the number of anglers on board the vessel to determine compliance with per angler or per vessel bag limits and fillet limits.

RHODE ISLAND

Rhode Island does not have a requirement that a fish must be landed whole. There are minimum length requirements for many species but no requirement that the fish be landed whole.

CONNECTICUT

Sec. 26-142a-8a. Species restrictions

(b) **Minimum Legal Length.** No person shall possess any fish taken by any commercial fishing gear or for commercial purposes less than the lengths specified below measured from the tip of the snout to the end of the tail and, notwithstanding section 26-159a-4 of the Regulations of Connecticut State Agencies, no person shall buy, sell, offer for sale or possess in a place where fish are offered for sale, any of said species less than the minimum legal length stated herein.

- (1) Atlantic tomcod (frostfish) (*Microgadus tomcod*) - 7 inches
- (2) Tautog (blackfish) (*Tautoga onitis*) - 14 inches
- (3) Scup (porgy) (*Stenotomus chrysops*) - 9 inches
- (4) Black sea bass (*Centropristis striata*) - 11 inches
- (5) Winter flounder (*Pseudopleuronectes americanus*) - 12 inches
- (6) Bluefish (*Pomatomus saltatrix*) - 9 inches
- (7) Summer flounder (fluke) (*Paralichthys dentatus*) - 14 inches
- (8) Atlantic cod (*Gadus morhua*) - 22 inches
- (9) Weakfish (*Cynoscion regalis*) - 16 inches
- (10) Yellowtail flounder (*Pleuronectes ferrugineus*) - 13 inches
- (11) Haddock (*Melanogrammus aeglefinus*) - 22 inches
- (12) Pollock (*Pollachius virens*) - 19 inches
- (13) Witch flounder (*Glyptocephalus cynoglossus*) - 14 inches
- (14) American plaice (*Hippoglossoides platessoides*) - 14 inches
- (15) Redfish (*Sebastes marinus*) - 9 inches

Any of said species less than the minimum legal length taken by any commercial fishing gear shall, without avoidable injury, be returned immediately to the water from which taken. No person on board any vessel engaged in commercial fishing or landing species taken by commercial fishing gear shall possess any summer flounder fillet less than the minimum total length for the species unless the carcass of the fish from which the fillet was removed has been retained and meets the minimum length. This subsection shall not be construed to prevent filleting of fish on shore or at the dockside.

NEW YORK

NY regulates filleting of three species; striped bass, fluke (summer flounder), and weakfish. See excerpts from our regulations below:

(h) Summer flounder and Scup recreational fishing - special regulations.

(1) Except as provided in this paragraph or paragraph (2) of this subdivision, no person shall possess summer flounder from which the head or tail has been removed or that has been otherwise cleaned, cut, filleted or skinned, so that the total length or identity cannot be determined. This prohibition shall not apply to fish being prepared for immediate consumption or storage at a domicile or place of residence. White side fillets and skin may be removed for use as bait provided the carcass of the summer flounder with dark side completely intact is retained and available for inspection to determine compliance with the size limit. Any such carcasses count against the possession limit. It is unlawful to discard overboard the carcass of any summer flounder from which a fillet or skin has been removed as bait once fishing has begun.

(2) Holders of a valid New York State Marine and Coastal District Party and Charter Boat License, issued pursuant to ECL Section 13-0336, may fillet summer flounder on board the vessel covered by the license subject to the following conditions:

(i) For each fishing trip taken by a vessel, summer flounder parts or racks (remains of fish after fillets have been removed) must not be discarded overboard once any person on board the vessel begins to fish and until the vessel returns to its dock.

(ii) Summer flounder racks must not be mutilated to the extent that the length or species of fish cannot be determined.

(iii) All summer flounder racks must be retained (unmixed with any other material) in a separate container readily available for inspection until such time as the vessel has docked and all passengers from that trip have disembarked.

(iv) All summer flounder racks from the previous trip must be disposed of prior to any person beginning to fish on a subsequent trip.

(v) Violators of any of the provisions of this subdivision are subject to the penalties established pursuant to the provisions of Article 71 of the Environmental Conservation Law and may be subject to license revocation pursuant to Part 175 of this Chapter.

Striped Bass:

(iii) The striped bass party/charter boat permit will be issued to an eligible individual owner or operator and will be endorsed for use on a specific vessel, on which it will cover any operator of that vessel. The individual to whom the permit is issued is responsible for all activities aboard the permitted vessel.

(iv) Only the captain or crew of a vessel holding a striped bass Party/Charter boat permit may fillet striped bass subject to the following conditions:

(a) fish may be filleted for customers only;

(b) only fish which are legally possessed may be filleted;

(c) striped bass may only be filleted prior to customers leaving the vessel or the dock area prior to customers departing the areas;

(d) it is unlawful to mutilate any striped bass carcass to the extent that the total length or species of fish cannot be determined;

(e) all striped bass carcasses must be retained (unmixed with any other material) in a separate container readily available for inspection until such time as the vessel has docked and all passengers from that trip have left the vessel and the dock area. Any such carcasses are included in the possession limit; and

(f) all striped bass carcasses from any previous trip must be disposed of prior to any person beginning to fish on a subsequent trip.

Commercial fishing:

(j) Striped bass commercial fishing - special regulations.

(1) General Provisions. The total season harvest may not exceed the amount approved for New York by the Atlantic States Marine Fisheries Commission pursuant to the Interstate Fishery Management Plan for Striped Bass. The annual quota shall be adopted by directive issued by the Chief, Bureau of Marine Resources, consistent with the provisions of subdivision (u) of this section.

(2) Striped bass legally harvested from other states may be sold or offered for sale during New York's closed commercial season provided they meet the provisions of paragraph (23) of this section.

(3) Except as provided in paragraph (g)(4) of this section, it is unlawful to possess striped bass from which the head or tail have been removed or that have been otherwise cleaned, cut, filleted, or skinned so that the total length or identity cannot be determined unless such fish is being prepared for immediate consumption.

Weakfish

Total length 16 inches

Fillet length is 10 inches

Dress length is 12 inches

Trip limit; 100lbs

Recreational lengths are the same. One fish creel limit

Below is description of what the measurements mean:

{1} Total length is the longest straight line measurement from the tip of the snout, with the mouth closed, to the longest lobe of the caudal fin (tail), with the lobes squeezed together, laid flat on the measuring device, except that black sea bass are measured from the tip of the snout or jaw (mouth closed) to the farthest extremity of the tail, not including the tail filament.

#The tail length is the longest straight line measurement from the tip of the caudal fin (tail) to the fourth cephalic dorsal spine (all dorsal spines must be intact), laid flat on the measuring device.

The fillet length is the longest straight line measurement from end to end of any fleshy side portion of the fish cut lengthwise away from the backbone, which must have the skin intact, laid flat on the measuring device.

**Dressed length is the longest straight line measurement from the most anterior portion of the fish, with the head removed, to the longest lobe of the caudal fin (tail), with the caudal fin intact and with the lobes squeezed together, laid flat on the measuring device.

NEW JERSEY

Recreational: The filleting at sea of all fish with a size limit, or any species of flatfish, is prohibited except for summer flounder; see Summer Flounder, see below. No parts of any fish caught on a previous fishing trip shall be in possession. Party boats may fillet fish at sea if they obtain a Special Fillet Permit. Applications may be obtained from Fish and Wildlife's Bureau of Marine Fisheries.

Summer flounder: Anglers may fillet one legal-sized summer flounder from their daily possession limit catch for use as bait. This carcass, commonly known as the rack, shall be kept intact so it can be measured for compliance with the minimum size limit. No parts of any summer flounder caught on a previous fishing trip shall be in possession; only fish just caught on this outing.

Commercial: Fish are to be landed intact for proper measuring i.e tip of snout to end of tail.

DELAWARE

3511 Summer Flounder Size Limits; Possession Limits; Season

(Penalty Section 7 Del.C. §936(b)(2))

1.0 It shall be unlawful for any recreational fisherman to have in possession more than four (4) summer flounder at or between the place where said summer flounder were caught and said recreational fisherman's personal abode or temporary or transient place of lodging.

2.0 It shall be unlawful for any person, other than qualified persons as set forth in section 4.0 of this regulation, to possess any summer flounder that measure less than sixteen (16) inches between the tip of the snout and the furthest tip of the tail.

3.0 It shall be unlawful for any person, to have in possession any part of a summer flounder that measures less than sixteen (16) inches between said part's two most distant points unless said person also has in possession the head, backbone and tail intact from which said part was removed.

3541 Atlantic Sharks

(Penalty Section 7 Del.C. §936(b)(2))

3.0 Finning

3.1 Except as provided in 3.2, it is unlawful for any person to possess the fins from any shark in the management unit prior to landing said shark unless said fins are naturally attached to the body of said shark.

3.2 A person issued a valid commercial food fish license may completely remove the fins from any smoothhound, provided the total weight of the fins does not exceed twelve (12) percent of the total dressed weight of smoothhound complex carcasses on board a vessel.

4.0 Fishing Methods

It is unlawful for any person to fish for any shark while in state waters with any fishing equipment or by any method, except: (1) Hook and Line; (2) Gill Net.

5.0 Filleting Prior to Landing

It is unlawful for any person to fillet a shark in the management unit prior to landing said shark. A shark may be eviscerated prior to landing said shark, but the head, tail, and fins must remain naturally attached to the carcass, except as provided in 3.2 and commercial fishermen may eviscerate and remove the head of any shark reduced to possession, but the tail and fins must remain attached to the carcass.

PENNSYLVANIA

Regulation 63.15 - Field dressing and disposal of fish.

(a) Except as otherwise provided in this section, it is unlawful to possess a fish in any form or condition other than in the whole or having the entrails removed while on shore, along the waters of this Commonwealth, onboard a boat or on a dock, pier, launch area or a parking lot adjacent thereto.

(b) Fish may be processed fully if they are being prepared for immediate consumption.

(c) This section does not apply to fish processed at a fish cleaning station officially recognized under §63.15a (relating to officially-recognized fish cleaning stations).

(d) Provided that the requirements of this subsection are met, this section does not apply to fish processed by a permitted charter boat/fishing guide operation. The charter boat operator or fishing guide may fully process the fish at any time provided

the charter boat operator or fishing guide retains the carcass until possession of the fish is transferred to the customer on shore. The charter boat operator or fishing guide shall give the customer who receives the processed fish a signed, dated receipt on the form prescribed by the Commission.

(e) This section does not apply to fish caught or sold in compliance with Chapter 31 of the code (relating to regulated fishing lakes).

(f) This section does not apply to fish caught under a Lake Erie commercial license issued consistent with Chapter 29 of the code (relating to special licenses and permits) after the fish reach established retail or wholesale markets.

(f) It is unlawful to discard any fish carcass or parts thereof into the waters of this Commonwealth within 100 feet of shore, a dock or launch ramp or upon any public or private lands contiguous to and within 100 feet of such water except:

(1) On lands with the permission of the landowner; or

(2) Where fish are properly disposed into suitable garbage or refuse collection systems or at officially recognized fish cleaning stations.

MARYLAND

§ 4-733. Possession of fish whose size or weight cannot be determined

A person may not possess aboard any boat on the tidal waters of the State more than 15 pounds of any fish for which a size or weight limit is prescribed by law, or rule or regulation in a condition that the size or weight of the fish cannot be determined.

8.02.15.12

General Restrictions

A. A person may not use a gaff or similar device to remove striped bass from the water. A person who catches striped bass shall remove it from the water only by hand or dip net.

B. Possession of Striped Bass.

(1) For purposes of this section, "cull" means that after a person has a striped bass in possession, the person discards or exchanges that striped bass to possess another striped bass.

(2) During a recreational striped bass season:

(a) Between 12 a.m. midnight and 5 a.m., a person may not possess striped bass while fishing on the tidal waters of the Chesapeake Bay and its tributaries; and

(b) An individual may not cull striped bass.

C. Filleting Striped Bass.

(1) Except as provided in §C(2) of this regulation, a person may only land striped bass dockside as a whole fish.

(2) A licensed charter boat captain or mate may fillet striped bass taken on a vessel displaying a current commercial charter boat decal under the following conditions:

(a) A striped bass carcass may not be mutilated to the extent that the total length or species of fish cannot be determined;

(b) All striped bass carcasses:

(i) Shall be retained, unmixed with any other material, in a separate container readily available for inspection until the vessel has docked and all passengers from that trip have left the vessel and the dock area; and

(ii) Are included in the possession limit; and

(c) All striped bass carcasses from any previous trip shall be disposed of before any person begins to fish on a subsequent trip.

VIRGINIA

REGULATION 4 VAC 20-580-10 ET SEQ.

PREAMBLE

This regulation establishes controls on the handling of finfish when fishing from a vessel or pier. This regulation is promulgated pursuant to authority contained in §28.2-201 of the Code of Virginia. This regulation amends and re-adopts prior Regulation 450-01-0075 which was adopted by the Marine Resources Commission on September 24, 1991 and was effective October 1, 1991. The effective date of the regulation is July 1, 1995.

4 VAC 20-580-10. Purpose.

The purpose of this chapter is to enhance compliance with minimum size limits, catch limits, and quotas.

4 VAC 20-580-20. Alteration of finfish to obscure species identification or size prohibited.

A. It shall be unlawful for any person to alter any finfish, or to possess altered finfish, aboard any boat or vessel, or on a public fishing pier (except at the fish cleaning station of the pier), such that the species of the fish cannot be determined.

B. It shall be unlawful for any person to alter any finfish regulated by a minimum or maximum size limit, or to possess such altered finfish, aboard any boat or vessel, or on a public fishing pier (except at the fish cleaning station of the pier), such that its total length cannot be measured.

4 VAC 20-580-30. Allowances for filleting or cleaning.

A. For finfish regulated by a minimum or maximum size limit, filleting at sea will be allowed if the carcass is retained to ensure proper species identification and compliance with size limitations.

B. For finfish regulated by a minimum size, cleaning and/or filleting at sea will be allowed if the fillet or cleaned fish exceeds the minimum length for the species and at least one square inch of skin is left intact to assist in identification of the species.

C. For finfish not regulated by a size limit, filleting at sea will be allowed if a minimum of one square inch of skin is left on the fillet to assist in identification of the species.

4 VAC 20-580-40. Penalty.

As set forth in § 28.2-903 of the Code of Virginia, any person violating any provision of this chapter shall be guilty of a Class 3 misdemeanor, and a second or subsequent violation of any provision of this chapter committed by the same person within 12 months of a prior violation is a Class 1 misdemeanor.

NORTH CAROLINA

15A NCAC 03M .0101 MUTILATED FINFISH

It is unlawful to possess aboard a vessel or while engaged in fishing any species of finfish that is subject to a size or harvest restriction without having head and tail attached, except:

- (1) mullet when used for bait;
- (2) hickory shad when used for bait provided that not more than two hickory shad per vessel or fishing operation may be cut for bait at any one time; and
- (3) tuna possessed in a commercial fishing operation as provided in 15A NCAC 03M .0520.

Snapper – Grouper:

It is unlawful to possess any species of the snapper grouper complex without heads and fins intact as specified in 50 CFR Part §622.186.

Sharks:

Commercial - It is unlawful to possess any shark [with the exception of smooth dogfish (smoothhound shark)] without tail and fins naturally attached to the carcass through the point of landing. Commercial fishermen may completely remove the fins of smooth dogfish (smoothhound shark). If fins are removed, the total wet weight of the shark fins may not exceed twelve (12) percent of the total dressed weight of smooth dogfish (smoothhound shark) carcasses landed or found onboard a vessel.

Recreational - It is unlawful for recreational fishermen to possess any shark without head, tail, and fins intact with the carcass through the point of landing. Anglers may still gut and bleed the carcass as long as the tail is not removed. **Filleting sharks at sea is prohibited.**

SOUTH CAROLINA

Saltwater Fish (Includes Atlantic tunas, billfish, inshore fish, offshore fish, sharks, and snapper grouper complex)

All species in this section must be landed with head and tail intact.

GEORGIA

Georgia Saltwater Fishing Regulation 391-2-4-.04

(5) Possession and Landing Specifications.

(a) All fish subject to restrictions specified in this Rule may be possessed in state waters or landed only with head and fins intact, except that when landed for commercial purposes, all sharks, small shark composite species, and hammerhead sharks may have the heads removed but fins and tail must remain naturally attached.

FLORIDA

Florida regulates the requirement for fish to be landed in whole condition by species. Florida does allow preparation for immediate consumption of some species, such as redfish, but not all. Below are two examples of language requiring a species be landed in whole condition. The first is from the redfish chapter (68B-22, FAC), and allows for immediate consumption of the fish. The second example is from the cobia chapter (68B-19, FAC), and does not allow for immediate consumption. (These examples do not represent all of the possible language that require fish to be landed in whole condition found in FWC's marine fisheries rules.)

68B-22.006 Other Prohibitions; Applicability.

(4) All redfish harvested from Florida waters shall be landed in a whole condition. The possession, while in or on state waters, on any public or private fishing pier, or on a bridge or catwalk attached to a bridge from which fishing is allowed, or on any jetty, of any redfish that has been deheaded, sliced, divided, filleted, ground, skinned, scaled or deboned is prohibited. Mere evisceration or "gutting" of redfish, or mere removal of gills from redfish, before landing is not prohibited. Preparation of redfish for immediate consumption on board the vessel from which the fish were caught is not prohibited.

Specific Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History—New 2-12-87, Amended 6-3-91, 1-1-96, 1-1-98, Formerly 46-22.006.

68B-19.003 Size Limit; Landed in Whole Condition Requirement.

(2) Landed in Whole Condition Requirement - A person harvesting cobia shall land each cobia in whole condition. A person may not possess in or on Florida Waters a cobia that has been beheaded, sliced, divided, filleted, ground, skinned, scaled, or deboned. This provision will not be construed to prohibit the evisceration (gutting) of a cobia or removal of gills from a cobia.

Rulemaking Authority Art. IV, Sec. 9, Fla. Const. Law Implemented Art. IV, Sec. 9, Fla. Const. History—New 9-1-13.

Atlantic States Marine Fisheries Commission

South Atlantic State/Federal Fisheries Management Board

*November 5, 2015
12:15 – 1:45 p.m.
St. Augustine, Florida*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change;
other items may be added as necessary.

- | | |
|--|------------|
| 1. Welcome/Call to Order (<i>P. Geer</i>) | 12:15 p.m. |
| 2. Board Consent | 12:15 p.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2015 | |
| 3. Public Comment | 12:20 p.m. |
| 4. Update on 2015 Red Drum Benchmark Stock Assessment and Peer Review (<i>J. Kipp</i>) | 12:30 p.m. |
| 5. Update on 2016 Spot and Croaker Benchmark Stock Assessments (<i>J. Kipp</i>) | 1:00 p.m. |
| 6. Discuss Future Management of Spotted Seatrout (<i>L. Daniel</i>) | 1:05 p.m. |
| 7. Discuss Black Drum Compliance Report Deadline (<i>P. Geer</i>) | 1:30 p.m. |
| 8. Consider Approval of 2015 Spotted Seatrout FMP Review and State Compliance (<i>M. Ware</i>) Action | 1:35 p.m. |
| 9. Consider Approval of 2015 Spanish Mackerel FMP Review and State Compliance (<i>M. Ware</i>) Action | 1:40 p.m. |
| 10. Other Business/Adjourn | 1:45 p.m. |

The meeting will be held at the World Golf Village Renaissance; 500 S. Legacy Trail; St. Augustine, FL; 904-940-8000

MEETING OVERVIEW

South Atlantic State/Federal Fisheries Board Meeting
Thursday, November 5, 2015
12:15 p.m. – 1:45 a.m.
St. Augustine, FL

Chair: Pat Geer (GA) Assumed Chairmanship: 10/13	Technical Committee Chair: Atlantic Croaker: Chris McDonough (SC) Red Drum (Mike Murphy (FL)	Law Enforcement Committee Representative: Doug Lewis (NC)
Vice Chair: Jim Estes (FL)	Advisory Panel Chair: Tom Powers (VA)	Previous Board Meeting: August 6, 2015
Voting Members: NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS, SAFMC (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2015

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Update on 2015 Red Drum Benchmark Stock Assessment and Peer Review (12:30 p.m.-1:00 p.m.)
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Background

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| <ul style="list-style-type: none"> • The SASC has encountered challenges with the stock synthesis model framework • A SEDAR peer review was held in August 2015 (Briefing Materials) • Work continues to incorporate the suggestions of the review panelists and improve model stability |
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Presentations

- | |
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| <ul style="list-style-type: none"> • Assessment update by J. Kipp |
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5. Update on 2016 Spot and Atlantic Croaker Benchmark Stock Assessments (1:00 p.m.-1:05 p.m.)

Background

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| <ul style="list-style-type: none"> • The Board approved TORs for both stock assessments in August 2015 • The Data Workshop for both species was held in September 2015 • An Assessment Workshop will be held at the beginning of 2016 |
|--|

Presentations

- | |
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| <ul style="list-style-type: none"> • Assessment update by J. Kipp |
|--|

6. Discuss Future Management of Spotted Seatrout (1:05 p.m. – 1:30 p.m.) Possible Action

Background

- ASMFC currently manages spotted seatrout
- The non-migratory life history of this species may make it more appropriate for state management

Presentations

- Discussion of ASMFC management of spotted seatrout by L. Daniel

Board actions for consideration at this meeting

- Transfer management of spotted seatrout to individual states

7. Discuss Black Drum Compliance Report Deadline (1:30 p.m. – 1:35 p.m.) Action

Background

- State compliance reports are currently due March 1
- States do not have commercial landings for the previous year by this deadline

Presentations

- Consideration of alternative deadlines for state compliance report by P. Geer

Board actions for consideration at this meeting

- Change compliance report deadline for black drum

8. Fishery Management Plan Review (1:35 p.m. – 1:45 p.m.) Action

Background

- Spotted Seatrout State Compliance Reports are due on September 1, 2015. The Plan Review Team reviewed each state report and compiled the annual FMP Review. Delaware and New Jersey have requested and meet the requirements for *de minimis*.
- Spanish Mackerel State Compliance Reports are due on October 1, 2015. The Plan Review Team reviewed each state report and compiled the annual FMP Review. Delaware, New Jersey, and New York have requested and meet the requirements for *de minimis*.

Presentations

- Overview of the Spotted Seatrout and Spanish Mackerel FMP Review Reports by M. Ware (**Briefing Materials**)

Board actions for consideration at this meeting

- Accept 2015 FMP Review and State Compliance Reports.
- Approve *de minimis* requests

9. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
SOUTH ATLANTIC STATE/FEDERAL FISHERIES MANAGEMENT BOARD

The Westin Alexandria
Alexandria, Virginia
August 6, 2015

These minutes are draft and subject to approval by the South Atlantic State/Federal Fisheries Management Board. The Board will review the minutes during its next meeting.

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Index of Motions

1. **Move to extend the provisions of Addendum I of the Spanish mackerel FMP for another two years with annual reporting to the Board.** Motion by Mr. Estes and seconded by Mr. Gary. Motion carries unanimously. (Page 2).
2. **Move to accept the Terms of Reference for the Atlantic croaker assessment as presented.** Motion by Mr. Boyles and second by Mr. Allen. Motion carries unanimously. (Page 6).
3. **Move to accept the Terms of Reference for the spot assessment as presented.** Motion by Mr. Boyles and seconded by Dr. Duval. Motion carries unanimously. (Page 6).
4. **Move to approve the 2015 Atlantic Croaker FMP Review, state compliance reports, and de minimis status for DE (comm), SC (comm), GA (comm/rec) and FL (comm).** Motion by Dr. Duval and seconded by Mr. Boyles. Motion carries unanimously. (Page 8).
5. **Move to approve the 2015 Red Drum FMP Review, state compliance reports, and de minimis status for NJ and DE.** Motion by Mr. Boyles and seconded by Dr. Duval. Motion carries unanimously. (Page 9).
6. **Move to approve the 2015 Black Drum FMP Review and state compliance reports.** Motion by Dr. Duval and seconded by Dr. Laney. Motion carries unanimously. (Page 11).

ATTENDANCE

Board Members

Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Kyle Schick, VA, proxy for Sen. Stuart (LA)
Russ Allen, NJ, proxy for D. Chanda (AA)	Michelle Duval, NC, proxy for L. Daniel (AA)
Tom FOte, NJ (GA)	Robert Boyles, SC (AA)
John Clark, DE, proxy for D. Saveikis (AA)	Sen Thad Altman, GA (LA)
Roy Miller, DE (GA)	Patrick Geer, GA, proxy for Rep. Burns (LA)
Craig Pugh, DE, proxy for Rep. Carson (LA)	Jim Estes, FL, proxy for J. McCawley (AA)
David Sikorksi, MD, proxy for Del. Stein (LA)	Martin Gary, PRFC
Bill Goldsborough, MD (GA)	Wilson Laney, USFWS
Lynn Fegley, MD, proxy for D. Goshorn (AA)	John Carmichael, SAFMC
Joe Cimino, VA, proxy for J. Bull (AA)	

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Harry Rickabaugh, Technical Committee

Staff

Megan Ware
Jeff Kipp

Toni Kerns
Robert Beal

Guests

Virginia Fay (NMFS-SE Regional Office)

The South Atlantic State/Federal Fisheries Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of The Westin Alexandria, Alexandria, Virginia, August 6, 2015, and was called to order at 10:45 o'clock a.m. by Chairman Patrick Geer.

CALL TO ORDER

CHAIRMAN PATRICK GEER: Let's get started with the South Atlantic Fisheries Management Board. My name is Patrick Geer; I'm the chairman of the board. I welcome you all here today.

APPROVAL OF AGENDA

The first order of business is to approve the agenda. Are there any changes to the agenda; any additions to the agenda? Seeing none; we will consider it approved.

APPROVAL OF PROCEEDINGS

Now the proceedings from May 2015; any changes to those proceedings? Any objections to the proceedings? Seeing none; we'll consider those approved as well.

PUBLIC COMMENT

Is there any public comment? Seeing none and hearing none, we'll move on. Item Number 4 is considering the extension of the provision for Addendum I on Spanish Mackerel FMP for North Carolina.

EXTENSION OF ADDENDUM 1 TO THE SPANISH MACKEREL FMP

Just to give you a quick update on it; North Carolina had asked for an 11.5 inch minimum for their commercial pound net for July through September. They asked it for two years. Michelle Duval is going to give us a report on that, and they we're going to consider extending that.

DR. MICHELLE DUVAL: I'll be pretty brief. I think most folks have had a chance to look at the report. You'll see from the numbers that the overall proportion of harvest of Spanish mackerel from our pound net fishery is really low. It averages anywhere between 3 and 5 percent of our overall Spanish mackerel harvest.

You can see from the tables in the report that Spanish mackerel harvest in 2013, which was the first year this exemption from the minimum size limit was allowed, actually decreased pretty significantly. We're not quite sure why that happened, but in general the overall proportion of Spanish mackerel harvest from pound nets remain the same despite the rather significant decrease in overall commercial harvest.

I think one of the other things we saw was that based on our fishery-dependent sampling; that there actually was a fairly significant percentage of fish that were actually outside of that 11.5 inch limit exemption. If you look at Table 4 in the report, looking at 2013, 23 percent by number, according to our fish house sampling, of fish were below 11.5 inches.

There is probably a number of reasons that led to this. First of all, this is a fishery occurs in a really small area. It is mostly just inside the Outer Banks along the eastern edge of Pamlico Sound. These fish are moving through at a pretty quick clip. This generally for us happens mostly in July in August is what we've heard from industry when these smaller fish are coming through. I think you can see that the majority of our harvest occurs like June, July and August. Despite the fact that there was this rather higher proportion of undersized fish than what we expected in 2013, one of the other things that might have led to this was some decreased opportunities for fishery-dependent sampling. If those fish are coming through really quickly, that can decrease the ability of our biologists to get out there and get to the fish house before the

fish actually leave and are moving out through markets.

I think just talking to staff this appears to have been what happens, which impacts our ability to appropriately characterize the fishery the fewer fish house samples we have. When you do those extrapolations, there is a lot more uncertainty in those numbers. However, you see that in 2014 that proportion of undersized fish did go back down.

I think just to put things in perspective, even if you take those proportions from the July through September time frame and apply them to sort of the overall harvest of fish that occurs during those months, I think it was something like 8,500 pounds total that were harvested underneath the minimum size limit. It is a fairly small proportion.

I think we're asking for the board's indulgence to allow for this program to continue for another two years and come back to you again with a report next year as to the results from 2015 sampling. We've had some mixed reviews from the industry. I think they thought that this might be a little bit more helpful to them.

It may be turning out that it is not saving them as much time as they thought in terms of just bailing the net and being able to visually account for whether or not these fish are within that size-limit exemption as opposed to having to actually take the time to measure them. This is the time of year when the fish tend to die pretty rapidly. The whole intent of this was to minimize those dead discards. With that, I'm happy to answer any questions, Mr. Chairman.

CHAIRMAN GEER: Just to let everybody know and remind everybody since their season began in July and we weren't meeting until August, we had an electronic vote. The vote was unanimous to allow this to continue for this year. I will open the floor to any questions anybody has for Michelle. Seeing none; we will need a motion to approve this extension. Jim Estes.

MR. JIM ESTES: I will see if I can do this pretty concisely. I move that we extend Addendum I to the Spanish Mackerel FMP for another two years and allow reporting on an annual basis from North Carolina.

CHAIRMAN GEER: I have a second from Marty. This was would be for the 2015 and 2016 fishing seasons. It was seconded by Mr. Gary. Jim, was this your intent?

MR. ESTES: Yes.

MR. ROBERT H. BOYLES, JR.: Mr. Chairman, just a clarification and maybe I misunderstand. Is that the proper characteristic or characterization of what we're doing? This isn't the addendum. This is a provision that is allowed under the addendum. I'll look to Dr. Duval for clarification.

DR. DUVAL: Yes; I believe that would be the case that we're simply asking for the provisions that are within the addendum to be extended for another two years.

CHAIRMAN GEER: We would need a rewording of this, Jim.

MR. ESTES: What Robert said; move to extend the provisions of Addendum I of the Spanish Mackerel FMP for another two years with annual reporting to the board.

CHAIRMAN GEER: Marty, that's okay with you? Okay, I'll read it and then we'll take quick vote on that. Move to extend the provisions to Addendum I of the Spanish Mackerel FMP for another two years with annual reporting to the board. Motion by Mr. Estes; seconded by Mr. Gary. All in favor raise your hand; opposed. It's unanimous; the motion is carried.

DR. DUVAL: Thank you, Mr. Chairman; and thank you to the rest of the board. We very much appreciate this.

TRAFFIC LIGHT ANALYSIS

CHAIRMAN GEER: The next item on the agenda is an update of the traffic light assessment for Atlantic croaker and spot. We've already seen some of this today. That is going to be given by Harry Rickabaugh.

MR. HARRY RICKABAUGH: The traffic light was adopted in 2013 for both species. It requires that both the harvest and adult abundance composite indices exceed a threshold of either 30 percent for moderate management action or 60 percent for elevated management action. The threshold must be exceeded for two years for spot and three years for croaker.

Atlantic Croaker

I'm going to start by going through croaker first. The whole presentation is basically going to be these charts. They're color-proportion charts. Just as a quick refresher; the way the traffic light works is the green to yellow proportion line is the long-term mean from the reference period. One confidence limit below from the mean to long confidence limit below is the yellow proportion.

This indicates an area where it is below average but still within acceptable range of variation. Then as you move into red; that would be two confidence limits below the mean of the reference period. As you move below that is when the proportion of red begins to increase. This first slide is the harvest component for the croaker, but it is the two different components that make up the composite.

The top graph is commercial only; the bottom graph is recreational only. Commercial landings in 2014 declined 41 percent from those of 2013. This is a continued decline that began in 2005. The commercial landings were above 60 percent proportion of red for the past two years. The recreational landings also declined by 22 percent. This was the third lowest value of the MRIP estimate time series.

Again, these are the individual and not the ones that would trigger the management. The next slide is the composite of those two. You can see the 30 percent level is on the graph. For croaker, for the harvest composite, the past four years have been above the 30 percent. Since the analysis was initiated in 2013, only years from 2013 on are considered tripped so we have two years for the commercial that is tripped. Again, for croaker it requires three.

Next we'll go through the fishery independent. These are the two indices used for the adult abundance, the Fisheries Service fall groundfish survey and the SEAMAP survey. The first one on the board here is the groundfish survey. It was showing basically around the near mean levels for several years; still is here, but now is starting to show a little bit of red. The next survey is the SEAMAP survey. This one also was indicating above average catches through 2012 and '13, but declined sharply in 2014 by 64 percent.

We also look at two juvenile indices for croaker. Now, these aren't part of the hard trigger, but are looked at to give us an idea of potential recruitment. The first one is the North Carolina Juvenile Index. It indicates strong year classes in 2010 and 2012 with a more moderate to average year class in 2014.

The second one is the VIMS Trawl Survey; and it indicates also fairly strong year classes in 2010 and '12 but extremely poor year class in 2014. The two composites for the fishery-independent indices; the top one is the adult, which is the one that is part of the trigger. As you can see, it did not cross the 30 percent proportion in any recent years, but has shown a declining trend in the past couple of years.

The juvenile indices, as you would expect, are split for 2014 with a high proportion of red, which is driven by the VIMS index. When you combine the two together, you do see those strong 2010 and 2012 year classes. To sum it up, the harvest adult indices did not trigger.

However, the declining trends in all the indices, because they all were down in 2014, does bear further watching for the next few years.

The technical committee is hoping to get better stock status for the current population and updated reference points from the stock assessment that was just initiated. Do you want me to continue going through spot or do I stop for croaker?

CHAIRMAN GEER: Why don't we take any questions anybody has right now. Do we have any questions, any discussion? I just had one real quickly. Is there explanation of what happened with the VIMS Trawl Survey, with the juveniles that it was that bad?

MR. RICKABAUGH: One possible explanation is a hard winter we had in the northern region. Croaker are very susceptible to winter kill as juveniles; and that might be why you see that poor year class in the north and not in the south.

CHAIRMAN GEER: Any other questions? Let's go on to spot.

Spot

MR. RICKABAUGH: Okay, the same structure for this part of the presentation just as for spot. The commercial is on the top again; the recreational on the bottom. These are the individual and not the composite index. Commercial landings were down 76 percent in 2014. That is continuing a decline that began in 2004. If you look at the graph, it is basically been on a declining trend with alternating years with increasing declines.

The recreational harvest on the bottom did increase by about 10 percent in 2014, but is still below the long-term mean and is still showing a small proportion of red. When you look that combined composite index, you'll see that every other year for the past five years has been above the 30 percent threshold but 2013 was not; so technically this would not have tripped as part of the trigger exercise. Again, we'll look at the

same two trawl surveys that were used for the abundance characteristics for adults.

That is the fall groundfish survey that is on the screen now indicated above average catches; actually the highest catch or the highest index on record was in 2012, but it has declined sharply the past two years. 2014 was a 90 percent decline from 2013. The short-live species like spot, some of these rapid changes aren't out of the usual.

SEAMAP, on the other hand, was also down in 2013; had an increase in 2014, but still was around 30 percent proportion of red. For spot we only used one juvenile index. It is the Maryland Striped Bass Seine Survey. As you can see it is pretty variable as you would expect with a juvenile index, but the past four years have been average to below average, including a very poor year in 2011.

The composite index on the top, this would be for the adult abundance characteristic, it was above the 30 percent proportion of red in both 2013 and 2014; so this part of the trigger did trip. However, since the commercial did not trip, management action would not be required at this time. Given that all composite indices are showing increases proportions of red, there is cause for concern with spot.

Given that the benchmark stock assessment has begun, much like croaker this is the initial stock assessment for spot, however, so the PRT is hoping that we can get a better picture of stock status and hopefully some biological reference points to compare those two from the stock assessment. With that, I'm happy to take any other questions.

CHAIRMAN GEER: Any questions for Harry? Seeing none; thank you very much, Harry. We're looking forward to seeing these assessments and what comes out of those in the next couple of years. All right, the next item on the agenda is the stock assessment updates by Jeff Kipp.

ASSESSMENT UPDATES

MR. JEFF J. KIPP: I'm going to be giving two updates on current assessments. The first, red drum, is wrapping up now. That assessment will be peer reviewed August 24th through the 27th in Charleston. That is undergoing a SEDAR peer review. Again, those results from that assessment and peer review will be presented at the annual meeting.

The other assessments are the Atlantic Croaker and Spot Assessments. Those assessments will be going through joint assessments. The data workshop for those assessments will be occurring the end of September down in Raleigh, North Carolina. Again, for those assessments, they will be going under a SEDAR peer review next year; and those also will be made available at the annual meeting in 2016. If there are any questions about those assessments, I'd be glad to take them now.

CHAIRMAN GEER: Any questions? We're all waiting for that annual meeting when we get to sit here for red drum. That will give us a little bit more than 90 minutes for the meeting. Are you ready to move on to the terms for croaker?

TERMS OF REFERENCE FOR ATLANTIC CROAKER AND SPOT ASSESSMENTS

MR. KIPP: Revisiting the Spot and Croaker Stock Assessment, I'll be going over the terms of reference for those stock assessments; again a joint stock assessment for both those species. Just a review of the terms of reference, as you've seen for all or our previous assessments are to guide the stock assessment and peer review of that assessment.

These were developed by the Atlantic Croaker Technical Committee, Spot Plan Review Team and the Atlantic Croaker and Spot Joint Stock Assessment Subcommittee. These will be the same TORs for both species. These are the ones for Atlantic croaker here; but, again, it is just the same TORs for spot. I'll be going over a

summarized set of the TORs that you've got in your meeting materials.

The first term of reference will be to characterize uncertainty of all the fishery-dependent and fishery-independent data used in the assessments; review estimates of PSEs and MRIP recreational fishing estimates; request participation of MRIP staff in the data workshop process to compare historical and current data collection and estimation procedures and to describe data caveats that may affect the assessment.

Develop estimates of Atlantic croaker discards in the South Atlantic Shrimp Trawl Fishery; develop estimates of bycatch and discards in other fisheries where possible; and characterize uncertainty of all discards and bycatch estimates. Again, we will have this same TOR for spot. Develop models used to estimate population parameters and biological reference points and analyze model performance.

State assumptions made for all models and explain the likely effects of assumption violations on synthesis of input data and all model outputs. Characterize the uncertainty of model estimates and biological and empirical reference points; perform retrospective analyses; assess magnitude and direction of retrospective patterns detected; and discuss implications of any observed retrospective patterns for uncertainty in population parameters, reference points and/or management measures.

Recommend stock status as related to reference points and also evaluate other potential scientific issues specific for spot and croaker. We'll compare trends and population parameters and reference points with the current and proposed modeling approaches and assessment to the traffic light approach, which Harry just went over. If outcomes differ, discuss potential causes of observed discrepancies.

Also compare reference points derived in this assessment with what is known about the

general life history of the exploited stocks and explain any inconsistencies. If a minority report has been filed, explain the majority reasoning against adopting the approach suggested in that report. The minority report should explain reasoning against adopting approach suggested by the majority.

Develop detailed short- and long-term prioritized list of recommendations for future research, data collection and assessment methodology; and highlight improvements to be made by the next benchmark review.

The final TOR is to recommend timing of next benchmark assessments and intermediate updates if necessary relative to the biology and current management of spot and Atlantic croaker. That covers all the TORs for the stock assessment. If there are any questions on this, I'd be glad to take those.

CHAIRMAN GEER: Are there any questions? Robert.

MR. BOYLES: Mr. Chairman, I move that we approve the terms of reference as presented.

CHAIRMAN GEER: Do I see a second; Russ Allen. Are there any objections? Any other comments on the motion? Seeing no objections; it is moved that we accept the terms of reference. Motion by Mr. Boyles and seconded by Mr. Allen. Toni.
MS. TONI KERNS: Just a quick update for the board. The Spot and Croaker Committee had requested that instead of going through a SEDAR Review; that we go through an ASMFC External Peer Review. Without objection from this board, we would have the ASC look at that and then talk to SEDAR about potentially removing 2016 for this peer review approach.

CHAIRMAN GEER: Is there any objection to that? We don't have to do a motion or anything; do we?

MS. KERNS: We will take that to the ASC and then it would be considered at the Policy Board at the annual meeting.

CHAIRMAN GEER: Move to accept the terms of reference for the Atlantic Croaker Assessment as presented. Motion by Mr. Boyles and seconded by Mr. Allen. The motion was carried unanimously.

MS. KERNS: Since that motion didn't include spot, we'll need –

CHAIRMAN GEER: That is what I was thinking, too.

MS. KERNS: We'll need a second motion for spot.

MR. BOYLES: Mr. Chairman, I move that we accept the terms of reference for Spot as presented.

CHAIRMAN GEER: Seconded by Michelle. All right, move to accept the terms of reference for the Spot Assessment as presented. Motion by Mr. Boyles and seconded by Dr. Duval. Any objection? Seeing none; motion approved. Jeff, is there anything else? All right, thank you very much, Jeff; we appreciate it. The last item on the agenda is the Fishery Management Plan Reviews. We've got three of them, so Megan is going to go through each one and then we're going to approve the plan and the compliance reports and de minimis for each one just to keep it a little bit cleaner.

ATLANTIC CROAKER FMP REVIEW

MS. MEGAN WARE: The first one that I'll be going through is Atlantic croaker. In terms of status of the fishery, this graph here showing total harvest with blue bar is commercial harvest and the recreational harvest in red. Overall there has been a decrease in landings in the Atlantic croaker fishery since 2003. This figure shows the total catch of both commercial and recreational landings.

In 2014 Atlantic croaker harvest was estimated at 10.07 million pounds; and this represents a 75 percent decline since the peak of 41.2 million pounds in 2001. Looking specifically at the trends in the commercial sector, which is again those blue bars, landings have decreased from a high of 30.1 million pounds in 2001 to 7 million pounds in 2014; and this does register below the time series of 13.4 million pounds.

The majority of commercial landings came from Virginia and North Carolina. Looking specifically at recreational catch, we have a graph here that shows the number of fish, not pounds but number. The blue bars are landings and the green bars are those that were released alive. The number of fish recreationally caught has declined in the last decade. The 2014 landings are estimated at 6.2 million fish. Virginia was responsible for the majority of this; and that was then followed by Maryland.

In 2014 anglers released roughly 10 million fish, which is 62 percent of the croaker catch. In terms of status of the stock, our latest assessment is the 2010 assessment. This found that the stock is not experiencing overfishing. However, model estimates of the spawning stock biomass were too uncertain to be used to precisely determine an overfished stock status.

As we just saw from Harry, the traffic light analysis shows a declining harvest and abundance indices. We will be looking forward to the 2016 stock assessments for information. In terms of state compliance and de minimis requests, we are currently under Amendment 1. Since there are no specific management measures restricting harvest in Amendment 1, the PRT finds that all states have fulfilled the requirements of Amendment 1.

For de minimis status, states are permitted to request de minimis status if for the preceding three years their average commercial landings or recreational landings constitute less than 1 percent of the coast-wide commercial or

recreational landings for that same three-year period. We had requests from four states.

We had requests from Delaware in the commercial fishery; South Carolina in their commercial fishery; Georgia in their commercial and recreational fishery; and Florida in their commercial fishery. We found that all of these states did qualify for de minimis. However, de minimis does not exempt any of the states from compliance requirements.

In terms of recommendations, the PRT does recommend the board approve the 2014 Atlantic Croaker FMP Review, state compliance reports and de minimis status for Delaware, South Carolina, Georgia and Florida. They suggest that the board review the stock status after the 2016 assessment.

For research, their top three priorities were to develop and implement sampling programs for the South Atlantic Shrimp Trawl Fishery in order to analyze Atlantic croaker bycatch; to continue fishery-independent surveys throughout the range but especially in the southern range; and then to determine migratory patterns through cooperative tagging studies. With that, I will take any questions and wait for board action.

CHAIRMAN GEER: Any questions for Megan? Michelle.

DR. DUVAL: Mr. Chairman, I was just prepared to offer a motion if there were no questions.

CHAIRMAN GEER: Are there any questions or comments? We'll take that motion at this time.

DR. DUVAL: I would move to approve the Atlantic Croaker FMP Review, the state compliance reports and the de minimis requests for Delaware, South Carolina, Georgia and Florida.

CHAIRMAN GEER: Second to that motion by Robert Boyles.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Pat, I think we may need to clarify commercial and recreational because I think Delaware, South Carolina and Florida were just commercial and Georgia was both or something along those lines.

MS. WARE: Yes; that's correct.

CHAIRMAN GEER: I was going to say if it said de minimis requests, would that cover that?

EXECUTIVE DIRECTOR BEAL: Either way, but I think Max is almost done.

CHAIRMAN GEER: Dr. Duval; are you okay with that; Mr. Boyles? All right, let me read the motion: Move to approve the 2015 Atlantic Croaker FMP Review, state compliance reports and de minimis status for Delaware, commercial; South Carolina, commercial; Georgia, commercial and recreational; and Florida, commercial. Motion by Dr. Duval; seconded by Mr. Boyles. Any opposition to that? Everyone is in favor? Seeing no opposition; the motion carried unanimously. We'll move on to red drum.

RED DRUM FMP REVIEW

MS. WARE: This is now the FMP Review for red drum. This shows total landings of red drum in kind of that pink color from New Jersey through the east coast of Florida. The total landing estimates for 2014 are 2.45 million pounds. This represents roughly a 650,000 pound decrease from 2013; but it is above the ten-year average.

Looking just at commercial landings, which are the black bars at the bottom of the graph, they represent just 4 percent of landings in 2014. They really showed no particular temporal trends ranging from approximately 55,440 over the last 50 years. In 2014 the coast-wide commercial harvest decreased from just over 400,000 pounds in 2013 to just over 100,000 pounds; and 88 percent of these landings are coming from North Carolina.

In North Carolina the commercial harvest is unique in that it is capped by a 258,000 pound annual cap; and their fishing season is from September 1st through August 31st. Just as a reminder, in November 2013 the harvest exceeded the cap for the 2013/2014 fishing year; and it was closed. The annual cap for the 2014/2015 season has been reduced to account for this overage.

Looking specifically at recreational catch, this graph shows catch again in numbers of fish with the releases in yellow and harvest in blue. Recreational harvest of red drum peaked in 1984 at just over one million fish. Since 1988 that number has fluctuated between 250,000 and 760,000 fish. In 2014 we are at the higher end of that range with just over 641,000 fish. This is higher than the ten-year average.

Florida anglers landed the largest share of this coast-wide recreational harvest followed by North Carolina and then South Carolina. Anglers released far more red drum than they keep; and the percentage of catch has generally been around 80 percent. Specifically for 2014 anglers released 83 percent.

In terms of the location of the catch, 57 percent of total landings are from the South Atlantic Region in 2014; and this is where the fishery is exclusively recreational. Just as a reminder, Florida prohibited commercial harvest in 1988. South Carolina banned commercial harvest or sale of native-caught red drum in 1987; and then most recently in 2013 Georgia designated red drum as game fish status.

Then of these; 43 percent of total landings are coming from the Mid-Atlantic; and those are shown in the darker gray colors with the commercial sector shown in the darkest gray. In terms of status of the stock, our most recent approved assessment is the 2009 stock assessment, which found that overfishing is not occurring.

However, there was relatively known about the adult population of red drum since the fish are found primarily found offshore in waters where red drum are prohibited being caught under federal law. The end result of this was a limitation in the stock assessment that did not adequately describe the adult component of the population.

Right now, as just mentioned, we have the 2015 stock assessment underway; and it will be going through peer review later this month. In terms of the status of management, we're currently under Amendment 2, which considers a static spawning potential ratio of 40 percent a target and a static spawning potential ratio below 30 percent to result in an overfishing determination.

All states in the management area were required to implement appropriate recreational bag and size limit combinations needed to achieve this target. Amendment 2 also required states to maintain or implement more restrictive commercial fishery regulations and then also required a maximum size of 27 inches. All states have implemented these regulations and found to be in compliance.

The PRT finds that all states have fulfilled the core requirements of Amendment 2 in terms of de minimis status. Amendment 2 states that a state may be granted de minimis if the board determines that action by a state would not contribute significantly to the overall management program. However, no time period or percent of fishery is specified.

What the PRT has been using is to evaluate the state's contribution to the fishery by comparing each state's two-year average of combined commercial and recreational landings to the management unit. We had two de minimis requests; one from New Jersey and one from Delaware. We found that they qualify for de minimis. However, again this does not exempt any states from compliance requirements.

Recommendations from the PRT are to approve the FMP Review, state compliance reports and de minimis status. For research their top two priorities are to improve catch-and-effort estimates and biological sampling to determine the size and age structure; regulatory discards; and also to explore methods to effectively sample the adult population. With that, we'll take any questions and then board action.

MR. BOYLES: Megan, good presentation. On your slide that depicted the proportion of the recreational take, you characterized it as Mid-Atlantic and South Atlantic. Is that parallel to what is considered under the last stock assessment, the '09 stock assessment, the northern sub-stock and the southern sub-stock. Maybe the better way to ask that question is what is considered Mid-Atlantic; is it Virginia north?

MS. WARE: The northern stock is from North Carolina up.

MR. BOYLES: Mr. Chairman, with no more questions, I would offer a motion that we approve the FMP Review as well as the de minimis requests from New Jersey and Delaware for red drum.

CHAIRMAN GEER: Seconded by Michelle. All right, the motion is move to approve the 2015 Red Drum FMP Review, state compliance reports and de minimis status for New Jersey and Delaware. Motion by Mr. Boyles; seconded by Dr. Duval. Is that separated into commercial and recreational?

MS. WARE: It is combined commercial and recreational.

CHAIRMAN GEER: Okay, any other discussion on the motion? Any opposition? Consider the motion carried unanimously. Now we're onto the last one, black drum.

BLACK DRUM FMP REVIEW

MS. WARE: This is the first FMP Review for black drum. The compliance reports were due March 1st; so there wasn't enough time for states to get their 2014 recreational and commercial harvest information together; so this is going to be on 2013 landings; just so you know. Total black drum harvest in 2013 is estimated at 1.8 million pounds.

This represents an 84 percent increase from total harvest in 2012; but it is still below the previous ten-year average. The fishery is primarily recreational, which is shown in the white bars here, with 84 percent of harvest coming from the recreational sector. If we look at the black bars, which is the commercial sector, landing show no particular temporal trends over the last ten years.

In 2013 coast-wide commercial harvest increased from roughly 237,000 pounds in 2012 to 284,000 pounds in 2013. The majority of this catch is coming from North Carolina. Looking specifically a recreational catch of black drum – again this is in number of fish – we have those released in yellow and the harvest in blue.

Recreational harvest of black drum peaked in 2008 with 789,000 fish; and then the 2013 harvest was just over 600,000 fish. North Carolina anglers landed the largest share of this coast-wide recreational harvest followed by Florida. Anglers released approximately the same number of black drum that they keep; and this proportion was 47 percent in 2013.

If we look at the status of the stock, we have our most recent stock assessment from 2015, which said that the stock is not overfished and not experiencing overfishing. However, the median biomass is estimated to be slowly declining, although it is estimated to be well above that level necessary to produce maximum sustainable yield.

In terms of the status of management, we are looking at the 2013 Interstate Fishery Management Plan. Some of the measures of that plan requires states to implement a maximum possession limit and also a minimum size; so it had to be 12 inches by January 1, 2014; and it must be 14 inches by January 1, 2016.

As of January 1, 2014, all states have implemented a minimum size of 14 inches, so everyone is in compliance and ahead of schedule. The PRT finds that all states have fulfilled the requirements of the Interstate Fishery Management Plan for Black Drum. For de minimis, it is qualified that a state can apply for de minimis if for the three preceding years for which data is available their average combined commercial and recreational landings constitute less than 1 percent of the coast-wide landings. However, we did not get any requests for de minimis status.

The PRT recommends that the board approve the 2014 Black Drum Fishery Management Plan Review and state compliance reports. They also suggested that as more data becomes available and the size increases that are there for a couple of years, to really review the impact of the increased minimum size. For research their top two priorities are to collect information to characterize the size composition of fish discarded; to collect age samples, especially in states where the maximum size regulations preclude the collection of adults; and to obtain estimates of selectivity at age for the commercial fisheries by gear. With that, I'll take any questions and wait for board action.

MR. BOYLES: Megan, you mentioned the compliance report due date precluded us looking at the '14 data. Is that something that we need to consider changing, the due date?

MS. WARE: Potentially I'm not sure that board action would require that, but that is a question for the board.

CHAIRMAN GEER: Yes; we've had that problem, too, Robert.

MS. KERNS: If the board would like to change the compliance date, we can do that. You don't have to have a motion. If there is consensus of the board, we can update that in our documents and make the changes to when we send out the memos. We may need to confer back with maybe your technical committee members to see what would be the appropriate time for folks to be able to get the data in. We may have to line it up.

MR. BOYLES: I'm not clear whether it might have been a problem for my folks; I don't know. I'm a little ignorant, but I'd to guidance from the other members of the board on what might be a better date so that we're looking at more recent data. I think we could make a March 1st deadline for the previous year. I'm a little in dark. I'm not quite sure; and maybe, Toni, you can help me out.

MS. KERNS: I believe what Megan said is that the data were not available yet; and so it is when the data come in and not necessarily that you couldn't work it up. That is why I suggested maybe get some information back from the technical committee folks or the individuals that are submitting and then come back at the annual meeting and suggest a new compliance date.

CHAIRMAN GEER: That sounds like a good idea. I see heads nodding. We don't want to go ahead and create a date and find out it is worse than the one we have now. Any other questions or comments on the black drum? I'm going to need a motion. Michelle.

DR. DUVAL: Mr. Chairman, I move that we approve the Black Drum FMP Review and state compliance reports.

CHAIRMAN GEER: Second from Wilson Laney. The motion is to approve the 2015 Black Drum FMP Review and state compliance reports. Motion by Dr. Duval; seconded by Dr. Laney. Any further discussion? Hearing none; no

opposition? Everyone is okay? The motion carried unanimously.

REVIEW OF FEDERAL ACTION ON SPANISH MACKEREL

MS. WARE: There is just one other piece of other business. This is included in I believe your briefing materials, but I just wanted to let everyone know that NMFS did implement management measures in Framework Amendment 2 to the Fishery Management Plan for the Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region. This does impact Spanish mackerel.

The final rule establishes a commercial trip limit of 3,500 pounds for Spanish mackerel in federal waters offshore of South Carolina, Georgia and Eastern Florida. Then when 75 percent of this adjusted Southern Zone quota is met, the commercial trip limit will be reduced to 1,500 pounds. Then when 100 percent of the adjusted quota is met, the commercial trip limit will be reduced to 500 pounds. I just wanted to let everyone know that information is in your briefing materials in case states have to make any changes.

CHAIRMAN GEER: Is there any new business in front of this board at this time? Hearing none; we are adjourned.

ADJOURNMENT

(Whereupon, the meeting was adjourned at 11:40 o'clock a.m., August 6, 2015.)

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