

Atlantic States Marine Fisheries Commission

ISFMP Policy Board

February 8, 2018
10:15 a.m. - 1:15 p.m.
Arlington, Virginia

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*) 10:15 a.m.
2. Board Consent (*J. Gilmore*) 10:15 a.m.
 - Approval of Agenda
 - Approval of Proceedings from October 2017
3. Public Comment 10:20 p.m.
4. Update from Executive Committee (*J. Gilmore*) 10:25 a.m.
5. Review and Consider Commonwealth of Virginia Appeal of Amendment 3 to the Atlantic Menhaden Fishery Management Plan (*T. Kerns*) **Final Action** 10:30 a.m.
6. Review and Consider the Climate Change Working Group White Paper (*T. Kerns*) **Final Action** 11:30 a.m.
7. Habitat Committee Report (*L. Havel*) **Final Action** 11:50 a.m.
 - Review and Consider Climate Change Gaps and Recommendations Report
 - Review and Consider Submerged Aquatic Vegetation Policy Report
8. Lunch Break 12:00 p.m.
9. North Atlantic Right Whale 5-Year Review and Re-initiation of Endangered Species Act Section 7 Fishery Biological Opinion (*M. Asaro*) 12:20 p.m.
10. Review and Consider Approval of 2019 American Shad Stock Assessment and Peer Review Terms of Reference (*J. Kipp*) **Action** 12:50 p.m.
11. Bureau of Ocean Energy Management Update Regarding Renewable Lease Status and Future Leasing (*B. Hooker*) 1:00 p.m.
12. Review Non-Compliance Findings, if Necessary/Other Business **Action** 1:10 p.m.
13. Adjourn 1:15 p.m.

The meeting will be held at the Westin Crystal City, 1800 Jefferson Davis Hwy, Arlington, Virginia; 703.486.1111

MEETING OVERVIEW

ISFMP Policy Board Meeting

Thursday February 8, 2018

10:15 a.m. -1:15 p.m.

Arlington, Virginia

Chair: Jim Gilmore (NY) Assumed Chairmanship: 10/17	Vice Chair: Pat Keliher (ME)	Previous Board Meeting: October 2017
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 October 2017

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 (10:25-10:30 a.m.)

Background

- The Executive Committee will meet on February 7 , 2018

Presentations

- J. Gilmore will provide an update of the committees work

Board action for consideration at this meeting

- none

5. Review and Consider Commonwealth of Virginia Appeal of Amendment 3 to the Atlantic Menhaden Fishery Management Plan (10:30-11:30 a.m.) Final Action

Background

- Amendment 3 to the Atlantic Menhaden FMP was approved in November 2017 (**briefing materials**). The Amendment established changes to the management of the menhaden fishery including reference points, allocation, quota transfers and the Chesapeake Bay Fishery Cap (Bay Cap).
- Virginia is appealing the approval of the amendment (**briefing materials**).
- Following the Appeal Process (**briefing materials**), Commission leadership reviewed the appeal and determined the appeal should be considered by the ISFMP Policy

Board under criterion 3, incorrect application of technical data for the Bay Cap (briefing materials).
Presentations <ul style="list-style-type: none"> • T. Kerns will present a background on the development of the management program as well as a summary of the justification provided in the record for the management board’s action. The ISFMP Director will also present the potential impacts of the appeal on other affected states • Virginia will present their rationale for appealing the decision under criterion 3 for the Bay Cap and provide a suggested solution.
Board discussion for consideration at this meeting <ul style="list-style-type: none"> • Consider the Appeal of Amendment 3 to the Atlantic Menhaden FMP

6. Review and Consider the Climate Change Working Group White Paper (11:30-11:50 a.m.) Final Action
Background <ul style="list-style-type: none"> • The Climate Change Work Group was tasked with developing science, policy and management strategies to assist the Commission with adapting its management to changes in species abundance and distribution resulting from climate change impacts. • In fall of 2016 the Work group met via conference call to brainstorm how to address the Policy Board task. • Throughout 2017 the working group met to continue to develop drafts of science and policy white papers. • In October staff presented a draft of the Climate Change White Paper. After feedback from NOAA Fisheries the white paper was edited.
Presentations <ul style="list-style-type: none"> • T. Kerns will review the Climate Change White Paper (briefing materials)
Board action for consideration at this meeting <ul style="list-style-type: none"> • Approve the Climate Change White Paper

13. Habitat Committee Report (11:50 a.m.-12:00 p.m.) Final Action
Background <ul style="list-style-type: none"> • A report identifying climate change gaps and recommendations has been finalized by the Habitat Committee (briefing materials) • The Habitat Committee has completed a draft of the ASMFC SAV Policy Update (briefing materials) • The 2017 Habitat Hotline Atlantic was released in December
Presentations <ul style="list-style-type: none"> • L. Havel will present an overview of the Habitat Committee’s reports on SAV Policies and the Climate Change Gaps and Recommendations
Board action for consideration at this meeting <ul style="list-style-type: none"> • Approve the Climate Change Gaps and Recommendations Report • Approve the SAV Policy Update

8. Lunch Break (12:00-12:20 p.m.)

9. North Atlantic Right Whale 5-Year Review and Re-initiation of Endangered Species Act Section 7 Fishery Biological Opinion (12:20-12:50 p.m.)

Background

- In September 2017, new information was made available that indicates the North Atlantic right whale abundance has been in decline since 2010 (**briefing materials**).
- A re-initiation of formal consultation on the fisheries covered by the ISFMP (lobster, bluefish, spiny dogfish, summer flounder, scup, and black sea bass) is required due to the new information regarding the changed status of right whales.

Presentations

- M. Asaro will present on the North Atlantic Right Whale Five-Year Review and re-initiation of formal consultation due to new information on the changed status of right whales

Board action for consideration at this meeting

- None

10. Review and Consider Approval of the 2019 Shad Stock Assessment and Peer Review Terms of Reference (12:50-1:00 p.m.) Action

Background

- The next American shad benchmark stock assessment is scheduled to be completed in the summer of 2019.
- The Shad and River Herring Stock Assessment Subcommittee has recommended a set of terms of reference for the assessment and peer-review panel (**briefing materials**).

Presentations

- J. Kipp will present the terms of reference.

Board action for consideration at this meeting

- Approve the 2019 shad stock assessment and peer review terms of reference.

11. Bureau of Ocean Energy Management Update Regarding Renewable Lease Status and Future Leasing (1:00-1:10 p.m.)

Background

- The BOEM has 11 active renewable energy leases from MA to NC and is considering additional lease sales in 2018 and 2019.
- BOEM has committed via Northeast and Mid-Atlantic Ocean Plans to coordinate with the ASMFC.

Presentations

- B. Hooker will give a brief presentation on the status of current and future leases.

Board action for consideration at this meeting

- None.

9. Review Non-Compliance Findings, if Necessary Action

10. Other Business

11. Adjourn

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ISFMP POLICY BOARD**

**The Marriott Norfolk Waterside
Norfolk, Virginia
October 19, 2017**

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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1. **Approval of Agenda by Consent** (Page 1).
2. **Approval of Proceedings of August 2017** by Consent (Page 1).
3. **Main Motion**
On behalf of the Atlantic Herring Section, I move the Commission to send a letter to the New, England Fishery Management Council to establish a Working Group with the goal of improving communication between the two bodies (Page 4). Motion by Ritchie White. Motion Amended.

Motion to Amend
Move to amend to include to provide a permanent non-voting seat to the New England Fishery Management Council on the Atlantic Herring Section (Page 7). Motion by Eric Reid; second by Ritchie White. Motion carried (Page 7).

Main Motion as Amended
On behalf of the Atlantic Herring Section, move the Commission to send a letter to the New England Fishery Management Council to establish a Working Group with the goal of improving communication between the two bodies and to provide a permanent non-voting seat to the New England Fishery Management Council on the Atlantic Herring Section.
4. **Move to approve the recommended changes to the CESS Membership requirements in the ISFMP Charter as modified to reflect the Policy Board discussion today** (Page 30). Motion by John Clark; second by Jim Estes. Motion carried (Page 30).
5. **Motion to Adjourn** by consent (Page 30).

ATTENDANCE

Board Members

Pat Keliher, ME (AA)	John Clark, DE, proxy for D. Saveikis (AA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Doug Grout, NH (AA)	David Blazer, MD (AA)
Ritchie White, NH (GA)	Rachel Dean, MD (GA)
Raymond Kane, MA (GA)	Ed O'Brien, MD, proxy for Del. Stein (LA)
David Pierce, MA (AA)	John Bull, VA (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Rob O'Reilly, VA, Administrative proxy
Jason McNamee, RI, proxy for J. Coit (AA)	Chris Batsavage, NC, proxy for B. Davis (AA)
David Borden, RI (GA)	David Bush, NC, proxy for Rep. Steinburg (LA)
Mark Alexander, CT (AA)	Robert Boyles, SC (AA)
James Gilmore, NY (AA)	Malcolm Rhodes, SC (GA)
Russ Allen, NJ, proxy for L. Herrighty (AA)	Spud Woodward, GA (AA)
Tom Fote, NJ (GA)	Pat Geer, GA, proxy for Rep. Nimmer (LA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Jim Estes, FL, proxy for J. McCawley (AA)
Andy Shiels, PA, proxy for J. Arway (AA)	Sherry White, USFWS
Roy Miller, DE (GA)	Lindsay Fullenkamp, NMFS

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

Ex-Officio Members

Staff

Bob Beal	Mark Robson
Toni Kerns	

Guests

Heather Corbett, NJ DFW	Jack McGovern, NMFS
Dan Crear, VIMS	Brandon Muffley, MAFMC
Michelle Duval, NC DMF	Derek Orner, NOAA
Lynn Fegley, MD DNR	Chris Wright, NMFS
Ryan Jiorle, VMRC	

The ISFMP Management Board of the Atlantic States Marine Fisheries Commission convened in the Hampton Roads Ballroom V of the Marriott Waterside Hotel, Norfolk, Virginia, October 19, 2017, and was called to order at 9:39 o'clock a.m. by Chairman Douglas E. Grout.

CALL TO ORDER

CHAIRMAN DOUGLAS E. GROUT: I think we've got a quorum; so we're going to start the meeting of the Policy Board. I would like to welcome you all. Before we get into the official agenda items of agenda approval and everything, I want to recognize a couple of Commissioners that this may be their last Commission meeting.

First of all there is Russ Allen from New Jersey. We understand he is retiring, and he has been a very long term member of this Commission; both at the Technical Committee level, I can remember sitting on Striped Bass with him back in Amendment 6 and earlier, Amendment 5. He certainly has moved up into the Policy realm with grace and elegance.

I would like to offer a round of recognition and thank you very much for all the work you've done for the Commission; and supporting the Commission process here, Russ. Thank you. (Applause) While we're on the state of New Jersey, unfortunately I think Tom Baum has already left.

But I would like you all, to please extend our appreciation to the many years of work that Tom has also worked on this Commission, both at the technical and policy level. He's done an outstanding job; and he's been another person that I've worked with for a very long time. We all have; if we can please give Tom a round of applause in abstentia here. (Applause)

Then finally Spud Woodward from the great state of Georgia has indicated that this will be his last meeting as Administrative Commissioner. Obviously Spud has been

involved with us for a very long time; he's been a very eloquent and gracious supporter of the Commission process here.

I will tell you a little bird said that he might come back under another hat; as some other Commissioners have done. But I would still like to recognize Spud for the great efforts and works he's put on through the years. Thank you, Spud. (Applause) Okay, now onto the real business.

APPROVAL OF AGENDA

CHAIRMAN GROUT: We have an agenda before us. There is one item that I've been asked to move up a little earlier; to accommodate some flight schedules that people have. Item 7, is Discuss Recommendations from the Atlantic Herring Section; and I would like to move that Number 7 up between Number 5 and 6. Does everybody have that? Are there any objections to doing that? Are there any other changes to the agenda, modifications, additions that anybody would like to provide? Seeing none; is there any objection to approving the agenda as amended? Seeing none; it is approved by unanimous consent.

APPROVAL OF PROCEEDINGS

CHAIRMAN GROUT: We also have in our briefing packets the proceedings from our August meetings. Does anybody have any changes or additions? Seeing none; is there any objection to approving the proceedings of the August meeting? Seeing none; it is approved by unanimous consent.

PUBLIC COMMENT

CHAIRMAN GROUT: Item Number 3 is the opportunity for public comment for items not on the agenda. I don't have anybody on a list. Is there anybody in the public that has something they would like to bring before the Board that is not on the agenda?

UPDATE FROM THE EXECUTIVE COMMITTEE

CHAIRMAN GROUT: Seeing none; we'll move on to an update by myself from the Executive Committee.

The Executive Committee considered and approved the fiscal year audit. I will tell you it was a very, very clean audit. There were no issues and we approved that by unanimous consent. The next item on our agenda was to consider and continue the need for technical committee meeting weeks; which in the past had been a process that we had put in place to try and make our Technical Committee more efficient.

We had put out a survey to see whether the Technical Committee still felt that that was beneficial; and also our Assessment Science Committee provided us with some recommendations. Essentially we agreed that with the Assessment Science Committee that we should go back to having technical committee meeting weeks; but with some modifications.

We normally in the past had scheduled three meetings right at the beginning of the year. We're going to just schedule the first two meetings; and try and provide the Technical Committees with an idea of which committees are going to actually meet during those weeks. Then we will, as the year rolls on, we'll see if there is a need to have a third technical committee week in the fall; and try and populate that.

It's more current; but still trying to get out as far as we can and provide advanced notice to the technical committees when they're going to work. Also, when we have things like stock assessment data workshops and modeling workshops, while we may not be able to give them specific dates, we're going to give them the times of year that those will be; as far in advance as possible, as much as a year.

Hopefully, that will continue to make our technical committee meetings efficient and effective. Also we talked about our meetings; the Board meetings, the quarterly meetings. As you've probably seen there have been times when we've been kind of squeezed for time; and not having enough time to do all the work that we've had, and we've had to shrink down the amount of time for a Board and we've gone over sometimes.

We wanted to look at any changes that we can make that may help alleviate this squeeze that we've been having. What the Executive Committee decided to put forward, and this was brought forward by the staff just to identify and remind Board members of. First of all, an important part of the process is plan coordinators working with Chairs prior to the meeting weeks to try and determine an appropriate time that will be needed for each meeting during a meeting week.

I think that is a key element in trying to make sure we have enough time to stay on schedule; and yet still provide the Board sufficient time for deliberation on the items. We're going to continue to do these meeting management refreshers with Collette; because as you see sometimes, you know after Collette's meetings it's all fresh in our memory, and things like having everybody speak at least once before anybody else gets an opportunity to speak is fresh in our mind. We follow that. It seems like the farther we go out; we begin to forget some of the things that Collette put forward to us to try and make our meetings more efficient on this.

We're going to continue to have that and try and have it as frequently as possible; especially when we have turnover in Commissioners, because they all need to be refreshed; both from the Chair's standpoint and from the general Commissioner and all Commissioners need to be aware of these things. We think that will help move things along.

We're also going to have the consideration, now that we have 27 species that we're managing. We might need to have during our February meeting, an extra half day to help provide us with enough time for all the meetings that we have to have during a year to accomplish everything. We'll look at it ahead of time and see if it's needed; if it's not needed we'll still continue with the three day meeting.

But there may be some times in February where we'll have to come in a half day earlier on Monday. The other thing we've found has been helped with the efficiency of our meetings is the use of working groups. We've been using them a lot more extensively in the past three or four years; and it does seem to be helping move the meetings along at a more efficient pace.

Those are the things that we're going to put forward as suggestions and reminders to all Commissioners when we're going through these meetings; to try and make sure we have enough time for all the work we have to do. We also began initial consideration of our Strategic Plan that we need to adopt for 2019 to 2023.

Our current Strategic Plan goes through 2018. The question we're going to have is whether we just want to do some updates to the current plan, or whether we want to have a full rewrite with a facilitated workshop. I think we're going to have discussions in February at our winter meeting; to see if there is a need to go through a full rewrite, or whether there are just some modifications to the current plan we have, and strategic plan structure.

Start thinking about that between now and February; and take a look at our Strategic Plan, and see if you think we need a full rewrite or whether we just need to make some tweaks to essentially just adjust the course we're moving on. We also had a discussion about the nomination process for officers.

We're going to bring back a white paper to clarify how Commissioners get contacted during

this process; whether it's through each Commissioner being contacted individually by e-mail, or whether we go through the Administrative Commissioners and have the Administrative Commissioners work with their fellow state Commissioners to develop a consensus state recommendation for the nomination process for Chair and Vice-Chair.

Also, a question that has been brought up is who is eligible. The charter is not that clear on it. Clearly any Commissioners are, but are permanent proxies? Are they eligible to be Chair and Vice-Chair? Are ongoing proxies eligible to be Chair and Vice-Chair? The staff is going to bring up a white paper with discussions about that with options on that. We'll discuss it at the Executive Committee; and then bring forward any recommended changes to the current policy that we have for nomination process at our February meeting.

UPDATE ON NON-COMPLIANCE DECISION AND MEETING WITH SECRETARY OF COMMERCE

CHAIRMAN GROUT: Also, we had and finally we have a discussion about our upcoming meeting on Thursday; that the Commission leadership is going to have with Secretary Ross, to talk with him about the impacts of his, for the first time not agreeing with a Commission out-of-compliance finding.

Jim Gilmore, myself, and past Chair Robert Boyles are going to meet with him along with Bob Beal. Our primary purpose there is going to be talking to him about what we can do to protect our process that has been so effective over the past 76 years that we've had this compact; and the 24 years since the Atlantic Coastal Act. That is what was discussed at the Executive Committee. Are there any questions about what I've presented here? Dennis Abbott.

MR. DENNIS ABBOTT: At the end we did discuss reviewing our appeal process and conservation

equivalency, and it would be brought up at the next meeting.

CHAIRMAN GROUT: Yes, you're right. I was negligent in not putting that forward. Thank you very much. Are there any other questions?

**DISCUSS RECOMMENDATION FROM THE
ATLANTIC HERRING SECTION ON
NEW ENGLAND FISHERY MANAGEMENT
COUNCIL PARTICIPATION IN THE
ATLANTIC HERRING MANAGEMENT**

CHAIRMAN GROUT: Okay, thank you very much and we will now move on to the Item 7; Discuss Recommendation from the Atlantic Herring Section on New England Fishery Management Council Participation in the Atlantic Herring Management. Toni, are you going to start us off, and then I believe there will be a motion from the Herring Section that Ritchie White will bring forward?

MS. TONI KERNS: If you recall at the last Policy Board meeting the Policy Board tasked the Atlantic Herring Section to make a recommendation to the Policy Board regarding how we wanted to involve the New England Fishery Management Council in ASMFC Atlantic Herring management. The Council had requested through the Northeast Regional Coordinating Council a seat on the Atlantic Herring Section.

Due to the fact that it is a section and not a board, the Charter and the Compact do not allow for a voting seat for councils on sections. In order to have a voting seat, you would need to change it to a management board. The council could participate in the section in a nonvoting capacity on the section. That went back to the Herring Section, and they had a discussion and they brought forward a motion that I think Ritchie is prepared to explain to the Board.

MR. G. RITCHIE WHITE: Toni, do we have that motion, so we can put that up on the board?

Following up on what Toni outlined. The Section had lengthy discussions and clearly, we did not take a vote, but there clearly did not seem to be a majority that wanted to change from a section to a board. We presently have a seat that was voted in for a council member as a nonvoting member for the Amendment 3 process in the Council.

There is a representative there at this point. I will read the motion. I understand there is going to be an amendment or a substitute motion to this. I would like to speak to that if that is made. On behalf of the Herring Section, move the Commission to send a letter to the New England Fishery Management Council to establish a working group; with the goal of improving communication between the two bodies.

CHAIRMAN GROUT: That motion is a Section motion so it doesn't need a second. Is there discussion on this motion? Eric Reid.

MR. ERIC REID: I'm in the Section. As a Commissioner this motion doesn't do it for me. As a New England Council member it doesn't do it for me. Frankly, I'm the New England Council liaison to the Mid-Atlantic and I'm a bridge builder; or maybe I'm in bridge maintenance, I'm not really sure.

But it doesn't do it for me in that capacity either. I would like to express my appreciation to the seven members of the Section over the last couple of days for indulging me in my conversations. To the other 12 Board members who are not Section members, I appreciate you all hearing me out too. With that I have a motion to amend.

Thank you, Toni, for helping me out on what it needs to say. **I move to amend to include: To provide a permanent nonvoting seat; and actually it should probably say to the New England Fisheries Management Council, on the Atlantic Herring Section.** I have plenty of rationale. If I get a second I will try to be brief.

CHAIRMAN GROUT: Ritchie White seconded it. Go ahead and provide your rationale, Eric. Then I'll go to the second.

MR. REID: Thank you Mr. Chairman, Chairman White for seconding that. I really appreciate that. We had a lot of discussion at the Section; but I just want to make a couple of points. What this motion does, or what it does not do, it does not dilute the composition of the current voting members of the Section.

What it does not do is it does not alter our management methods and measures and capabilities that we already have in place. What it does do, it brings another informed stakeholder to the table. It does enhance the Section's ability to make educated decisions; and it does promote our involvement with our New England Fisheries Management partner, which in my opinion is sorely lacking.

CHAIRMAN GROUT: Ritchie.

MR. WHITE: I seconded this, because the discussion at the Section concentrated on going from a Section to a Board and having the Council person having voting rights. Also, going to a Board would add seats; National Marine Fisheries Service and U.S. Fish and Wildlife Service.

Since the Section already voted to have a seat on the Section for during Amendment 3, I believe that the Section would support this; because they've already said it was worthwhile having the Council to have some input to the Section during that process. Extending beyond that I think makes sense. That was my reason for seconding.

CHAIRMAN GROUT: I have Adam Nowalsky and then Tom Fote.

MR. ADAM NOWALSKY: Let me begin by stating that I have no objection to either of these. I do want clarity though. With this motion to amend, we would be doing both establishing a

working group to improve communication and simultaneously creating that permanent nonvoting seat. It would seem that if we create that permanent nonvoting seat, by nature of that that would hopefully address a lot of the communication issues that are occurring. I could be wrong on that but I would like to hear clarification about if in fact we're still going ahead with the working group and doing the seat simultaneously; or if we could achieve the needs of the Council and the Section by just adding that seat.

CHAIRMAN GROUT: Eric, do you want to respond to that as the motion maker?

MR. REID: I think we need to have a conversation with New England. As you all know ASMFC and the Mid-Atlantic, they have these meetings; you know the circus is in town. We have joint meetings; we have meetings of the Committees of a whole. There is a pretty good relationship there.

I don't think the same thing exists between the Commission and New England. I don't know, maybe Bob Beal will help me out on that. But I think that we need to do both. We've got a lot of big issues as councils and commissions coming ahead of us. Other than using a couple of God bless your hearts, and we all have to hang together or hang separately.

I think the more cooperation we have between the three entities the better we're going to be. When we start talking about things that affect us all, climate change, trans-boundary stocks, alternate energy like wind. I really think we need to develop every relationship we can. The working group would help with that. I would rather see this motion pass and then we combine the two and make the main motion something that combines the two.

CHAIRMAN GROUT: Tom Fote, and then I have Pat Keliher and Dave Borden on my list.

MR. THOMAS P. FOTE: Like Adam, I have no problem with either one of these motions; but I really support the top motion. I hope Eric will work with me to find out some solutions; because I think he's right. You know the species that we jointly manage creates all kinds of problems with Mid-Atlantic; but we're at the meetings together.

I mean one of the greatest times I was upset with the New England Council is what they did on winter flounder. Here we have a strict conservation measures in place, and utilizing my boats that fish on the same fish when I get to the ocean, 5,000 pound trip limits when we were basically having 50 pounds for our pound nets and two fish for our recreational sector.

In ten trips they may catch more fish than the guys do in the five years. We need to have somebody from the Commission from the southern areas to basically be on the New England Council to basically express those concerns. They don't have to be voting members. But on boards that we don't, because we don't jointly manage winter flounder, we don't jointly manage herring and things like that.

It's a good place to have people that are outside the area basically looking for the other states that are below; like New York and New Jersey that sit on some of those fisheries. That's what I'm hoping the first part does; opening up that dialogue. As Eric is a bridge builder, maybe we'll be able to get somebody from New York or New Jersey to sit up there when they're doing winter flounder.

CHAIRMAN GROUT: Pat Keliher.

MR. PATRICK C. KELIHER: As the maker of the original Section motion, I certainly support the inclusion of the nonvoting seat language that Eric has brought forward. It's important to remember that the New England Fisheries Management Council has asked for a voting seat. Mr. Chairman you at the last two

meetings have clearly expressed your desire to move in the direction from a Section to a Board; but the tea leaves certainly were not aligning yesterday in that conversation.

I've come a long way in that thinking from the first time we discussed this at the Policy Board, and in yesterday's conversation. I would support, frankly, moving in the direction of creating a Board, an Atlantic Herring Board here at the Commission; after having a lot of thought and talk. Eric is right.

We don't want to be in a situation of further divide between this body and the New England Fisheries Management Council. I think we've got a lot of important work to do. I think having all of our partners around the table understanding what the issues are, is very important. At this time we're not obviously moving in the direction of creating a Board.

I think this is the right direction to go at this time. Hopefully we as members of the New England Fisheries Management Council can clearly articulate why we're doing this now. A working group can further improve the communication; and we're all moving forward with the same goals.

CHAIRMAN GROUT: Dave Borden.

MR. DAVID V. BORDEN: I just want to quickly echo the support for both motions; and just note as an example. Doug Grout appointed me as representative on the New England Council Habitat Committee on Corals. There are a lot of you in the room that I've spoken to about coral's potential impacts on both corals and different fisheries. I've been able to; in that capacity I've been able to take that message back to the New England Council.

That's been a really important linkage between this body and the New England Council. I support the motion to amend. I support the underlying motion; and just would conclude by saying there are major issues we're all going to

confront in the future, not the least of which is wind power and the potential impacts on all of our fisheries. We need to have more of a unified voice on the part of all the different management agencies.

CHAIRMAN GROUT: Further discussion? **I would like to try something first. Is there any objection to the motion to amend at this point? Seeing none; the motion to amend is approved by unanimous consensus.**

CHAIRMAN GROUT: **We now have the main motion on the board. Is there any objection to the main motion as amended? Seeing none; the main motion is approved by unanimous consent.**

MR. FOTE: Doug, do you have to read it in?

CHAIRMAN GROUT: Okay, I'll be glad to read it in. We'll take back that approval by unanimous consensus. Oh, is there going to be a change to it? Is it okay? **On behalf of the Herring Section, move the Commission to send a letter to the New England Fisheries Management Council to establish a working group; with the goal of improving communication between the two bodies, and to provide a permanent nonvoting seat on the Herring Section. I'll try it again.** Yes. Eric Reid.

MR. REID: And provide a permanent nonvoting seat to the New England Fisheries Management Council, thank you.

CHAIRMAN GROUT: I bet I've got to read it all over again. On behalf of the Herring Section, move the Commission to send a letter to the New England Fisheries Management Council to establish a working group; with the goal of improving communication between the two bodies, and to provide a permanent nonvoting seat to the New England Fisheries Management Council on the Atlantic Herring Section.

Is there any objection to this motion? Seeing none; the motion is approved by unanimous consent.

REVIEW OF THE RISK AND UNCERTAINTY WORKGROUP PROGRESS

CHAIRMAN GROUT: We will now move on to Item Number 6; Review of the Risk and Uncertainty Workgroup progress. Jason McNamee.

MR. JASON McNAMEE: Thank you for giving us a little time. Sorry, my name is Jason McNamee; I work for the Rhode Island Division of Marine Fisheries. Bob had mentioned earlier, we were originally hoping to have a workshop during this annual meeting. But as the agenda sort of evolved, we were getting more and more crunched for time.

What we decided was we would punt it until February; so that we could do it justice, give it enough time. But we wanted to still talk a little bit about you and remind you that we're out there in the ether, working away; so I've got a quick presentation for you. Since spring of 2016, the working group has been developing a Commission Risk and Uncertainty Policy.

At the annual meeting last year, you reviewed a white paper that had a policy statement in it. It had a set of goals; and then some potential decision tree questions and the decision tree concept I will talk a little bit more about in subsequent slides. But what you saw at that time was a bluefish example; and you have that white paper I think is in your meeting materials, if you want to go back and check that out.

What you had asked at that time was for us to go back and develop a more comprehensive example. You thought striped bass might be a good one to work on. We went ahead and did that. We met as a working group, and also brought it before the Assessment and Science Committee a few months ago, or maybe a month or two ago.

As I noted, we have rescheduled that workshop for February of next year. Quickly, I'll tick through the goals again so you can remember why we're doing this. The idea is to adequately account for uncertainty at all levels of the Commission's management process. The idea with doing that is to maximize our informed decision making. We want to consistently manage Commission species. We want to treat all of the species that we manage consistently; to the extent possible.

We want to provide transparency in the Commission's risk management process; and there was a lot of talk about flexibility. We have been very cognizant of that and have incorporated flexibility into the Commission's version of a risk management process. One highlight from the workshop the Risk and Uncertainty Working Group from our last workshop. This was seen, it was Lynn Fegley who highlighted this. Adam Nowalsky also highlighted this as an important characteristic of the Risk Policy. But they saw it as a good tool for communicating what we're doing and how we're making decisions to constituents. Not only is it a valuable tool for us as we're making decisions at the board level; but also for going back home and talking about what exactly it was that we did, and why we did it.

A comprehensive risk and uncertainty policy would provide guidance on a range of issues; and that would be from choosing biological reference points. It sort of came up in that context this morning. Setting quotas for data-poor species, all of those sorts of things this can be applied to. These are long-term goals. They would require a lot of time and effort to develop in this full comprehensive manner.

What we recommended is that this policy development and deployment be implemented in phases. Our first step has been to use it to set acceptable risk levels when determining quotas for data-rich species. How are we meeting these goals? The goals of the policy will be achieved through a structured decision

making process. This is that decision tree I was referring to earlier.

The way we would implement this is to add stepping through our decision tree as a term of reference; and this would be both for benchmark and update assessments. Then projections for quota setting will be developed using the final results from that exercise. One nice little tool that gets developed along with this is this matrix.

It's a species matrix. What it has in it is all of this information. It is quite dense. You can't read that but you see that. There is in fact a spreadsheet that exists with words on it; so you can go back and check that out as to what those words actually say. But it's kind of one-stop shopping for all of the information for that species.

It's probably valuable beyond just this risk policy exercise; but your staff can also use it as a quick reference to remind them. I'm sure they all work on multiple species. How will we do this? The tree, the decision tree will be broken into segments. Using that matrix we just showed you, the Technical Committee will work through quantitative decisions; things like is stock status known, is overfishing occurring.

There are these tiers within the decision tree; and that top one are these more quantitative decisions, and then the Board will also be a part of this. You will work through the qualitative decisions. These are things like socioeconomic concerns, is the management uncertainty accounted for? A lot of these currently are qualitative; but could evolve to be quantitative.

But these would still be within the purview of the Board. This is where the Board gets that flexibility to kind of move the ball up or down; as you think is warranted. The Technical Committee, as we do this, we'll have the Technical Committee go through the whole thing; so you can sort of see it. You'll have a template to work from.

But in the end those final decisions come down to the Board and that is where you get to include that flexibility. We're going to have a workshop in February. The Board workshop will be set up to work through an actual example; it will be like a role playing game. We want it to be interactive. The Technical Committee, in this case when we say Technical Committee we're talking about me, Shanna, Max, Katie, I think will probably be the folks that kind of work through the template version. Then we'll have the Commissioners deliberate on the qualitative portion. Then you'll have something that you can kind of compare and contrast in the end. If that wasn't enticing enough, and for those of you who are fans of daytime T.V.; you might remember the Price is Right and the game Plinko; it kind of works like that. You know you kind of balance right and left as you're going down the questions.

For those who don't know what that is and have questions; Adam Nowalsky is now our resident expert on Plinko, so you can ask him afterwards. Just some parting questions for you all. Do you have any input on the workshop structure? We were thinking about having you kind of set up with either an online, like a Survey Monkey poll or something; where you can actually hit a button and cast a vote for a risk level.

That way we could put it up on a board and we can kind of see where we end up. That would make it really interactive. But if someone has a different idea we would like to hear that. Are there any visual representations that would be useful? What else would you like to see during that workshop, and any other questions that you might have that we've not thought of yet. With that I will take any questions.

CHAIRMAN GROUT: Okay are there any questions for Jay or any suggestions, answers to the questions that he has for you? Ray.

MR. RAYMOND W. KANE: I'm new to the Commission, and for years what I heard at this

table was we're about managing sustainability of species. I like the direction that this workshop wants to go; when you start talking about socioeconomic impacts. I think for too many years management has disregarded that element; including harvesters and processors. It's just a comment, I like the direction.

CHAIRMAN GROUT: Are there any other questions or feedback for Jay? David.

DR. DAVID PIERCE: Jason, to what extent will this endeavor be influenced by what the federal management councils have done regarding their risk procedures? It seems that in most cases those procedures would tend to override whatever we come up with. I am trying to better understand the degree to which we're going to have the ability to perhaps go in some different directions. Will we be constrained by what the federal government requires, what the Magnuson Act requires, and what National Standard Guidelines require?

CHAIRMAN GROUT: Jay.

MR. McNAMEE: Yes excellent question. In fact that question came up at the last Board meeting as well. We discussed it explicitly. I'll say two things about that. The first is I think that's one of the reasons that we migrated to striped bass; as it's a Commission managed species as our first example, while we continue to kind of sort that out, because it is complicated.

But in the end, if I remember the workshop discussion correctly, we talked about this. There are still aspects that aren't necessarily directly controlled by that federal process; that we could still look at and tinker with. The first one that pops into my head is management uncertainty; in particular for the Mid-Atlantic species. That is a source of uncertainty that actually comes back to your Monitoring Committee, which is a joint committee. But I think there is room with the management uncertainty to increase or decrease. There are

aspects, it becomes a smaller, a subset of the questions, but still there is relevance for those jointly managed species.

CHAIRMAN GROUT: Any other feedback? Adam.

MR. NOWALSKY: I'll just offer that again as Jay highlighted, our initial work with this would be for a Commission managed species only. We did feel through the working group that there may be an opportunity to work with partners at the federal level; as we put together our Risk Policy.

Should we go through the exercises and start to see differing results from what we're seeing at the federal level, we felt that would put us in a better position at the Commission to make that argument; why we feel an outcome could be different, and then go ahead and potentially affect change in the policies that generate the outcomes in quota driven species at the federal level. We think it could be helpful to the Commission moving forward.

CHAIRMAN GROUT: Further questions, input? Do you want to have a Survey Monkey poll so that we can vote electronically? Seeing none; I think you have the freedom to do whatever you think would help us out in understanding this the most.

MR. McNAMEE: That would be a giant Plinko board in the back and we'll have some fun.

CHAIRMAN GROUT: Sounds good. All right thank you, Jay, I appreciate it. We look forward to the workshop at our winter meeting.

DISCUSS NONCOMPLIANCE IN THE CHARTER AND PARTY BOAT SECTOR

CHAIRMAN GROUT: Now we're going to move on to Item Number 8; which is Discuss Noncompliance in the Charter and Party Boat Sector. Toni.

MS. KERNS: Recently we have seen several violations in the for-hire sector; in particular there have been a couple of cases out of Montauk dealing with black sea bass, where there have been large numbers of black sea bass being caught. In some cases states have had difficulties in charging either the passengers or the for-hire captains for these violations.

One of the Commissioners asked if we could have a discussion about these violations and ways that we can help prevent them; or have better compliance in the for-hire sector. I did sit down with the LEC earlier this week; and we had a discussion on this issue. I'll provide a bit of a summary; and then I'll have Mark fill in where I may or may not have left any information out.

But there are a couple of states, Maine, South Carolina and Delaware that do have language that allows them to prosecute captains in the for-hire sector when there are violations, and they've had success in the Courts in doing so. For Massachusetts they have language in their regulations that allow them to do, so they haven't prosecuted through the Courts but they have done, I think an arbitration where they've had success in finding a for-hire captain in violation when there have been large egregious noncompliance on their vessels.

The LEC said that it would be very helpful if there was language within each of the states that held the captains accountable for the violations on their boats; because it makes it difficult for them to do their jobs when that language is not there. They can bring a case to Court, but if they have no regulatory authority backing them, then those cases often don't make it anywhere. Mark, were there other pieces that I've left out? Does that cover it? I guess the one other thing that NOAA Fisheries, under the for-hire permit, and I believe I'm going to say this correctly. Lindsay you can correct me if I'm wrong. But the captain is responsible for all regulations that the

fishermen are fishing for under their permit; and their permit can be removed, and the captains can be held accountable for the federal permits. It's only for federal for-hire vessels. I am not sure if they actually have accountability for their individual fishermen, and they do that through the states. I think that's what Winn had told us.

CHAIRMAN GROUT: Lindsay.

MS. LINDSAY FULLENKAMP: I'm not sure. I don't know.

CHAIRMAN GROUT: Mark.

MR. MARK ROBSON: Yes, Toni that is my recollection of the discussion too that there were some cases where they were able to use the federal regulatory process to make a case; in addition to using the state side of it if it was a federal permit holder.

MS. KERNS: The LEC did also talk about that some states do have some measures that they've asked for vessels to do; things like having each passenger have their own cooler with their name on it, putting the regulations on the boat for each fisherman to have, having measuring sticks and other information available to them for individuals to know what the regulations are and be responsible for those regulations. Those certainly do help with enforcement; but having this regulatory language is something that they said would help them a lot more and overall good.

CHAIRMAN GROUT: Okay, discussion about this issue? I have Adam and then Roy.

MR. NOWALSKY: Regarding the question of what the actual intent is under 648.145 Paragraph C. Sea bass harvested by vessels subject to the possession limit with more than one person aboard may be pooled in one or more containers. Compliance with the possession limit will then be determined by dividing the number of black sea bass on board

by the number of persons aboard other than the captain and crew.

If there is a violation of the possession limit onboard, carrying more than one person, the violation shall be deemed to have been committed by the owner and operator of the vessel. That's what the language states. There is similar language for scup and summer flounder as well.

One of the things that I have asked the Service to go back and look into is the administrative record on this particular regulation; to determine, given the fact that this element of violation shall be deemed to have been committed by the owner or operator occurs in the same three sentences that talk about the pooling of fish, which does not commonly occur on your larger for-hire vessels, your party boats if you will.

There is no pooling that occurs there. I am looking for some clarification; what the original intent of this was. I hope to have that at some point in the future, because I think that's really one of the issues here is on a six-pack vessel where you have six people sharing X number of fish in one container that is often provided by the vessel. That's a very different scenario than when you have a hundred people on the boat, two to three crew members all going ahead, putting fish in their own individual containers; and essentially accepting their own responsibility by virtue of putting them in their own private property that way. I'm hopeful to get some clarification of that moving forward from the Service. Hopefully we can go ahead and use that to inform the states decisions on what the intent is at the federal level moving forward.

CHAIRMAN GROUT: Roy Miller.

MR. ROY W. MILLER: I was just going to add something to this discussion concerning noncompliance. One aspect that hasn't been brought up is noncompliance with MRFSS

Surveys. We've had a longstanding problem in our state; I'm embarrassed to admit, of refusal to allow MRFSS surveyors on for-hire vessels.

That's a problem that I don't know as ASMFC necessarily needs to deal with. But it's an internal problem; it's a public relations and education outreach problem. But it is part of the noncompliance mix. If observers can't get on the boat then there is no opportunity until the boat returns to port and the participants are unloading. There is no opportunity for enforcement at sea.

CHAIRMAN GROUT: Ritchie White and then Jim Gilmore. Jim.

MR. JAMES J. GILMORE: There have been recently some violations that have occurred in Long Island; and we've heard a lot of anecdotal ones about it. I've gotten some suggestions from other states about that we don't have that requirement in regulations where the party boat captains are responsible.

You heard Captain Forsberg yesterday say that maybe we need to look at this by coming up with solutions other than maybe the black and white of instituting a requirement that the captain or the vessel owner is responsible. I think that is a better approach than just having us go into the party boat captains are responsible; mainly because we already have laws –and maybe it's unique to New York but I doubt it – on the books that we essentially the next part of it is you can have as many rules, regulations, or laws.

You go to the Courts and if the Courts don't support them it is useless. We already have with our free fishing license in New York, the D.A.s and the counties don't support that. They think it's free so anybody that writes a ticket on that they throw it out; because it's free, so how could they be violating something that's free?

Then you get into other things even with safe harbor or whatever. We have brought good

cases; we have black and white rules on that. Particularly in the east end towns it's been thrown out of Court; just because they are not friendly towards what we do in terms of management. That can stem back to some of those management measures.

I think maybe having this more blanket that all the vessel captains are responsible may not really solve the problem. Maybe looking at some alternatives like marking coolers, things of whatever that helps to alleviate the problem might be a better approach than going into regulations or laws.

CHAIRMAN GROUT: I have Mark Alexander and Dan McKiernan.

MR. MARK ALEXANDER: I just wanted to follow up on a comment that Roy Miller just made about compliance with MRIP. The other aspect of that is compliance with the for-hire telephone survey. We had a party charterboat operator kind of make an offhand comment that he never answers the phone when his caller ID says QuanTech or whoever does that now.

We followed up and got some information. I was just curious what the compliance rate was with the for-hire survey; and it was whether it's actual refusal to talk or they just don't pick up the phone. But the compliance rate was pretty low. We were kind of astounded by that. I think that is something that maybe should be considered as well.

CHAIRMAN GROUT: Dan.

MR. DANIEL MCKIERNAN: I feel it's necessary to explain a few details of the case in Massachusetts; because it was attributable to the same boat that was in New York. This was not the first instance that this occurred. There were circumstances where the captain was highly disrespectful to the police officers.

The police officers felt that the clients were being coached to not comply. We had instances of abandoned coolers. The real problem is that if the captains say, well I can't enforce this, but if the net result is as soon as the police officer shows up coolers are abandoned. It's completely unacceptable.

What we did was we threatened to suspend his permit through the adjudicatory hearing process. He hired an attorney and we worked out an arrangement; probation for two years. In those two years he had to hire two extra staff to police the clients, and coach them to comply and to look into their coolers.

In addition they put the rules on the ticket and other things like that. But after a half a season he concluded that he was losing too much business; and so he left, and he didn't come back the second year. There is a need, as Jim says; maybe this can be accomplished with some other rules. Maybe it is state specific rules. But we have to prevent situations where clients can simply walk away from their fish and nobody is accountable.

CHAIRMAN GROUT: Bob.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Hearing Mark and Roy talk about the refusal rates for party and charter boats. You start to think that these guys also have to fill out a VTR form when they get back to the dock for the federally permitted boats. If the captains are saying they're not really sure what's in the coolers, so how accurate is the VTR data?

Then if there are a lot of refusals for the MRIP program, it seems like the, I don't know maybe I'm missing it, but I'm now starting to be concerned about the overall accuracy of for-hire reporting from some of these bigger vessels. But maybe I'm missing it.

CHAIRMAN GROUT: Yes that is a concern. I'll tell you, Mark, we a long time ago at least for the party boats, started a process where we

said we want to exempt you from the phone call. They felt they were double reporting; because they already have, they fill out the number of passengers on the VTR. What we said, well we'll collect the VTRs from you; rather than having them answer the phone. Because they are required to fill out the federal VTRs in our state; at least all the party boats, they are all federally permitted and stuff. That is the way we got around that and got better compliance with it or cooperation. You know as far as going on the boats. I think that more than likely is local culture, because we're welcome on the boats.

They want us on the boats. I don't know how to address that in individual states where they're having people refuse to allow MRIP surveyors on there. But it is an issue from a data collection standpoint. We also, right now I think it's still voluntary. I don't believe there is a requirement. Like some observer programs for the commercial vessels that you have to take somebody. It's still voluntary on that. Yes that can affect the accuracy of the data.

But on the other issue of how we get enforcement of bag limits. That is something that I think we need to be looking at on a more comprehensive basis, on a state-by-state basis; whether it is holding the captains liable, or something where you're required to have names on the coolers before you can come on the boat so we know whose.

I think it's something that needs to be discussed with the industry, particularly the party boat industry, on how we can make sure that these management regulations, which are designed to make our fisheries more sustainable, can be effectively enforced. I see David.

MR. DAVID E. BUSH, JR.: I was just curious if there was any conversation or discussion on requiring the captains to be responsible for everything that goes on their boat is not something that is altogether a foreign concept. However, when you get into searching through

people's personal property, there are certain legalities there as well.

I don't know if state or federal law allows for any provisions for that for the owner of a vessel. That's why the conversation came up, obviously having them mark their coolers so that they're personally responsible for that and everything that's in it. But I was curious if there is any conversation about that as well.

CHAIRMAN GROUT: At least in New Hampshire the coolers are people's private property that they bring on the boat. But our law enforcement officers do have the authority to check those without a search warrant. It may be different in North Carolina. Dave.

MR. BUSH: Well I guess what I was meaning was is whenever the vessel operator is supposed to fill out his report or whatever, and he's trying to get an accurate count. Folks are bringing stuff over the rail left and right; and sometimes things are missed. You know when they do have that cooler that is way over the limit, and the people want to just shoot off the dock when they see the officer.

You know he's kind of stuck holding the bag there. But he had no authority to go into their cooler and verify what was in it. I'm trying to figure out if there is any sort of legal ground for him to go search through people's personal belongings to ensure that they're actually upholding the regulations.

CHAIRMAN GROUT: Eric.

MR. REID: I worked on a party boat some time ago. I agree with all the comments that are made about having X amount of people and X amount of deck hands, et cetera. But the one thing that was universal was the captain's word was law. Now what I understand is the captain's word is law until maybe there is a problem. Then the captain's word doesn't have to worry about the law.

I don't know if the law of the sea or the Jones Act or something else would play into this as well; but it just seems that that is kind of an odd situation that the captain is in control of everything on his vessel until there is a problem, and then he's not responsible. You might want to look at the law of the sea.

CHAIRMAN GROUT: Adam.

MR. NOWALSKY: Let me preface this by beginning that there is simply no way to condone illegal behavior that goes on, on any vessel. We're all unanimously in agreement here with that; and I'll certainly be the first one to step up and advocate for enforcement of the regulations we put in place.

Whether or not I personally agree with the decisions, I'm here to work to change those things I don't agree with and advocate for compliance at all levels. With regards to the question of having an idea of what goes on. Yes, I certainly think operators and again, we're talking primarily here about larger vessels.

Let's be clear about where the scope of this problem is as we discuss it. Most vessel operators that I know, and having worked on the larger boats myself, instruct their crew not to facilitate the illegal activity; in terms of not cleaning sublegal fish, not cleaning fish over the limit, not cleaning fish for patrons that are out of season. You know not going ahead and facilitating those behaviors.

I'll also offer that with regards to having an idea of the catch that's on that vessel. While I don't think your large vessel operators are sitting in the wheelhouse ticking off every fish that comes over the rail. Most days you have a trip, a steam home to the dock maybe an hour or more, again mates are going around the boat talking.

You have a good idea of the level of angler satisfaction. Let's face it; anglers aren't very good in most cases about keeping their mouths

shut. If they had a good day they're going to brag about it. If they didn't have a good day, you're going to hear about it very quickly on the vessel. While the captain may not know that one guy up in the bow specifically had 11 sea bass and one guy in the stern had 7 sea bass.

He's going to have a pretty good idea that the average catch through the boat was 9 or 10 fish; and allow the creation of a VTR report at the end of the trip that reflects a relatively good idea of what goes on, on that vessel. I just wanted to touch on some of the points that I heard here today; and finally I'll offer, you know we haven't had discussion about what happened at the Summer Flounder, Black Sea Bass and Scup Board last night.

But that Board did put forward a motion specifically to have a working group begin looking at this problem; and going ahead and making a recommendation to that Board about potential ways forward, either through an addendum or other means. We do have that taking place by one of the Boards where this specifically had been brought forth. I would think that that would be useful information for this Policy Board to know that one specific Board is taking action on this. I would hope that that could help inform a wider Commission response if needed moving forward.

CHAIRMAN GROUT: Dan, the state of Massachusetts brought forward this issue. Do you feel comfortable with the thought that there is a working group at the black sea bass level to try and get at some of this? Is this important enough that we start looking at it on a much broader picture; in advance of what comes out of the Black Sea Bass Working Group?

MR. MCKIERNAN: No, I think Adam's point is a good one. I think there is just a general need to really address it, to recognize it and to address it head on. We're planning on some more meetings this winter with boats. We were even thinking about making it almost like a

customized Hassett plan; like every boat is a little different. Okay Captain, you tell us what your compliance plan is, and let's make that a condition of your permits.

When the green cops meet you at the boat they know what to look for and that kind of thing. I think it's great for the conversations happening; because honestly the officers came to us and said there is nothing we can do. There are thousands of pounds on that boat. Nobody is responsible for them? Come on, something has got to be done. I think we're moving in the right direction and I agree with Adam.

CHAIRMAN GROUT: Tom.

MR. FOTE: About 20 years ago I'm fishing on the beach in Island Beach State Park in the middle of November without about nine other guys. This pickup truck comes running down the beach; and basically is running in the water, chases us all back about 20 feet, because he almost ran us over.

Basically, we got a little annoyed. On the way back, because we have courtesy patrols on the beach to basically try to tell drivers how to drive on the beach. He comes back and he basically almost hits us again. The guys were really getting upset they go and they say, oh you let it go. The guy went home and killed two of his kids when he got home. He was going out of his mind.

Nowadays with the crazies out there, when I tell people on the water. You're not law enforcement. You don't carry a gun; especially in New Jersey there is a no carry law. It's not your job; get on the phone and call. I think with everything that goes on nowadays, it gets very hard for anybody to be law enforcement and enforce rules and regulations.

But we do have peer pressure and anglers that do that. When they lose their trust in the regulations they would basically rat on each other and basically do that. The problem is that

trust in the regulations has fallen apart. No longer do the anglers start giving another angler a hard time about breaking the rules; when they don't trust the rules themselves. It's a sad situation. That's what I see happen the last couple of years.

I'm always fearful of telling people to try to enforce the law. That's not our jobs, and especially with people out there the way they are now. I always say get on the phone; call a law enforcement officer. Make sure they come down. I give that to all my associations, all the clubs that I basically supervise. I know if I had done something more I might have been dead at that day.

CHAIRMAN GROUT: Okay, I think we've had a very good discussion on this. It sounds like a Black Sea Bass Working Group there will be a continued discussion on this. I appreciate you bringing up the topic and I'm sure there will be further conversation about this in the future by the Commission.

DISCUSS WHITE PAPER FROM THE CLIMATE CHANGE WORKING GROUP

CHAIRMAN GROUT: The next item on the agenda is the White Paper from the Climate Change Working Group.

This is something that I tried to put together a couple of years ago when I first began Chair. I think we're at a position that we need to start looking for ways for us to adapt our management and our science to consider these changes in environment that are occurring in some areas; and impacting some of our species.

The intent of this, we have a White Paper that the Working Group has brought forward. We're going to give you an overview of it at this meeting; and give you a chance over the next two months before the February meeting to sort of chew on this, see what you think about it.

The intent would be this would be something that we would give to our management boards; as sort of a list of tools that they could use if they find that there is evidence that your management and the science is being impacted by changes in the environment. As I said, we're going to give you an overview and then hopefully at the February meeting, if we're comfortable with it, we'll approve it as a formal document of the Commission that the various boards can use in their management process, if they see a need. Toni.

MS. KERNS: The draft White Paper was included in supplemental materials. I will note that one member of the Working Group through a Policy Board Commissioner had asked for some additional revisions to the first draft that we had of the White Paper. Those comments came in after the deadline; so if they're still not addressed, and Chris I'm going to call you out just to say if we didn't address any of your comments from the first draft to what was included on the supplemental material, please raise them today so that we can address those concerns.

I'm going to skip this first slide, because Doug has already gone over that and move right in. The White Paper talks about a stepwise approach in addressing these issues. Carrying out effective management strategies in facing climate change can be very complex; due to all of the different elements that we are considering in these adaptive climate change environments.

Looking at this in a stepwise approach may make it seem a little bit less daunting. The first step is really defining and planning a purpose and scope. Just clearly articulating existing management goals, identifying our management targets, and specifying the timeframe that we want to address these issues. Step 2 is assessing climate impacts and vulnerabilities. This really can come from our TCs, our Assessment Science Committees, and our Management and Science Committees.

It just helps us understand the climate vulnerabilities; and that's crucial for designing effective adaptive management strategies and the specific components on the vulnerabilities exposures, sensitivities, and adaptive capacity of these fisheries. Then that provides a useful framework for linking actions to actual impacts to the fisheries themselves. Step 3 is Review and Revise the Management Goals and Objectives. Because our goals serve as the basis for our strategies and actions that we take; they should be climate informed and forward looking. Reevaluation of goals and objectives may either validate their continued relevance or indicate that there is a need for change or modification to those goals.

As you can see here that you can continually reassess Step 2 and 3, as these climate change vulnerabilities change over time. Step 4 is identifying the possible adaptive management options. The working paper does look at a couple of possibilities for the Boards, but there are others out there.

What possible approaches are there for reducing key climate related vulnerabilities, or taking advantage of new emerging opportunities? This is the stage where a broad array of alternative strategies and actions can be identified; with particular attention to thinking outside of the box and crafting possible management actions for the Boards to address.

Step 5 is evaluating and selecting adaptive management options themselves. The array of possible adaptive options are now evaluated and determined what is the most likely to be effective and serve as a biological and ecological new goalpost; and most feasible from a social and economic perspective. We would do this through our amendment and addendum process.

Step 6 is implementing these adaptive management strategies that are chosen. Successful implementation requires leadership; as well as institutional commitment and

resources from the states, and the Commission as well as depends on engaging our stakeholders and emphasizing the benefits to all of the sectors that utilize our resources.

Then, Step 7 is tracking the effectiveness and the ecological response to the changes that we're making. Monitoring helps to provide a context for understanding the climate change related impacts and vulnerabilities for informing our adaptive management process. Monitoring approaches should be carefully designed to make sure they are capable of guiding adjustments that need to happen in the future.

Step 6 and 7 should be adjusted over time when we see that as we implement new strategies then we should make sure that we're doing the appropriate monitoring to make sure that those strategies are effective. For these stocks that are persistent at low biomasses and not responding to management change. The White Paper addresses two questions that the Management Board should ask.

What is the appropriate harvest level, if any, and how many resources should be committed to continuing the monitoring and the management of that species? We can take a look at this from a couple of different approaches. First we could just do as we do; stay status quo. We would have our harvest strategies that allow landings at a target and threshold F . We would use historic information with the assumption that the stock would eventually respond to a low F , and would potentially begin to rebuild.

Here we would not readjust reference points based on the environment. If the biomass continued to decline there would be two options the Board would have. They could continue under the scenario I just discussed with further reductions in F ; or you could put a harvest moratorium in place for a period of time based on the life history of that species. For stocks where we see an evidence of change in productivity, so like the status quo option we

would have monitoring and management that would be retained at historical levels. The harvest level would be adjusted as reference points are redefined. Here we would adjust our reference points based on the environment as it is changing.

The reference points would target a sustainable yield from a biomass that is much lower than previously targeted. The actual yield would be much reduced from historic levels; leading to a very small fishery, with presumably much fewer participants in it. The approach would also have a rebuilding period associated with it; and the rebuilding period would be reflective of these new reference points, based on this expected lower productivity of the stock.

We also can consider evidence that the stock has low to no productivity; recovery to a sustainable level is very highly unlikely. In terms of how you would address management for a species under this condition, you could put in place a permanent moratorium or harvest could continue until it becomes economically infeasible.

A decision between these options could be based on the confidence in the prediction of no recovery; and consideration of the genetic diversity that is often high at the tail end of the species. It may be more beneficial to protect the remaining genetic diverse stock; or it may be more beneficial just to allow the economic harvest of that species.

That's really a policy decision that each of the boards would need to make. For monitoring we would have to determine what level of monitoring would occur. Would it be an increased level of monitoring, stay status quo, or reduced monitoring? Then lastly is looking at management and monitoring ceasing and harvest does not continue; because it becomes economically unfeasible.

What are the science requirements? Each of the options places great demands on science

for the states and our species technical committees. Several questions would need to be answered before choosing among the options. Up on the board is listed the questions that each of the management boards would need to ask themselves. I won't read them all.

Actual management options that the boards could consider, we could continue on with what we do now. State-by-state quotas; within state-by-state quotas we have tools such as quota sharing, minimum allocations, episodic event quotas, and the board can continue using these tools and products.

We also could consider maintaining state-by-state with a revisiting of the allocations; based on some sort of trigger. The trigger could just be set off of a time period. Allocations could be revisited based on an internal or an external review. That external review could be something like a panel that the board would set up parameters and guidelines; sort of terms of reference, and then that panel would make a recommendation back to the board.

It takes the politics out of the allocation decision and brings it to somebody else to present an option to the board themselves; or we could continue internally as the way we currently proceed, and the boards could revisit those allocations on their own. Allocations could be adjusted based on different types of data instead of using just plain historic fisheries data we could look at fish distribution data. This data could come from surveys; either fishery dependent or independent surveys. We could combine historical and current landings information to come up with allocations; or we could use evaluation approaches to guide us on allocation. Then changing management away from state-by-state, we could look at area-focused management. This is something that we see in Alaska. This would be a large departure from what the Commission does with their single-species management.

But you could say we have the Gulf of Maine, and we would just manage all of the fisheries within the Gulf of Maine and use environmental information, as well as fishery dependent and independent information to guide us on the health of all of the stocks within that area. Allocations could be distributed based on how each of those stocks is doing relative to the changes that we're seeing in the environment.

Every few years you may have to adjust what industry is fishing on; based on the productivity going on. For a little while you might be fishing on winter flounder, and then we see a shift in food resources, so a fisherman would shift to lobstering; that type of idea. We could also look at allocations by timeframe, so seasonal allocations.

An example would be if you remember, ten years ago we used to allocate black sea bass in quarters. You would have a coastwide allocation and then you would divide that up into four pieces; and we had a spring, summer, fall, and winter fishery. One of the downsides of that is that it was still a race for the fishery; and everyone would try to go out and get the quotas quickly as possible once it opened in each quarter.

It is still allowed for some equity for fisheries that were available at different times of the year and different parts of the coastline. Then the document also provides a list of resources to assess how species and environment is impacted by climate. I would suspect that this list of resource will always be evolving as new information becomes available.

In terms of some of the information that the Assessment Science Committee and the Management and Science Committee members made recommendations to for the document, is looking at what types of data are available and where are the gaps that we see? Under climate change we'll need a lot of information to help inform the boards and our species technical

committees on ways to respond to these adapting climates.

First off the Committee is recommending that a term of reference be considered and included if TCs and Stock Assessment Subcommittees think there may be climate impacts on the stock itself. If there are no impacts, if the Technical Committee thinks that there is no impact so there is not enough information out there to support an analysis, then a term of reference should not be included in the stock assessments.

They also recommend that the Commission pull together a coastwide database that summarizes the types of climate data that is available; not that we house this information and store it, but that we provide summary tables for each of the pieces of information that are out there as resources to our committees as well as other folks working on these issues.

Then lastly the group has suggested that we do this gap analysis of what types of data is missing. We would review all the information that's out there to make sure we have known programs that collect the environmental data. We would verify that all that information is appropriate and is included in the database; but the review should be conducted by each state and federal agency, to ensure that we have a complete look at all the information that's out there and that the ASC would coordinate this review with the MSC.

Then the last part is reviewing the types of environmental data that is collected. We would want to make sure that if there if there are temporal and spatial gaps in the data that we investigate the effects of climate change on the species; that the TCs and the SASs should do this work.

We would determine the relative importance of filling the individual data gaps for each of the species, and prioritize how we would fill that information and identify strategies to address

these data gaps. The document also provides example terms of reference that each of the species committees could utilize when considering changes in the terms of reference as stock assessments come up, and that is an overview of what we have.

CHAIRMAN GROUT: I know that's probably like getting water out of a fire hose right now. It's something that the Committee has been working on for two years. I would encourage you, if you haven't already done so, to take a look at the document; see if you have any questions. We've thought about in advance of the Policy Board or maybe as part of the Policy Board that we might provide some examples.

For example, the different options that we provide for stocks that have a reduction in productivity due to climate change, and then maybe an example of how a board might consider some of the various options for a species that have experience range movements and distribution movements due to climate change, how they might consider that with it. Given that is there any initial first cut questions people have about this particular White Paper as it is right now? Lindsay.

MS. FULLENKAMP: We've taken a look through the document; and also have some folks participating in the workgroup, and I applaud the efforts of the workgroup to tackle this subject and get it to this point. It's a pretty big subject to tackle. We do have some concerns with the document; specifically the approach included that harvest could continue on a stock with low to no productivity. We'll continue to work through the Workgroup to address those concerns.

CHAIRMAN GROUT: Chris.

MR. CHRIS BATSAVAGE: Michelle reminded me the issue that we just wanted to make sure was raised, and I think Toni already has it that came in late was I think in terms of any changes in allocation, some consideration be made to

phasing in those changes over a period of time. When you consider how long some of these allocation schemes have been in place; it's kind of tough just to the next year change over when you consider all the infrastructure and fisheries developed around those allocations.

CHAIRMAN GROUT: That is one of the options, specifically under the list of options that a board could use for species distribution changes; that if there was a decision by the board to have changes in allocations, it could be in a phased-in process. We think that's an important concept for each board to consider. Is there anything else? Well, thank you and as I said, and I want to thank the efforts of the Work Group.

We had several meetings and conference calls, and then had reviewed different drafts of this. I want to thank the work of the Working Group. It was diverse and it was a public process. I think we've come up at least with a good starting point for the Commission to start adapting management to deal with climate change.

Again, we'll be back with maybe a couple examples of how this would work; and seek your approval of the document in February for use by management.

STANDING COMMITTEE REPORTS

CHAIRMAN GROUT: Next, we're going to go to Standing Committee Reports, and the first one is going to be the Habitat Committee; and Lisa Havel is here to provide that Habitat and ACHFP.

HABITAT COMMITTEE

DR. LISA HAVEL: My first update will be on the Habitat Committee and I'll be brief for both Habitat and ACFHP. The Habitat Committee met on October 18, so all day yesterday. We had a discussion led by Michelle Bachman from the New England Fishery Management Council

on their Habitat Impacts modeling work. I'm looking at fishing gear impacts on fish habitat.

I provided an update on what ACFHP has been up to; and I'll provide a similar update to you all soon. We also reviewed the 2017 Action Plan progress, and finalized Goal 4 in 2018 for the Action Plan. We developed new ideas for the term Habitat Areas of Particular Concern. I know that at the summer meeting you all charged the Habitat Committee with coming up with a new term to avoid confusion, so we did that. Also, Tina Berger held a discussion on our outreach and communication strategy.

I'll go into more details in the following slides. For the term that we would like to suggest to you all instead of Habitat Areas of Particular Concern; we would like to suggest Fish Habitat of Concern. If you are really opposed to that we would recommend Habitat of Concern. If you have comments now I am happy to take them; or we can open it up at the end of my presentation.

CHAIRMAN GROUT: Does anybody want to provide comments on this term? We had this brought to the Commission before, and they certainly had concern about HAPCs being used. Do you have any preference on either of these terms or are you fine with either of these as alternatives to the ones that we rejected? I'm seeing none so I think you get to choose between those two.

DR. HAVEL: Okay, Fish Habitat of Concern it is. The Habitat Committee is also working on a document based on state and federal actions regarding climate change. We've been identifying gaps in regulatory planning and we will also be making recommendations in this document. I plan to present that all to you at the winter Board meeting.

This year is also the 20th anniversary of the Habitat Committee's Submerged Aquatic Vegetation Policy. It came out in 1997. This year's habitat hotline will be themed

submerged aquatic vegetation; and we plan to have that all out to you before the Christmas holiday. We're also working to review and update the 1997 SAV Policy document.

We plan on including emerging issues and updates on the SAV status in particular estuaries or states; also include information on state initiatives that have been taking place since 1997. We're including similar goals from the original plan, but update the recommendations and the literature. I plan on presenting that to you at the winter board meeting as well. The Habitat Committee is also working on an aquaculture document. We've made a lot of progress since my update at the August meeting. This document will highlight the effects of aquaculture on fish habitat along the Atlantic Coast, and it will be presented by being sorted by the aquaculture methods. These species that we're culturing as well as what each state is doing.

I know that some of you all, I know Maine and Connecticut would both like to review the document before I present it to the Policy Board; and I'm happy to work with any other Commissioners that would like to see the document before we bring it. Again, hopefully winter 2018 for approval. Just come talk to me or shoot me an e-mail after the meeting.

For 2018, we chose the topic of the acoustic effects on fish habitat physiology and behavior for a habitat management series; and environmental monitoring for habitat hotline. Looking at short term versus long term monitoring; how different agencies are able to fund their monitoring programs, what they're modeling data is being used for, et cetera.

We are also working on providing the Fish Habitats of Concerns document to you all; so compiling all of the information that we have regarding fish habitat areas in all of the fishery management plans, cross referencing them with the federal identified areas, and identifying gaps and making recommendations when we go

to update fishery management plans in the future. With that I'm happy to take any questions on the Habitat Committee.

CHAIRMAN GROUT: Are there any questions for Lisa? John Clark.

MR. JOHN CLARK: Thank you for the report, Lisa. When you talked about the federal habitat, were you talking about Essential Fish Habitat? Also, I was just wondering if you're also looking at the – I know the regional planning bodies are all looking at habitat also – is that something that you're considering?

DR. HAVEL: The plan is to include Essential Fish Habitat and Habitat Areas of Particular Concern that are put out by the federal agencies. If you would like to see more included in the document, we're happy to do that.

MR. CLARK: No, that is fine. I just was curious as to whether that was a topic that had come up to the Habitat Committee.

DR. HAVEL: It did not.

CHAIRMAN GROUT: Are there any other questions for Lisa; now on to ACFHP?

ACFHP

DR. HAVEL: Now for my ACFHP update. Our Science and Data Committee are working on a project to map conservation fish habitat areas in the southeastern United States. This is a NOAA funded pilot project; and to move this forward our Science and Data Committee had a webinar on June 12.

Then we met in person September 27 and 28 in Arlington, Virginia. The Committee finalized variables and scoring criteria for diadromous coastal and estuarine habitats; and we hope to have these mapping prioritizations available come this spring. The Steering Committee for ACFHP met October 16 and 17 here. We received a presentation from Jeff Beal from the

Florida Fish and Wildlife Conservation Commission. He was also the recipient of this year's Melissa Laser Conservation Award. We discussed updating the ACFHP website. We have some funding to do that this year; and then in the upcoming year. We brainstormed ideas on what we would like to see. I provided an update on the southeast mapping project that I just described to you all.

We also finalized our 2018 National Fish Habitat Action Plan Project rankings for on-the-ground projects, and I provided an update on our black-sea-bass project as well. I will provide some brief updates for both of those next. Our black-sea-bass-habitat project is provided by a grant from the Mid-Atlantic Council to support habitat research in the Mid-Atlantic.

We are working with the University of Maryland Eastern Shore, Dr. Bradley Stevens there; he is in his second field season and has begun analyzing his 2016 data, and he is looking at black sea bass abundance on both artificial and natural habitats. He is analyzing stable isotopes to look at trophic level.

He is looking at epifaunal composition in different habitats; and he's set up an experimental reef corridor to connect habitats to see how black sea bass are moving between habitats, and also looking at stomach analyses. As far as our 2018 NFHP funding recommendations, our number one priority for funding for next year is our ACFHP operations.

Then we had four different project proposals that we would like to recommend to the Fish and Wildlife Service as well; a Colombia dam removal in Knowlton Township, New Jersey, oyster reef restoration in Back Sound, North Carolina, a conservation moorings project in Coecles Harbor, New York, and SAV restoration in Chesapeake Bay.

These are just our recommendations to the Service. This is not a guarantee that all of these projects will be funded. I'll go into a little bit

more detail about each of these. For the Columbia dam removal, the dam will be removed and it will open up 20 river miles. They would also like to restore native vegetation along the stream banks there.

This dam is the first obstruction to passage off of the Delaware River; so by opening it up they will have better connectivity to the ocean. It will benefit American shad, river herring, American eel and native sea lamprey, and this project is led by the Nature Conservancy. The oyster reef restoration project in Back Sound Rachel Carson Reserve is in North Carolina near Beaufort.

They will restore 0.11 acres of oyster reefs; which will protect an additional three plus acres of salt marsh. This is led by East Carolina University; and will benefit red drum, flounder, and bonnet head sharks. The conservation mooring project in Coecles Harbor, New York, which is on Long Island will replace six traditional boating moorings with conservation moorings, in order to protect sea grass in the harbor.

I'm sorry that the photo is not very clear; but it is an aerial view of scouring that goes on around each boating mooring, so you can see where there is bare sand substrate where there should be sea grass around each mooring. The objective is to replace those scouring moorings with ones that have less impact on the bottom to allow sea grass to grow in.

This project is led by New York State and the goal is to have good visibility here to inspire others to use the conservation moorings. This footprint will be relatively small, but we hope that the coverage will be good so we can get other people excited about it. It will benefit bay scallop, fluke, puffers, sea horses, river herring, American eel, and striped bass. Finally, a project to restore SAV in the freshwater Mesohaline Region in Chesapeake Bay, they would like to use sea grass seeding techniques, in order to restore 10 to 20 acres of SAV.

This is part of the Chesapeake Bay Program's goal of restoring 185,000 acres in the Bay by 2025, I believe. This is led by Maryland DNR, and benefits blue crabs, striped bass and more. As always, ACFHP would like to thank the Commission's continued support, both operationally and with all of your information, efforts and all that and I'll be happy to take any questions.

CHAIRMAN GROUT: Are there any questions for Lisa on this? Seeing none; thank you, Lisa, I appreciate it.

LAW ENFORCEMENT COMMITTEE

CHAIRMAN GROUT: We'll move on to Mark and the Law Enforcement Committee report.

MR. MARK ROBSON: I think we have a couple quick slides to go through. The Law Enforcement Committee had a very productive meeting this week. We met Tuesday and Wednesday. It was well attended. We appreciate the opportunity to get together and have that meeting. We provided a written meeting summary; which gives you a little more detail of the things that we discussed during our two-day period, and that's available to the Commission and Policy Board folks.

Some of the significant species issues that we reviewed, first of all we had a presentation by a company that is working on lobster tracking equipment that is being tested now in some other fisheries; the sea urchin and some other shellfish fisheries in either Maine or Louisiana, and got a presentation on the possibilities of using that.

You know we've been discussing the need for some type of tracking technology in the offshore lobster fishery. This is one possibility. It provides very high ping rates; so you can do good tracking. It also has the capability to monitor actual hydraulic trap hauler activity. These are the kinds of things that law

enforcement folks are looking at as a valuable tool.

We're going to continue to explore other kinds of technologies as they become available or we are made aware of them. We're going to continue to work on that issue so that we can do better enforcement in the offshore lobster fishery. ASMFC staff came in, Megan Ware and Mike Schmidtke to brief us on some of the developing management options for some of your species; particularly the Menhaden Draft Amendment 3, which is being developed.

I won't go into details. There was some interest in how that small scale fishery bycatch issue or incidental catch issue is taken up. But there really weren't any significant concerns, as far as processes for setting allocations and that sort of thing. We'll continue to work with staff and provide input on the amendment as we continue; the same with cobia. The LEC members had some pretty good interest in particularly the part of the developing plan that would look at setting de minimis regulations.

Particularly for the states at that nexus where you go to de minimis states, or possibly go to de minimis states. Trying to be as consistent as possible to have complementary regulations; particularly for the states of New Jersey, Delaware, Maryland, and Virginia, to try to coordinate in a way or have the regulations in place that those regulations can be as consistent and complementary as possible. Also, to the extent that that can be done with the offshore federal waters; recognizing that's not an easy thing to do. But looking at the various management options, we hope we can continue to provide input on how we can be consistent there. Several of the LEC members had some insights as to how fishermen are behaving and acting in those areas. It was believed that there could be some real value in trying to have some consistent regulations; because fishermen are going to go where they can catch the fish.

Next issues, we talked about some other issues. Toni has already covered the charging for-hire operators; so I won't go into that. We provided some input there and discussed those issues. Another issue that came up Wednesday, which we just want to highlight and make the Commissioner's aware of. It is regarding enforcing regulations in the EEZ for tautog. As you probably know there is no federal plan for tautog, no federal management plan.

Even though the Magnuson-Stevens Fishery Conservation Management Act does provide for state enforcement or state regulations; in cases where there is no complementary fishery management plan in federal waters. The reality, based on some of the discussions of the LEC members is that in some states for jurisdictional reasons, the State's attorneys or the judges or Courts, are either unable or unwilling to make cases using state regulations in those federal waters.

We discussed a couple of different possible options; for states to implement regulations or statutory language that would specifically allow for the application of state regulations into federal waters, in the absence of a federal plan. That could alleviate some of this problem. But we just wanted to make that known to you that it is an issue; and particularly moving forward with the tautog management strategies and plans that we hope to see in the next year or two.

This is something that probably should be taken a look at by the individual states; and we hope that we can provide you some more insight into that as we go down the road. We had some basic administration issues that we were able to take up at this meeting. We have a new Chair and Vice-Chair; we have a two-year rotating chairmanship.

We thanked Mike Eastman from New Hampshire for his chairmanship role. Our new chairman is Steve Anthony from North Carolina. We selected a new Vice-Chair, Doug Mesick

from Delaware. Both gentlemen will be a really good leadership component for the LEC going forward. We took a look at our action plan; and of course the Law Enforcement Committee takes this seriously.

We have Goal 3 tasks that we look at on a regular basis; and we tried to do our best to review that and an update for the 2018 year. We also discussed kind of formalizing a little bit of an orientation process for new LEC members; something that I've observed. I have not done probably as good a job as I could have in getting new LEC members oriented. We have had a fairly significant turnover over the last few years of LEC members.

We want to try to have a process in place; so that new members can come in and hit the ground running. Lastly, I've mentioned this before; but it came up in discussions. There is a national leadership training program for law enforcement and conservation. It's sponsored by the National Association of Conservation Law Enforcement Chiefs; NACLEC, and also by the United States Fish and Wildlife Service, to run a very intensive training program out at the Shepherdstown facility, at the leadership training facility out there. Right now we have five members of the LEC who are graduates of that program; and an additional three members of the LEC who are actually on the Steering Committee. I just want to point that out as a factor in the professionalism and the ability of these folks that are representing law enforcement on your committee, to shine in a leadership role, and to continue to do that through the ASMFC process as well. We thank them for their leadership initiatives. With that Mr. Chairman, I complete my report.

CHAIRMAN GROUT: Are there any questions for Mark on this? Adam.

MR. NOWALSKY: Obviously partnership with federal entities is a large portion of law enforcement. I know our state in particular is very involved. Has the Law Enforcement

Committee discussed the merits of having state officers engaged with doing federal enforcement?

Because of the fact that those funding, quite frankly, is often more desirable than what you can bring back to your state because of the difficulty in making cases at home, in a lot of cases. Are there thoughts about that and the fact that there is a shift towards federal enforcement occurring by state officials, as opposed to focusing on state enforcement issues?

MR. ROBSON: That's actually something that comes up almost at every one of our meetings. We have discussions about the Joint Enforcement Agreement, and how the states use the federal dollars to assist in federal waters priorities for fishing. Just in the case of the tautog issue, there is somewhat of a problem there.

State officers do regularly enforce in federal waters. There is a mechanism to do that. It's just in this particular instance with tautog, where there was no complementary federal plan, it actually does make it more difficult to come back into the court system in that individual state, and make those cases. They are still out there trying to do that work.

We also at the August meeting, we reviewed the NOAA priority setting process; and they've been changing how they are prioritizing federal fisheries work that they want to see done. But overall, I think the states are doing their best to do that enforcement at the federal level. In some cases if there are violations, if it's possible to use both state and federal citations in order to make their cases, they are doing that as well. I don't know if I answered your question. I wasn't too sure specifically what you were talking to.

CHAIRMAN GROUT: Follow up.

MR. NOWALSKY: Specifically I think there is a sense that there may be more incentive for state enforcement officials to do federal enforcement versus state enforcement. I think that is what the concern is that I would have personally, and what I see.

MR. ROBSON: Yes Adam. I have not heard that concern expressed at the LEC level. I just have not heard that concern that there is too much emphasis. I think there is always an issue where they want to make sure that they're meeting the needs of the Joint Enforcement Agreement to do federal enforcement work. But most of the state law enforcement officers that I'm hearing from at the LEC are very actively engaged; and still doing a lot of state level work.

CHAIRMAN GROUT: Okay are there any other questions? Jay.

MR. McNAMEE: Thanks for the report, Mark. I'm thinking about the Lobster Initiative, I guess I'll call it that you were talking about. I think you guys also had a representative from Farabiti come in. Is that technology that he was showing you linked to that accountability initiative?

MR. ROBSON: Yes that's specifically why he was asked to be there. He just gave a brief presentation on the technology. They are testing it in Maine with the urchin fishery, trap fishery. There have been some applications in Louisiana as well; I think for oyster.

But it is something that Maine is looking at for application in the lobster fishery; and specifically for being able to get better data on where the offshore fishermen are, where traps are being hauled, which is very important from an enforcement perspective. There are limitations on the range of some of this equipment.

If you're beyond 10 or 15 miles it may not be actively returning results. But it does data

logging, so there is access to data points once they return to within range. Of course, we didn't really discuss cost. We were looking at mainly from the enforcement perspective. But there may be other companies or other technologies that we would hope to find that are available as well for that kind of purpose.

CHAIRMAN GROUT: Okay thank you, Mark, and we are running behind schedule here. We do have a couple other action items we have to address; so if we can be efficient with our comments here so that the South Atlantic Board doesn't miss their flights, because they do have an important action to take.

UTILITY OF REPORTING SPECIES TECHNICAL COMMITTEE ASSIGNMENTS

CHAIRMAN GROUT: Shanna, could you give us the utility of reporting species technical committee assignments?

MS. SHANNA MADSEN: Yes thank you, Mr. Chair, and I promise that I will be very efficient. Diving right in, if you'll remember back to August meeting week, I had mentioned that the Assessment Science Committee was going to be working on a more effective means; to kind of illustrate the tasks that each of our Assessment Science Committees are working on.

Previously we updated this Assessment Scientist Workload Score Sheet; and I have that up there to show you guys, the representation of how hard and cumbersome this is to read and look through, and be able to wade through and understand. Essentially, we did the Score Sheet, which only included our benchmark stock assessments; and then recently we involved these updates. But it really overlooked a lot of the tasks that we were completing outside of the stock assessment process.

It really didn't capture the overlap of some of our committee members on a lot of our other species technical committees. Essentially, at the Assessment Science Committee meeting we

kind of talked about putting together something like a task list. The things that we were thinking about when we were talking about this list were that we really wanted to provide a basis for you guys to be able to have constructive conversation; as you're tasking the technical committees at the board level.

Essentially, we had hoped that the task list would be able to help us keep track of what tasks are there, give you a timeline for completion on those tasks, and provide a baseline for prioritization of those tasks. What needs to be done the fastest? What is most important to you all? We had hoped that it would also help to illustrate this committee membership overlap issue.

If you're assigning, let's say the Striped Bass Technical Committee something. Does that actually cascade down onto another one of our technical committees; because we have a lot of overlapping members? What does that workload look like; and what does that mean? You might have noticed that within our supplemental materials we put some of these example species task lists.

Kirby actually did a really good job of bringing those up during a few of his board meetings. Essentially, we hope that this task list will be compiled each year with ASMFC staff; and they can work with their TC and SAS Chairs, to put this together and obviously the task list will be edited at the board's request, as you guys work through and give more tasks during the year.

One of the things that the ASC recommended is that as we have these task lists we can bring them up at the time of tasking during a board meeting. We can have you guys assign a priority, we can discuss due dates. You know sometimes due dates will require going back to the technical committee and verifying whether or not that is a doable timeline; or if it's a larger task.

But then we can reprioritize tasks, and accommodate these new tasks that come into play. Within this task list you'll see a couple of things that I highlighted previously that we were trying to accomplish. You know we want to assign essentially, an activity level for those committees. How busy are they this year? Do they have a benchmark stock assessment? What does that mean?

We have this committee overlap score. How many other committees does that specific TC overlap with? What are those other TCs that might be affected by an overburdening of that specific technical committee? We also listed our TC and SAS member list; and their affiliation, so you guys can see oh hey, I see that my specific state person is on this committee. They have a lot to do or they don't have a lot to do, so maybe I'll step them up to a couple of things.

Just kind of getting everyone acquainted with specifically who is on what committee at the species board level. With that I kind of made sure to keep it nice and efficient. But if you guys have any questions or comments, we hope that these task lists will be provided at every meeting along with all of the rest of your briefing material, so you have them on hand, and then we can use them live during board meetings.

CHAIRMAN GROUT: Questions about this? I think it's a good idea and thank you very much for putting that together. We'll look forward to them; and I see Jay.

MR. McNAMEE: Yes I'll be quick. Just to acknowledge, I'm double dipping here, because I also commented at the ASC level. But I see this as a real value. It's simple in this current construct. I think it could be kind of popped up. I think there is a lot of tasking that goes on; and it's not anyone's fault, because the taskers are sort of in the ether and there is no context for it.

Having the ability to kind of pop this up and you can see it. Then think about the priority of what you're asking for versus the things that you've already got these guys doing; I think is going to be a real value to the process, and will help us think through this resource issue a little bit more comprehensively.

REVIEW AND CONSIDER CESS AND ISFMP CHARTER GUIDANCE FOR MEMBERSHIP

CHAIRMAN GROUT: Now moving on to Consideration of CESS, and potentially a modification to our ISFMP Charter.

MS. MADSEN: This is my presentation too. Essentially we're coming to you guys. I'm the CESS Coordinator. CESS has been reviewing their current membership requirements. We went to the Charter; we looked at it and realized that it might not necessarily fit the vision that we have now with this new role as a committee.

The current requirements that are in the Charter are that the CESS members are appointed at the discretion of the Commission Chair. Each one of our states needs to have a representative. We need to have two representatives from Headquarters at NMFS; we need to have a representative from GARFO and SERO.

We need one representative from each regional council, and we need one representative from U.S. Fish and Wildlife Service. As we reviewed these things and we started to talk about our new role in trying to work individually with species, and assign CESS members to PDTs, to make sure that we're really getting the socioeconomic perspective worked into our new management change documents.

We discussed relaxing a lot of these requirements. Right now currently, CESS has a lot of gaps in their species coverage. We have a lot of gaps in membership; and reason being is that we did have a lot of retirements. But then

the other issue was that as we developed into trying to become much more active in the ASMFC process, there was a little bit of hesitancy; considering a lot of the CESS members are volunteers.

We are asking them for a lot. I kind of thought that it might be a good idea for us to relax the membership requirements; so that we can reach a broader range of individuals, who come in with an understanding of knowing exactly what they're going to be doing on this committee now. I'm hoping that people will be excited to be a part of ASMFCs process. We're just trying to allow a little bit more flexibility.

Appointing members to meet these very stringent requirements, I don't really think encourages active participation in this committee. But the group did want to note that they still recognize that we should really try to focus on having a balance of both social scientists and economists, and geographically. On this slide I pulled the language from the Charter; and the language in red is the old language, which is what I listed to you guys at the beginning in bullet-point form.

But I'll read the new language aloud, to see what you folks think. The Committee on Economics and Social Sciences is a standing Commission committee. Committee membership is voluntary; and preferably consists of a balance of economists and other social scientists, knowledgeable about fisheries issues in their region.

An active base of members willing to help the CESS achieve their primary activities is a top priority; while ideally membership should be balanced geographically to provide coastwide representation. Up to 20 individuals should be maintained on the CESS. That is the new language that we're recommending to allow a little bit more flexibility in our membership. With that I would be happy to take any input from the Board; or if you folks are comfortable with the changes that we've made, we would

need a motion to change that language within the ISFMP Charter.

CHAIRMAN GROUT: Are there any questions on this or comments? John.

MR. CLARK: Do we need to put anything in there to make it clear that all states could have membership on the CESS; you know that any state can nominate somebody. That membership won't be limited to 20 individuals that a state doesn't have somebody on the CESS and would like somebody on the CESS?

CHAIRMAN GROUT: Shanna.

MS. MADSEN: Yes I think we can change the language a little bit to reflect that; to make sure that each state has representation. If folks want to be more flexible they can be.

CHAIRMAN GROUT: Bob.

EXECUTIVE DIRECTOR BEAL: Shanna did the group talk about the Chair still appointing the membership; or under the new language that part is struck. How would the group be appointed?

MS. MADSEN: Yes so we did talk about that. We thought that it would be good to essentially make an open call. I think at the Board level, if folks have people in mind at their states, they can come to us and let us know. But I think that having it appointed at the discretion of the Chair was hard.

Because we also wanted to be able to make an open call to fill in any missing gaps; essentially we thought that we could distribute something to the same parties that we distributed our RFP to; so that we can try to get members from all across the coast that are already interested in being a part of ASMFC process.

EXECUTIVE DIRECTOR BEAL: I think we still need to include something in there about after you make the open call and you get a bunch of

interested folks, we need some group or an individual or Chair, or whoever it is, to make a decision about which of those interested folks actually populate the Committee. We've been doing it each year in the Chair's memo at the beginning of the year. Somehow, or some group needs to pick through that I suppose.

CHAIRMAN GROUT: Toni.

MS. KERNS: We changed the protocol; I think when we changed at some point that both Habitat Committee members and CESS Committee members can be appointed at any point during the year. It just still has to go through the Chairman.

CHAIRMAN GROUT: Roy.

MR. MILLER: It wasn't clear to me, based upon the presentation, whether membership by a state person is prescriptive or strictly voluntary. In other words, I presume each state would have the opportunity to put a person on the CESS. But will each state be represented on the CESS?

CHAIRMAN GROUT: Shanna.

MS. MADSEN: The way that we have it written is that you will have an opportunity; but each state does not necessarily have to. The reason being was it being so prescriptive, there were still states that there were always gaps on. Unfortunately we could never fill those holes; so we were never up to full capacity on that Committee, which was leaving us then gaps in species coverage.

CHAIRMAN GROUT: Are there any other questions on this? Is there a motion, a specific motion that's been crafted? Hearing some of the comments here, I think we might have to modify the motion. Is it something that we can do quickly today; or should we hold off until the next meeting to take it into consideration, you know put in specifically who will be doing the appointing and to make sure that every state

has the opportunity. Because I think that language needs to be actually in the Charter.

EXECUTIVE DIRECTOR BEAL: Well, one option maybe, we can at the staff level tweak that language and just circulate it to the Policy Board between meetings. I think it's a pretty clear record of the sense of the Policy Board here. We can adjust that language and make sure the CESS is okay with it; and do that between meetings, so we don't have to wait too long on it, if that works for the group.

CHAIRMAN GROUT: Are you suggesting that this motion be made by someone at this point; with the language will be tweaked, or should we wait and make the motion at the next meeting, after we come up with the actual language?

EXECUTIVE DIRECTOR BEAL: I think we can make the motion today. If we get to a point where we can't resolve this over e-mail, then we can tackle it at the next meeting. But I think we can make the motion today and handle it through e-mail correspondence; and it will be done before the next meeting.

CHAIRMAN GROUT: Would anybody like to make this motion at this point? John.

MR. CLARK: I would make the motion, Mr. Chair. But I think instead of modified today; we need to change it to as modified between now and the winter, 2018 meeting.

CHAIRMAN GROUT: Does that work, Bob?

EXECUTIVE DIRECTOR BEAL: That would work. **The other option would be just as modified to reflect the Policy Board discussion today.**

MR. CLARK: That would be fine. I would be glad to make that motion.

CHAIRMAN GROUT: Okay, is there a second, Jim Estes, discussion on the motion. **Seeing none; is there any objection to approving the**

motion? The motion is approved by unanimous consent.

REVIEW AND CONSIDER APPROVAL OF THE ASSESSMENT SCHEDULE

CHAIRMAN GROUT: And finally, review and consider approval of the assessment schedule, with a couple changes.

MS. KERNS: There have been two changes to the assessment schedule that will need Board approval. The first was described at the Shad and River Herring Board. The Shad stock assessment was an update and it's being changed to a benchmark; which pushes the timeframe back to 2019, because it is a benchmark it will require more time to complete, as well as the weakfish stock assessment, which I described at the Business Session. We're going to shift that back from an update in 2018 to an update in 2019; to allow us to include the transition data from the Marine Recreational inputs, MRIP program. Those are the two changes.

CHAIRMAN GROUT: Are there any questions for Toni on those two changes? **Is there any objection to making those two changes to the stock assessment schedule? Seeing none; it's approved by unanimous consent.**

ADJOURNMENT

CHAIRMAN GROUT: Is there any other business to be brought before the Policy Board today? Seeing none; I see we're adjourned.

(Whereupon the meeting adjourned at 11:55 o'clock a.m. on October 19, 2017)

December 20, 2017

Mr. James J. Gilmore, Jr., Chair
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, Virginia 22201

Dear Mr. Gilmore:

Virginia hereby appeals the decision of the Atlantic Menhaden Management Board (the “Board”) to set the coast-wide total allowable catch (“TAC”) for menhaden at 216,000 metric tons for the 2018 and 2019 fishing seasons and to adopt certain portions of Amendment 3 to the Atlantic Menhaden Fishery Management Plan (“FMP”). Specifically, Virginia challenges the decision to allocate the TAC in a way that results in an unanticipated and unfair reduction in Virginia’s allowable menhaden landings and the decision to lower the Chesapeake Bay Reduction Fishery Cap (the “Bay Cap”) despite the lack of supporting scientific information. Taken together, these decisions, which are unnecessary for the conservation of the fishery, impose severe and unfair adverse economic impacts on Virginia and prevent it from sharing in the benefits of the increased TAC.

BACKGROUND

Atlantic menhaden have been subject to a coast-wide fishery management plan since 1981, but the first management measure, the Bay Cap, was not instituted until the passage of Addendum II in 2005. ASMFC, Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden, at pp. 26-27 (November 2017) [hereinafter “Amendment 3”]. At that time, the coast-wide status of the stock was healthy, but there was uncertainty about whether the reduction fishery in the Bay was causing localized depletion. Addendum II outlined research priorities to determine whether the depletion was occurring and imposed the Bay Cap as a precautionary measure to ensure that it did not occur while the research was being done. *Id.* at pp. 24, 27.

After passage of Addendum II, the company that is responsible for the reduction fishery on the East Coast, Omega Protein Corporation (“Omega”), entered into talks with recreational fishing and environmental groups to revise the cap.¹ Those discussions resulted in an agreement to set the cap at 109,020 metric tons. This agreement was implemented in Addendum III. (Amendment 3, at p. 27). The addendum permitted limited roll-over of unused quota from one year to another, meaning that the maximum that could be harvested in a given year from the Bay was 122,740 metric tons. *Id.*

The first coast-wide management measure, a TAC, was established in Amendment 2, which was approved in December of 2012. *Id.* The TAC was set at 170,800 metric tons, which represented

¹ See Scott Harper, “Kaine and Fishery Strike Deal to Limit Menhaden Harvesting in Bay,” *Virginian Pilot*, available at https://pilotonline.com/news/local/environment/kaine-and-fishery-strike-deal-to-limit-menhaden-harvesting-in/article_4300a886-9bb8-5e2e-b620-c416c7fd4fce.html

a 20% reduction from average landings from 2009 through 2011. *Id.* This TAC was allocated among jurisdictions using average annual landings of each jurisdiction during the same 2009 through 2011 period. *Id.* The amendment also provided for a 20% reduction in the Bay Cap, resulting in a cap of 87,216 metric tons. *Id.* at p. 28.

The TAC was increased by 10% to 187,880 metric tons in May of 2015. *Id.* The Bay Cap was not increased. In 2016, the TAC was increased again by 6.45%, resulting in a TAC of 200,000 metric tons. *Id.* Once again, the Bay Cap was not increased. At the same time that it voted to increase the TAC, the Board initiated the development of Amendment 3 to the FMP to explore the feasibility of implementing menhaden-specific biological and ecological reference points (“BERPs”) to replace the current single-species reference points that are used to manage the stock and to re-examine the method of allocating the TAC among the jurisdictions. *Id.* at pp. 1-3.

The Board considered whether to adopt Amendment 3 and adjust the TAC at its meeting on November 13 and 14, 2017. At the meeting, the Board was presented with evidence indicating that, under the current stock assessment, the menhaden stock is healthy and overfishing is not occurring. Furthermore, the Board was presented with information indicating that raising the TAC to 220,000 metric tons would result in absolutely no risk of the fishing mortality target being exceeded and raising the TAC even higher would result in only a small risk of exceeding the target. After substantial debate, the Board decided not to adopt the BERPs presented, perhaps because they were not menhaden-specific and may have caused the lowering of the TAC substantially to meet the target fishing mortality rate; instead, it chose to continue using single-species reference points until menhaden-specific BERPs are finalized. The Board raised the TAC by 8%, setting it at 216,000 metric tons. It also decided to reallocate the quota using an unorthodox fixed minimum allocation. Under that system, all states, regardless of their history of menhaden landings, are each provided 0.5% of the TAC. The remainder of the TAC is then divided among the states according to their proportion of the landings from 2009 through 2011. States that do not wish to retain their portion of the TAC are given the option of relinquishing all or some portion of their new quota, which will cause that portion of the TAC to be redistributed among the remaining states in proportion with their landings. The Board continued the 1% episodic events set aside for the New England states. Finally, the Board voted to lower the Bay Cap by more than 41%, setting it at 51,000 metric tons. Despite the increase in the TAC, Virginia’s permissible landings were actually decreased once the allocation method and episodic events set-aside are taken into account.

Virginia exhausted every possible avenue to avoid these results and secure relief from the Board. At the meeting, Virginia argued that the TAC that was chosen was likely too low to accomplish the goals expressed in the reallocation discussion, which were to increase allocations to additional East Coast states but not at the expense of existing menhaden fisheries. When the allocation method was discussed, Virginia argued and voted against each of the fixed minimum proposals. It also forcefully advocated against lowering the Bay Cap, pointing out that such an action was unsupported by any scientific evidence. Those efforts failed. Virginia is unaware of any remaining avenue of securing relief from the Board and believes that this appeal is its only recourse.

ARGUMENT

Despite the Board's decision to raise the TAC, which shows that it believes the menhaden stock is healthy, it adopted an allocation method that cut Virginia's permissible menhaden landings and reduced the Bay Cap. The decisions on the TAC and allocation prevented Virginia from benefiting from the increase in the permissible harvest level and provided jurisdictions with little or no history of landings with a substantial share of the TAC, relative to the practical needs of those jurisdictions. The reduction in Virginia's permissible landings was an unforeseen impact of the Board's decisions. In addition, the decisions unfairly penalized Virginia in contravention of the FMP and disregarded the historical landings period that the Board chose. Compounding the problem was the decision to lower the Bay Cap despite the lack of supporting technical information. These measures, which are unnecessarily restrictive in light of the health of the menhaden stock, should be altered to protect the interests of all jurisdictions participating in the fishery.

I. The Board unintentionally and unfairly penalized Virginia to benefit other states with no history of participating in the fishery when setting the TAC and allocating the TAC among the states.

Although the Board's decisions ultimately reduced Virginia's permissible landings, this was not the Board's stated intent. Throughout the Board's deliberations on Amendment 3, a theme emerged: many Board members wanted to provide additional jurisdictions with an opportunity to participate in the fishery, but they did not wish to do so at the expense of the other jurisdictions. For example, when the Board was considering whether to set the fixed minimum allocation at 0.75% or 1%, much of the discussion focused on how the former was preferable because it would not harm any state. After that method was chosen, however, a representative from Omega pointed out that the 0.75% fixed minimum would result in an 8% reduction in Virginia's landings. At that point, some Board members and staff worked to find an alternative allocation scheme that would not harm any state. The result of those efforts was a table distributed by staff showing that allocating the TAC based on a 0.5% fixed minimum would achieve that goal. At that point, a motion was made to reconsider the allocation, and the 0.5% fixed minimum was selected. Unfortunately, the staff analysis reflected in the table did not account for the episodic events set-aside, which has been 1% of the coast-wide TAC since 2013. Before the set-aside is factored in, Virginia's allowable landings increase by 0.58%. After the set-aside is removed, however, Virginia's allowable landings decrease by 0.43%, which amounts to more than 1.6 million pounds of menhaden.² If this had been pointed out to the Board, it undoubtedly would have taken steps to ensure that Virginia was not harmed.

In addition to being unforeseen, the impact on Virginia is fundamentally unfair. Amendment 3 takes pains to note that its allocation method is designed to provide a fair and equitable allocation of the resource among the jurisdictions and an allocation that is biologically, economically, and socially sound. (Amendment 3, at pp. 3, 24, 29). The allocation method that was ultimately chosen

² Several states have indicated that they will relinquish their share of the TAC for the 2018 fishing season. Once those shares of the TAC are redistributed, Virginia's permissible landings will rise modestly. Nevertheless, the allocation is still problematic because the benefit accruing to Virginia is unfairly small when compared to the disproportionate benefit enjoyed by the other jurisdictions. In addition, there is no guarantee that the states that relinquished their allocation this year will do so again next year, meaning that Virginia may face a reduction in its allowable landings during the 2019 fishing season.

fails that standard. First, the allocation results in a reduction in harvest opportunity for only one state, Virginia, while providing other jurisdictions with very substantial and unnecessary increases. For example, three states that had no allocation before were given the opportunity to land more than 2 million pounds of menhaden, while New Hampshire's allocation was increased by more than 1,000,000%. Moreover, it is not at all clear that many of the states which benefitted from this reallocation can actually use it. Virginia is the only state with a reduction fishery; the other states that have a menhaden fishery at all have a bait fishery. The recent socio-economic study of the menhaden fishery requested by the Board found that most states with minor shares of the TAC under the old allocation system are often not affected by their minor percentage of the TAC because of the bycatch provision that allows vessels to harvest up to 6,000 pounds of menhaden per day even after a state or jurisdiction's share of the TAC has been harvested. The bycatch amounts will continue to not be counted against the TAC under Amendment 3. This means these states could proceed harvesting menhaden for bait at a rate of 6,000 pounds of menhaden per vessel per day after their relatively small portion of the TAC realized under Amendment 2 has been landed. Thus, many states that benefitted from the reallocation could have had the same or a similar harvest level under the small-scale fishery and bycatch provisions without the reallocation of the TAC.

Indeed, many of the jurisdictions admitted that they do not need the additional allocation and do not have the desire or infrastructure to make use of it. Pennsylvania, for example, repeatedly stated during the deliberations that it had no desire to create a fishery for menhaden in the state, even going so far as suggesting that, if it were forced to demonstrate the intent and ability to make use of its allocation as a condition to receiving it, its fishermen would purposefully use faulty gear that would allow the vast majority of the fish in the nets to escape. New Hampshire stated that it may have the ability to make use of some of its allocation, depending on whether a large fishing vessel decided to target menhaden and dock in the state, but it admitted that it would likely make a good part of its allocation available to other states through transfers. South Carolina acknowledged that it did not have the infrastructure necessary to participate in the fishery and expressed a willingness to relinquish its allocation. Connecticut, on the other hand, stated that it would not participate in the relinquishment program, as it viewed the allocation as a kind of currency to be traded.

The latter position highlights the unfair position in which Virginia finds itself. It can either allow its permissible landings to decrease or negotiate for a transfer from a state that has no need for its allocation of the TAC because it either has no intention to participate in the fishery or its fishery is not bound by the TAC under the small-scale fishery and bycatch provisions. In other words, Virginia must either accept the lowered allowable landings of menhaden and the clear, demonstrable adverse economic impacts on the communities that depend on the fishery or provide a windfall to a state by exchanging something of value for a transfer of a portion of the TAC that the transferring jurisdiction does not need. It is fundamentally unfair, socially unjust, and economically unsound to place a state in such a position, especially when doing so is unnecessary for the preservation of the menhaden fishery because the stock is healthy enough to provide for an increased harvest level for all jurisdictions.

This fundamental unfairness stems from a key defect in the fixed minimum allocation method: namely, the scheme ignores historical landings in setting the minimum. Even states that had no landings whatsoever during the relevant landings period are given an allowable harvest of more than 2.3 million pounds of menhaden. This is a radical redistribution of the TAC. Indeed, if the Board had

instead chosen to double the average landings of the smaller jurisdictions, it would have ended up redistributing around 16 million fewer pounds of menhaden. It is troubling to Virginia that a historical basis of landings had persisted since 2013, whereby Virginia rightly enjoyed 84.96% of the TAC, yet the *de novo* allocation system adopted by the Board resulted in Virginia being downgraded to 79.66% of the coast-wide TAC.

A remedy to this unnecessary and unfair allocation exists. The most reasonable way to remove the unfairness is to increase the TAC to a level that allows all jurisdictions to be given a fair share and adopt an allocation method that is based on landings. While jurisdictions that have not traditionally participated in the fishery can be given shares of the TAC, they should be required to demonstrate some landings under the bycatch or small-scale fishery provisions before that occurs. Doing so will ensure that the decision will not provide significant shares of the TAC to states with no intention of using them as anything other than a bargaining chip while also ensuring that states with established fisheries will be provided with sufficient allowable landings to avoid harm to those fisheries.

II. The decision to lower the Bay Cap is unnecessary and unsupported by scientific evidence.

Compounding the harm to Virginia stemming from the setting of the TAC and the allocation method is the Board's decision to reduce the Bay Cap from 87,216 metric tons to 51,000 metric tons. If lowering the cap were necessary to preserve the health of the menhaden stock, that harm could be justified. Unfortunately, the technical information available to the Board does not demonstrate any such need for lowering the Bay Cap.

Before examining the technical information presented to the Board, it is first beneficial to examine the rationale for the Bay Cap. It was initially justified as a precautionary measure to ensure that localized depletion of menhaden would not occur while the issue was studied. (Amendment 3, at p. 24). Later, the Board theorized that it protected the Bay as "an important nursery ground for menhaden." *Id.* Finally, at the meeting, the maker of the motion to lower the Bay Cap asserted that it was necessary to protect the Bay as a nursery for both menhaden and other species. This justification was reflected in the press release that announced the reduction in the Bay Cap. *See ASMFC, News Release, ASMFC Approves Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden*, ("This recognizes the importance of the Chesapeake Bay as nursery grounds for many species by capping recent reduction landings from the Bay to current levels."), available at http://www.asmfc.org/uploads/file//5a0c69b4pr57 MenhadenAmendment3_Approval.pdf.

The technical information presented to the Board does not support any of these rationales. First, as to localized depletion, the studies that were commissioned at the time the Bay Cap was first instituted failed to find that such depletion was occurring. (Amendment 3, at p. 24). In fact, those studies indicated that, if such depletion did occur, it would be relatively small in scale and short-lived given the migratory nature of menhaden. *Id.* An external peer review of those studies conducted by the Center for Independent Experts supported this view, concluding localized depletion was a possibility in theory but nothing demonstrated that it was occurring in the Bay.

There is similarly no evidence to support the view that lowering the Bay Cap was necessary to protect the Bay as a nursery area for menhaden. Amendment 3 does not explain how the Bay Cap

serves to protect the Bay as a nursery. Logically, it could only do so if the reduction fishery resulted in high mortality for juvenile menhaden or harmed menhaden habitat. Nothing indicates that it does either. The reduction fishery does not target juvenile menhaden,³ and the mortality rate among juvenile menhaden attributable to fishing activity is low. In addition, no evidence exists to show that the gear used in the reduction fishery harms the habitat of menhaden or any other species.⁴ In fact, the scientific information that is available tends to show that the reduction fishery does not harm the Bay's nursery function at all. If the fishery did harm the Bay, one would expect the research in the area to show the Bay to contributing fewer recruits than other estuaries or supplying less healthy recruits that fail to survive to reproduction age. That is not the case. Instead, the current research indicates that the Bay contributes roughly the same proportion of recruits to the population as estuaries in New England and the southeast. *Id.* at p. 21. These recruits tend to survive to reproduction age in roughly equal proportions. *Id.* It is thus apparent that the reduction fishery does not prevent the Bay from serving as a nursery for juvenile menhaden.

Finally, there is similarly no evidence to suggest the Bay Cap was necessary to protect the Bay as a nursery for other species. Again, Amendment 3 does not provide an explanation for how the Bay Cap serves this purported purpose. However, it could only do so if the reduction fishery deprived other species of a sufficient amount of menhaden to forage, harmed the habitat of those other species in some way, or harvested large numbers of those other species as bycatch. Of course, as discussed above, there is nothing to indicate that localized depletion of menhaden is occurring, so there is nothing to indicate that the harvest is depopulating the Bay to such an extent that other species do not have a sufficient forage base.⁵ In addition, no evidence has been tendered to show that the reduction fishery harms the habitat of any animal. Finally, nothing indicates that the reduction fishery harvests such large numbers of other species that their numbers are endangered, as the bycatch in the fishery is incredibly low. *See id.* at pp. 14-15 (noting that studies have found that there is little bycatch in the purse seine fishery and summarizing a study conducted by the Virginia Institute of Marine Science that found that the bycatch in the 1992 menhaden reduction fishery comprised only 0.04% by number).

There is thus no technical information to support the view that the Bay Cap needed to be lowered. Virginia does not object to the Bay Cap being in place, but it does object to arbitrarily lowering it when no science indicates that doing so is necessary or even beneficial for conserving the

³ One Board member speculated that this may change. During deliberations on the Bay Cap, that member asked the Virginia delegation whether Omega, which was recently acquired by a new company, would begin targeting smaller fish to fulfill some unnamed purpose of its new owner. Virginia indicated that it had no knowledge of such plans and that the smaller fish were not generally useful for Omega's purposes. As far as Virginia is aware, Omega has no plans to begin targeting juvenile menhaden.

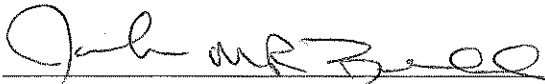
⁴ The purse seine has no impact on habitat if used correctly. Food and Agricultural Organization, United Nations, Purse Seines, <http://www.fao.org/fishery/geartype/249/en> ("Because of [the purse seine's] characteristics there is no impact on the bottom habitat (except when the water depth is less than the height of the seine during the fishing operations and . . . the lower edge of the gear wipes the sea bottom).").

⁵ A multi-year dietary analysis of the top five predators in the Chesapeake Bay found that menhaden comprised at least 5% of the diet of only one of those predators. T.F. Ihde, et al., *Assessing the Chesapeake Bay Forage Base: Existing Data and Research Priorities*, at pp. 20, 26 (STAC Publication 15-005, 2014), available at http://www.chesapeake.org/pubs/346_Ihde2015.pdf. Thus, the impact of any localized depletion that did occur on other species would be negligible.

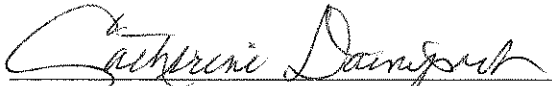
menhaden fishery. Accordingly, Virginia believes that the Bay Cap should be restored to at least 87,216 metric tons and that a limited amount of unused quota should be rolled over to future years.

CONCLUSION

In sum, the Board's decisions on the TAC, allocation of the TAC, and the Bay Cap, all of which are excessively restrictive and unnecessary for the conservation of the menhaden fishery, should not be allowed to persist. Virginia believes that the Interstate Fisheries Management Board ("ISFMP Board") should instead order that the TAC be set at 220,000 metric tons and that an allocation method be adopted that is based on historical landings without arbitrary adjustments. In addition, Virginia believes that the Bay Cap should be returned to 87,216 metric tons with a possibility for the rollover of a portion of any unused quota from year to year. As required by the ISFMP Board's Appeals Process pursuant to which this appeal is taken, Virginia commits to comply with the ISFMP Board's decision in this matter, subject to its right to take further action beyond the ASMFC process to seek relief.



John M.R. Bull, Administrative Appointee



Catherine Davenport, Governor Appointee



Senator Richard Stuart, Legislative Appointee



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James J. Gilmore, Jr. (NY), Chair

Patrick Keliher (ME), Vice-Chair

Robert E. Beal, Executive Director

Vision: Sustainably Managing Atlantic Coastal Fisheries

January 17, 2018

John M.R. Bull
Commissioner
Virginia Marine Resources Commission
2600 Washington Avenue
3rd Floor
Newport News, Virginia 23607-4317

Dear Mr. Bull,

This letter responds to the Commonwealth of Virginia's December 20, 2017 appeal of the Atlantic States Marine Fisheries Commission's (Commission) approval of Amendment 3 (Amendment) to the Atlantic Menhaden Interstate Fishery Management Plan (FMP). On January 5 and 11, 2018, in accordance with the appeals process, a conference call of the Commission Chair Jim Gilmore, Vice-Chair Pat Keliher, past Chair Doug Grout (Leadership), and staff were convened to review the Virginia appeal. The purpose of the review was to assess the issues Virginia raises in its appeal and to determine whether those issues are of the type and substantiality that warrants review by the full Interstate Fisheries Management Program Policy Board (Policy Board). Given the appeal does not directly indicate the specific appeal criteria for which Virginia is making its claims, Leadership has made assumptions for which criterion an issue falls under.

During the call, it was determined the appeal did **not** meet the qualifying guidelines under appeal criterion one (decision not consistent with FMP), four (historical landings period not adequately addressed) and five (unforeseen circumstances/impacts) for both state allocations and the setting of the 2018 total allowable catch (TAC). However, it **could be forwarded** to the Policy Board for appeal consideration under criterion three (incorrect application of technical data) for the Chesapeake Bay Reduction Fishery Cap (Bay Cap). Appeal criterion two was not considered because it was not referenced in the appeal.

A. Claims Under Criterion One: Decision Not Consistent with FMP

The appeal referenced criterion one, "Decision not consistent with the FMP." Under this criterion, the appeal argues the allocation method fails to meet the goal of the FMP specifically allocating the resource in a method that is biologically, economically, and socially sound. See letter from Virginia Commissioners to ASMFC Chair James J. Gilmore, pp. 3-5 (December 20, 2017). Leadership rejects this claim.

The goal of Amendment 3 is “to manage the Atlantic menhaden fishery in a manner which equitably allocates the resource’s ecological and economic benefits between all user groups. The primary user groups include those who extract and utilize menhaden for human use, those who extract and utilize predators which rely on menhaden as a source of prey, and those whose livelihood depends on the health of the marine ecosystem. Pursuit of this goal will require a holistic management approach which allocates the resource in a method that is biologically, economically, and socially sound in order to protect the resource and those who benefit from it.” While it is true the allocation method does result in a reduction of the percent share allocated to Virginia, the Commonwealth is allocated nearly 80% of the coastwide quota with the remainder to be shared by the other 14 member states. It is important to note the available quota for Virginia actually increases in 2018 relative to 2017. This increase is further described later in this letter.

Under the FMP, the primary user groups are defined as the directed fishery (bait and reduction), recreational fishermen, predators of menhaden, and those whose livelihoods depend on the health of the marine ecosystem. Given the FMP goal of equitable allocation, one could argue that allocating nearly 80% of TAC to one jurisdiction within a 15 jurisdiction management unit is not an equitable distribution to the primary user groups. Given the diverse objectives of the primary menhaden user groups, the Board must make allocation decisions that balance biological, economic, and social trade-offs. The Board had significant deliberations on the issue of what is equitable allocation. By choosing the fixed minimum allocation method, the Board was able to address the needs of the different stakeholders, taking into account the needs of the directed fishery, while having minimal negative impact relative to the 2017 quotas. Virginia’s 2018 quota still allows for growth, given it has not harvested its full allocation in the last two years. Leadership concludes substantial grounds for an appeal are not present on this issue.

B. Claims Under Criterion Four: Historical Landings Period Not Adequately Addressed

The appeal cited criterion four, “Historical landings period not adequately addressed.” Under this criterion, the appeal states the fixed minimum allocation method ignores historical landings in setting the minimum. See letter from Virginia Commissioners to ASMFC Chair James J. Gilmore, pp. 3-5 (December 20, 2017). Leadership rejects this claim. While Virginia is correct the fixed minimum does not use history-based landings, the vast majority (approximately 94%) of the TAC is allocated using average landings from 2009-2011. Leadership concludes historic landings are being considered for the allocation of the vast majority of the TAC. Commission guiding documents do not require Boards to allocate quota based solely on historical landings information.

Virginia states the fixed minimum allocation method was “radical” and “unorthodox.” Leadership argues the method is a reasonable allocation tool to accommodate changing conditions in a fishery that cannot be addressed through the use of historic landings. In fact, two other Commission plans use fixed minimums to allocate quota, northern shrimp and American eel. In addition, there are several other fisheries in the United States and the world

that are managed using fixed minimums, including Western Atlantic reefish and the Shetland shellfish fisheries (UK). The fixed minimum approach allowed the Board to allocate the majority of the TAC using historical landings, but provided opportunities for states that either did not have accurate historical catch information (due to the lack of reporting requirements) or have seen increases in menhaden abundance in state waters in recent years (2015-2017). Leadership concludes substantial grounds for an appeal are not present on this issue.

Virginia suggests a remedy to the “unnecessary and unfair” existing allocation is to increase the TAC to 220,000 MT. The Board did consider this TAC level at the November 13 and 14, 2017 Board meeting but the motion failed with 5 in favor and 13 in opposition (See November Meeting Summary page 3). The Board reviewed a wide range of TAC levels with varying levels of risk for exceeding the fishing mortality target. In setting the TAC, the Board considered both the menhaden resource and the ecosystem services the resource provides. It also took into consideration the overwhelming public support to conservatively manage the resource. In taking this holistic approach, as set by the goal and objectives of the FMP, the Board set a lower TAC than could have been afforded under tradition single species management. This was an intentional and conscious conservative management action to minimize risk to the resource while menhaden-specific ecological reference points are developed over the next two years.

In addition, the appeal suggests a state should demonstrate landings in either the bycatch or small scale fishery provision in order to receive allocation. A similar concept was considered by the Board but was not approved.

...States have the option to opt out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds for bycatch purposes and decline the remainder of their quota. States also have the right to opt in to the program and receive their full allocation... (See Meeting Summary page 5).

This notion, that a state must demonstrate landings history to receive allocation, was argued against by states that support the FMP’s goal to include those primary user groups that extract and utilize predators which rely on menhaden as a source of prey, those whose livelihood depends on the health of the marine ecosystem and those non-consumptive users who place a high value on a healthy ecosystem. Some states see a different social and economic value for menhaden in their waters for both the recreational and ecotourism industries. These sorts of decisions highlight the nature of cooperative interstate fisheries management – to seek to balance the different needs and values of all involved states, not the one or the few. These difficult decisions are sometimes necessary in service of the management goals of the FMP.

C. Claims Under Criterion Five: Unforeseen Circumstances/Impacts.

The appeal letter cites criterion five, “Unforeseen circumstance/impacts.” The appeal recounts the Board wanted to provide additional jurisdictions with an opportunity to

participate in the fishery but not at the expense of other jurisdictions. The appeal states if the Board had known under the 0.5% fixed minimum and the 1% episodic event set aside Virginia's landings would be decreased, the Board would have taken steps to ensure Virginia would not be harmed. See letter from Virginia Commissioners to ASMFC Chair James J. Gilmore, pp. 3-5 (December 20, 2017). Leadership disagrees with Virginia's position that these issues were unforeseen. While the tables that were passed at out the meeting did not include the 1% episodic event set aside, it was made clear to the Board at the start of the meeting the Amendment would be taken up in the order presented in the document. This meant that episodic events set aside would be discussed after allocation, and would alter the distribution of the TAC (See Board minutes pages 2 and 50).

When considering action on the allocation method, scenarios were presented where Virginia would have less quota in 2018 than in 2017 despite the increase in the TAC. But the Board recognized Virginia's quota would have the opportunity to increase above 2017 levels if states relinquished quota. During the Board deliberations, a few states indicated it was their intent to relinquish quota. Since the November Board meeting 6,704,365 pounds of quota has been relinquished. Virginia's 2018 quota has increased by 5,696,800 pounds because relinquished quota is redistributed to states based on their average landings from 2009-2011 (84.97% for Virginia). Based on the additional quota received, Virginia's 2018 quota is 4,099,337 pounds higher than 2017. Allocation decisions are always difficult; but they are, as here, necessary in service of management goals of the plan. Since Commissioners recognized and weighed these potential impacts to the states and industry, Leadership does not find the allocation consequences of this Amendment as unforeseen.

D. Claims Under Criterion Three: Incorrect Application of Technical Information.

Virginia's appeal is partially based on appeal criterion three, "Incorrect application of technical information." Under this criterion, the appeal states the reduction in the Chesapeake Bay Reduction Fishery Cap (Bay Cap) from 87,216 MT to 51,000 MT and the removal of the rollover provision is not supported by the technical information that has been presented to the Board or described in the Amendment. See letter from Virginia Commissioners to ASMFC Chair James J. Gilmore, pp. 5-7 (December 20, 2017).

Leadership concluded the Policy Board should consider Virginia's claim that Chesapeake Bay localized depletion studies were inconclusive. The decision to set a reduced Bay Cap in Amendment 2 was a precautionary measure set as a placeholder until the commissioned studies on localized depletion were finalized and peer-reviewed (Amendment 2 reduced the Bay Cap from average landings from 1999-2004 to 87,216 MT). It was not based on a scientifically quantified harvest threshold, fishery health index, or fishery population level study. The Bay Cap limit was a compromise reached by managers, fishery stakeholders, and environmental NGOs.

In addition, the appeal states there is no evidence in Amendment 3 to support the view that lowering the Bay Cap was necessary to protect the Bay as a nursery area for menhaden and

there is no evidence to suggest the Bay Cap is necessary to protect the Bay as a nursery for other species. Leadership agrees the Amendment does not provide sufficient evidence to support such claims. In making this statement, it does not conclude that evidence does not exist, but that it is not contained in the Amendment.

Virginia claims the Bay Cap was arbitrarily lowered. In setting the 51,000 MT Cap, the Board considered recent harvest levels to minimize impacts on Virginia. The Bay Cap was set at the average landings in the Bay from 2012-2016 (rounded up); therefore, it was not arbitrarily lowered nor was it expected to significantly impact the prosecution of the fishery.

Leadership is recommending the formation of a Fact Finding Committee (Committee), as allowed under the appeal process, to investigate the science surrounding the Bay Cap. The Committee would conduct a literature review of the science in question. The Committee would look for peer-reviewed literature that could address the following questions:

1. What is the impact on menhaden reproduction or other species in the Bay with menhaden harvest set at 87,216 MT?
2. Does menhaden harvest in the Bay impact menhaden nursery grounds? Other species?
3. Does menhaden harvest in the Bay impact menhaden reproduction in the Bay?
4. What environmental factors impact menhaden reproduction in the Bay?
5. Is there current science that would guide the Board in setting the appropriate level of harvest in the Bay?

Leadership recommends to the Policy Board:

- Consider the appropriate level of the Bay Cap for 2018 while the Fact Finding Committee addresses the above questions.
- Charge the Menhaden Board with reconsideration of the Bay Cap to 87,216 MT for 2018 while the Committee drafts a report to the Board. After reviewing the Committee's report, the Menhaden Board could consider the Bay Cap for 2019 and beyond.

In recognition that Virginia sets its annual menhaden regulations through a legislative process, not controlled by Virginia Marine Resources Commission, Leadership strongly recommends pursuing/implementing this one year change in the Bay Cap as a way to help facilitate compliance with the FMP.

In light of these findings, Leadership finds there are grounds for the appeal to be heard by the Policy Board on one of the three claims under criterion three advanced in Virginia's letter – specifically, Virginia's claim regarding the Bay Cap. Leadership concludes it is appropriate to provide Virginia an opportunity to present its appeal on this issue to the Policy Board. During the ISFMP Policy Board meeting on February 8, 2018, the ISFMP Director will present background on the Amendment and the Board's justification for changing the Bay Cap. Following this presentation, the Commissioners from Virginia will be provided 15 minutes to present their rationale for the appeal and their suggested resolution of the issue. The Policy Board will then be provided an opportunity to discuss the issue, consider the recommendation from Leadership, and then decide what issues, if any,

Mr. John M.R. Bull

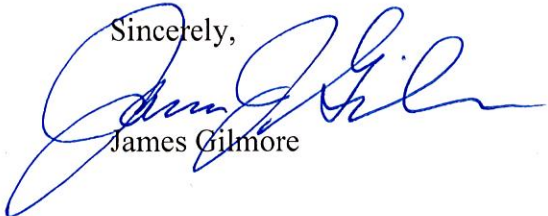
Page 6

January 17, 2018

should be remanded back to the Menhaden Board for corrective action. No additional public comment will be taken in connection with the appeal.

Thank you for the continued partnership and commitment to the Commission process and actions.

Sincerely,

A handwritten signature in blue ink, appearing to read "James Gilmore", is written over the typed name.

James Gilmore

cc: Catherine Davenport
Senator Richard Stuart
Interstate Fisheries Management Program Policy Board

L18-08

Atlantic States Marine Fisheries Commission

APPEALS PROCESS

Approved by the ISFMP Policy Board

August 18, 2004

Background

The Atlantic States Marine Fisheries Commission's interstate management process is based on the voluntary commitment and cooperation of the states. The involved states have frequently demonstrated their willingness to compromise and the overall process has proven to be very successful. However, there have been instances where a state/jurisdiction has expressed concern that the Board decisions have not been consistent with language of an FMP, resulted in unforeseen circumstances or impacts, did not follow established processes, or were based on flawed technical information. In order to address these concerns, the ISFMP Policy Board charged the Administrative Oversight Committee with "exploring and further developing an appeals process".

Under the current management process the primary policy development responsibility lies with species management boards. And, in the case of development of new fishery management plans or amendments the full Commission has final approval authority prior to implementation. The purpose of the appeals process is to provide a mechanism for a state/jurisdiction to petition for a management decision to be reconsidered, repealed or altered. The appeals process is intended to only be used in extraordinary circumstances where all other options have been exhausted. The management boards have the ability to go back and correct errors or address additional technical information through the recently clarified process on "amending or rescinding previous board actions".

During the December 2003 ISFMP Policy Board meeting, the decision was made to continue to have the Policy Board serve as the deliberative body that will consider valid appeals. This decision is consistent with the language that is included in the ISFMP Charter. However, the Charter does not provide detailed guidance on how an appeal is to be addressed.

This paper details for the Commission appeals process.

Appeal Criteria –The intent of the appeals process is to provide a state with the opportunity to have a decision made by a species management board or section reconsidered by the Policy Board. The following criteria will be used to guide what type of decisions can be appealed. In general, management measures established through the FMP/amendment/addendum process can be appealed. However, the appellant must use one of the following criteria to justify an appeal:

1. Decision not consistent with FMP
2. Failure to follow process
3. Insufficient/inaccurate/incorrect application of technical information
4. Historical landings period not adequately addressed

5. Management actions resulting in unforeseen circumstances/impacts

The following issues could not be appealed:

1. Management measures established via emergency action
2. Out-of-compliance findings (this can be appealed but, through a separate, established process)
3. Changes to the ISFMP Charter

Appeal Initiation – The ISFMP Charter provides that a state aggrieved by a management board action can appeal to the ISFMP Policy Board. Any state can request to initiate an appeal; also a group of states can submit a unified request for an appeal. The states are represented on the Commission by three representatives that have the responsibility of acting on behalf of the states’ Executive and Legislative branches of government. Therefore, in order to initiate an appeal all seated Commissioners (not proxies) of a state’s caucus must agree that an appeal is warranted and must sign the letter submitted to the Commission. If a multi-state appeal is requested all the Commissioners from the requesting states must sign the letter submitted to the Commission. During meetings where an appeal is discussed proxies will be able to participate in the deliberations. Meeting specific proxies will not be permitted to vote on the final appeal determination, consistent with Commission policy.

A state (or group of states) can request and appeal on behalf of the Potomac River Fisheries Commission, District of Columbia, National Marine Fisheries Service, or the United States Fish and Wildlife Service.

The letter requesting an appeal will be submitted to the Chair of the Commission and include the measure(s) or issue(s) being appealed, the justification for the appeal, and the commitment to comply with the finding of the Policy Board. This letter must also include a demonstration that all other options to gain relief at the management board level have been exhausted. This letter must be submitted via certified mail at least **45 days** prior to a scheduled ASMFC Meeting Week. The Commission Chair, Vice-Chair and immediate past Chair will determine if the appeal meets the qualifying guidelines and notify the Policy Board of their decision. If the immediate past chair is no longer a commissioner the Chair will select an alternate from a state that is not affected by the appeal.

Convene a “Fact Finding” Committee (optional) -- Upon review of the appeal documentation, the Commission Chair, Vice-Chair and immediate past Chair (or alternate if necessary, as described above) may establish a “Fact Finding” Committee to conduct analyses and/or compile additional information if necessary. This group will be made up of individuals with the technical expertise (including legal, administrative, social, economic, or habitat expertise if necessary) and familiarity with the fishery to conduct the necessary analysis. If such a committee is convened the schedule included in the last section of this document may need to be adjusted to provide time for the Committee to conduct analyses. The Commission Chair, Vice-Chair and immediate past Chair (or

alternate if necessary, as described above) may set a deadline for the Committee to complete its work to ensure the appeal is addressed in a timely manner.

ISFMP Policy Board Meeting –Following the determination that an appeal has met the qualifying guidelines, a meeting of the Policy Board will be convened at a scheduled ASMFC meeting week. The agenda of this meeting will be set to allow sufficient time for all necessary presentations and discussions. The Chair of the Commission will serve as the facilitator of the meeting. If the Chair is unable to attend the meeting or would like to more fully participate in the deliberations, the Vice-Chair of the Commission will facilitate the meeting. The ISFMP Director will provide the background on the development of the management program as well as a summary of the justification provided in the record for the management board’s action. The ISFMP Director will also present the potential impacts of the appeal on other affected states. The appellant Commissioners will present their rationale for appealing the decision and provide a suggested solution. The Policy Board will then discuss the presentations and ask any necessary questions. The Board will vote to determine if the management board’s action was justified. A simple majority of the Policy Board is required to forward a recommendation to a management board for corrective action. If the Policy Board determines that the existing management program should be modified, it will issue a finding to that effect as well as any guidance regarding corrective action to the appropriate species management board. The referral may be worded to allow the management board flexibility in determining the details of the corrective action.

Upon receipt of the Policy Board’s recommendation the management board will discuss the findings and make the necessary changes to address the appeal. The management board is obligated to make changes that respond to the findings of the Policy Board. A simple majority of the management board will be necessary to approve the changes.

Appeal Products and Policy Board Authority—Following the Policy Board meeting a summary of the meeting will be developed. This summary will include a detailed description of the findings and will be forwarded to the appropriate management board and Policy Board upon completion. If the Policy Board determines that changes to the management program are necessary, the summary may include guidance to the management board for corrective action. The report of the Policy Board will be presented to the management board for action at the next scheduled meeting.

Considerations to Prevent Abuse of the Appeals Process – The appeals process is intended to be used only in extraordinary situations and is in no way intended to provide a potential avenue to preempt the established board process. The initiation of an appeal will not delay the Commission process for finding a state out of compliance nor delay or impede the imposition of penalties for delayed compliance.

Limiting Impacts of Appeal Findings – If a state is successful in an appeal and the management program is altered, another state may be negatively impacted by the appeals decision. In order to prevent an appeals “chain reaction,” the Policy Board’s recommendation and the resulting management board’s decision will be binding on all

DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
ATLANTIC MENHADEN MANAGEMENT BOARD

BWI Airport Marriot
Linthicum Heights, Maryland
November 13, 2017
November 14, 2017

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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PLEASE NOTE: PROCEEDINGS OF THE FIRST FEW MINUTES OF THE BOARD RECONVENING ON THE AFTERNOON OF NOVEMBER 14 ARE UNAVAILABLE.

INDEX OF MOTIONS

1. **Approval of Agenda** by Consent (Page 1).
2. **Approval of Proceedings of August 2017** by Consent (Page 1).
3. **Move to adopt reference point Alternative E: BERP Workgroup continues to develop menhaden-specific ERPs with interim use of 75 percent target and 40 percent threshold as described in Draft Amendment 3** (Page 24). Motion by David Borden, second by Nichola Meserve. Motion substituted.
4. **Move to substitute Option B: The BERP Working Group continues to develop menhaden-specific ERPs with the interim use of single-species reference points as described in Draft Amendment 3** (Page 25). Motion by Pat Keliher, second by Russ Allen. Motion carried and becomes the main motion (Page 37).

Main Motion: Option B: The BERP Working Group continues to develop menhaden-specific ERPs with the interim use of single-species reference points as described in Draft Amendment 3. Motion to amend (Page 37).

5. **Move to amend to add set the TAC at 200,000 metric tons for the next two years (2018-2019)** (Page 37). Motion by Robert Boyles; second by John McMurray. Motion fails (Page 39).

Main Motion: Option B: The BERP Working Group continues to develop menhaden-specific ERPs with the interim use of single-species reference points as described in Draft Amendment 3. Motion carried (Page 39).

6. **Move that if a fixed minimum option is selected the following conditions would govern the activity: at the start of each fishing year and no later than January 31, states must declare if they want to participate in the fixed minimum program. States have the option to opt-out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds of bycatch purposes and decline the remainder of their quota**

States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its fixed minimum quota, a state can also choose to receive all, or part, of this amount. If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and the ability to commercially harvest some, or all, of its menhaden quota for the directed or bycatch fishery.

This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state and/or federal waters. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historical landings from the time-period selected by the Board in this Amendment (Page 51. Motion tabled until Issue 2 is addressed on Page 55. Motion by Pat Keliher; second by Ritchie White.

7. **Move to table under Issue 2: Allocation Methods and Timeframes has been decided** (Page 55). Motion by Adam Nowalsky; second by Rob O'Reilly. Motion passes (Page 55).

8. **Move to set a total allowable catch; not to exceed 216,000 metric tons until such time that ecological reference points are utilized for Atlantic menhaden management** (Page 56). Motion by Jim Estes; second by Spud Woodward. Motion to substitute (Page 57).
9. **Move to substitute to set a total allowable catch of 240,000 metric tons for 2018 and 2019** (Page 57). Motion by Adam Nowalsky; second by David Bush. Motion fails (Page 60).

Main motion: to set a total allowable catch not to exceed 216,000 metric tons until such a time that ecological reference points are utilized for menhaden management. Motion to substitute (Page 61).

10. **Move to substitute to set a total allowable catch not to exceed 220,000 metric tons for 2018 and 2018 or until menhaden-specific ecological reference points are available for management use, whichever is first** (Page 61). Motion by David Bush; second by Rachel Dean. Motion fails (Page 67).

Main motion: to set a total allowable catch not to exceed 216,000 metric tons until such a time that ecological reference points are utilized for menhaden management. Motion substituted.

11. **Move to substitute to set a total allowable catch not to exceed and be set at 216,000 metric tons for 2018 and 2019 or unless menhaden-specific ecological reference points are available for management use** (Page 67). Motion by Rachel Dean; second by Steve Train. Motion carried (Page 73).
12. **Move to limit debate** (Page 72). Motion by Dennis Abbott; second by Lauren Lustig. Motion carried (Page 72).

Main Motion as Substituted: Motion to set a total allowable catch to not exceed and be set at 216,000 metric tons until such a time that ecological reference points are utilized for menhaden management. Motion carried (Page 74).

13. **Move to choose the following options in Draft Amendment 3: Section 4.3.2 Allocation Method Option C with a jurisdictional allocation with a Minimum Base Allocation of 0.75 percent fixed minimum for the Quota Timeframe of 2012 to 2016. Section 4.3.3 Quota Transfer Option A: Quota Transfer would be permitted. Section 4.3.4: Quota Rollover Option A: Unused Quota May Not Be Rolled Over** (Page 75). Motion by Pat Keliher; second by Ritchie White. Motion to amend (Page 75).
14. **Motion to Amend: Section 4.3.3 Allocation method Option C; jurisdictional allocation with a minimum base allocation of a 1.0 fixed minimum** (Page 75). Motion by Emerson Hasbrouck; second by Nichola Meserve. Motion fails (Page 77).
15. **Motion to Amend: To substitute the first bullet with "Option F under Section 4.3.2; Allocation based on TAC level"** (Page 78). Motion by Rob O'Reilly; second by David Bush; Motion fails (Page 80).

Main Motion: to choose the following options in Draft Amendment 3: Section 4.3.2 Allocation Method Option C with a jurisdictional allocation with a Minimum Base Allocation of 0.75

percent fixed minimum for the Quota Timeframe of 2012 to 2016. Section 4.3.3 Quota Transfer Option A: Quota Transfer would be permitted. Section 4.3.4: Quota Rollover Option A: Unused Quota May Not Be Rolled Over. Motion carried (Page 80).

16. **Move to bring the tabled motion back for consideration by the Board (Page 80). Motion by Adam Nowalsky; second by Emerson Hasbrouck. Motion carried (Page 80).**

Tabled Motion: Move that if a fixed minimum option is selected the following conditions would govern the activity: at the start of each fishing year and no later than January 31, states must declare if they want to participate in the fixed minimum program. States have the option to opt-out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds of bycatch purposes and decline the remainder of their quota.

States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its fixed minimum quota, a state can also choose to receive all, or part, of this amount. If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and the ability to commercially harvest some, or all, of its menhaden quota for the directed or bycatch fishery.

This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state and/or federal waters. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historical landings from the time-period selected by the Board in this Amendment. Motion to Substitute (Page 85).

17. **Move to substitute that “at the start of each fishing year and no later than January 31st, states may declare if they want to opt-out of the fixed minimum program. States may declare to opt-out of the program and decline all or part of their fixed minimum allocation. If a jurisdiction declines part of their allocation it must specifically identify the amount they do not wish to receive. Any quota that is not received by a state is redistributed to the other jurisdictions based on historic landings from the time-period selected by the Board in this Amendment (Page 85). Motion fails (Page 93).**

Main Motion: Motion that if a fixed minimum option is selected the following conditions would govern the activity: at the start of each fishing year and no later than January 31, states must declare if they want to participate in the fixed minimum program. States have the option to opt-out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds of bycatch purposes and decline the remainder of their quota.

States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its fixed minimum quota, a state can also choose to receive all, or part, of this amount. If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and the ability to commercially harvest some, or all, of its menhaden quota for the directed or bycatch fishery.

This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state and/or federal waters. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historical landings from the time-period selected by the Board in this Amendment.

18. **Move to reconsider the allocation method** (Page 93) Motion by Robert Boyles; second by Roy Miller. Motion carried (Page 94). **NOTE: *No verbatim transcripts included for this motion***
19. **Move to reconsider the allocation method: To select Section 4.3.2 Allocation Method: Option C, Jurisdictional Allocation with a Fixed Minimum with a 0.5 percent fixed minimum; Allocation Timeframe: 2009-2011. Section 4.3.3 Quota Transfers Option A: Quota Transfers Permitted**
Section 4.3.4 Quota Rollover Option A: Unused Quota May Not Be Rolled Over. Section 4.3.5 Incidental Catch and Small Scale Fisheries: Option B modified to include purse seines smaller than 150 fathom long by 8 fathom deep would be considered small scale gear. Section 4.3.6 Episodic Events Option A: 1 percent Set Aside (Page 95). Motion by Robert Boyles; second by David Bush. Motion carried (Page 104).
20. **Move to select under Section 4.3.7: Chesapeake Bay Reduction Fishery Cap, Option A. Cap set at 87,216 metric tons, and Sub-option A; limited rollover of unused cap permitted up to 10,976 metric tons** (Page 105). Motion by Rob O'Reilly; second by Adam Nowalsky. Motion substituted.
21. **Move to substitute to select Option B: cap set at 51,000 metric tons and Sub-option B; no rollover of unused cap permitted** (Page 105). Motion by Allison Colden; second by John McMurray. Motion carried (Page 110).
Main motion as substituted: to select Option B: cap set at 51,000 metric tons and Sub-option B; no rollover of unused cap permitted.
22. **Move that states must declare any relinquished quota by December 1st of the previous year. States have the ability to declare how much of their quota to relinquish. Any quota that is relinquished by a state is redistributed to the other jurisdictions based on historic landings from the time period selected by the Board in this Amendment** (Page 110). Motion by Pat Keliher; second by David Borden. Motion carried (Page 111).
23. **Move that states implement the provisions of Amendment 3 by January 1, 2018** (Page 113). Motion by Tom Fote; second by Loren Lustig. Motion amended.
24. **Move to Amend: That states submit implementation plans for Amendment 3 by January 1, 2018, and implement by April 15, 2018** (Page 114). Motion by Robert Boyles; second by Jim Gilmore. Motion carried (Page 116).
Main Motion as amended: That states submit implantation plans for Amendment 3 by January 1, 2018, and implement by April 15, 2018. Motion carried (Page 117).
25. **Motion to recommend to the Commission: the approval of Amendment 3 to the Atlantic Menhaden Interstate Fishery Management Plan as amended today** (Page 116). Motion by Robert Boyles; second by Jim Estes. Motion carried (Page 117).
26. **Move to elect Nichola Meserve as Vice-Chair of the Atlantic Menhaden Board** (Page 118). Motion by Robert Boyles on behalf of the Atlantic Menhaden Board. Motion carried (Page 118).
27. **Motion to adjourn** by Consent (Page 118).

ATTENDANCE

Board Members

Pat Keliher, ME (AA)	Andy Shiels, PA, proxy for J. Arway (AA)
Steve Train, ME (GA)	John Clark, DE, proxy for D. Saveikis (AA)
Cheri Patterson, NH, proxy for D. Grout (AA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
G. Ritchie White, NH (GA)	Roy Miller, DE (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Rachel Dean, MD (GA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Dave Blazer, MD (AA)
Raymond Kane, MA (GA)	Allison Colden, MD, proxy for Del. Stein (LA)
Nichola Meserve, MA, proxy for D. Pierce (AA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Cathy Davenport, VA (GA)
Robert Ballou, RI, proxy for J. Coit (AA)	Michelle Duval, NC, proxy for B. Davis (AA)
David Borden, RI (GA)	David Bush, NC, proxy for Rep. Steinburg (LA)
Colleen Giannini, CT, proxy for M. Alexander (AA)	W. Douglas Brady, NC (GA)
Sen. Craig Miner, CT (LA)	Malcolm Rhodes, SC (GA)
Jim Gilmore, NY (AA)	Robert Boyles, Jr., SC (AA)
Emerson Hasbrouck, NY (GA)	Spud Woodward, GA (AA)
John McMurray, NY, proxy for Sen. Boyle (LA)	Jim Estes, FL, proxy for J. McCawley (AA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Martin Gary, PRFC
Tom Fote, NJ (GA)	Derek Orner, NMFS
Russ Allen, NJ, proxy for L. Herrightly (AA)	Mike Millard, USFWS
Loren Lustig, PA (GA)	

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

Ex-Officio Members

Jason McNamee, Technical Committee Chair	Jeff Kaelin, Advisory Panel Chair
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Staff

Bob Beal	Shanna Madsen
Toni Kerns	Megan Ware
Katie Drew	Max Appelman

Guests

Fred Akers, Newtonville, NJ	Benson Chiles, Chiles Consulting
Julie Akers, Newtonville, NJ	Robt Crockett, Richmond, VA
Lew Armistead, Hollywood, MD	Colin Crozier, CBF
Dana Austin, CBF	Jeff Deem, VMRC
Amiele Barakey, CBF	Monty Deihl, Omega Protein
Blair Blanchette, CBF	Katherine Denel, PEW
John Bello, VA SSA	Mark Driscoll, Richmond, VA
F.L. Benson, Lanexa, VA	Butch Eason, Chesapeake, VA
Sarah Boynton, CBF	Paul Erdman, Menhaden Defenders
Kathryn Bush, CBF	A.J. Erskine, Lottsburg, VA
Kim Cable, CBF	Lynn Fegley, MD DNR

Guests (continued)

Christine Fletcher, PEW
Manley Fuller, FL Wildlife Fed
Shaun Gehan, Omega Protein
Rebecca Gagnon, Norfolk, VA
Joseph Gordon, PEW
Ken Hastings, Mason Springs
Marin Hawk, MSC
D. Heinemann, Marine Mammal
Peter Himchak, Omega Protein
Ken Hinman, Wild Oceans
Rich Hittenger, RI Saltwater Anglers
Richard Holewinski, CCA MD
Jerry Hughes, Chesapeake, VA
Jason Hoffman, *Undercurrent News*
Deane Horowitz, CBEC
John Jaackst, Severn, MD
Chris Johnson, CBF
Robert Jones, VSSA
Ron Ketter, Easton, MD
Robert Kersey, MD NRP
Jimmy Kellum, Kellum Maritime
Howard King, Queenstown, MD
Aaron Kornbluth, PEW
Ben Landry, Omega Protein
George Lapointe, Omega Protein, ME
Ken Lewis, CCA ME
Ed Liccione, CCA MD
Bill Lucey, LI Soundkeeper
Rudy Lukavovic, CBEC

Janet Mackey, Easton, MD
William Martin, CCA MD
John Matson, Hampton, VA
Drew Minkiewicz, KDW
David Mussina, Mystic River W VA
Thomas Miller, FORVA
Chris Moore, CBF
Henry Neville, Ashland, VA
Christiana Perry CBEC
Ken Pinkard, UFCW Local 400
Jamie Pollack, PEW NY
Drew Robinson, CBF
Elizabeth Ronson, CBF
Robert Ruck, Sr., CCA MD
Jim Seagraves, Portsmouth, VA
David Sikorski, CCA
Jonathan Stone, Save the Bay, RI
Thomas Strachle, Westminster, MD
Stan Sutliff, Hampton Roads, VA
Cameron Taggert, PEW
Jeff Taylor, Mayforth Group
Jack Travelstead, CCA
Donna Waddell, UFCW Local 400
Marvin Wells, Dundale, MD
Mike Wills, VA Beach, VA
Michael Wissel, CCA MD
Liz Worsham, Heathville, VA
Tom Zolper, CBF

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened in BWI Airport Marriot, Linthicum Heights, Maryland, Monday, November 13, 2017, and was called to order at 1:00 o'clock p.m. by Chairman Robert Ballou.

CALL TO ORDER

MR. ROBERT BALLOU: I would like to call this meeting of the Menhaden Management Board to order. My name is Bob Ballou. I have the honor of serving as Board Chair. I would like to begin by extending a warm welcome to all Board members; as well as the many members of the public here in attendance, and listening in via the webinar. We deeply appreciate your time and interest.

Next I would like to introduce the members of staff and committee chairs who are here at this end of the table. To my immediate right is Megan Ware; the Commission's menhaden fishery management plan Coordinator. To Megan's right will be Jason McNamee; the Menhaden Board's Technical Committee Chair.

To Jason's right, or next going to my right is Dr. Katie Drew; the Commission's senior stock assessment scientist. Next to Katie is Shanna Madsen; the Commission's Fisheries Science Coordinator. To Shanna's right is Max Appelman; FMP Coordinator with the Commission, who will be handling the screen as motions are made and considered during the course of this meeting.

At the corner of the table is Toni Kerns; the Commission's Fisheries Management Program Director, and to Toni's right is Bob Beal, the Commission's Executive Director. To my immediate left is Jeff Kaelin; who serves as Chair of the Menhaden Board's Advisory Panel, and to Jeff's left is Major Rob Kersey, who serves as liaison to the Management Board from the Commission's Law Enforcement Committee.

Gathered around the table are the 48 members of the Commission's Atlantic Menhaden Management Board; representing 16 east coast states and our two federal partners. I'm sorry, 16 east coast states in jurisdictions from Maine through Florida; as well as our two federal partners, NOAA Fisheries and the U.S. Fish and Wildlife Service.

All Board members will be afforded the opportunity to participate fully, with regard to all matters that will be before the Board, with the exception of meeting-specific proxies; and I believe we only have one, who will not be able to participate in final voting on final action items. In my capacity as Board Chair, I will be exercising my prerogative to caucus and vote with the Rhode Island delegation; primarily for the purpose of avoiding a null vote from Rhode Island on any given issue, slim as those chances may be. Before we jump into our agenda, for which we have a total of 11 hours allocated through the rest of this afternoon and tomorrow, please indulge me for about two minutes for some brief opening remarks. Without knowing, or even having a reasonable guess as to how this meeting will unfold, I do know one thing and I know it with absolute certainty; and that is that we have reached a major milestone with regard to Atlantic menhaden.

That milestone is characterized by our universal recognition of the soaring importance of this resource; the ecosystem services it provides, and the enormous numbers of people who value and depend on the resource as a source of income, and as a lynchpin of the marine environment along the entire east coast.

On behalf of the entire Board, I want to express our deep appreciation for the many thousands of people, indeed hundreds of thousands of people from all walks of life, who have contributed to the development, analysis, and consideration of the issues that are before us today and tomorrow via Amendment 3.

The contributions from the scientific community, fishing community, environmental community, and all others, including those wearing no particular hat other than one that might read "I care" are duly noted, highly influential, and deeply appreciated. In particular I want to give a shout out to staff, members of the Plan Development Team, and members of the several committees and workgroups who have all lent enormous support to the process; ushering us to where we are today.

This meeting, whatever the outcome, indeed constitutes a milestone for all the reasons just mentioned. Milestones are neither beginnings nor ends; they are points along a journey. With that let's now move forward with our journey; and to all my esteemed colleagues on the Board, may we be guided over the next eleven hours or so by the spirit of doing what's right. Amen.

APPROVAL OF AGENDA

CHAIRMAN BALLOU: Our first item on the agenda is the agenda itself. Before I seek input from the Board, I would like to offer one clarifying suggestion and one minor tweak. First, with regard to Agenda Item 8, which reads Set 2018 Atlantic Menhaden Specifications, I suggest clarifying it to read, Set 2018 (Annual or Multi-Year) Atlantic Menhaden Specifications.

That exact wording is already set forth in the meeting overview; and speaks to the fact that the Board will be deciding upon a total allowable catch, or TAC, for the fishery, and deciding whether to set it for one year or more than one year. As such, I suggest clarifying the wording for Item 8 as indicated; to better reflect the nature of that agenda item.

Are there any objections to making that clarification? Seeing none, we'll make that clarification. Second under Item 4, I would just like to suggest that we reverse the order of two of the four presentations. After Megan

provides the management option review and the summary of public comments, I would like to move next to the Law Enforcement Committee report, and then immediately follow with the Advisory Panel Committee report.

I suggest that only because I think the flow might work a little better. Are there any objections to that really minor tweak? Seeing none; we'll make that minor tweak. Does anyone else on the Board, or does anyone on the Board have any other recommended modifications to the agenda; yes, Rob O'Reilly?

MR. ROB O'REILLY: Before I make a recommendation it may be solved by a question, which is other than Item 8, there is no specific mention as to the order of business for the biological reference points and the allocation as to where they fit within this agenda. If there is already information on that that would be fine, otherwise I will make a recommendation.

CHAIRMAN BALLOU: My intent with regard to Item 4 is to take up the Amendment 3 issues; beginning with reference points, and then proceeding with allocation and the other issues in the amendment. As currently proposed, we would then conclude Amendment 3, and move on to specifications for the fishery; as the item after that. Right now that is the proposed order of business. Do you have a suggested revision to that? Rob O'Reilly.

MR. O'REILLY: I would just wonder why the quota setting doesn't precede the allocation; because certainly one is going to bear on the other, and I just wondered if there was given any thought to that by staff for this meeting.

CHAIRMAN BALLOU: We'll give it a lot of thought at this exact moment; if you want to recommend making that change.

MR. O'REILLY: I would move that change to establish the quota setting to precede the allocation.

CHAIRMAN BALLOU: The request as I understand it is to amend the agenda by inserting Item 8; which is final action on spec setting into Item 4, which is final action on Amendment 3, such that as we are moving through the provisions of the Amendment, which we plan to take up in the order presented in the draft. When we get to allocation methods, we will pause consideration of the amendment issues to take up final action on spec setting; then continue with the rest of the provisions of the amendment. Is that your request?

MR. O'REILLY: Yes, simply to have the specification prior to the allocation.

CHAIRMAN BALLOU: I realize I gave it more words, but I just wanted to make it clear as to what I understand the intent to be. Is there any objection to that request by any members of the Board? Eric Reid.

MR. ERIC REID: Does that preclude any motions that might be bundled in one shot from being discussed at the same time?

CHAIRMAN BALLOU: My interpretation is that it would not; provided that we first move through reference points, after that there can be bundling. Any further discussion is there any further yet concerns? Dennis Abbot.

MR. DENNIS ABBOTT: Going along with Eric's question. Could we not have a more inclusive motion, but yet divide the question at that time if necessary?

CHAIRMAN BALLOU: If it's the will of the Board we'll do that. It will be my recommendation as Chair that we first move through reference points and then take up the other issues in either a bundled form or issue by issue; whichever the Board would prefer. Seeing no other hands, I will take that to indicate that there are no objections to revising the agenda as recommended by Rob O'Reilly. Are there any other recommended changes to the

agenda? Seeing none, oh I do have one; I'm sorry, yes Dr. Rhodes.

DR. MALCOLM RHODES: This isn't to change the agenda, but just a quick question. We'll need a Policy Board meeting. Would we have that before the close of this? Would we adjourn, then have Policy Board, not only to accept these actions but also we had some actions at the South Atlantic Board that we need to get accepted by the entire Commission. I just wanted to know where in the order that comes.

CHAIRMAN BALLOU: Thank you for the question. I'll refer to Bob Beal to answer it.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Yes, Malcolm, you're correct. At the end of the Menhaden Board meeting, once all the decisions are made for Amendment 3, as well as the specifications for next year and any subsequent years. The Menhaden Board will adjourn; we'll go into a Business Session. The Business Session will tackle Amendment 3, the final approval for menhaden, as well as the cobia FMP that was approved by the South Atlantic Board; so at the very end, hopefully tomorrow afternoon, early afternoon.

CHAIRMAN BALLOU: Anything further on the agenda? Seeing no hands, the agenda as revised stands approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN BALLOU: We are now onto the next item which is approval of the proceedings from the Board's last meeting, held on August 2, 2017. Are there any recommended changes to the minutes?

Seeing none; is there any objection to approving the minutes as proposed? Seeing none; the minutes stand approved by consent. I don't see our stenographer, but I assume this meeting is being recorded; and I just received a nod in the affirmative on that.

PUBLIC COMMENT

CHAIRMAN BALLOU: Next on the agenda is Public Comment, Item 3.

This is an opportunity for anyone from the public who would like to comment on any issue that is not on the agenda for this meeting, to do so. Given the nature of the agenda, this is a very narrow opportunity. Through the public comment process the Board has already sought and received extensive and valuable public comments on all components of the draft amendment, and all 158,106 comments are before the Board as part of our meeting materials.

That part has been done and done well. When we get to the issue of setting specifications for the fishery, there will be an opportunity for public comment on that issue; but for now the floor is only open to comments pertaining to non-agenda items, that is items not related to menhaden management. We have only ten minutes allotted for this portion of the agenda, which means we have a hard stop at 1:23. We have just one person signed up, and I am going to go to that person first, and that is Mr. Robert T. Brown. Welcome, Mr. Brown.

MR. ROBERT T. BROWN: My name is Robert T. Brown; President of the Maryland Watermen's Association. I want to talk to you today about eels. The Eel Management Plan, if the east coast quota is exceeded by 10 percent in one year, or less than 10 percent in two consecutive years, it sets off a trigger that all states must have individual quotas. The quota was exceeded by approximately 20,000 pounds or less than 2 percent in 2017. Maryland has already, with its fishermen, agreed to close Saturday's and Sunday's harvest during the months of September, October, and November; and will close the entire month of December. Hopefully to avoid being over the quota in 2017. Remember, if it exceeds a quota by one pound in 2017, individual states will have quotas.

CHAIRMAN BALLOU: Mr. Brown. I should have clarified that we're really looking for comments having to do with menhaden; but not on menhaden management issues. You're welcome to go on, but eels do not seem relevant to this Board's meeting.

MR. BROWN: I've only got about one more minute and I'll be done.

CHAIRMAN BALLOU: Go ahead.

MR. BROWN: Okay. With a quota of approximately 900,000 pounds and only 20,000 pounds at 2 percent, this should be considered good management. There are many things that cause this; with an amendment every three to five years, eel population increases, and with less effort and better harvest. You've heard me say before best science available is a guesstimate. Reviewing my statements, it was a poor choice of words, and so many assumptions into fishery management.

Fishery management has many assumptions. It assumes that harvest reports are correct. It assumes that the data collected gives a true representative of the biomass, spawning stock, age classes, et cetera, and then draws an equation to manage the resource. Let's not have any triggers that mandate a reduction. Let's bring these matters back to the Full Board of the Atlantic States Marine Fisheries Commission for commonsense solutions; and remember, this applies to all species, no triggers with mandatory reductions.

CHAIRMAN BALLOU: Is there anyone else from the public that would like to address the Board on any issue pertaining to menhaden that is not on today's agenda?

AMENDMENT 3 FOR FINAL APPROVAL

CHAIRMAN BALLOU: Seeing no hands, we will move on to Item 4 on the agenda; which is Amendment 3 for final approval. This is clearly

the main focus of this meeting; and here's how we plan to proceed.

First, Megan Ware to my right will be reviewing the management options in the draft amendment. I believe she has about a 20 minute presentation. If any of the Board members have any burning questions for Megan at the end of her presentation, we can take those up; but my preference would be to move through the other presentations first, then return to questions on key parts of the amendment on an issue-by-issue basis, which is how we plan to move through the next 11 hours or so.

Megan's second presentation will summarize the public comments received during the public hearings and public comment period for the amendment. Megan will then summarize, or Major Kersey perhaps, I'm not sure who, will then summarize the Law Enforcement Committee report on the amendment; and take any questions on it.

Then for our fourth and last of our initial presentations, Jeff Kaelin will summarize the AP, the Advisory Panel report on the amendment and take any questions. We will then be ready to roll up our sleeves and begin addressing the first major issue in the amendment; which is reference points. We will allow ample time for questions before getting into motions. If all goes well, we will finish up with reference points by 5:00 p.m. today or thereabouts; and then recess until tomorrow morning, at which time we will take up TAC, allocation, and the remaining issues in the amendment. With that Megan, the floor is yours.

REVIEW OF MANAGEMENT OPTIONS AND PUBLIC COMMENT SUMMARY

MS. MEGAN WARE: Today we'll be reviewing Draft Amendment 3 and the associated comments. Just for an overview, the Chairman just spoke about this, but I'll actually be

combining the management options and the public comment summary in one presentation; I mean I'll try and focus on those public comments.

For an overview of the public comment that we received, for public hearings there were 15 hearings conducted in 13 jurisdictions; ranging from Maine through Florida, 602 individuals attended those hearings. For written comment, a total of 158,106 comments were received. The vast majority of those comments were received through form letters.

However, 99 organizations did submit comments on the draft amendment, and the remaining comments (about 450), generally came from individual stakeholders; including commercial fishermen, recreational fishermen, and concerned citizens. I'm going to jump right into the reference point options.

Just to orient everyone to the screen, the five options are going to be on your left; and I'll highlight which one I'm talking about. Then these are the same figures that are used at the public hearings, so it's just a reminder as to what those reference points look like. The red dotted line was our fishing rate in 2016.

Option A is single-species reference points. For this option the Board would continue to use the single-species reference points in place; and the Board would not pursue ecosystem reference points for menhaden. Here the solid black line is our threshold; and the dotted black line is our target, so that red line is below both the target and the threshold. According to this reference point we are not overfishing.

Next is Option B; which is the BERP continues to develop menhaden-specific ERPs, and in the interim we use our single-species reference points. Here it's the same graph, the same reference points. For this reference point we are not overfishing. Option C is again the BERP continues to develop menhaden-specific ERPs; and in the interim we use the hockey-stick

control rule, which recommends a fishing mortality rate that linearly decreases with changes in biomass until 40 percent unfished biomass, at which point there is a moratorium on fishing.

Here the solid green line is that maximum fishing rate when we're at 100 percent unfished biomass; and the dotted green line is the recommended fishing rate for our current abundance. This reference point is saying that we are fishing at a higher rate than we should be; based on our current biomass.

Option D, again the BERP continues to develop menhaden-specific ERPs, and in the interim we use the 75 percent rule of thumb; which recommends a fishing mortality rate that achieves 75 percent unfished biomass. That is represented here with the mustard colored line. That red line is just above the mustard colored line, so according to this reference point we are overfishing.

Then finally, Option E. Again, the BERP continues to develop menhaden-specific ERPs, and in the interim we would use a reference point that recommends a target fishing mortality rate that achieves 75 percent unfished biomass, and a threshold mortality rate that achieves 40 percent unfished biomass. Here the solid blue line is the threshold, and the dotted blue line is the target; so we're just above the target but well below the threshold. I have received several questions about what action is associated with either a target or a threshold.

I just took some of the text from the draft amendment to preemptively address some of these questions. What this says is, if the current F exceeds the threshold level, the Board will take steps to reduce F to the target level. If the Board exceeds the target, but is below the threshold, the Board may consider steps to reduce F to the target level. If current F is below the target F , then no action is necessary to reduce F .

These are the public comments we received on the reference points; and it might be a little hard to see in the back, but these are the same tables that were in the meeting materials. The greatest support was for Option E, which is that 75 percent target, 40 percent threshold; those who supported E, commented on the implementation of ERPs now to account for menhaden's role as prey for larger fish, for whales and for birds.

Many commented that a precautionary approach is best for the long term management of this species; and will lead to stocking improvements for many other species. As a result, many individuals also commented on the economic benefits associated with this option; in terms of other commercial and recreational fisheries, as well as wildlife viewing operations such as whale watching.

Particularly in the Gulf of Maine and in Florida, individuals commented on the decline of other forage fish species, and the need to conservatively manage menhaden. In the southern states, individuals at the hearings commented that they have not seen the resurgence in menhaden populations that the northern states have seen.

The next most supported option was Option B. Those who supported Option B commented that the existing reference points are precautionary enough, while the BERP continues to develop menhaden-specific ERPs. Some questioned why drastic action is needed if the stock is not overfished, and overfishing is not occurring.

A couple of individuals commented specifically on the work by Hilborn, which raised concerns about the applicability of generalized rules to menhaden. At one of the Virginia hearings, many commented on the potential economic impacts; not only to the reduction plant, but also to associated businesses and local towns.

In reviewing the other reference point options, so I'll start with Option C. Those who supported the hockey-stick control rule commented that is the most conservative option; and some stated that it represents the best available science, commenting that a minimum biomass threshold is used in other fisheries such as in Antarctic krill.

For Option D, individuals supported managing to the 75 percent target; and some expressed concern with the high threshold in Option E, stating that Option D ensures management to that 75 percent unfished biomass. Finally, Option A, those who supported this option generally did not feel that the data on predator/prey relationships is strong enough to develop ERPs, and others did not want to see the management of menhaden tied to predator species, pointing towards horseshoe crab management. I'll now review the allocation options here. We have six allocation options.

First is a coastwide allocation, so there is no division of the TAC. Option B is our current jurisdictional approach; where we would divide the TAC between the different states, and this is the same table from the amendment that shows what those percentages would be for the various timeframes.

Option C is a fixed minimum approach; where each jurisdiction gets a minimum percentage of quota. There are three sub-options here, a half percent fixed minimum, 1 percent fixed minimum, and a 2 percent fixed minimum. Option D is regional fleet capacity. Here we would first divide the TAC into two gear types; a large fleet for purse seiners and pair trawls, and then a small fleet for all other gear types. Then we would divide those gear types into regions; a New England Region, a Mid-Atlantic Region, and a Chesapeake Bay/South Atlantic Region. There is an option here for a soft cap for that small-scale fleet, which would set a target quota for those gear types; but it does not subject them to a closure.

That soft cap does come with a 25,000 pound trip limit per day. Option E is the disposition allocation, where we divide the TAC between the bait and the reduction sectors, and there are two options here; either a 75/25 split or a 70/30 split. That bait portion can be further divided by jurisdiction, gear type, region, or through a fixed minimum approach.

Then finally, Option F is allocation based on TAC level. The level of the TAC would determine the allocation method. If the Board chose a TAC that is higher than 212,500 metric tons, the difference between that higher TAC and the 212,500 metric tons could be allocated in a manner that's more favorable to the bait sector.

There are two sub-options there. That green box can be allocated such that 50 percent goes to the reduction fishery and 50 percent to the state bait fisheries; or 30 percent can go to the reduction fishery and 70 percent to the state bait fisheries. This is our public comment. Obviously this table is quite large with all of the options; so I'm going to break it up a little bit.

But I'll just highlight that the two allocation options that got the greatest support were allocation based on TAC level, followed by fixed minimum. I'll start with that allocation based on TAC level, and discuss that as well as the disposition. The greatest support was for this allocation based on TAC level.

Those who supported Option F stated that this option looks to make all states whole, before allocating more quota to the bait sector, and that specifically the reduction fishery is willing to give a little once the pie is whole from the 2012 reduction. Those who supported this option generally stated that other allocation options represent a fish grab by the other states.

Then I'll talk about the bait versus reduction, because it's on the screen now. There was some support for this option. Some expressed

concern that one company has such a large share of quota; and that this is a way to increase quota for the bait sector without increasing the TAC. I'll switch to the other side of that table now. This is going to include the fixed minimum option, which got the second-most support. Many commented that the current allocation scheme is unfair, given one state has 85 percent of the quota, and they felt the fixed minimum creates fishing opportunities for all states.

Others commented that this reduces the complexity of menhaden management, given the Episodic Events Program and the bycatch provision may not be needed. Some noted a biological benefit of spreading quota out along the coast. There were comments clearly against a fixed-minimum approach; commenting that it moves the Commission away from an allocation based on historic catch, and rewards states which have not invested in the fishery.

Then I'll just move left to right on the screen here. Coastwide allocation: some individual's, mostly commercial fishermen, supported a coastwide quota. However, others expressed concern that it could create a race to fish and shut out certain states from the fishery. Next is the jurisdictional approach: there was some support for continued use of a jurisdictional approach, since it secures quota for each state, and provides flexibility for states to divide between gear types or create trip limits.

Finally, the regional fleet capacity option: there were a couple of individuals that did support a soft cap. However, others did not like this approach, since it groups states with different fishing capacities together, and may limit some states participation in the fishery. Next there are timeframes.

There are five timeframes here; 2009 to 2011 is status quo, 2012 to 2016 is the most recent timeframe, 1985 to 2016 is the longest timeframe, 1985 to 1995 is the most historic timeframe, and then Option E is a weighted

allocation. The intent here is to consider both historic landings and recent trends in the fishery.

In terms of public comment, there weren't as many comments given on the allocation timeframe as on the method. However, the greatest support was for that 1985 to 2016 timeframe. Those who supported this timeframe commented that a longer period is better; because it includes more data, and instead of focusing on recent years the Board should consider a longer and more historic perspective.

The next most supported option was 2012 to 2016. Those who supported this option generally felt that it reflects current fishing efforts in the states. There was some support for keeping the timeframe at 2009 to 2011. Those who supported these years commented that it does not include years under a TAC, and therefore is a fair reflection of all states landings prior to implementing that TAC.

Particularly at the Rhode Island hearing, there was support for the more historic timeframe; which is 1985 to 1995, and there was even support for a more historic timeframe than 1985, commenting that fish were more spread out along the coast. Then there was some support for a weighted allocation, and those who supported this option saw it as a compromise approach.

Next are quota transfers. We have three options here. We can continue quota transfers as they are now, so two states mutually agree. Under Option B we add in accountability measures, such that if the state exceeds its quota by more than 5 percent in two consecutive years, it cannot receive a quota transfer in the third year. Then Option C is quota reconciliation, so if the TAC is not exceeded coastwise then any state-specific overages are automatically forgiven. If the coastwide TAC is exceeded, then any unused

quota is automatically pooled and distributed to states or regions.

Of the options in the amendment, the greatest support was for leaving the quota transfer process as is. Those in favor of this option stated that if the states agree to transfer quota then that is fine. There was some support for Option B, and those who supported this option liked the idea of accountability measures, and liked the idea of dissuading states from perpetually exceeding their quota.

Finally, Option C quota reconciliation, those who supported this commented that completing quota transfers at the end of the year eliminates the race to secure unused quota from specific states. I will note that the greatest support was for no quota transfers. Many commented that this supports horse trading of quota between the states.

Some commented that quota transfers are intended to use every bit of unused quota in the fishery. Next is quota rollovers, there are four options here. Option A is no quota rollovers, Option B is up to 10 percent of the total quota could be rolled over if unused. Option C is a 5 percent quota rollover; and then Option D is 50 percent of your unused quota can be rolled over.

The greatest support was for no quota rollovers, which is Option A. Those who did not support quota rollovers commented that there is generally a reason why a state does not catch all of its quota; and this could foreshadow issues with stock abundance. Others commented that unused quota should not be rolled over, as this leaves fish in the water.

Others noted that quota rollovers distort the quotas initially assigned. Of those who supported quota rollovers, Option D received the greatest support. Those who supported Option D commented that quota rollovers make sense; because if you underharvest what was a safe and allowable catch that unused quota is

allowed to spawn before it is harvested the next year.

Others commented that whenever a state goes over its quota it has to pay it back; so it is only fair that if a state is under its quota it should be allowed to roll that unused quota over into the next year. Next is the incidental catch and small scale fisheries provision. There are six options here, three of which are on the screen now, and what ties these three options together is that the incidental catch is not included in the TAC.

Option A is a trip limit for non-directed gears, so things like pound nets and gillnets. Option B is a trip limit for non-directed gears and small scale gears. This includes the pound nets and the cast nets, and Option B is probably closest to what we have now. Under Option C, we build on that so we maintain that trip limit for the small-scale gears and the non-directed gears, but we set a cap at 2 percent of the TAC.

This is not a set aside, but a threshold by which we measure landings in the incidental catch fishery; and if that cap is exceeded by more than 10 percent in a single year, or by any amount two years in a row, the Board is triggered to take action. The next three options are tied together, in that incidental catch is included in the TAC; and we do this through set asides.

Option D is a 2 percent set aside for incidental catch after the quota is met. Option E is a 1 percent set aside for small-scale gears, and what is unique about this option is that it's for their harvest year round. Regardless of what allocation option the Board chooses, the Board can secure quota for those small-scale gears, and then Option F, all catches included in a TAC. Once the directed quota is met the fishery closes.

The greatest support was for Option F, so no incidental catch fishery. Those in favor of this option supported the statement that all catch needs to be counted towards the TAC. Some

stated that the set aside was designed to accommodate certain fishing methods; but this should not be needed if reallocation is successful. Others expressed concern that it's created a loophole in the fishery.

Those who supported continuation of a trip limit, so either Options A or B, were generally commercial fishermen; and they commented that they are dependent on the current bycatch provision. They frequently commented that unless there is enough quota for a year round fishery, an incidental catch trip limit is needed to sustain the fishery and provide bait for the lobster, crab and recreational fisheries.

Some also noted that with stationary gears fishermen have no controls over what swims into the net; and without a trip limit there would be a lot of dead discards. Those who favor the set aside, so Options D or E, generally supported the idea of including all catch in a TAC, but also wanted to provide a way to reduce discards in the fishery.

They expressed concern that without some sort of incidental catch provision, menhaden would be discarded and the resource wasted. Some fishermen did express concern with a set aside; mainly that since it is a coastwide set aside catch in one state could cause an overage, which would then have to be paid back on a coastwide level, and there was no support for the catch cap and trigger.

Next is the Episodic Events Program. We have three options here. We can keep the set aside at 1 percent of the TAC. Option B is to increase the set aside to 3 percent, or Option C is 0 percent; so that would remove the Episodic Events Program. The greatest public comment was for Option C, so that's ending the Episodic Events Program.

Many commented that if reallocation is successful this set aside will no longer be needed. Others commented that while the set aside was appropriate during stock rebuilding,

menhaden are consistently in New England, and so the set aside is no longer appropriate. Some were against the Episodic Event Set Aside, commenting that it artificially increases New England state quotas.

Those who supported the continuation of the set aside, either Options A, or B, stated that his is needed in the New England state; particularly if a fixed minimum approach is not chosen for allocation. Some commented that it is a worthwhile program which presents fish kills. Finally, our last issue is the Chesapeake Bay reduction fishery cap.

There are three options here. We can maintain the cap at the 87,216 metric tons, reduce the cap to 51,000 metric tons, or Option C is to remove the cap. There are sub-options under A and B which allow for a percentage of unused cap to be rolled over to the next year. For public comment, the greatest support was for reducing the cap to the 51,000 metric tons, and having no rollovers. Those who supported reducing the cap commented that the Chesapeake Bay is an important nursery area for many species, and this is an opportunity to provide greater protection to the Bay. Some commented that if the cap is not being met there are not enough fish in the Bay; and others commented that if the reduction fishery actually caught the cap it would be devastating to the Bay ecosystem.

Those who supported maintaining the cap commented that the cap was started as a way to restrict and ultimately eliminate the reduction fishery. They commented that science shows that there is no localized depletion in the Bay, and there is no scientific basis for the cap. A similar rationale was stated for removing the cap. With that I will take any questions on the public comment.

CHAIRMAN BALLOU: Questions for Megan, recognizing that we will be returning to each of the major management issues for thorough vetting starting with reference points, after the

next two presentations. That said, John McMurray.

MR. JOHN G. McMURRAY: Megan, could you put that I think it was the third or fourth slide; it was a quote about the 40-75 percent. I think, well there it is. The Management Board may consider management measures to reach target. But there is no mandate to manage for 75 percent. If I'm reading this correctly, as long as the Board is in between 40 and 75 percent we're good. Well, maybe you could clarify that before I go on.

MS. WARE: Yes, the management trigger is at the threshold; that's what this is saying. The Board is required to take action when you hit that threshold.

MR. McMURRAY: Mr. Chairman, so there is some management flexibility when you're within those two parameters, there is no set thing that we have to manage for.

MS. WARE: The action is required at the threshold.

CHAIRMAN BALLOU: I think that's a fair characterization, the way you put it, John; other questions for Megan, yes, Craig Pugh.

MR. CRAIG D. PUGH: Megan, I noticed that there was repetition of names between the state hearings; is that commonplace? Was that accounted for?

MS. WARE: It is commonplace for menhaden, I would say. How I did those is if they attended the hearing then they were accounted for at that hearing. If an individual did attend multiple different hearings at different locations and they spoke multiple times, they got a vote. Their comment was written down at each hearing.

LAW ENFORCEMENT COMMITTEE REPORT

CHAIRMAN BALLOU: Other questions. Seeing no hands; our next issue is the Law Enforcement Committee report. Megan, is that you? Okay, we'll go back to Megan for that.

MS. WARE: I'll be very brief here. Whoever was at the Policy Board meeting for annual meeting did hear this. But the LEC met to discuss Draft Amendment 3 at annual meeting. There was really no major enforcement concerns brought up by the LEC. But the discussion did focus on the incidental catch provision, or that bycatch provision. The comments were generally that there is no enforcement challenge with a trip limit. However, a simple closure of a directed fishery when quotas are met is less of a drain on enforcement resources. That's the comment that they gave.

CHAIRMAN BALLOU: Okay, any questions on the Law Enforcement Committee report; yes, Pat Keliher?

MR. PATRICK C. KELIHER: Was there any discussion about the difference between the incidental and small scale fisheries within the Law Enforcement Committee; as far as enforceability? There have been a lot of comments in Maine about the small scale fishery turning into a directed fishery, and the ability to even prosecute; just by saying we're targeting something else.

MS. WARE: There were no comments given by the LEC on that specific issue.

ADVISORY PANEL REPORT

CHAIRMAN BALLOU: Other questions? Seeing none; we'll go to our last presentation; that will be Jeff Kaelin presenting the Advisory Panel report. Jeff is going to run through the whole report briefly, and I've asked him and he's agreed to return tomorrow morning to sort of refresh on the key issues that we'll be addressing tomorrow. He'll run through the

whole report now, and then he'll be back first thing in the morning to refresh. Jeff.

MR. JEFF KAELIN: Good afternoon members of the Board, members of the public. I'm Jeff Kaelin with Lund's Fisheries, and I'm privileged to sit as the AP Chair. We met on October 26. I'm not going to read the seven pages of summary that Megan prepared. It's on the table. But we will go through the slides that quickly summarize the discussion.

I wanted to thank the Chairman and the leadership of the Commission for allowing us to have a face-to-face meeting last month. It was very well attended. Several advisors are here today. Everyone has had a chance to review these slides and the report. We attempt to run these meetings on a consensus basis.

But as you can imagine, that is very difficult to arrive at in most cases, so we just simply record the comments to make sure that all the AP members have their perspective recorded. Motions are appropriate by the process outlined by Robert's Rules of Order, so we had some motions; none of which passed.

On reference points, I'll read through these to get them on the record. There were six AP members that supported Option B; stating that the stock is in good condition, so no need to alter course. Today we're fishing below the F target, and well below historic levels. The Board is already precautionary in managing menhaden. Concerns about applying generalized forage fish rules to menhaden due to lack of stock recruitment relationship and fishery selectivity, commented that other reference point options don't represent the best available science.

There was confidence in the BERP process. Ecological reference points would be appropriate when there is more confidence in the science specific to the menhaden resource. Option B supports industry and provides stability for businesses. Concerns that the

goalpost by which menhaden is managed keep changing. The final comment that increased menhaden abundance in recent years is due to favorable environmental conditions, and not the implementation of the 2013 TAC. Four members supported Option E. Generalized rules for forage fish are more appropriate for menhaden, given their ecosystem role. There is a need to leave fish in the water for ecological purposes. Option E allows the Board to fulfill the needs of the bait states, while keeping the stock moving in the right direction.

Important to implement ecological reference points now, the concern with the BERP completing the menhaden-specific ERPs by 2019. Option E doesn't prescribe how quickly the Board needs to get to the F target, so the Board can phase in management to the 75 percent unfished biomass reference point.

Comment that the 2013 TAC after that was implemented stock abundance increased, so there is a need to err on the side of caution and continue to control catch. On allocations, two AP members supported a fixed-minimum approach. There was support for a 2 percent fixed minimum, giving states that don't want a quota can give it back.

A recommendation that unused quota on November 1st be given to other states. Current allocation method prevents some states from having a fishery; including those that have fishery infrastructure. Three AP members didn't support a fixed minimum approach, moving the Commission away from a history-based allocation was argued. Method does not recognize states which have made an investment in the fishery, and that there are clear losers with the fixed-minimum approach, including New Jersey and Virginia.

Two AP members supported the allocation based on the TAC level. The argument was that if that makes states whole again prior to implementation of the TAC in 2013, and then a greater percentage can be allocated to the bait

fishery. The recommendation that the Board use the 2012 to 2016 timeframe for quota above the 212,500 metric ton threshold in Option B.

On the allocation approach, one AP member supported the 70/30 split between reduction and bait. This is Option E, the disposition quota, the freestanding option. All states have joined the Commission's compact and everyone should get a share of the resource it was argued, and that this option gives the bait fisheries more without increasing the TAC.

Three AP members didn't support the 70/30 split between reduction and bait as the freestanding Option E. Allocation option is arbitrary and not based on historic landings. Under that option it was argued. You can't transfer quota between the bait and reduction sectors without focusing on history, catch history.

Two AP members supported the 2009 to 2011 timeframe. This does not include the years when the harvest was capped under the TAC was the suggestion there. On general comments there was one AP member that recommended that trawls not be included in the small-scale fleet list of fisheries of gear types.

On transfers and rollovers four AP members supported quota reconciliation with accountability rules, Options B and C as outlined by Megan previously. This prevents a state from continually exceeding its quota. Six AP members supported quota rollovers; two supported the 50 percent rollover, Option D. Three supported 5 or 10 percent quota rollovers, but not higher, which are B and C, and stated there may be extenuating circumstances, which makes a small quota rollover reasonable. A 10 percent rollover is used in federal fisheries management, it was pointed out. One supported a rollover of 10 percent or higher. On the incidental catch there were four AP members supporting Option F, no incidental

catch fishery, concern there that the catch is not counted towards the TAC. The 6,000 pound trip limit bridged the gap between Amendments 2 and 3, but should not be used after implementation of Amendment 3.

Bycatch competes with the directed bait fishery, it was argued. One AP member did support an incidental catch limit, and pointed out that the 6,000 pound trip limit provides critical fishing time for the bait fishery. In general comments the current bycatch allowance was noted as a loophole; particularly for purse seines.

It reiterated that trawls should not be included as a non-directed gear type, and a recommendation to clarify definitions of gear types, particularly if purse seines are prohibited to harvest under the trip limit. Finally episodic events, three AP members supported the continuation of this set aside. If there is no reallocation of the quota New England needs this program.

The program should remain no matter what allocation New England gets; but should be increased to 3 percent if New England states don't get more quota. Some New England states have the capacity to harvest large amounts of menhaden; so the set aside is needed today. The set aside is further needed to prevent fish kills.

Three AP members didn't support a set aside. New England states are no longer having episodic events; abundances have been higher for several years. The set aside shouldn't be needed with allocation and a higher TAC. Episodic Event Program has just created another fishery, and this is not equitable that other states have their quota but no access to Episodic Events Program.

Quickly the AP report on Chesapeake Bay Cap, two AP members supported the status quo; saying that studies have shown the possibility for localized depletion in the Bay is small. Three

AP members supported reducing the cap to 51,000 metric tons with no rollovers; Option B and Sub-option B.

Studies on localized depletion were inconclusive and couldn't determine it was happening, concerned about increased reduction harvest from the Bay if cap is not reduced. Chesapeake Bay is an important spawning ground for many species and warrants greater protection. Concerns about the change in ownership of Omega Protein with Cook Aquaculture purchasing that company recently; an international company which may not have a vested interest in the Bay, it was stated.

One AP member supported the removal of the cap, Option C. Since there is a coastwide TAC there should be no Bay cap, and then Virginia purse seiners were already restricted from going in the majority of the Bays; in the Maryland portion of the Bay and the rivers. On the TAC, six AP members supported increasing the TAC.

This is where we had some motions, none of which were successful; very interesting discussion, all with good humor I might add, Mr. Chairman. Two supported the 280,000 metric ton TAC; comment there that one state lost access to 60 percent of the menhaden fishery due to 2013 TAC implementation. One member supported the 250,000 metric ton TAC, helping the industry, not going to hurt the stock. One supported 240,000 metric ton TAC, 20 percent increase. New England Council uses a risk policy of a 50 percent chance of exceeding the OFL, where the Mid-Atlantic has a risk policy of a P-star 40 percent. TC projections show the 314,500 metric ton TAC has a 50 percent risk of exceeding the F target only. One supported a 220,000 metric ton TAC to offset bad years in a fishery you need good years, and to the current cap TACs harvest levels in mediocre years.

Two AP members supported maintaining the TAC at 200,000 metric tons; stating that regardless of the reference points chosen the

TAC shouldn't increase under Options A and B, and don't need to decrease under Option E. The increase in the TAC could negate the progress that has been made in stock abundance since 2012, these members argued.

The AP did make a series of motions regarding these options, but as I stated earlier none passed. In general comments, and there were consensus on these points. It was recommended the AP could be better utilized by the Menhaden Board to provide information on annual changes and trends in the fishery; including AP comments in the Commission's FMP review process was recommended, in a process similar to the Mid-Atlantic Council's Fishery Performance Report.

Finally, the AP expressed concern the fishermen harvesting under the 6,000 pound trip limit today are selling menhaden from their bunt, this is a purse seine gear terminology, and not reporting landings. Need for greater enforcement at the state level was recommended. Finally, the AP recommends that in the future the Technical Committee complete multiyear projections, and that the Board consider setting multiyear TACs for two to three years. With that Mr. Chairman, I end my report, thank you.

CHAIRMAN BALLOU: Questions for Jeff on the AP report. Dennis Abbott.

MR. ABBOTT: Jeff, how many people participated in your discussion? I note that on a lot of issues there were differing amounts of opinions. Were some people ambivalent to certain things? Would you explain that a little bit to me?

MR. KAELIN: Yes, we had 12 members of the AP. For those of you who know me you may be surprised I didn't say much, as the Chairman. That changed the count a little bit. I mean I really think it's important for the members to speak. We had a quorum. I think there are about 18 members of the AP right now.

Again, I wanted to thank the Board for recently repopulating the AP. If it doesn't add up, you know some people were quiet I guess on certain matters, Dennis. But what we wanted to do is just kind of record the breadth of opinion around the table; so the numbers might not add up, and it may just be that some people were more vocal than other people.

CHAIRMAN BALLOU: Russ Allen.

MR. RUSS ALLEN: Thank you for that report, Jeff. Just a quick question and it might be better for tomorrow's discussion. But I just wanted to hear the rationale behind the one AP member not wanting to include trawls in the small-scale fisheries; if you could give me a little bit more information on that.

MR. KAELIN: Sure. I think that the feeling was that the trawl fishery can produce fish at volumes at least as large as the purse seine fishery does. Since the Board had been clear that purse seines shouldn't take advantage of the 6,000 pound incidental set aside up to this point, it was noted that it may be an oversight by the Board to have trawls listed as a small-scale gear, because of their capacity to take large amounts of fish.

CHAIRMAN BALLOU: Additional questions for Jeff, seeing no hands, again Jeff will be back tomorrow morning to kind of refresh on some of the issues that we'll be taking up tomorrow. Questions along the lines of Russ's would be particularly appropriate at that time. But again, thank you, Jeff for your leadership.

The AP has really done an awesome job right through this entire process; and through you to the members, I know the Board very much appreciates the very thoughtful input that has been provided.

AMENDMENT 3 REFERENCE POINTS

CHAIRMAN BALLOU: Okay, now let's turn to the first issue under Amendment 3, which is

reference points; and open the floor to questions from the Board on the reference point options set forth in the draft amendment.

This will be questions only for now. The time for motions will soon follow. I think Megan may be putting up sort of a summary slide just to orient ourselves. But the floor is open to any questions that any Board members may have on any of the issues associated with the reference point options. Does anyone have any questions? Rob O'Reilly.

MR. O'REILLY: I wonder if we could get a brief summary of the assumptions that the Technical Committee listed. There was a recent memorandum that was provided to the ASMFC; and in that there were a number of assumptions related to the different reference points. I wonder if that is available.

CHAIRMAN BALLOU: I'm going to give Jason McNamee the microphone, Chair of our Technical Committee.

MR. JASON McNAMEE: Mr. O'Reilly, could you repeat your question one more time, just to make sure I'm giving you the right info?

MR. O'REILLY: Yes, there were assumptions listed by the TC related to the generalized approaches to the biological reference points. That was just, I think at the end of the week last week; so that would be the first part. Do you have that in front of you?

MR. McNAMEE: I think so.

MR. O'REILLY: It was things such as lack of a stock recruitment situation. There were about four or five different assumptions listed and if you have that then I'll follow up to save time. I would also appreciate hearing how A and B relate; since they're menhaden specific, what type of assumptions there are there. I realize with both there will be recruitment assumptions, but I hope that gives you enough information to respond.

MR. McNAMEE: Yes, I think so. What I think you are interested in is we refer to them as caveats for the projections. I've got that in front of me. If I had my presentation that I'm going to give tomorrow open I could get you a quicker version. But I'll do my best here. We've got a set of general caveats that apply to both; the ecological reference point projections as well as the standard projections that we run, and then a subset that is just about the ecological reference points. One of the first caveats that we noted was that the fisheries are assumed to continue from this point forward.

In the projections they're assumed to continue at their current proportions of total effort. That's important with regard to how selectivity works with the projections. Recruitment, so we're not using a stock recruitment relationship in any of the projections. It's sort of a re-sampling of the existing range of recruitment that we've seen through the time series.

But what's important about that is that we're using a median; and so if conditions are that recruitment has a series of years with low recruitment or high recruitment that is going to impact the performance of those projections. Another big one is that we're using the Baranov Catch Equation, and so that is assuming that catch is occurring for the entire year.

Changes to things like seasons and other items like that again will impact the performance of the projections; because of that underlying assumption. Just a general statement that projections, whether it be menhaden or any other fish in the sea, are highly uncertain. One other less clear one that we often include is that we are basing a lot of the projections on these functional forms; so a single selectivity function, a single recruitment function which I've just described.

What we don't include is structural uncertainty in the model itself. We include a lot of uncertainties and we sample within the range of those uncertainties; but when it comes to the

model that we're using, we're not doing a full blow simulation analysis to identify what that uncertainty might be. Then we had a set of caveats on the interim reference point calculations as well. You're interested in those as well?

CHAIRMAN BALLOU: Rob.

MR. O'REILLY: I guess in particular what I had read was since the BAM model uses a dome-shaped approach, and the generalized Pickett et al do not that with a biomass-based approach, the selectivity did not go down with age with those particular approaches, and could. In fact, there was a statement and it's been a few days since I've read it, but a statement about how that would denigrate the spawning stock, because it was on all ages. Can you comment on that?

MR. McNAMEE: Yes. What you stated is correct. That is one of the major differences between the models used to develop the generalized interim ecological reference points that you all are looking at; versus the single-species menhaden reference points that we've been working with. That selectivity is one of the big issues, or differences not issues.

One of the big differences between the two approaches. You characterized it correctly that in the ecopath with ecosim approaches, the selectivity sometimes they do split it out by groups of the ages. But in either case the selectivity is constant for those groups; whether they're a single group or multiple groups.

Whereas, in the BAM model we do use dome shaped selectivities in a couple of spots, not in all of them, but in a couple of the fleets. That statement that you made is correct. I'm a little puzzled about the linkage you made. The other comment you made is correct that with some of the interim reference points you could fish the population down. It's because those are developed without that context of the age structure; and that was through work that we

did with the Pikitch et al group, to try and create this translation between the two. That is true that selectivity is a part of that but it's not the complete cause of that.

CHAIRMAN BALLOU: Next I have Emerson Hasbrouck.

MR. EMERSON C. HASBROUCK: I have a three-part question, relative to B-0. I'm wondering the first part of the question is what is the value of B-0? Part two is how is it estimated? Then the third question or the third part of that question is what is the 95 percent confidence intervals around that estimate?

CHAIRMAN BALLOU: Jason.

MR. McNAMEE: Excellent questions. I think I will start with the middle question; because that's the one that I can answer most directly. The concept of B-0, I think you were asking, how it is estimated. The way that we generally do that and the way that we did it here for menhaden is you run a projection.

What you do with that projection is you remove fishing, so you set F equal to zero. Then you run that population forward. What's happening at that point is all of the population dynamics are being dictated by recruitment; so new fish coming in, and it's based on all of those assumptions I just talked about a moment ago and natural mortality.

That's the only removal that's occurring, and so what happens over time is that population will reach an equilibrium level. It's that battle between the removals of natural mortality and the recruitment coming in, and I've got a plot I'll show you tomorrow maybe; depending on what happens today, where you can kind of see what it looks like.

In the projections it kind of goes up and wobbles around; and then it eventually flattens out through time, and that's when that equilibrium level is reached. What that value is

you'll have to give me some time. I don't have that off the top of my head. I'll have to hunt that down. Then I don't remember your final question. I have a capacity of two questions, and then I need it repeated.

MR. HASBROUCK: Actually the third part of the question may be more important than the first part. But without the first part I don't know if you can answer the third part and that is; what are the 95 percent confidence intervals around that estimate?

MR. McNAMEE: Yes so that will also, I'll need to look at that. I imagine there are confidence bounds, although the interesting thing with these projections is the uncertainties. The further out you run it they get stable and they shrink. I would have to look that up as well. I don't know that off the top of my head either.

CHAIRMAN BALLOU: Additional questions. Was it Alison or David or both? Okay, David, I saw your hand first. David Blazer.

MR. DAVID BLAZER: I have two questions, and Jason I'll do one at a time, if that will help; because it's kind of a long question. You know there is a lot of confusion surrounding the ecological reference point options; because of the necessity to translate everything into the same currency, based on the total biomass.

This approach does not explicitly account for changes in population reproductive potential; which seems to have led to particular concern about the threshold of the 40 percent unfished biomass. In the projection memo that we got last week, on Page 3 it makes a comment that the workgroup has concerns about the use of reference points that preserve a certain proportion of a total biomass, instead of a spawning stock biomass or fecundity, because they may result in a level of spawning potential well below the fecundity limit.

It goes on to say the level of fishing pressure that reduces the total biomass to the B of 40

percent is higher than anything seen in the history of the fishery; and results in almost total loss of spawning adults. That statement indicates that Option E is kind of risky for the stock; which is a little worrisome, given the discussion that we're having today. I'm trying to get an explanation. If you could explain to me some of the issues and the risks of applying this ERP option as it goes forward.

MR. McNAMEE: That was an excellent retelling of the memo. I think you captured everything really well. I think with regard to Option E. The intent of the Technical Committee, the risk is highest with regard to that threshold level, so that is what those comments about nothing seen before in the fishery and that part of it was with relation to that threshold level.

I think you've captured that well and you're interpreting our intent well. I'm trying to think how deep in the weeds you want to get on this. I think when we received the task from the Board it seemed pretty straightforward to us. I'm sure to you all as well. But then when we sat down and started to think through, we understand this population through our age-structured assessment.

That was where we first ran into this issue of, well we need to figure out a way to translate between how the generalized ERPs are developed and the information that we have available. This was in consultation with the Pikitch et al folks, not the whole group, but a subset of them, on a call.

What we came up with was total biomass, one of the main reasons for that is it gave us a way to weight the F levels that are coming out of the model. When we give you in the single-species context the F that is occurring, sort of our benchmark F that's on a specific subset of the population that the most fishing is occurring on, and so this is different than that.

This is now taking that F and spreading it out across the population; and you need to be

careful when you do that and you need to weight it by the abundances in those various age classes. That's why we went with total biomass. I guess the final point is if you were to ramp up fishing mortality to the level that would allow you to achieve that threshold level, the vast majority of the biomass exists in zeros, ones and then as you enter in the twos the population really starts to decay for fishing and natural mortality and all of those reasons.

That is why that foible of that particular part of the ERPs exists, and that is you can really whack those older ages and drive them down to near zero; but you still have enough biomass in the zeros and ones and twos to meet that metric. But were you to then compare it to your fecundity metrics that you had been using that is where you would see that big difference.

CHAIRMAN BALLOU: Dave, did you have another question?

MR. BLAZER: I'll hold off on my second question for right now. I'm good, thank you.

CHAIRMAN BALLOU: Ritchie White.

MR. G. RITCHIE WHITE: Jason, if one was to select Option E and one was to adopt a quota that was status quo or slightly above status quo; and the plan allows us to fish over the target, so we could do that. Would it be precedent setting to fish over the target for other species?

My thought process is that it would not be, in that this is not single-species management if we select E, where I believe all the rest of our other species we manage are single-species. That is my question. Could you comment on whether you think it would or would not be precedent setting for some of the other species that we manage?

MR. McNAMEE: Me and Katie will tag team this one. I guess as far as precedent goes, I would suggest that in fact most of the federal fisheries fish to a limit and not a target; and so I think

that would be standard for how a lot of the federal fisheries are managed. I think depending on the management plan that you have, it dictates whether you manage to the target explicitly or I guess the intent of having a target is that's your eventual goal.

How long it takes you to get there and that sort of thing I think are usually negotiated within the management plan. But I guess that would be, I don't think it is precedent setting with other fisheries. Other fisheries don't have targets at all and they fish to that limit and try to stay above or below that limit; depending on which metric. But I think Katie wanted to add.

DR. KATIE DREW: Yes just to add to what Jay was saying is that in plenty of our other fisheries we actually do fish above the target; and as long as we're not above the threshold, we kind of let it go. I think striped bass is probably on everybody's mind recently, and that is. But that's because we specifically have a trigger within the plan to say if you're above the F target.

Even if you're below the threshold for a certain number of years and your biomass is between the target and the threshold, then you do have to come back down to the target. But in most of our other plans it's the threshold that triggers management, so we may or may not be above the target for those other fisheries. But you don't do anything about it until you go over the threshold; so in that case menhaden would be in the same boat as all of our other fisheries.

CHAIRMAN BALLOU: Next I have Allison Colden.

DR. ALLISON COLDEN: I don't want to belabor the point on the selectivity between the ERPs and the single-species reference points, but I did want to get clarification Jay, on a comment that you made in responding to Mr. O'Reilly's question. I think you said that in certain sectors of the fishery and in certain places that you don't apply domed-shape selectivity; and so can

you clarify in what situations how the selectivity is addressed?

MR. McNAMEE: Yes the current single-species assessment has a number of fleets. If you remember this is the first time that we had split it into north and south; then there is bait and reduction. I'm pretty sure we're using dome-shaped selectivities in the southern fleets; and the idea behind that is at certain times of the year in particular, the older, larger fish are migrating further north.

It makes biological sense to use a dome-shaped selectivity for those fisheries that are occurring to the south. In the north we're using a logistic, which would be flat-top selectivity, at least for the survey indices up there, and I think for the fishery as well. I would have to dig in to give you exactly which ones we're applying domes and which ones we're not. But there are differences within the model.

CHAIRMAN BALLOU: Follow up?

DR. COLDEN: Yes, quick follow up, Mr. Chair. Do you know at what age in the logistic selectivities that you're moving from low to high selectivity by the fishery?

MR. McNAMEE: I was contemplating just winging it, but I think that is something I could look up relatively quickly and get back to you on.

DR. DREW: Just to add to that. For the single species model for the assessment, we are using the multiple fleets. But then to develop the reference points and to do the projections, we're using sort of a weighted average of a single selectivity to combine all of those different fleets into a single, sort of averaged fleet, based on how much effort they've applied in the past and what their selectivity curves look like.

Some fleets go up and flatten out; some are completely dome shaped, and the end result

sort of average for the reference points, ends up being that dome shaped on the basis of how much effort the fisheries have applied in the past. The different fisheries are sort of composited together into a single selectivity curve for the reference points.

DR. COLDEN: Thank you.

CHAIRMAN BALLOU: Pat Keliher. Roy Miller.

MR. ROY W. MILLER: Thinking about the questions that have previously been asked, and the answers offered by Jason and Katie. With regard to Option A, obviously if I could summarize what I've heard thus far, we're not bound to manage to the F target. But there is a lot of room between the F target and the threshold. What guidance do we have when it comes to picking a TAC that will be somewhere between the target and the threshold?

DR. DREW: There is essentially nothing written down in terms of guidance then, and it would be the Board's prerogative to decide. We can give you projections and say, this is what the stock is going to look like in the near term, over a couple years, under this level of fishing pressure. We can show you some different options between the target and the threshold, which as you say for Option E is a really wide range. Then it would be up to the Board to decide how they felt about the risk, how they felt about sort of the rewards of that.

The way essentially that we've done for our single-species process up until now to discuss, here is the risk of exceeding the target, or here is the risk of exceeding the threshold, and here is the associated TAC and how do you feel about that? How does that impact the fishery? How does that leave fish in the water for ecosystem management? It would be the Board's decision to balance those different competing objectives within the limits that the projections indicate.

CHAIRMAN BALLOU: Roy.

MR. MILLER: Katie, if I could. Would you have the ability to be fairly timely in providing such analysis; were specific TACs to be suggested between now and tomorrow?

DR. DREW: Between now and tomorrow? No. That's not happening. If we knew about what you guys wanted ahead of time, and we had plenty of lead up time. It's not excessively time consuming, but we would like some kind of limits on the range of options you would like.

CHAIRMAN BALLOU: Nichola Meserve.

MS. NICHOLA MESERVE: Jay, you answered a question about the Option E threshold and putting that F rate in the context of the histories of F, and the effect on spawning adults. I'm trying to put the single-species F threshold into a similar context; that's based on a maximum rate from 1960 to 2012. Is it also higher than most of the history of fishing mortality rates, and what is the effect there on spawning adults?

MR. McNAMEE: I may be missing your question, and so how I think I'm understanding it, let me say it back to you and then you can correct me. I think you're still thinking about the Option E and where that threshold is, and trying to compare where that is set relative to what that would look like from the single-species model where that threshold would get us with regard to that. Is that kind of what you're asking?

MS. MESERVE: Yes. Essentially I'm trying to see if the difference in the point estimate between those two thresholds is very different in what it produces in the stock; and how you would compare them. There was a statement about the Option E threshold is higher than almost anything seen in history. Can the same be said also for the single-species F threshold?

DR. DREW: No. The single-species F threshold, the earliest years of the time series are not included in the years that we've looked over.

As a reminder, the way the TC developed those reference points is we took a time period when we thought the fishery was relatively stable, in terms of the yields that it was able to produce, and the population was also relatively stable, and also recruitment showed variability but did not show extreme lows.

We thought over that time period that was a reasonable set of fishing pressure. The target is the median of those years of fishing pressure, and the threshold was the maximum observed during that time period. Prior to that time period, you did see Fs in the fishery that was higher than that maximum.

There was a point within that time period the maximum is the threshold that we proposed, so during that sort of stable period we met that once in the prior to that period. There definitely was fishing pressure higher than that; whereas for the Option E threshold, it really is beyond that F value that comes out as beyond anything we've ever seen in the fishery. In terms of then translating that into fecundity reference points, which is what – so we came up with the F rate based on sort of the empirical or historical observation of the fishery, and translated that into how much fecundity would we expect sort of under long term equilibrium conditions.

I think that is 36 percent for the threshold, so you would expect to see about 36 percent of the egg production of a virgin stock. Whereas, if you translated that into the Option E, it's almost complete loss of the spawning stock or the fecundity, under that sort of long term equilibrium conditions or assumptions.

MS. MESERVE: A quick follow up. I think it's the 21 percent MST for the threshold. How does that compare to benchmarks that are used for other species? What percent are often targets and threshold levels?

DR. DREW: The fecundity estimates or the fecundity reference points are very similar to

the spawning potential ratios that you may be familiar, or SPR in other fisheries, where some of sciaenids which are quick to reproduce, quick to mature, very fecund. Those have targets and thresholds of about 20 percent to 30 percent SPR. Other species have reference points in the 30 percent to 40 percent range, in terms of targets and thresholds.

For sturgeon, we recently tried to look at one for about 50 percent. But again, being a slow to mature, long-lived species that has different, but you have a different risk tolerance for some of that life history. The 20 to 30 percent that we're seeing that we're estimating comes out of those reference points is comparable to some of our other reference points that we use for quick to mature, very reproductively capable species.

CHAIRMAN BALLOU: Robert Boyles.

MR. ROBERT H. BOYLES, JR.: I'm confused. I had my son in the woods last night hunting, and he had very specific instructions on what he was to do. The quarry came within sight. He aimed at the target. He shot. He missed; and he asked me, Dad what happens if you miss? It was kind of a profound question at the time.

We wandered around the woods last night for two and a half, three hours looking, following trails, and we made a mess. I have a son back home who is a little gun shy now, and we've got quarry wandering around the woods perhaps, wounded. Do they go on another property and make a mess for someone else?

Did they stay in the woods where we were hunting to provide biomass, feed for the system? I'm just concerned. You know we call the target a target. I think it's important that we're very, very clear about our intentions on how we manage the fishery. These are good questions and good technical questions.

Mr. Chairman, I would submit that some of these elements are more policy oriented, and I

appreciate the TC and their efforts to answer these questions. But I think I'm becoming more and more confused in terms of target. I told my son, aim for the target, aim for the target. That's what your goal is that's your objective, and if you miss there are pretty serious implications.

CHAIRMAN BALLOU: Additional questions, going next to Adam Nowalsky.

MR. ADAM NOWALSKY: Keeping with the same theme of the questions or concerns about Option E. I think we've made it very clear on the record here the earlier slide that the Board would have the flexibility under Option E to select a TAC; perhaps all the way up to the threshold, which would represent a 250 percent plus increase from where we are now.

As I look through the public comment letters, many of those comment letters that advocated for Option E, also advocated for other options in the document, i.e. no rollover, lowering of the Chesapeake Bay cap, removal of full accounting for incidental catch. That would be characterized as more conservative oriented.

I'm wondering what the sense was from the public hearings. As I look at these suggestions that we use E, which is potentially the least conservative option in this document. What is the thought that the public really expected us to do with Option E? What is the sense you got from the public hearings from input to the Commission from any other commissioners around this table today that have spoken with the members of their public, about what the public expects us to do if we select Option E?

MS. WARE: I can, I'll say briefly talk about those who supported Option E. There was support, I'll say up and down the coast for Option E. Those who tend to support Option E did see it as a more conservative approach to the management of menhaden.

They generally liked that it was an ecosystem approach, and that it was important for them to move to that now, as opposed to waiting for the BERP Workgroup to complete their menhaden-specific ERPs. There were comments in conjunction with the reference points about keeping the TAC at 200,000 metric tons or reducing it. Those were frequently comments given in conjunction with Option E.

CHAIRMAN BALLOU: I have Pat Keliher next.

MR. KELIHER: I appreciated Robert Boyles' hunting analogy. I finally understood one; and it reminded me that it's hunting season. I passed when I was going to ask my last question, and then Roy promptly basically asked the question I was going to bring forward. My concern with Option E is the fact that we seem to be leaning in the direction of knowing that we're going to be going over target; as it's associated to Option E.

I think that is problematic. While federal, Jay your comment on federal fisheries do it all the time. This isn't a federal fishery. I think it is precedent setting for the Commission to move in that direction; and I have a lot of concerns with taking that type of direction. I have many other comments associated with Option E, and I'll reserve those for later discussions.

CHAIRMAN BALLOU: Dr. Duval.

DR. MICHELLE DUVAL: Hopefully just a very quick question. If I recall correctly, as of the update to the benchmark assessment that we just received in August, even though I guess the target is 36 percent MSP Katie, that we are actually at 48 percent MSP. Is that correct as of the update to the benchmark?

DR. DREW: I don't have the number in front of me, but I believe we are above the threshold for the biomass. I believe we are above the target as well; but I don't have the numbers in front of me, I'm sorry.

DR. DUVAL: Just a follow up, Mr. Chairman. I think in terms of the associated fishing mortality rate, my recollection was that we were fishing at a rate that would allow for 48 percent of the maximum spawning potential. Not necessarily that we were actually above the fecundity target.

DR. DREW: Yes, I believe that is also true that the long term equilibrium fecundity associated with that would be about 48 percent.

CHAIRMAN BALLOU: Additional questions. John McMurray.

MR. McMURRAY: I just want to clarify what I think the public expects with E. I think that the intent, at least what the public perceives is the intent is that we would strive to manage towards 75 percent. But there is flexibility there. It doesn't have to be done in one year. It doesn't have to be catastrophic to industry. But it is a goal, and it's where the public expects us to go with this.

CHAIRMAN BALLOU: Dave Bush.

MR. DAVID E. BUSH, JR.: I guess a question, two-part question, very easy I would hope. In general for I guess the panel, as you would call it up front. How long have we been managing with the current single-species reference points that we're currently using, and what has been the general characterization of the overall biomass since we've been using them? Very general would be fine.

DR. DREW: We've been using the current single-species reference points, essentially since the last benchmark assessment. We've set the quota a few times based on that; and in general the biomass has trended up since the lows that we saw in the late '90s to the early 2000s, and it's maintained close to our SSB or fecundity target.

CHAIRMAN BALLOU: Follow out, Dave?

MR. BUSH: Yes, just very briefly. If we continued on this, I know this is hypothetical and you all have many crystal balls at your disposal. Continuing on this current pattern, using the biological reference points we have until we have something species specific, do you all see great concern in continuing with where we're headed at the moment?

DR. DREW: I think the BERP has always advocated for waiting until the reference points that are ecosystem reference points specific for menhaden can be developed. We would not advocate that if we thought that current management was detrimental to the single-species health of the stock. I think we can do what we can do with menhaden-specific reference points. It will be great and a great movement forward for the stock, but I don't think we would have advocated for that if we had serious concerns about the single-species management.

CHAIRMAN BALLOU: Are there any other questions, Emerson that would be your second, which I'm going to allow you. But first I want to make sure to give anyone else a chance to who hasn't yet asked a question to ask. I see no other hands, so Emerson, second bite at the apple.

MR. HASBROUCK: I'm a little confused as well. I thought that I had things pretty well squared away. But then in the response to Nichola's question I'm a little confused. In the document for public review, Table 1 is the reference point alternatives for Options A through E. My assumption there is that these have all been converted, if you will, to a common currency; that currency being the biomass weighted F, so that the single-species reference points in that table have been converted to this new currency. Is that correct?

DR. DREW: Yes, and that's why they don't look exactly. If you looked at the assessment update those numbers would be slightly different from what we sent out to public comment. They've

all been converted into the same scale; that biomass weighted F.

CHAIRMAN BALLOU: Additional questions on reference points? I see a hand in the audience, but we're not taking public comment; that has already been taken through the public comment period. This is for the Board's purview only at this point. Having exhausted questions, and realizing that the next phase would be motions, and given the timing. Let's take a ten minute break; biological break, ecological break, whatever suits your fancy. We'll be returning at 2:51 exactly. Thank you.

(Whereupon a recess was taken.)

CHAIRMAN BALLOU: Okay first, I think Jason McNamee was able to come up with an answer to one of Allison Colden's questions; so Jason.

MR. McNAMEE: Yes. If I remember the question, you were wondering where the logistic curve kind of peaked at what age. I looked that up and it is age 3 is where it reaches that plateau.

CHAIRMAN BALLOU: Allison.

DR. COLDEN: That is implying that the selectivity for ages 3 plus is constant?

MR. McNAMEE: For that combination of fleet and fishery, yes.

DR. COLDEN: Okay and the selectivity for the ERP options were constant at ages 2 and above? Is that correct?

DR. DREW: For the ERP options it was the dome shaped sort of composite selectivity that basically 2, 3 and 4 is where it is the maximized; and so it's much less at age 0 and 1, and less on ages 5 and 6.

DR. COLDEN: I'm sorry, for Option E.

DR. DREW: Oh, so for Option E that is how we calculated it. We used that composite selectivity that we see in the fishery from the model. If you're talking about sort of the EWE models that were used to develop those rules of thumb, those are essentially flat-topped curves that treat either all of them as a single selectivity or sort of small versus large.

CHAIRMAN BALLOU: Okay, I now open the floor to motions on the reference point options. Would any member of the Board like to make a motion? David Borden.

MR. DAVID V. BORDEN: I provided the motion to the staff. **I would like to move to adopt reference point Alternative E: BERP Workgroup continues to develop menhaden-specific ERPs with interim use of 75 percent Target and 40 percent Threshold as described in Amendment 3.**

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Nichola Meserve? It's been moved and seconded to adopt the Reference Point E: BERP Workgroup continues to develop menhaden-specific ERPs with interim use of 75 percent Target and 40 percent Threshold as described in Draft Amendment 3; discussion on the motion, David.

MR. BORDEN: I'm going to try to do this quickly, because I know we have divergent views around the table. There are going to be a lot of people that are probably going to want to speak to the point; also are possibly amendments or substitutes. I just point out for the record that the Commission has a long history of recognizing the critical importance of menhaden to the ecosystem along the coast; and particularly the two specific predator populations, namely striped bass where we've had a major focus.

I went back at one point and looked at the history of this. The history actually goes back to 2001, and I think if I dug further it would go back even further than that. In those days we

embarked on what we called multispecies management. Recently what we've done is we've kind of changed that into the efforts to focus on developing menhaden-specific ERPs.

Unfortunately, the menhaden-specific ERPs, personally I wish they were available today and we could have that debate. But that is not the case. They're not likely to be developed for a number of years. Once they do, most of the people around the table know that we will have to go through a fairly lengthy process to adopt those; which will include a full consideration of a lot of the assumptions that are included in that.

We haven't seen that analysis. One of my conclusions for making this motion in particular is that I think that process is probably going to be delayed beyond where we project it to be. Hopefully I will be proven wrong by the working group. I think this personal view that after 16 years of discussion, I think the Commission needs to get on with fashioning an ecosystem strategy on menhaden.

I think that transition, what I would view since the species-specific targets are not available at this point that we really need to begin the transition through this alternative. I would also note that the Commission has pretty wide latitude. There were a lot of really good questions Rob O'Reilly and others have raised very valid concerns about different issues.

But I would also point out that the Commission has wide latitude on where they set the TACs, which will drive what the removal rates will ultimately be. Just a few more comments, from a Rhode Island perspective menhaden are critical to the ecosystem in the state, namely because Narragansett Bay is one of the major economic drivers of the economy of the state. We have a very vibrant commercial and recreational fishery in the state; including charterboats and party boats. It's kind of the foundation of that is the state of the resource in Narragansett Bay, and that includes menhaden.

Menhaden are a critical economic issue within the state. In recent years things have gone well. We've had fairly high abundance of adults, which has been very pleasant for most of the constituents, and we've also had fairly high abundance of peanut bunker.

I went fishing yesterday in fact, and there were vast schools of peanut bunker still around, even at this point. Things are going well. But my point in making this, I think we need to start the transition from the discussion phase we've been in for 16 years, to moving into the implementation phase. I think this motion; coupled with an appropriate TAC will do that.

CHAIRMAN BALLOU: (Audience Applause) Could I see a show of hands of those who would like to speak in favor of the motion; or perhaps speak in the direction of the motion. Just keep your hands up. We're just going to put together a list, and then I'm going to alternate between pros and cons, so keep your hands up until Megan gives me the okay sign. Show of hands now of those who wish to speak in opposition to the motion. Keep your hand up, please. We'll alternate and I'll begin with someone in opposition, and I'll just start to my right. Pat Keliher.

MR. KELIHER: Mr. Chairman, I actually have a motion to substitute along with my comments.

CHAIRMAN BALLOU: Go ahead.

MR. KELIHER: I would move that we substitute Option B: The BERP Working Group continues to develop menhaden-specific ERPs with the interim use of single-species reference points.

CHAIRMAN BALLOU: Is there a second to that motion to substitute; seconded by Russ Allen? It's been moved and seconded to substitute Option B: BERP Workgroup continues to develop menhaden-specific ERPs with interim use of single-species reference points as described in Draft Amendment 3. Here is how I

would like to handle Board consideration of both the substitute and the main motion.

I would like to afford the Board the opportunity to consider both on an equal basis. I will take comments on both motions; alternating between those wishing to speak in favor of the substitute motion, and those wishing to speak in favor of the main motion. During the process of considering both motions, both will be amendable.

Once both motions have been fully considered, there will be a vote on the substitute in its original form or as amended. If passed it will become the main motion and be subject to final consideration. If not passed we will return to the main motion in its original form or as amended; and it will be subject to final consideration unless there are any other motions to substitute, Yes, Dennis Abbott.

MR. ABBOTT: I don't like to disagree with the Chair, but when Pat made a motion to substitute that becomes what's on the floor. I don't see that we can be discussing the main motion now, because we have a motion to substitute. I think the conversation should be around the substitute motion, and if that passes then it becomes the main motion, and if it fails we go back to the main motion. I think that would be in order in Robert's Rules. I don't think we can discuss both of these motions; because we have one motion before us, and that is the motion to substitute. Correct me if I'm wrong, or I'll look to Bob Beal for a little more guidance. I will say that the Chair does have some latitude, but.

CHAIRMAN BALLOU: I certainly don't like to disagree with my colleague from New Hampshire, but. I do acknowledge that this approach is not one that we typically follow. It is however consistent with Robert's Rules. The intent is to provide for fair and balanced consideration of the two alternatives.

If only the substitute were considered and potentially passed, then the proponents of the original main motion would not have the opportunity to advocate for and possibly improve their motion. This approach will enable the Board to fully consider both options at the same time before voting on them. That is my intent to move forward, unless there is an appeal that is my ruling in terms of how I plan to handle it.

MR. NOWALSKY: One other point of order.

CHAIRMAN BALLOU: Go ahead, Adam Nowalsky.

MR. NOWALSKY: I had heard you mention the ability to amend the main motion during this process. I would contend that should not be allowed; with regards to Robert's Rules allowing one motion at a time that we would be modifying. I don't see how we could go back and amend the original motion until we dispense with all of the subsequent motions.

CHAIRMAN BALLOU: I believe we can do it as described, but I would look to Bob Beal for at least an acknowledgement that this might be at the discretion of the Chair.

EXECUTIVE DIRECTOR BEAL: We made it farther into this meeting than I thought without having to get in the middle of a few commissioners, it's great. The initial conversation between you and Dennis, you know Option B and Option E is the crux of a lot of what is going to be talked about today.

I don't know how you can separate out those conversations. I think they are going to be intertwined regardless of how that is packaged, as far as procedurally. To Adam's point, kind of you, Mr. Chairman and Adam are both right. But I think logistically to sort out substitute motions or motions to amend, to two different motions at the same time is really hard to track.

I think if you let the conversation sort of evolve and talk about the pros and cons of Option B and E at the same time. I think that part is very manageable. But I would suggest to just have any potential amendments to motions just focus on the substitute for now; just for ease of tracking those, and making sure everybody is on the same page.

CHAIRMAN BALLOU: I appreciate that guidance. I'm going to follow it. I'm going to go forward as I had suggested, however I will take Adam's comment to heart and not allow amendments on either motion, unless or until they become a main motion. At which point they would be then opened up to further amendment. Thank you for that. I think we've reached a good compromise in terms of process, and now I'll look to Pat Keliher, who was the maker of the substitute motion for your comments on your motion. Pat.

MR. KELIHER: I made a comment earlier in the day about the precedent setting nature of it, and I do believe there is precedent setting as it relates to Option E. Option B is a continuation of Amendment 2; Amendment 2 is working. The fishery is expanding in size and in scope. When I say scope I mean geographically.

Managers already implemented precautionary reference points, while the BERP was finishing its work that was done with Amendment 2 in 2011. The statement of the problem for that action was the new reference points are intended to be interim benchmarks, while the Commission's Multi-Species Technical Committee develops the ecological reference points, so we would be continuing in that vein.

Option E, any of the options in the document, management is based on total biomass rather than reproductive capacity. While this is appropriate for the goals of providing more forage, it ignores the reproductive capacity of the stock. More biomass won't necessarily increase the reproductive output if most of that biomass is in juvenile fish.

Lastly, I would say the biomass approach ignores the known reproductive capacity of the stock, in particular ignores the known increase in fecundity with age at size. Therefore, it is inconsistent with the goals that we did set forth in Amendment 2. I have other comments, but I'll save those for a later time.

CHAIRMAN BALLOU: Thank you, and now I do plan to alternate between pro and con, and now given the new context it might be appropriate to start your comments with an indication of which option, either the main motion or the substitute you support and why. Next I have Ritchie White.

MR. WHITE: I support Option E, only if there is a TAC attached to it. I was just prepared to amend, which I'm not doing it now. I was prepared to amend that to add a quota. If Option E with a quota did not pass, then I'm willing to support Option B. My plan is if Option B fails, I'm going to make a motion to amend Option E to add a quota.

CHAIRMAN BALLOU: Next I have Steve Train.

MR. STEPHEN TRAIN: I'll speak in favor of the substitute motion, Option B. I was going to speak against Option E. I think one of the reasons I support Option B, Pat was real good about speaking about. But I hadn't decided until I got here where I was. During this meeting I heard at least three people say Option E is bad for the spawning stock biomass.

Now I'm not a scientist, I'm a fisherman, but that is one thing I learned a long time ago. If something is bad for the spawning stock biomass you don't do it. If Option B is better for that for the population of the fish, I'm for Option B.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: My comments are in regards to the main motion. You know this is an issue that we have struggled with considerably, and you know

we absolutely support the management of menhaden for its ecological role. We believe that one of the great benefits of the work that has been done by the Lenfest Forage Fish Taskforce and others is that it has raised awareness of the importance of forage species, and has provided managers with tools to evaluate the tradeoffs of different policy decisions. You know science does not tell us how to make those decisions; it just informs us what the impacts of those decisions could be. You know we support the types of approaches embodied in Option E and Option C, but we do have significant concerns about the metric, as others have expressed.

It's clear that while total biomass is absolutely the appropriate metric to meet the needs of predators; our concern is that it does not meet the needs of menhaden, and specifically that it is not protective of the reproductive component of the population that's actually producing the future biomass for predators. Other concerns have been expressed around the table about the TAC associated with the 40 percent biomass threshold, and the significant impacts that that would have on the mature ages in the population.

The department is offering extremely qualified support for Option E. Quite honestly we would prefer a metric that meets both the needs of predators and prey; which is why we are supportive of the efforts of the BERP Workgroup, and are anxious to implement the results of those efforts as soon as possible, and we appreciate all the efforts of the BERP Workgroup to date to work with the Lenfest Taskforce Members to develop the translations that we have in front of us.

CHAIRMAN BALLOU: Russ Allen.

MR. ALLEN: I'm speaking in support of Option B. I thought Robert and Pat hit some really good points that setting a target that you know you're going to exceed right off the get go is counter intuitive to what all the Boards that I've

ever served on have thought about. That really bothers me for some reason.

I thought Katie answered a question earlier really well, and that the Technical Committee, who we're supposed to listen to and we hear that constantly at the Board meetings. Listen to the Technical Committee, listen to the BERP, listen to the stock assessment folks, because they're the ones doing the work, and they're comfortable under the current reference points that we are right now.

They know that where we're going to be once the BERP group is done will put us in a better place. I don't see why we would change things in mid flow right here on something that seems to be working. You know our egg production is constantly ramping up, and I don't understand why we would change that now. It's not overfished, overfishing is not occurring. I think we're better off staying the way we are. I don't see the need to make this kneejerk reaction to reference points that aren't even menhaden based. I'll leave it at that.

CHAIRMAN BALLOU: Allison Colden.

DR. COLDEN: I wish to speak in support of the main motion, Option E. I think it provides a lot of positives, which would be helpful in managing the menhaden fishery. Some of these have already been touched on. First is the flexibility. Some of the other options that are included within the document don't include the type of flexibility that is afforded by Option E, while also applying an ecosystem context.

This is not a harvest control rule; it allows the Board to manage to a target that would be protective of the ecosystem and all of the predators that depend upon it. But we've already seen from Megan this morning that there are different methods by which the Board can reach those objectives, and I believe that we will be discussing those later.

The other one is the relative stability. In my interpretation of the current single-species reference point is that they can fluctuate, because it's based on a mean and a median the addition of additional data points, as we saw in this year's stock assessment update means that those reference points change over time, because they're informed by the information that is coming out of the surveys and the indices.

We saw particularly in the stock assessment update that the Northern Adult Index had a very strong influence on the estimates coming out of that assessment; and there were some additional comments by the TC about looking into that. I would suggest that the 75/45 percent of B-0 is the stable proportion of the population that may not be as influenced by those types of fluctuations. I want to also touch upon the comment that Robert Boyles had earlier about managing to a target. There has been a lot of discussion thus far about the threshold associated with Option E.

I would argue, as this Board seems to have done in the past is that managing to the target is really where we need to be. If we were to be discussing the single-species reference points in the same context as people are discussing fishing to the threshold of Option E, we would also be looking at dramatic increases in the TAC, which I don't believe many members of this Board would be in support of either.

In terms of looking at the single-species reference points, if we were to harp on the threshold of Option E, I would offer that we should also be considering what sort of TACs would be associated with fishing to the threshold of the current single-species reference points, and whether or not the Board members think that those levels of fishing are also appropriate.

Finally, I just wanted to bring to bear again the vast number of public comments in support of Option E. I think that it's very indicative of the

public's perception on this, how many people are following it. Obviously we have a room full of people here today; and I think that it should be within the back of all of our minds making this decision the types of activities that people wish the menhaden population can support, and the types of economic activities even beyond fishing that the ecosystem can support with a growing population of menhaden.

CHAIRMAN BALLOU: David Bush.

MR. BUSH: I guess to sum it up very briefly. I know that we've had a lot of conversation already and a lot of great points have been made. I support Option B. I'm looking at Option E, and I've heard great concern over many of the issues with it, such as an arbitrary TAC. Why would we have a target if it's irrelevant?

As long as you don't cross over the second line we're good makes plenty of sense to me, because I'm looking for direction as someone new here, trying to figure out why we're here. Why would we have a target at all if we're not going to pursue it? The second thing is the transition to an ecosystem-based fisheries management style. If we're going to do it let's do it right. Let's not just do it just because we've got to do it. Put one foot in front of the other until we get somewhere. We know where we want to be, we're headed there, and it's not like we've got another 16 years to go before we're going to see results. We've actually got fairly time-certain commitments on when this will be available to us. Thirdly, addressing the fact that we do have a roomful of folks in this room that have also seen increases in the menhaden fishery, and they want to continue to see these increases.

Those have been achieved by using our current single-species reference points; and understanding that we're going to be chasing a biomass down or the spawning-stock biomass down with Option E confuses me. It would

make no sense for us to set fire to the house we're trying to build.

CHAIRMAN BALLOU: Jim Gilmore.

MR. JAMES J. GILMORE: I'm actually not going to commit right now, because I have a feeling these things are going to be changing, so I have a question maybe to help me and maybe the other commissioner's to decide. Through the plethora of e-mails that we all got, communications particularly the last week, I think the one concern maybe with the second motion was that on paper we have ERPs coming in two years.

But a lot of the discussion doesn't have a lot of confidence in that. We've heard, well it won't be for five years, it won't be for eight years. A lot of the support on one really seems to stem from not believing that we're going to have ERPs in two years. The question, and I hate to put staff on the –

This is more a feeling from you guys, because it would be nice if we have the probability of hitting the target or whatever. What is the probability of us hitting ERPs in two years, again, I don't want a percentage but a sense that maybe you could help me and everyone else in the room decide? Are we really going to have them? I mean is there a confidence of that or is it something that will take a lot longer?

MS. WARE: I am hearing from the BERP folks at the table that they are cautiously optimistic that they will be ready for peer review in 2019.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: That was a good question, Jim Gilmore. Certainly Dave Borden started off with the main motion, and gave a number of situations that are normal to our lives, which is a lot of things take time. I am in support of the substitute motion; and the reason is I think everyone in this room is united already, some

are not as patient perhaps, and that's their choice.

I think that 2001 is a long time ago. My first memory of sort of looking at multispecies management in Chesapeake Bay was 1998. Everyone was very excited. We've maintained our excitement about ecosystem management in many different venues, and I don't think there is any reason not to continue that excitement and to look forward to it.

But we have to do it right. I'm not convinced that Option E is right, because it's not menhaden specific. About a year and a half ago or a year and three-quarters ago, I asked the Technical Committee when they came out and more or less indicated that the Pikitich et al approach was not for menhaden as such, because it wasn't menhaden specific. I came back about eight months ago; I'm using this loosely, and asked the same question, and the Technical Committee, which is a wonderful group said well, essentially we can accommodate our work to whatever we can. Whatever is put before us, and that's a good Technical Committee.

But at the same time, many of the comments that have been mentioned today are pretty startling to me. I do believe we have to manage to the target. I do believe that if we go down the route of Option E, we will have to have a situation where we look for 75 percent unfished biomass. I just believe that.

I also think that we haven't looked at the risks carefully. The risk to the reference point, I may be incorrect but I think we're at 46 percent of unfished biomass, and 40 percent is a real problem, essentially a moratorium. I also think there is a risk to the fleets, there is a risk to the communities, and I think that my timeline starts in 2010, where the Board was told it would be two to three years before we'd have the biological/ecological reference points.

But this takes time, and I think we need to make sure that we get it right. I'm not against anyone who wants Option E; it's just that I think the better course for management is to wait for the biological/ecological reference point group to finish their work. Now we hear it is 2019, a little bit of patience, we get it right. It's not going to be perfect

I think that Jay has already told us that in the workshop we had about a year and a quarter ago that you can't encompass everything into this approach. But you can certainly accomplish a lot more than we've been able to look at so far. The substitute motion is what I'm going to support, thank you.

CHAIRMAN BALLOU: Dennis Abbott.

MR. ABBOTT: Originally when I raised my hand it was to amend the main motion to put a figure in there. I think that we've been hearing for some time now that overfishing is not occurring, we're not overfished and we should be increasing the quota. I thought there was a realization that we should modestly increase the quota from, presently I think it's 200,000 to some figure.

I was in support of Option E, and to put a number on that of somewhere in the vicinity of 216,000 metric tons would have been my motion. We did hear strong arguments, I thought on the one side; that even though we would be above the target we would be well, well below the threshold. It wouldn't be precedent setting, so therefore we wouldn't be doing anything so damaging. That was my original intent, and I'll leave it at that.

CHAIRMAN BALLOU: Adam Nowalsky.

MR. NOWALSKY: I think the comments, particularly from the public with regards to Option E, the expectation was clear. While it's great to hear the words of well the TAC right now is okay, or maybe as Mr. Abbott just alluded to an increase might even be okay.

That would move us further away from the target, and to Mr. Boyles' anecdote earlier, I hope that his son quickly learns that our biggest asset as human beings is to have a short memory. While that would be very beneficial to his son, I think it would be very detrimental to this Board in the not too distant future, when people are asking us why are you setting a TAC that is moving farther away from the target? That is the reason why I cannot support Option E at this time; and Option B would keep us at or below the target, which I think is consistent with the expectations of the public and the actions of this Commission as a whole.

CHAIRMAN BALLOU: John McMurray.

MR. McMURRAY: Allison covered some of what I was going to say, but I'll try to simplify it some for the public, and maybe take it a little bit farther. The public doesn't support Option B; because we have this benchmark stock assessment, a single-species stock assessment that allows us to increase, if I'm understanding correctly, by another 40 percent.

That's pretty scary, given what's happened and where we are now. With that assessment, we will continue every year to get pressure from industry to increase our quota. I'm sure that we're probably maybe will increase the quota again today or tomorrow. I think the idea with this interim 75/40 deal is to try to avoid some of that. The question is, and really this is kind of the first I'm hearing about it is the risk to the spawning stock biomass.

I think we could still go with Option E and clarify that the intent is to manage towards 75 percent, and I think we'll still be okay. I don't think it would be terribly hard to do that. Again, with the timeline, and I think everybody wants these menhaden-specific reference points and we want them quickly. But a lot of us find it hard to believe that we're going to have peer reviewed, ready for primetime reference points in 2019. They have to be

tested somehow. I'm not a scientist, I don't know that process.

But I do know that particularly if they appear like they're going to be constraining, the public is going to want to comment on them. I don't know how we do new reference points for a species, without doing at least an addendum. Anyway that is really the rationale for E, and frankly if we could get rid of some of that uncertainty I support Option E, and I think the vast majority of the public does also.

CHAIRMAN BALLOU: John Clark.

MR. JOHN CLARK: I think most of the points have been made. I mean I appreciate the concern the public has shown in support of E, but all the problems with it that have been reiterated around the table about managing, with the situation where we're already fishing above the target, and yet we're so far below the threshold stand.

For Option B, we want to manage with the best available science. Our BERP Working Group has several times come out in recommendation of continuing with the single-species reference points that we're now using until the new menhaden-specific ERPS are available. With those also, I just don't want to see another fishery that we take a reduction where we're not overfishing and overfishing is not occurring.

CHAIRMAN BALLOU: Nichola Meserve.

MS. MESERVE: I speak in support of the initial motion for Option E. Many of the points have already been raised for them, but there is a growing body of scientific work that supports the 75 percent Target and 40 percent Threshold. I feel that they provide an acceptable intermediary step to managing menhaden in the context of their environment, on our way to adopting menhaden-specific ERPs, which is the end goal from everyone around this table it sounds like. Because the Option E reference points are not specific to

menhaden, as raised some concerns from our Technical Advisors, which deserve some serious consideration.

However, it is because the Option E reference points are general that I have comfort in not immediately managing to the target and even with a possible increase in the TAC as has been suggested might be a motion to amend. There have been comments that the stock is growing and expanding since the Amendment 2 reference points have been put in place; but it's notable that the Board has not set a TAC that corresponds with that target.

The concern regarding Option E, the threshold there, it's certainly not my intention to manage menhaden to the threshold for either Option E or Option B. I feel that Option E will provide the Board with the guidance to set a risk prone TAC in the interim and safeguard the stock growth that we've seen since Amendment 2 was put in place, and support the wide age structure of menhaden that is responsible for the availability and abundance of menhaden throughout the range, including New England and the South Atlantic.

CHAIRMAN BALLOU: Dave Blazer.

MR. BLAZER: I'm speaking in favor of Option B for a couple different points, one that I think we're in a pretty good place right now as far as the fishery is concerned. As has been referenced, we've got an expanding stock. The stable harvest over the last couple years, and we're still leaving about 40 percent of the unfished spawning potential in the water right now.

To me Option B seems to be working. I don't want to change that approach. Option E, although as mentioned, I think everybody here is very favorable of ecological reference points; setting those guardrails of the target and threshold with Option E from 147,000 metric tons to a threshold of 744,000 metric tons.

Those guardrails are way too wide compared to what you've got with Option B, of only going to like a 314,000 metric ton option. To me I'm in favor of Option B. I would also like to say this discussion today just puts more emphasis on the importance of the work of the BERP Group, and I wish them all good luck and Godspeed to you.

CHAIRMAN BALLOU: Mike Millard.

MR. MIKE MILLARD: The Fish and Wildlife Service support the substitute motion; and we do so taking very seriously the first phrase about continuing to move towards ecosystem reference points. The Service is a strong supporter of that and as has been mentioned around the table several times, we really hope the Board is committed to keeping that train on track.

Second point and I hope I'm not misquoting you; Jason was I think I heard Jason say, and again this has been brought up. Option E has the potential to allow complete removal of the spawning stock biomass. That is fairly one of the more alarming statements I think I've heard around this table, and it strikes me as a rule of thumb which is probably not mature yet and ready to be put to use.

CHAIRMAN BALLOU: Emerson Hasbrouck.

MR. HASBROUCK: I support the substitute motion, Option B, and my comments are science based, based on the science that we have before us today. One item is that we heard earlier that the Technical Committee recommends that the BERP Working Group has always advocated for keeping single species until the menhaden-specific reference points are available.

Also, if we went from Option B to Option E, we would be going from a very conservative management approach for menhaden to a very high risk approach for menhaden, where the guidance from the Technical Committee shows

us that there is an 88 percent risk of exceeding the target, even at the current TAC under Option E.

Then thirdly, again in the Technical Committee memo, it states that the level of fishing pressure that reduces total biomass to 40 percent B-0 is higher than almost anything seen in the history of the fishery and results in almost total loss of spawning adults. Those are my reasons for supporting the substitute motion.

CHAIRMAN BALLOU: Senator Maker, welcome to the Board, the floor is yours.

SENATOR JOYCE MAKER: Of course I'm in favor of Option B. Setting a quota over the target, or making false targets that are not managed will land the stock in trouble if recruitment declines.

CHAIRMAN BALLOU: Andy Shiels.

MR. ANDREW L. SHIELS: I would like to speak in support of the main motion, which is Option E, and the reason for that is this provides an opportunity for the Board to seriously commit to ecosystem management. We've heard a lot of discussion about we want to get there. We all agree we want to get there. We may get there in a year or two; we may get there in three years.

This is a more realistic approach to getting there sooner and not kicking the can any further down the road. In addition, as mentioned earlier by some other commenter's, Option E gives the opportunity for some flexibility in management since there is a range, and it buys some time to get the ecological reference points developed, while not losing any ground.

In addition to that the public support for this, I think I heard the word was unprecedented. The number of public comments in support for Option E, compared to all other options is unprecedented. That has to have some weight

up and down the coast, from folks that interact recreationally, commercially through headboats, through the procurement of bait, through people that just go fish off the dock and use menhaden for crabs.

All the letters and all the correspondence we've received in Pennsylvania has been very specific, and has supported Option E. That is the first time that's happened in my short tenure with this particular group. In addition to that I would like to tell a brief story; and somebody mentioned earlier about memory. I have a very good memory on certain things, of course. A memory that I have is from the late 1970s. When I look at the updated stock assessment, and look at the graphics for biomass and recruitment, I see that the population in the late 1970s is very similar to what it is now, with a big dip in the 1990s and early 2000s. I would like to paint a picture for you that is very etched in my own memory. Even though I might be from Pennsylvania, I grew up fishing in New Jersey every weekend at the Jersey Shore. I've mentioned this more than once in the past. It is early fall in late 1970s, and it's flat calm and there are wave after wave after wave of what we call bunker, not menhaden. Schools of bunker just outside the surf zone off of Ocean City, New Jersey, literally as far as your human eye can see.

There is nothing like the roar when those menhaden all come out of the water in a school the size of this square in front of us, at the same time, because there are predators under them. It is awe inspiring. What is also awe inspiring is the first time you ever see a whale. We never saw whale before, but there was a whale in the middle of the pack of one of these schools of bunker.

They came out of the water; the whale came out of the water. We had bluefish and weakfish and sharks. We were pounding the bluefish and weakfish, it was epic. It's one of the best days we've ever had. While we're in the midst of

this late in the afternoon, here come some airplanes, zipping along just above the water.

My Dad says, "Those are bunker planes." What's a bunker plane? "Those are bunker planes, they spot the fish, and the nets will show up after." We get up early the next morning, because we had such an epic day and evening the night before. We're ready to roll, and what do we see when we get there? I don't remember what the rules were off the Jersey coast back then.

I thought you weren't supposed to net within two miles of shore. But the boats were there, the bunker was gone, the predators were gone. That image sticks in my mind through this entire discussion; and that's the lens that I see this through, because I can picture what an abundance of bunker can do.

From the reports I've seen on the internet, what I've heard from people who have testified up and down the coast in these last two or three years. They're seeing the same thing that I saw once in my life, and they're seeing it throughout the range. For that reason I support the first motion and Option E; because I can picture what this can become. Thank you very much for my time.

CHAIRMAN BALLOU: (Audience Applause) Thank you, thank you. We need to continue on, thank you. Doug Brady.

MR. W. DOUGLAS BRADY: I'm just trying to get my arms around Option E. I mean I think we are all for moving toward ecological reference points. I don't think there is anybody on the Commission that wants to slow that down or is not in favor of getting to that as quickly as possible. Now, maybe I'm wrong.

But I'm having a hard time, unless with Option E saying we want to support Option E, but we don't want to pay attention to the 75 percent Target or the 40 percent Threshold issues that drive what that will be. We want to feel good

that we are adopting BERPS, but we're saying we're going to throw the rest of it out.

We're not going to reduce the TAC. Maybe there are people; I think we just need to be frank. If you adopt Option E, you may support dropping the TAC to 143,000, I'm not sure. I think we need to say that if that is why we're wanting to support Option E. If not, we're just saying we're going to adopt Option E, because we feel good about getting quicker to saying we're adopting ecological reference points, although they are not menhaden specific. But we're not going to pay any attention to what Option E says. I mean I just don't understand where we're going with that one. You know we talk about where we are in the menhaden abundance. I think everybody agrees that the stocks are in great shape.

They've been managed with a stock-specific reference point; and they are in good shape. Can they be in better shape with the BERP, with the ecological reference points that we'll get to three years, or hope two to three years down the road? Of course, and I think everybody supports that. But I just cannot support moving to an option that says, this is what the option says we're going to do from a Target and Threshold perspective, but we're not going to pay any attention to that. For that reason I support Option B.

CHAIRMAN BALLOU: Are there other members of the Board who have not yet spoken; who wish to speak on this issue? Yes, Marty Gary.

MR. MARTY GARY: I would like to speak in support of the substitute motion. For our jurisdiction and our 20 pound net fishermen, the current status quo allows us with our quota and the bycatch allowance to get through the season to provide bait for our crabbers, to provide bait for our charterboat fishermen.

By going to the alternative for E, it would be counter intuitive to not manage to the target; so I'm assuming that we're going to do that and

by doing that that would upset the fragility of our fishery, and risk the season for our pound net fishermen. I cannot support the original motion, and I would support the substitute motion.

CHAIRMAN BALLOU: Again, before I go to any members of the Board who wish to speak a second and final time, I'll ask is there anyone on the Board who has not yet spoken who wishes to speak? Seeing no hands; I'll go to Robert Boyles.

MR. BOYLES: If I may quote the author, Oliver Wendell Holmes, who said "I find the great thing in this world is not so much where we stand as in what direction we are moving." I too appreciate the vibrant and robust public comment and public engagement that we have seen from our constituents, who have come here today.

On behalf of the Board, thank you everyone who has commented, everyone who has come here today. I find myself in the position, I support both motions. I think Doug Brady said it rather well. We've committed to moving to ecosystem reference points, and that is something that I think we should not lose sight of.

That train is on the tracks. It is my great hope that in fact in two years that we will see that submitted for peer review, and then we will update menhaden management accordingly. Given that we are now with the substitute motion, I will support the substitute motion. I think it's important that we recognize, I have a very, very difficult time in trying to share with you all the illusion of my son; frantic, pacing around the woods last night, having missed his target.

I just think it is very, very important that we be honest with one another. I think it's important that we be honest with our constituents, and I think it's important that we be honest with the 160 some odd thousand people who weighed in

on this discussion. I want us to do ecosystem reference points. I don't think there is any argument about that around the table. But I think this is important that we do this; that we do this right. We had a very important meeting that came out of a recent noncompliance finding.

I think now more than ever, it is important for us to be intellectually honest with our constituents, intellectually honest with each other, and do the right thing. I support both motions. The question before us will be the substitute motion, so I will support that.

CHAIRMAN BALLOU: Are there any other comments before I call the question? Dennis Abbott.

MR. ABBOTT: I was just going to say, I think everybody probably has their mind up. It might be time to take a vote, and I would like to request a roll call vote.

CHAIRMAN BALLOU: We'll caucus for one minute, and then we'll vote and it will be a roll call vote. All right I'm going to call the vote. I'm going to ask Megan to go down moving north to south. Megan.

MS. WARE: All right, Maine.

MR. KELIHER: Yes.

MS. WARE: New Hampshire.

MR. ABBOTT: No.

MS. WARE: Massachusetts.

MS MESERVE: No.

MS. WARE: Rhode Island.

MR. BORDEN: No.

MS. WARE: Connecticut.

MS. COLLEEN GIANNINI: No.

MS. WARE: New York.

MR. GILMORE: Yes.

MS. WARE: New Jersey.

MR. ALLEN: Yes.

MS. WARE: Pennsylvania.

MR. SHIELS: No.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: PRFC

MR. GARY: Yes.

MS. WARE: Virginia.

MR. O'REILLY: Yes.

MS. WARE: North Carolina.

MR. BUSH: Yes.

MS. WARE: South Carolina.

MR. BOYLES: Yes.

MS. WARE: Georgia.

A.G. "SPUD" WOODWARD: Yes.

MS. WARE: Florida.

MR. JIM ESTES: Yes.

MS. WARE: NOAA Fisheries.

MR. PETER BURNS: Yes.

MS. WARE: U.S. Fish and Wildlife.

MR. MILLARD: Yes.

CHAIRMAN BALLOU: **The motion to substitute passes 13 to 5; it now becomes the main motion.** Is there any additional discussion on what is now the main motion? If not, is the Board ready to vote on this as now the main motion? Allison Colden.

DR. COLDEN: I just wanted to add one quick observation relative to the stock assessment update under the current single-species reference points; and that is we're not currently meeting the fecundity target for the stock under the single-species reference points. I hope all the comments that have been made that were relative to the previous motion in Option E, in terms of managing to a target will remain true when we move forward with this as the main motion.

CHAIRMAN BALLOU: Robert Boyles.

MR. BOYLES: I would like to motion to amend, please.

CHAIRMAN BALLOU: Go ahead.

MR. BOYLES: **Mr. Chairman, I would like to amend the motion to tie this to TAC specifications for the next two years; that the TAC specification would remain at 200,000 metric tons.** (Audience Applause)

CHAIRMAN BALLOU: Moved by Robert Boyles, seconded by John McMurray to amend the motion to add that the total allowable catch for the menhaden fishery shall be established over a two-year period at 200,000 metric tons. Do I understand your motion correctly?

MR. BOYLES: Yes, sir.

CHAIRMAN BALLOU: Discussion on the motion to amend. We are obviously now moving into the TAC issue sooner than I had anticipated; but it certainly is in order to do so, if the Board feels comfortable doing so. If not, we can suspend and take up TAC separately. Really by your vote on this, you would be dispensing with the issue of specifications for the fishery and there would be no returning to this tomorrow. I'll just pause for a second and again ask if there is anyone who wishes to comment on this motion to amend. Jim Gilmore.

MR. GILMORE: I apologize, but could you remind me of the modifications to the agenda in terms of the sequence we're going to be doing this.

CHAIRMAN BALLOU: We are in sequence now in that I had asked, well it's arguable. We're in a gray area right now, I'll say that. I had urged that the Board deal first with reference points; then with the rest of the issues, including TAC, including allocation. This does change that dynamic, but it's the will of the Board as to how you would like to proceed. Thank you for reminding me that this is not exactly the way that I had urged we go forward; but I think it's close enough, in terms of the way the agenda has been laid out that it's in order. Rob O'Reilly. MR. O'REILLY: I'm not sure I would call this a point of order, but when we went to the agenda earlier the request was made to take the ecological reference points or the biological reference point issues first, and then subsequently look at the TAC specification, and then after that look at allocation.

Again, I can understand that while yes the TAC is coming second here. But I had envisioned that we would also have a situation where we were able to debate at the TAC independently of the ecological reference points or biological reference points. This greatly bears on the third step, which is the allocation. It has obviously implications.

We've heard at least one comment that we're underachieving on the quota that we have on the total catch, in that we're not keeping up with what the assessment says the capabilities could be for a quota. Certainly, 200,000 metric tons would be underachieving. I was hoping we would have that discussion as well. Again, a little different than what was expected.

CHAIRMAN BALLOU: I thank you for that and I think it's clear that given the nature of this amendment, it speaks to both process and substance. It speaks to the Board's willingness to take on a shift in order, which Rob just spoke to, as well as the substantive issue of what the TAC should be.

If this were to be approved, as I said earlier, and then of course it becomes the main motion. It would have to be voted on again. But it would dispense of the specification setting discussion. If it were to be not approved, we would be back to the main motion solely on the issue of reference points, and we would then take up TAC separately. I think that really is the two-part aspect of the motion to amend that is up on the board. I saw some hands up. Dennis Abbott, you were one.

MR. ABBOTT: Though I don't disagree with a quota of 200,000 pounds as it probably affects my little state. I see us if we pass this, well back up a little. I think there was an expectation when we arrived here that we were probably going to try to do what we could to make the states a bit more whole.

We were going to try to do something to help the state of New York with an increased quota, and I know Maine wants quota. Adopting this and then getting into tomorrow's discussion about who's going to get the numbers when we've talked about allocations. No one will accuse me of being a friend of Omega Protein, particularly I'm only a friend of equity, because it's my strong belief that when we advantage someone we're going to disadvantage someone else.

By adopting a quota of 200,000 pounds and then getting into tomorrow's discussion. There may be a lot of people who end up feeling very disadvantaged. I'm concerned about where 200,000 gets us; because it really is going to put us in an adversarial mode tomorrow when we're trying to give some of the states what they surely deserve. One of the outcomes of this should be some sort of equity.

I liken this to the fact on the one hand that one state has been getting a very high proportion of the catch, and things have changed. It's like the geese are migrating down to the Chesapeake Bay area for years and the good hunters like Robert Boyles is shooting them all down there. Now, those geese are landing in New Hampshire on the one hand, and we can't shoot anything because we've never had any quota. What my point is, I think if we vote this in we're really setting ourselves up for some battles tomorrow.

CHAIRMAN BALLOU: Are there any other comments on the motion to amend? David Bush.

MR. BUSH: I know I'm sitting precariously close to the maker of the motion. However, I might remind him of the story I heard recently about setting a target. This seems to achieve just that. We've set a target and then we've sort of disregarded that target and decided something else.

CHAIRMAN BALLOU: Any other comments before I call the question? *This is on the motion to amend, and I'll read it into the record. **To amend to add to set the TAC at 200,000 metric tons for the next two years (2018-2019), 30*** second caucus and then we'll vote on the motion to amend.

MR. ABBOTT: Request for a roll call.

CHAIRMAN BALLOU: We'll have that roll call vote.

MS. WARE: NOAA Fisheries.

MS. WARE: Connecticut.

MR. BURNS: No.

MS. GIANNINI: Yes.

MS. WARE: Florida.

MS. WARE: Rhode Island.

MR. ESTES: No.

MR. REID: Yes.

MS. WARE: Georgia.

MS. WARE: Massachusetts.

MR. WOODWARD: Yes.

MS. MESERVE: No.

MS. WARE: South Carolina.

MS. WARE: New Hampshire.

MR. BOYLES: Yes.

MR. ABBOTT: No.

MS. WARE: North Carolina.

MS. WARE: Maine.

DR. DUVAL: No.

MR. KELIHER: No.

MS. WARE: Virginia.

CHAIRMAN BALLOU: **The motion fails 5 to 13. We're back to the main motion.** Is there any further discussion on the main motion? Seeing none; is the Board ready to vote on the main motion? Is there a need to caucus? Seeing no need; is there a need for a roll call vote? Seeing no need; all in favor of the main motion please raise your hand.

MR. O'REILLY: No.

MS. WARE: Potomac River Fisheries Commission.

MR. GARY: No.

Keep your hands up, please. Hands down, thank you. Those opposed please raise your hand. Are there any null votes? Are there any abstentions? **The motion passes 16 to 2; with no abstentions and no null votes.** I take this to mean that we have completed our work on reference points, and given the time we now have to decide whether we want to forge ahead.

MS. WARE: Maryland.

MR. BLAZER: No.

MS. WARE: Delaware.

MR. CLARK: No.

MS. WARE: Pennsylvania.

MR. SHIELS: Yes.

We do have time left in the agenda, so it seems like the appropriate thing to do. Let me just confer with Megan for a second, just to make sure I'm clear on what would be the next step. All right, so here is what we're going to do. Given the way I had suggested the agenda should go, we are now essentially at specification setting.

MS. WARE: New Jersey.

MR. ALLEN: No.

MS. WARE: New York.

MR. GILMORE: No.

By the way that was pursuant to the Board's agreement to modify the agenda; to now do specification setting. To launch that part of our meeting, Jason McNamee I believe has a presentation and we'll ask Jason to provide that. Then we'll have time for questions afterwards. We'll be at ease for five minutes while Jason gets ready.

Please don't leave the room or go anywhere. We're just going to be at ease for five minutes.

**SET 2018 (EITHER SINGLE OR MULTI-YEAR)
ATLANTIC MENHADEN SPECIFICATIONS**

CHAIRMAN BALLOU: Okay, the next item on our agenda, given the change made to the agenda is to Set 2018, either single year or multiyear Atlantic menhaden specifications. To begin that part of the agenda Jason McNamee, Chair of the Technical Committee has a presentation. Jason.

MR. McNAMEE: Not that I wasn't paying rapt attention to the discussions that were going on, but I slimmed this down from the original version, so it should be pretty quick. It is something that you all have seen a couple times already; because we are now back to the original reference points. I thought I would start off just refreshing folks on current stock status.

Here is a look at current stock status with the single-species reference points with regard to fishing mortality. You can see we are under both the target and the threshold. This is based on the update assessment from 2017. This is what is the fecundity reference points. You can see we are above the threshold but below the target; though closer to the target than the threshold.

A couple of slides on the methodology, again I've said this to you guys probably about a dozen times over the past year and a half. I'm going to go pretty quick through these. But the way that we run the projections is we have a

Monte Carlo bootstrap run from our base assessment. This one of course is based on the 2017 update.

That is the basis for the projections. The original standard projections were run under the Board requested scenarios for four years since the terminal year; so that's 2017 through 2020. The starting conditions include initial numbers at age, which were estimated numbers at age for year 2017 from the update assessment for each of the Monte Carlo bootstrap runs.

It kind of goes in and it grabs one of these different runs, and that's how we are getting the uncertainty around those estimates. Just to put a fancy equation up on the board, here is what the numbers at age look like, and the main takeaway here, we should have showed this slide to the gentleman we were talking to on the break.

You can see you've got your numbers at age, and that decays based on Z, which is total mortality, and so that is both fishing mortality and natural mortality. That is how those age classes progress from year to year. Natural mortality for each of the projections was a vector, again from each of the Monte Carlo bootstrap runs.

Selectivity also a vector also has uncertainty around it, and those are selected for each of the fisheries northern and southern fisheries. Those are from the last time period; so some may recall that we have a set of blocks within the model that we estimate separate selectivities for, and they're based on changes to the fishery.

For instance, the reduction plants up and down the coast going out of business or closing up shop, and so that's all in the assessment document. But just so you know, we are grabbing the selectivity from the most current period of time. Fishing mortality is estimated to

match the annual landings for the constant total allowable catch projections.

The annual landings are calculated using the Baranov Catch Equation and the weight of those landings; so we convert everything into weight. The recruitment is projected without an underlying stock recruitment function. It's based on the median recruitment observed for each of the runs. Then variability is included as a deviation from that median; and it's selected randomly with replacement from each of those Monte Carlo bootstrap runs. The outputs that we get include fecundity, fishing mortality recruitment, and landings. You can ignore those sub bullets now.

Fecundity is the number of fish in each age times the reproductive vector at age; and so we have information on the level of maturity for each age class of menhaden, and that's how we're deriving our spawning stock biomass and then applying an equation that gives us the number of eggs each of those can produce.

Specifically, maturity from the final year of each of the runs, we assume a 50/50 sex ratio and a mean fecundity at age were used to produce the reproductive vector at age. Back into the caveats, I gave you these already today so I'll go really quickly. There is no structural or model uncertainty considered.

All of this information is conditional on a set of functional forms. The fisheries were assumed to continue at their current proportions of allocation; and so the bait and reduction fisheries are assumed to continue proportionately like they are now. If future recruitment is characterized by runs of large or small year classes, this would impact the information coming out of these projections.

Again, the projections apply the Baranov Catch Equation, which assumes mortality is occurring throughout the year, and so changes to that assumption by way of seasonal closures and things like that would affect a performance of

the projections. These are the projections that we have run. These were tasked to us by the Board.

You asked us for six versions of increasing the TAC, and so what you see in this table is what the current TAC is, 200,000 metric tons, and then you asked for a series of increases to that TAC from 5 percent, 10, 20, 30, and 40. What you see to the right are the TACs associated with those increases from that 200,000 metric tons.

Then what you see in this chart is the risk of exceeding the target. You can see there is a certain level of risk of exceeding the target for each of these variations on what you wanted to see. They increase as you increase the TAC, not shockingly; that risk decreases as you go forward in time, and that's because that recruitment is coming in underneath to bring that population size back up.

Here is the same structure as the last table, but in this case what you're looking at is the risk of exceeding the F threshold. Here you can see there is virtually no risk of exceeding the threshold for the first three runs that you wanted to consider; and then very small risk for the remaining three. You also asked for a set of projections that were based on risk; and that is risk of exceeding the F target.

The first one you asked for was a 50 percent probability of being below the F target in 2018, and then a 55 percent and then a 60 percent. What you see to the right of the descriptions are the TACs associated with those varying degrees of risk. The risk is decreasing as you go down the rows. Just a quick slide or two on the graphs, and this is not necessarily, well this one is. What you're looking at, we wanted to explain again what we're trying to indicate to you is the uncertainty that we're estimating with all of these different metrics. The first two arrows that you see up there are the 75th and 25th, I'm sorry the 95th and 5th quantiles. In this case we're looking at the recruitment. If

Max should click one more time that is the 75th and 25th quantiles, and then a final click gets you to the median. In our normal context that median is the answer, like that is the point estimate that we're usually looking at.

But it's important to note that it is actually not a point estimate. There is uncertainty around that middle zone. If you now go to the next slide, what I wanted to show you here was there were a lot of questions about our new memo with the ERPs and what you are looking at. I think it's still worthwhile in case we revisit this in the future.

Max, if you click that is the fishing mortality rate plot from the previous set of plots I was just showing you. What you are looking at in the newer memos was a cross-section from a single year, and so that red line is kind of a slice through 2018. Then as you click again, Max, here are the new plots, what they look like.

You can probably click I think three more times, four more times. These line up with what were horizontal lines on the old plots, are now vertical lines, but they match. I just wanted to give you a sense of that and it will allow you to interpret that information a little bit better. But that's it. I'm not going to tick through all of those plots. With that I will stop and answer any questions.

CHAIRMAN BALLOU: Excellent presentation as always. Questions for Jason on the presentation, yes Allison Colden.

DR. COLDEN: Hopefully this gets back to some of the process questions, but I just wanted to have a clarification. Jason, you said that these projections can change with any changes in assumptions about the fisheries or the allocation among sectors. Can you provide some sort of insights on what parts of the model would you expect to change, or how you would expect the projections to change, considering several of the allocation options, which we will be taking up after this would

presumably set different proportions in terms of the fisheries and the various sectors?

MR. McNAMEE: It's a good question and thank you for paying attention to our caveats. We're often not sure if people are actually listening to those. I think to illustrate the example; I think your question was directly relating to how the fishery might change. A lot of it stems from the selectivity that we have in those assumptions; and remember that those are static.

They have uncertainty around them but they're a static functional form that we're using for each of the projection years. If the fishery were to shift into one of the fleets where if you had a fleet that had a let's say logistic flat-top selectivity, and the amount of harvest that was occurring in that fleet were to increase that would change a lot of the information that goes forward now into the subsequent years of that projection.

In other words, that protection that would be offered by a dome-shaped selectivity function for those older year classes wouldn't be there anymore, they would all be, if that assumption is correct, those fish would be equally harvested by the fishery at that equal selectivity rate. That's what we're talking about there. Those are things that kind of impact, and if that were to occur that would reduce whichever fleet you're talking about, it could reduce the number of adults and then that would feed back into the projections as less adults, and that would bring fecundity down as an example.

DR. COLDEN: Is it fair to say that moving into this discussion there is an additional level of uncertainty associated with these projections; because of the opportunity to change the allocations after the TAC is specified?

MR. McNAMEE: Yes that is exactly the point we are trying to get across for a couple of reasons. It impacts the performance of the projections, and so when we come back in year 3 and stock status is different than what we anticipated per

the projections, this would be one of the reasons why that can happen.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: My question is, Jay I think you did the risk analysis back for the February, 2015 meeting. I think that may have been the initial time that you did the 5, 10, all the way up to 40 percent. Has very much changed in the interim time period, in terms of the risk? You may not have that with you, but I mean just sort of qualitatively?

MR. McNAMEE: I can answer that very specifically, and that is what you're looking at up there is exactly the same thing that you were looking at back then. That hasn't changed.

CHAIRMAN BALLOU: But just to clarify, Rob. I think you said 2015. There was a memo underlying these projections based on the stock assessment update, and that memo was provided to the Board and reviewed at our August meeting. I don't think anything has changed from that memo, but I think things have changed since the prior 2015 memo and associated projections. Go ahead.

MR. O'REILLY: That was my question, and I know Jay didn't bring everything with him, but that was the first time I think we saw the risk.

MR. McNAMEE: Yes, so sorry about that Rob. I didn't mean to misinterpret, I thought you were asking about the existing projections based on the update. Yes, I do not have that. I mean I could, not right now on the spot, if there is a chance to chat afterwards I can look that up quickly, and I can let you know. I mean there was a big shift in our understanding of the population based on that update assessment, and we talked about that a little bit earlier.

CHAIRMAN BALLOU: Go ahead, Rob.

MR. O'REILLY: Here is where I get in a little trouble with this next question, because I think

I've asked it before and it's not an easy one to ask, but your portraying risk. But does risk occur on either side of that type of a projection? In other words, when you say 240,000 metric tons has a 2.5 percent risk to exceed the target. Not to call confidence intervals, but is there anything else besides that sort of finite line of risk? How does that work?

MR. McNAMEE: I think I understand your question. All of the proportions that we're talking about, with regard to risk, are from a symmetrical distribution. I think you said 2.5 percent, let's make the math easy. If it was a 2 percent risk of exceeding some target there would be, if there was a 2 percent risk of exceeding it that would mean there is a 98 percent risk of probability of not exceeding it.

CHAIRMAN BALLOU: Emerson Hasbrouck:

MR. HASBROUCK: Just to follow here; Jason, thank you for your presentation. I'm wondering in the memo that we're referencing here, in terms of the risk. Is that the June 30 memo from the Technical Committee, does anybody know?

CHAIRMAN BALLOU: That's correct, Emerson, and unfortunately it's not in the meeting materials for this meeting. It was in the meeting materials for our August meeting. Additional questions for Jason? Seeing none; what I would like to do now is offer the public an opportunity to comment on the issue of specification.

This was not an Amendment 3 issues per say, as such it was not subject to public review and comment during our recent comment period. I think this would be an appropriate time to offer the opportunity for anyone that's here today from the public who wishes to comment on the issue of specifications to do so.

By a show of hands, is there anyone who would like to do that? I see at least three. Could you please come up? The microphone is up in the

corner here, the public microphone, and I'm pointing to it. I don't know if you can see where I'm pointing; if you could just come up, and actually it would help if you sort of lined up.

Maybe those waiting could be on the side over here, and as each speaker is done the next person could slide right in. I would appreciate it if you could limit your comments to a minute or two, just given the number of people who apparently would like to comment. Please introduce yourself first. Welcome. You'll need to press the button.

DR. PAUL SPITZER: Okay, well somebody has got to go first, I guess. My name is Paul Spitzer; I'm an independent scientist. I live over on the eastern shore of Maryland on the Choptank River. Over the last 50 years I've studied the biology of ospreys, which in many areas from Virginia up to southern New England have a heavy dependence on menhaden.

The last 30 years I've studied the migration and winter biology of loons, which from the Carolinas up to Chesapeake Bay also take a lot of menhaden, running heavily to peanuts. My particular question today actually is mostly addressed to Lund Fisheries, because Lund has initiated a winter trawling harvest of fish off New Jersey, and the way this relates to the model is the question of R, and how R might vary, how management strategies might vary over the course of the year.

As I learn my menhaden biology down in Beaufort when I was a visiting scientist there, although reproduction occurs throughout the year, it's concentrated heavily in the winter season, and also the recent papers Buchheister and Miller suggest that these northern populations which are showing recovery now, may be self-generated.

Therefore, I'm suggesting there may be a possibility of risk in winter trawling off of New Jersey by Lund and any other agents. Again, the issue of what the R might be specific to the time

of year of harvest and then the larger question that this is not quite as much a uniform, broad Atlantic population as the book might have suggested it is that the emerging data on that suggests that it's more complicated than that. Thank you.

CHAIRMAN BALLOU: Thank you. The next speaker is welcome to now take the microphone. Welcome, and please introduce yourself.

MR. KEN PINKERT: Good afternoon, Mr. Chair. My name is Ken Pinkert, and I've been traveling this Atlantic Coast for the last 33 years on a menhaden boat with Omega Protein. I also serve as Vice President of United Food and Commercial Workers Union Local 400 out of Landover, Maryland; representing myself and coworkers on these vessels.

My concern, I fully supported Option B, and my concern is that it does give the science that's necessary and it's good science, it seems. But we haven't gotten back the 20 percent we were cut three years ago, four years ago maybe. We were actually cut 20 percent. What we have to think about with bunkers, as we call them, and others around the table call them.

We are paid by how many bunkers we catch. Either way, any decision that is made by this Commission is made by the Council at actual dollars in my membership's packets and in our family's livelihoods. I would like for you all to be conscious of that as you make decisions, either way that you make them.

Normally I would have yellow shirts, I'll have you all know, a couple of busloads of them, but they are actually out there fishing. This is the first year in my 33 years on the Atlantic coast that we've had four named storms in less than three weeks-time, two named storms in one week on the Atlantic coast. That affects us as a resource. That's one of the other variables that we have to consider when we take jobs on these vessels that are dangerous jobs. Just be

mindful of that as you make your decision today, and I appreciate your support.

CHAIRMAN BALLOU: Thank you; next.

MR. JEFF REICHLE: My name is Jeff Reichle; I'm the Chairman of Lund's Fisheries in Cape May, New Jersey, and I would like to first address the statement made by one of the previous speakers, and just let him know that even though, first of all it's not our boat. The boat's owner-operated vessel are trawls in the wintertime, been fishing with us for generations. The quota in New Jersey is strictly limited for trawl. I think it's less than 5 percent of the New Jersey quota is allowed to be trawled.

That 5 percent is shared with other fisheries as well, so it's very, very limited. First of all I would like to thank this group for voting for Option B; I think that's the best way to go forward at this moment, until we get a little further down the road move to act something like Option E. I would hope that we would pick one of the, at least middle to higher ranges of options that were put up before you here not too long ago. I would like to remind the Board that in 2012 or 2013, New Jersey took a 60 percent cut in our quota.

Our boats and the people that work on those boats, and the people that work in our plant went from starting work in April and finishing in October, to starting work in April and finishing before the end of July. The economic impact on our company and the people that work for us was pretty huge. If we managed the resource well, which it certainly looks like we have, we should get an increased quota. Thank you.

MR. THOMAS LILLY: Ladies and Gentlemen of the Commission, I'm Thomas Lilly; I live in White Haven, Maryland, and I would like to speak to you and recommend that if you do make a change in the TAC that you be conservative. Any change in the increase in the TAC, as you

well know, will be felt by us in Maryland, more than any other state.

We are the state that is on the receiving end of the loss of menhaden. We have a terrible menhaden deficiency in the Maryland Bay. I'm an old guy. Twenty years ago I can remember going out on the Bay and seeing those beautiful schools of adult menhaden that may have stretched, you know three-quarters of a mile.

Now, you won't find menhaden schools in the Bay. Recent fishing has shown us that our rockfish, it's a 20 inch limit right now, and nine out of ten of them have empty stomachs. They are fighting like crazy to find something to eat out in our Maryland Bay. The same thing is true of our ospreys.

This Commission is not studying the effect on the Maryland Bay of what the factory fishing people are doing. We don't know how many of those schools, and keep in mind that Omega takes thousands, thousands of those schools of adult menhaden in their purse nets, not hundreds but thousands. We don't know if any of those schools are making it into Maryland.

There is no evidence that they are. We don't know whether Omega is taking 50 percent of the fish that should be coming into Maryland, 80 percent, 90 percent, it's not being studied. It should be studied. People in the Maryland Bay, millions of people, a lot of saltwater fishermen, and our communities are suffering. You know I can just leave you with this thought. We want our menhaden back. Thank you.

MR. STEVE WEINER: My name is Steve Weiner; I am the Chairman of CHOIR, which is a coalition that is focused pretty much on herring in Gulf of Maine, Georges Bank, New England, founding member of East Coast Tuna, founding member of Atlantic Bluefin Tuna Association. I've been harpooning tuna fish for longer than I want to remember.

I would advocate, had I been able to speak on the reference points, I would have advocated

for E. I think what I heard was, I guess what I heard, and well that's a dangerous option because it's got such a wide range between the targets. In other words it could be a high number; it could be a low number.

I advocate for it to stay at 200,000 as a Mainer. Seeing menhaden when I was a kid and periodically during my life, there are more of them there now than there has been in a long time. It's probably got as much to do, I guess with Mother Nature and environmental situations, as it does good management. But it seems awful coincidental that as you took a reduction in catch, that we've got more fish north. I think this group has to look at the spatial concerns of all the members.

Having menhaden ranging pretty much from the backside of the Cape all the way to downeast Maine, and my guess is if we manage them properly in the future they're going to range even further east. You have an obligation to all of us in New England, in northern New England to keep this quota at a safe place and I hope you do it. I was disappointed at the last discussion that none of us had an opportunity to say something about reference points. This discussion today kind of changed what was going on; and I think it changed the situation so some of us in the public should have been able to speak to it.

I really think it felt like a pretty hypocritical discussion when E was shot down; that somehow it was the more dangerous option. No way was it the most dangerous option. This group of people has the ability to set the quota, whether it was B or whether it's E. It could have just as easily been E with the responsible.

CHAIRMAN BALLOU: Sir, we're on specifications now. We've already dealt with reference points.

MR. WEINER: Okay, I hope you keep it at 200,000. Thank you.

CHAIRMAN BALLOU: Next.

MR. RICHARD HITTINGER: My name is Rich Hittinger; I'm with the Rhode Island Salt Water Angler's Association, and I just want to point out that in Rhode Island, well we represent 4,500 recreational anglers. Our members understand how important menhaden is to those fisheries that we're involved with.

We have members who spend a lot of money fishing for striped bass, fishing for bluefish, fishing for bluefin tuna. Those members are very concerned about the health of menhaden stocks. We've been fighting the menhaden issue for about 20 years in Narragansett Bay. Our members, when they see a commercial purse seine boat in Narragansett Bay, they call us.

They are saying, why are they allowed to take so many fish, when all we want to do is leave fish as forage for those fish that we spend our lifetime pursuing? They get very angry about this. Now, we're trying to leave as many fish in the water as possible. We were very much in favor of ecological reference points.

We understand that they may be coming in two, four, six, eight years from now; depending upon on how everything goes with peer review, with putting together a management structure. But for now, the best science on ecological reference points recommends 75 percent to remain in the ecosystem. The only number that the Technical Committee gave you regarding achieving that goal, is achieving that goal in one year, 2018.

Now that was 147,000 metric tons. Anything that is a harvest level above 147,000 metric tons goes against what is the best ecological data right now from the scientist. We would have been in favor of 200,000 with ecological reference points. At this point I don't think you're going to be able to pass anything below 200,000, but you should.

I think you need to keep it at 200,000 metric tons at a maximum; because what's going to happen is as soon as those boats come in to harvest in Narragansett Bay, the recreational fishermen are going to be calling our office by the hundreds, and actually they're going to be calling Jason McNamee's office too, so he'll get some of those calls.

I urge you to be conservative with this species. I think you already understand, and that's how you've been managing. You've been managing at roughly half of the target F value to date. You know you could have set a much higher harvest level based on single-species management, but I urge you to stay at 200,000. CHAIRMAN BALLOU: I'll take three more. I see three folks standing, so we'll take those last three comments. Welcome, sir.

MR. ROBERT T. BROWN: Robert T. Brown; President of Maryland Watermen's Association. Throughout my travels across the Chesapeake Bay Bridge over the past several months, have been some calm evenings when I've been going across it; the amount of menhaden that you see school after school on top of the water. I don't know where these people are coming from saying that they don't see menhaden in the Chesapeake Bay.

What we have is fish have changed their migration patterns some in the river, because of the amount of rockfish that we have there. I am a pound netter, I fish on the Potomac River. The rockfish that we're catching and selling are top quality. They've had plenty to eat. Also, these fish, what they have done to me on the Potomac with the amount of rockfish that we have.

I've had to move my nets in different areas, to try to get where I wasn't catching as many rock, so I could catch the menhaden for my crabbers. In Maryland, our quota gets caught probably about August of most years, and we need that bycatch to keep us fishing the rest of the season

to provide crab bait for our crabbers and lobstermen, it goes up north too.

Also we need it for our charterboats and our sports fishing industry. With the quota the way it is now, and the way it's divided up, we cannot remain fishing an entire season unless we have a bycatch, or incidental catch, however you want to talk about it. But we can see where we have plenty of menhaden, but they have just changed their practices. They're staying more out in the middle of the rivers and in the Bays. I urge you to see that you can keep us fishermen fishing the entire season. Thank you.

MR. SCOTT SNIDER: My name is Scott Snider; I'm from Charleston, I grew up fishing, big advocate right along the coast there, watched menhaden over time. Our smaller menhaden size of the schools, frequency of the schools, we've got a lot of menhaden down there. Schools seem to be a little bit fewer and further in between, but we can still find menhaden for sure, definitely still some menhaden there.

I'm listening to this panel mention repeatedly about they're dedicated to restoring the population to the 70 percent target number. I hear about the unprecedented amount of public feedback that we've gotten on this specific discussion, which from your words are talking about how much people care and how much people are passionate about this topic.

I just wanted to say, I really hope that we're not about to increase this quota and continuous skirting along right along at that threshold number, just 40 something percent or whatever that was, and not let this overflow happen and spillover effect happen, and boost in the numbers to get towards that 70 percent number, which was really a lot of the energy behind Option E. Let us really start building towards that number. I hope we're not about to drastically increase this quota. Thanks.

CHAIRMAN BALLOU: Thank you, last comment.

MR. PATRICK PAQUETTE: Patrick Paquette, I'm a recreational fishing advocate from Massachusetts, and I am a member of the AP; speaking on behalf of the Massachusetts Striped Bass Association. We had a discussion at our board meeting a couple of weeks ago, and we talked about what would happen if this is exactly the way this meeting played out.

I would urge the Board to put some teeth in the rationale, in the discussion of the decision that was just made. What I mean by that is that we just hinged a lot that a transition to ecosystem management to menhaden-specific ERPs was going to happen in 2019, or the discussion that those models will be in that action, so I'm assuming it goes in the water in 2020. I would say this.

To put some teeth in that decision, real teeth in that decision, to keep the commitment to the public what it is today would be two actions regarding the TAC. One would be that you set the TAC today, or tomorrow however this discussion plays out this afternoon; that you set that for two years and not a day more than two years.

The TAC should be set for the 2018 and 2019 season, because if we're really going to have a management action in the fall of 2019 that's going to effect on-the-water management in 2020. If the ERPs, if the menhaden-specific ERPs are out, then we only have to set the TAC for two years. The second thing is, if we're actually going to wait for models that aren't finished.

If we actually believe, and that's based on the decisions made today that that is the opinion that carried the day here today earlier. If that is actually true that we believe they're going to be peer reviews, that we believe the action is going to happen for 2019, then I would suggest that there is no reason for a significant raise in quota.

It's clear that people want a raise in the single-species quota based on that management, to go above 2012 without knowing what the cutting edge, menhaden-specific reference points are, would be irresponsible to industry, never mind to the general public or the recreational community, because industry should not be fooled into thinking there is going to be a higher TAC, when you've got menhaden-specific science coming.

After 20 years of a downtrend, it is absolutely the public's belief that the 2012 reduction is what kicked off the recent growth in menhaden. I understand that there is science that doesn't believe that. But menhaden-specific ERPs should give us some guidance on that to go to a high increase today is irresponsible to trick industry in thinking that a high increase, and that the markets that develop.

Today was a bad day for striped bass and a good day for Canadian owned pet food. That being said, please carry your commitment through, and if you're going to wait until 2019 to take specific cutting edge science, then it only makes sense that you be conservative until you know what that science says. If not, maybe somebody knows something else here.

If not, maybe ASMFC continues its absolutely horrible, horrible reputation of continued delay. But the commitment to me, looking here and being hurt and not liking the decisions that were made today is that if those decisions are really based on what was discussed around this table, it would be no more than a two-year TAC, and it would be a modest increase at best, not bigger than 2012, until the new science comes in, in two years. Thank you. (Audience Applause)

CHAIRMAN BALLOU: Thank you to everyone who commented. We very much appreciate your input. I need to gauge the interest of the Board, in terms of how you would like to proceed. It is 4:46; we had scheduled the

meeting such that we would recess today at 5:00. We're not bound by that. That's really just a forage fish guideline. But we should probably think carefully about whether we want to get into motions now, or whether we want to recess now and begin anew tomorrow morning; given the possibility that motions might involve just TAC, or potentially be bundled with other allocation methods.

I think there is interest in potentially all of the above. This could be a situation where we could start, and just simply end wherever we may be in 13 minutes, if that is how the Board wants to move forward, or we could end now. I say end, I mean recess now, or any other direction that the Board wishes to go. I am now seeking input from the Board as to how you would like to proceed. David.

MR. BUSH: I'm usually chomping at the bit to get things done, but as over the past year I've seen in quite a few of the different meetings. At the late hour weird things start to happen, so I would be very much I guess for possibly starting this in the morning when we can finish it with a much safer mindset than some of us who have traveled since 4:00 this morning might be able to offer you. Thank you.

CHAIRMAN BALLOU: That sounds like one vote to recess now. Dennis Abbott.

MR. ABBOTT: It's always been my belief that you don't make good decisions on empty stomachs, so maybe a motion to recess might be in order.

CHAIRMAN BALLOU: I don't think we need a motion; I'm looking for a consensus. Pat Keliher.

MR. KELIHER: I don't have, I actually have a bundled motion prepared that I'm not going to make right now; but prior to that I have a motion prepared that would set governance on specifications in regard to opting into fisheries, and would like to ask if you would consider that

type of a motion now, or if you would rather wait until tomorrow.

CHAIRMAN BALLOU: I think that really speaks to the overall issue that I'm looking for guidance on. That opens the can of worms, so to speak, on a range of potential motions on a range of potential issues. We can either start now or wait until tomorrow morning. Tom Fote.

MR. THOMAS P. FOTE: I agree, we basically make decisions bad after we're sitting around here for a long time; and a lot of us traveled long distance driving and you're tired right now. It would be nice to come with a fresh mind in the morning and think, oh we'll have some discussions over dinner tonight too.

CHAIRMAN BALLOU: Is there any objection to recessing now? Seeing none; I am going to make the call that this Board is in recess until 8:00 a.m. tomorrow morning. We're going to begin at 8:00 a.m. sharp. Enjoy your evening, thank you very much.

(Whereupon the meeting was adjourned at 5:00 o'clock p.m. on November 13, 2017)

**November 14, 2017
TUESDAY SESSION**

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission reconvened in BWI Airport Marriot, Linthicum Heights, Maryland, Tuesday, November 14, 2017, and was called to order at 8:00 o'clock a.m. by Chairman Robert Ballou.

CALL TO ORDER

CHAIRMAN BALLOU: Good morning everyone, welcome back. I'm going to call this meeting of the Atlantic Menhaden Board back into session. This is a continuation of the meeting that began yesterday, and is slated to continue through a good portion of today. Just a quick sense as to how we plan to proceed today.

First, I just thought it might be helpful to provide a brief reset on the issues that remain before the Board for final decision that includes the specifications, and the allocation issues and other issues other than reference points that are in Amendment 3. Megan is going to quickly run through those, just to make it clear as to what the suite of issues and options are that are before the Board for final decision today.

I will then open the floor to questions. We really didn't get much into that yesterday, but any questions that any Board member may have for Megan on any of the remaining issues. I think we covered specifications well yesterday, so I think we're past that; in terms of questions, although I think Jason would be more than happy to answer any if there are questions on that.

But once we get through that which I don't anticipate should take much time, I'm going to open the floor to motions; and I'll just have a brief comment on that before I do so. But for right now I'm just going to give the floor to Megan for just a brief rundown of the issues that remain before the Board.

MS. WARE: Just a reminder, there are seven issues for the Board to decide today. The first is the total allowable catch, which is basically the size of the pie that we will be dividing, and then next would be quota allocation; so how we're going to divide that pie. The third is quota transfers; so how is quota move between the different jurisdictions.

The fourth is quota rollovers; can unused quota be rolled over to the next year. The fifth issue is incidental catch and small scale fisheries; so how do we deal with bycatch landings or landings after a directed quota has been met. Sixth is the episodic events set aside; so do we want to set aside quota for episodic events in New England, and how much? Then the seventh issue is the Chesapeake Bay Reduction Fishery Cap; so is there going to be a cap on the

reduction fishery in the Bay, and what is that cap going to be?

CHAIRMAN BALLOU: Thank you, Megan. Just for the Board's edification, all of those issues are laid out in full detail in the draft amendment, beginning at Page 46 and running through Page 72. That is the chunk of the document that we're essentially working through for the rest of today. Are there any questions for Megan on any of the issues pending before the Board?

CHAIRMAN BALLOU: Nichola Meserve.

MS. MESERVE: Megan, regarding quota transfers, Option B, the quota transfers permitted with accountability measures for overages. Would a transfer that occurs before quota closure occurs that would not factor into the trigger, right? The 5 percent overage is just for transfers that would occur after a state closes a fishery. Is that correct?

MS. WARE: Let me see if I am understanding your question. If a state exceeded its quota two years in a row, in that third year are you asking? No, okay.

MS. MESERVE: If a state received a transfer from another state prior to a quota closure that would not count as a transfer in excess of the 5 percent that would factor into the trigger.

MS. WARE: Correct. Yes. That is part of their now quota, and they would have to exceed that by 5 percent, yes.

CHAIRMAN BALLOU: Other questions. All right, it looks like we are ready to go. I would urge that it might make the most sense to deal initially with specifications and then take on the various allocation and other issues in the amendment. That said, I'm fully aware that there is interest in perhaps bundled motions.

Any member of this Board may make any motion that they wish to make, and it would be

in order, at least ostensibly. But I just wanted to offer that suggestion for what it's worth; it's just a suggestion to kind of try to keep things as straightforward as possible. But consider that for what it is, which is just a recommendation not a decree by any means. With that the floor is open for motions on any of the issues left pending before the Board. Pat Keliher.

MR. KELIHER: Staff has a motion regarding an opt-in provision that I would like the Board to consider. If you could pull it up, if I get a second I'll be happy to give some further justification. **I would move that if a fixed minimum option is selected the following conditions would govern the activity: at the start of each fishing year and no later than January 31, states must declare if they want to participate in the fixed minimum program.**

States have the option to opt-out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds of bycatch purposes and decline the remainder of their quota. States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its fixed minimum quota, a state can also choose to receive all, or part, of this amount.

If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and the ability to commercially harvest some, or all, of its menhaden quota for the directed or bycatch fishery. This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state waters. Any quota that is not received by a state is redistributed to the other jurisdictions based on historical landings from the time-period selected by the Board in this Amendment.

CHAIRMAN BALLOU: Is there a second to that motion? Seconded by Ritchie White.

MR. WHITE: For the purpose of discussion.

CHAIRMAN BALLOU: Thank you and Pat to you for discussion on your motion.

MR. KELIHER: I know this motion is a little Dave Pierce style. I apologize for that so there is a lot of moving parts. But according to the amendment the jurisdictions have the right to participate in the fixed-minimum program at their sole discretion. Under this option the states are entitled to receive a fixed percentage of the TAC. However, states have the rights to decline the fixed minimum allocation.

For the clarity purposes I'm calling this an opt-out provision. A potential concern is that the amendment does not provide specifics on how the forgone quota is to be redistributed among the other states. In addition, there are no specifications that a state must meet to keep their quota. At the August Board meeting concerns were raised about this opt-in process; and a motion was made to consider an opt-in provision, whereby a state would have to manually declare their intent to use the fixed minimum.

The motion failed as the prevailing side convincingly argued that the Board did not need to get into the details at that time. In addition, the Board retained the right to craft these provisions during the final approval process. That specific point is reflected in the minutes of the meeting; and since we're about to vote on the fixed minimum provision, I think it is imperative for us all to have a similar understanding of the conditions under which we operate before we vote on the issue.

CHAIRMAN BALLOU: Pat, for clarification, I believe I just heard you just heard you characterize this as essentially an opt-out provision; and I do see a lot of opt-out language in here. But I also see right up front, essentially an opt-in requirement as well. I therefore consider it to be both. Is that a fair characterization?

MR. KELIHER: Yes sir, Mr. Chairman.

CHAIRMAN BALLOU: Discussion on the motion; Ritchie White.

MR. WHITE: I guess a question for Pat. Would you be willing to, let's see where it says about if you prove abundance of menhaden in state waters. Would you change that to adjacent waters; because there can be large amounts just outside state waters that could be harvested and landed in a state?

MR. KELIHER: Yes, I would accept that as a friendly.

CHAIRMAN BALLOU: Is there any objection to amending the motion as just suggested? Seeing none; so if staff could just make that tweak to the motion. There was no objection to it, so that would be considered a friendly amendment, and that will go forward without objection from the Board, unless I see Robert Boyles objecting. Robert.

MR. BOYLES: No objection, just a question for clarification. Ritchie, do you intend, is adjacent indicating federal waters? We're not bunched up like you all are up there. I mean what is adjacent?

MR. WHITE: I would mean federal waters when I say adjacent, so I guess we could change it to state and federal, and/or federal.

CHAIRMAN BALLOU: Back to comments, and I have Jim Gilmore next.

MR. GILMORE: Pat, the concept of it is fine. The thing I'm getting stuck on is at the start of each fishing year. If you read through that we're going to be doing quite a bit of administrative work every year for staff; and then back at the states to go through this whole thing. It seems to be a lot of work. Is there a possibility that maybe we could do this at a longer time period?

Again, that is a lot to go through each year and again, some of it's going to be a bit of a crystal ball, because you're going to start at the fishing year and try to decide what's going to happen later on in the year. Like we've been seeing the last two years with menhaden, I don't have a problem this fall; last year I had fish kills all over the place. It just got a little bit more complicated. That's my only hang up is really that we would have to repeat this every year.

CHAIRMAN BALLOU: Pat, a response?

MR. KELIHER: It's not meant to be administratively burdensome. If a state is going to receive its allocation, it's just to ensure that that state gives a heads up that it doesn't need all of its allocation. Now I certainly understand that there is a crystal ball available here that is probably cloudy, depending on how the state wants to promulgate its fishery.

In this case what I'm looking for is for some more certainty up front, in regards to what may be available for a fishery. Then if a state does ask for it, tries to move forward with the fishery, you don't have the fish. There is a potential for a quota transfer provision to be voted on later in the day. Again, I'm not looking for making this administratively burdensome.

CHAIRMAN BALLOU: Let me go to John Clark next.

MR. CLARK: This is very interesting, Pat. I just had a few process questions on it. When you say a fixed minimum or receive all or part of this amount. Are you looking at that in increments or could a state just request anything up to whatever the minimum chosen? Then the second is how does this work in with the incidental catch? Are you looking to use this minimum so that we no longer have an incidental catch provision? Does it tie into that; because we're a state that has used the incidental catch provision pretty heavily over the last few years?

MR. KELIHER: I'm going to start with the second. This has nothing to do with any incidental or small-scale fisheries. This is purely for the allocation options that are potentially in play after a TAC would be set. John, remind me of your first question, because unlike Jay, I can handle one at a time not two.

MR. CLARK: I'm just wondering when you say a fixed minimum; receive all or part of this amount. This could get kind of messy each year. Would a state change how much they're requesting each year? For example, if it was like a 2 percent minimum that's I think about 100 times more than we're actually landing in a state like Delaware. We could just request part of that but do you want it in like half a percent, 1 percent, 2 percent? Just for administrative purposes, I'm just wondering what would be simplest here.

MR. KELIHER: I think it could come in just about any way, shape, or form; whether you wanted 50 percent of your quota available to that state or naming it as a pound. I think staff is going to have to translate that into what that number is for them to send out a redistributed amount to the states to be able to harvest.

CHAIRMAN BALLOU: Tom Fote. Are you passing, Tom? David Bush. David Borden.

MR. BORDEN: Not speaking pro or con, it just goes back to Jim's point about the administration. Would it simplify the administration if we just put a date in this? For instance, prior to December 31, or whatever other date. I'm not proposing that. January, well I think the problem as I understood Jim's issue is the fishing year starts January 31. Doesn't the fishing year start on January 1st?

CHAIRMAN BALLOU: Yes.

MR. BORDEN: To me, maybe I didn't understand Jim's point totally correctly. But to me the part of the mechanics of this is that this is going to have a direct impact on allocations

that are spread in other portions of this FMP. To me it would make sense to just back it up to December 1. Prior to December 1 for the following fishing year you would specify this; and then the staff would then have the ability to calculate the shares and splits of the quota for the state, and send out a memo to that affect. Maybe I'm not following this.

CHAIRMAN BALLOU: Megan, do you want to just speak to the comment you just offered me?

MS. WARE: Yes, I'll just remind the Board that we don't finalize the quotas for that current year until April, when we get the compliance reports, because we're not going to know overages or unused quota, things like that. At the May meeting that's when we come to you guys with final quotas for that fishing year. The intent was to be a bit ahead of that. But that's how we do it now.

CHAIRMAN BALLOU: Dave, a follow?

MR. BORDEN: Yes, disregard everything I just said.

CHAIRMAN BALLOU: Next I have Adam Nowalsky.

MR. NOWALSKY: For clarities sake, the start of this motion begins with, if the fixed minimum option is selected. Is the intent of this to only apply if we select Option C or Option E from the allocation decision? Is that the belief here? If that is in fact the belief, I would consider. I mean I think this is good discussion to have as a precursor to that knowing what a state or some other states may be thinking. But if this would apply only to those, perhaps it might be best to proceed with tabling this motion until after we have the allocation method discussion. But at least we've had this precursor to know what we might be looking at.

CHAIRMAN BALLOU: If put in the form of a motion we could consider that suggestion. Next I'm going to go to Senator Miner.

SENATOR CRAIG A. MINER: I guess because this is such a new denomination in Connecticut, one of my concerns is that I don't know how quickly that is the first year, you could ever demonstrate that you have the ability to catch whatever your quota might be. I could almost imagine that after a year we could look at this again; and make a determination whether or not some states ever intended to catch any of their quota.

But the winner in that if that were to occur, would be conservation, in my view. If we were not able to get up to speed and completely allocate a million pounds or whatever; the harm in that case would be I guess that the environment wins, if you believed in conservation. I would suggest that this is premature.

I appreciate the conversation; but I think it's premature on that front, and also just because you didn't get your quota in one year doesn't mean. How would you then demonstrate, as the rest of the paragraph goes on that you have the ability to actually use your quota? I do have one question, I guess, and that is there any other species where we have this requirement; through you, Mr. Chairman?

CHAIRMAN BALLOU: I see heads shaking in the negative by staff; so it's my understanding that there are no other species for which we would have a provision like this.

SENATOR MINER: I know there were some other people that wanted to speak, but I think it's premature.

CHAIRMAN BALLOU: Loren Lustig.

MR. LOREN W. LUSTIG: I'm sorry for my sore throat. I was earning a living yesterday, so I didn't get a chance to be here. I'm going to defray my spot to speak to my colleague Andy Shiels, but I would like to be allowed to offer comments after he has concluded, Mr. Chairman.

CHAIRMAN BALLOU: Andy, go ahead.

MR. SHIELS: Senator Baker (Baker?) raises a good point. If I read this from the lens of Pennsylvania, it feels like we're being targeted here. I feel like the state of Pennsylvania should have the right to do with its allocation what it chooses to do. As he suggested, the winner might be conservation if you don't harvest your entire allocation, and then how would you prove it?

Somebody said hang on. Oh, he was talking on the phone. I thought he meant me. Who knows in this room? I'm concerned as I'm starting to understand what's going on here. I feel like Pennsylvania should have the right to do what it wishes with its allocation. If it chooses to use that allocation as a set aside or reserved for conservation that language doesn't allow us to do that.

CHAIRMAN BALLOU: Loren, did you want a follow on now?

MR. LUSTIG: Yes, thank you, Mr. Chairman. Everyone here knows that I am not a fishery scientist. I am an environmental educator. I always hearken back to the wishes of the children of Pennsylvania. My proposal is to vote for this amendment. However, we reserve in Pennsylvania, the right of the children to choose the gear that is used to collect our part of the commercial harvest.

I would be willing to bet they're going to use the lousiest gear you can possibly imagine, full of tears and rips, and about 99.5 percent of our commercial harvest is going to escape unharmed back into the water. But we will harvest. We will abide by the specifications of this amendment with about one-half of one percent. All right, because the children of Pennsylvania wish it. In fact my grandchildren demand it, and I'm not going to turn my back on them.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: I think if there is a motion made to table, I think that's the way to go. You know I know that Pat has put up sort of an idea here on how things could go, but it is too early, and there is no magnitude here. I think Pat did that on purpose just to sort of get the opt-in or opt-out; but it is too early, so I agree with that.

CHAIRMAN BALLOU: Pat.

MR. KELIHER: I would not be opposed to actually seeing this tabled for discussions as it relates to Option C and E. I think Adam's points are valid. That was going to be my original intent, but I wanted to ensure that we had a good conversation around this opt-in/opt-out concept. Frankly, from my point of view, allowing for this type of opt-in or opt-out provision allows me to consider a lower TAC amount.

Because if we know what we're going to get up front versus at the end of the season, the state of Maine could be better prepared to understand what our targets will be. Understanding that up front also allows us to consider a more conservative TAC at the end of the day.

CHAIRMAN BALLOU: Pat, would you like to make a motion to table? I'm sorry; I didn't want to put words in your mouth. I wasn't sure if that's where you were going; maybe not. Adam.

MR. NOWALSKY: Move to table until after we've had the Issue 2 discussion.

CHAIRMAN BALLOU: Is there a second to the motion to table.

MR. NOWALSKY: The Issue 2 decision.

CHAIRMAN BALLOU: Moved by Adam Nowalsky, seconded by Roy O'Reilly to table this motion, which would postpone consideration of it until later in the meeting; so it just sets it aside temporarily and it can be

brought back later in this meeting. It's not debatable. Is there any need to caucus? Megan?

MS. WARE: Just get clarity on what Issue 2 is, what do you mean by that?

MR. NOWALSKY: Allocation methods and timeframes.

CHAIRMAN BALLOU: Tabling does not move it to a time or point certain in the meeting, although it can be brought at any time that anyone wishes it to. To me, the motion to table just simply puts in abeyance for the time being to be brought back at any point during this meeting. Are you comfortable with that Adam, or do you wish to change your motion to postpone to a time certain?

MR. NOWALSKY: I believe the motion to table is very direct about when this would come back off of the table and in front of the Board for discussion.

CHAIRMAN BALLOU: Understood, so let me read the motion into the record. Actually, I have it in front of me I think. No, I don't. **Move to table until after Issue 2: Allocation Methods and Timeframes have been decided.** Again, because it is a motion to table it is not debatable. Is there any need to caucus?

Seeing none; is the Board ready to vote? I believe so. **All in favor please raise your hand. Thank you, hands down; opposed, null votes, abstentions, the motion carries unanimously.** Would any other member of the Board like to make a motion? Dennis.

MR. ABBOTT: To remove it from the table is only going to require a majority vote?

CHAIRMAN BALLOU: Yes that is correct. The floor is now open for any other motions on any other issues. Jim Estes.

MR. ESTES: I would like to get back to specifications if we could please.

CHAIRMAN BALLOU: Go ahead.

MR. ESTES: I think that we have a motion. If I can put it up there I'll read it, and if I can get a second I'll explain. **I move to set the total allowable catch not to exceed 216,000 metric tons until such a time that ecological reference points are utilized for Atlantic menhaden management.**

CHAIRMAN BALLOU: Is there a second to that motion? Seconded by Spud Woodward, moved by Jim Estes and seconded by Spud Woodward to set a total allowable catch not to exceed 216,000 metric tons until such time that ecological reference points are utilized for Atlantic menhaden management. Jim.

MR. ESTES: I know that yesterday we disappointed a bunch of our stakeholders. I think we did the right thing. But part of the reason at their disappointment is, they fell like we could easily kick the can down the road; as far as developing these ecological reference points. I think that this motion does a couple things.

Number one, I think it would hopefully give them some confidence that we mean it; and also because we are tying it to allocation, or excuse me to the TAC, which we all think is important. It makes us somewhat accountable; and so that is the purpose of the motion.

CHAIRMAN BALLOU: Show of hands, who would like to speak in favor of this motion; keep your hands up, we'll take questions. First of all I just want to get a sense, so I want to be able to be able to allow for a balanced discussion. You can put your hands down. Those who wish to speak in opposition to the motion, or even leaning toward that.

I will give everyone on the Board a chance; I just want to get an initial list going. I'm sorry, was it Steve that you just had a question? Are you on

the list? Did you put your hand up? Well, we'll put you on the list, Steve, so you're on the list. Okay, I'm going to ask Megan for that list then I'm going to go right down in order in which she wrote it; starting with Ritchie White.

MR. WHITE: I want to speak in favor of it; but first a question if I may, and that would be that this is open ended time-wise, and if a situation arose by which menhaden declined substantially, and we had to take a cut in the quota, this would not alter our ability to do that. That would be my question first; then I would like to speak to the motion.

CHAIRMAN BALLOU: Jim.

MR. ESTES: Oh that was my intention, was that we could go down but we can't go up.

MR. WHITE: Thank you. I agree with the concept. I think 216 is a compromise. I know there are states that would like to see 240, and there are states that would like to see 200. I think 216 is an excellent compromise in the middle. I think 216 with an individual state allocation that I also believe will come up later.

I think it allows Virginia and New Jersey to stay whole while allocation goes to all the states that don't presently have allocation, and I think that's a fair compromise. I think it also leaves menhaden in the water; compared to 240,000 metric tons. I think all said it is something we should support.

CHAIRMAN BALLOU: Adam Nowalsky.

MR. NOWALSKY: I'll get right to it. I've always said that menhaden is one of the easier species for me here around the table; because of the involvement of the assemblymen that I represent, very involved with the fisheries. His goal at home was that the health of the resource argues in favor of something more. **I'm going to move to substitute to set a total allowable catch of 240,000 metric tons for 2018 and 2019.**

CHAIRMAN BALLOU: The motion is up on the board; is there a second, seconded by Dave Bush? I'm going to stay true to my procedural plan to allow discussion on both the main motion and the substitute; as we did yesterday. Speaking in favor of the substitute is often the same as speaking against the main motion; so there really isn't much of a distinction here.

However, I just want to make it clear that as you comment on the now substitute motion, you are welcome to comment as well on the main motion, offering your support for the main or your support for the substitute. That is how I would like to handle the ensuing discussion. I'm going to continue down the list and go to Allison Colden next.

DR. COLDEN: I would like to speak in opposition to the substitute motion. There was a lot of discussion of this body yesterday about the concepts of intellectual honesty and integrity; and along those lines Option E was seen as, or characterized as a not conservative option. Along those lines I would challenge the Board to think about whether 240,000 metric tons is indeed a conservative alternative to that option.

Additionally, we talked about not selecting a target that is arbitrary; relative to the current reference points. We currently have a fecundity reference point which we are not achieving the target. It would seem following that conversation that a TAC should be set which would move towards achieving both the fecundity and the fishing mortality rate targets.

I would support in concept the main motion. I think that Jim provided a lot of strong suggestions on why we should put some real momentum behind the development of the menhaden specific ERPs. I think we heard in the spoken public comment yesterday some great points about really putting some weight behind the Board's commitment to moving toward the menhaden specific ERPs, and I think that the main motion would achieve that.

CHAIRMAN BALLOU: John McMurray.

MR. McMURRAY: I don't support the substitute, and I think it's important here to give you guys a perspective of somebody who spends most of their life on the water, and who is absolutely dependent on this resource. My season is dictated by spatial and temporal aggregations of menhaden.

It is absolutely the driver of my business; and a lot of businesses up the coast now. As you guys are very well aware, we've had this super abundance of fish that has flooded our coast. I'm enjoying it right now. It's right off of the south shore of New York. With it are striped bass, whales.

I took my son out the day before, we had one come up right by the boat, screamed his first cuss word, it was awesome. I tried to act angry; but I just couldn't. But the point is that this is not some oily bait fish that can just be sucked up without impacting everybody else. This is a huge increase.

I know that there is no stock recruitment relationship, and I understand environmental factors that probably contributed to this resurgence that we're having now. But to say that that reduction had nothing to do with this abundance of fish, I don't understand it. I think it defies common sense. Not only are we going back to those pre-2013 levels, we are exceeding them by a lot.

If there is anybody around this table who believes that that is not going to affect the coastal stock that we're not going to see a contraction again. I hope that you are in touch with the public about this. They want this abundance. This is good for them, it's good for us. This is absolutely irresponsible to even suggest this right now, when we had all this public comment. Frankly, I can't see how anybody would support it.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: I can't support the substitute motion. You know we have been on the record in the past as supporting modest increases in the TAC when the science allows for that. We received our assessment update in August; which indicated stability in the assessment, and indicated that we were below both our fishing mortality target and thresholds, based on our fecundity reference points.

One of the other things that we have emphasized in the past is that significant changes in the TAC do not provide stability to industry. That's why we would be more supportive of the main motion. I think also, echoing some of the comments that have already been made around the table, modest adjustments in the TAC better position us to implement the menhaden-specific ecological reference points that we've made a commitment to down the road.

CHAIRMAN BALLOU: David Borden.

MR. BORDEN: Ritchie made one of the points and Michelle just made the second point, so I'll make the third point, which is I'm opposed to the substitute motion. Just note that really to me the deciding difference here is Motion 8 caps the catch at 216,000 and Motion 9 basically establishes the catch for two years based on that level. There is a significant difference between the two.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: I'm going to look at this a little differently. I don't support the 216,000 metric ton TAC, because just like we heard with what Pat Keliher presented earlier, everything is nested here. You know if we had a huge blackboard with arrows, we could probably wend our way through this process a lot easier.

But to say 216,000 metric tons is right. We don't know what that means yet. Is that going to be the total? What happens to bycatch, what happens to episodic events, you know

things that may make a difference? You've heard about the pound net fishery in Maryland and Virginia. Depending on what is attached to these 216,000 metric tons has a lot to do with where we end up today.

My particular desire here is just to say that I don't agree with 216,000 metric tons; because we don't know what else is going to go along with that. We have a menu, but really the menu as we go through it is interwoven, in a sense, and it makes it very difficult at this time to support 216,000.

CHAIRMAN BALLOU: Steve Train, did you still want to offer a question or comment?

MR. TRAIN: Yes, thank you Mr. Chairman. A lot of the questions I had have been answered. I think I like the hard dates in the substitute motion. The open-ended dates in the first part make me nervous. We're hoping to have everything out by 2019, but we might not. If we have a very healthy resource we have room to move up a little bit from 216, and we wouldn't be able to do that.

I think 214 sounds reasonable sometimes when I see the statistics we have, but I also see the pecuniary numbers, and I think that may be a little bit overreaching. I think we have a possibility of increasing the harvest on this resource for years and years, a little to a time, if we don't take too much at once. I think that benefits every user of it. There are parts of each one of these motions I could speak in favor of. Either one of them individually I'm not quite ready for.

CHAIRMAN BALLOU: Steve, just for clarification. You said 214; did you mean 240 in your comment just now? Thank you; that was a yes for the record. Roy Miller.

MR. MILLER: I think I oppose the substitute motion in favor of the original motion; for all the reasons that have been state thus far, but also I have to look at the optics of this situation.

The original motion has a modest increase, about 8 percent. I think that is prudent; considering the overwhelming public support that we heard yesterday. I think it's a little premature at this time to bump it up to 240,000 metric tons.

CHAIRMAN BALLOU: Dennis Abbott.

MR. ABBOTT: Surely everything has been said on this subject at this point. I don't support the substitute motion like many of my colleagues, and I think we've heard enough discussion about where everyone individually stands. It is clear to me that it's time to make a vote on how big the pie is going to be; then following that we'll figure out how many pieces of pie that we're going to cut it up into. I would like to ask that we think about taking a vote; because I don't think that any further discussion is going to change anyone's point of view at this time.

CHAIRMAN BALLOU: I do have three others on my list. I would like to at least move through those and then see whether the Board does want to call the question. Next I Have Robert Boyles.

MR. BOYLES: I'll pass, Mr. Chairman. Thank you.

CHAIRMAN BALLOU: Loren Lustig.

MR. LUSTIG: If Dr. Seuss was here in the room with us, he would remind us of the limitless forest of truffula trees, and wouldn't you know it, something called a Thneed could be made from them. If you're wondering what the final outcome of over harvesting was I can tell you at our break? I do reserve the right sometime today to use the word unless. Some of you will also remember that.

CHAIRMAN BALLOU: Pat Keliher

MR. KELIHER: I'm going to refrain from my Dr. Seuss quota that I was going to go into. I'm going to speak against the substitute motion.

While I support setting a TAC for the 2018 and 2019 years, I think as Dr. Duval stated, an incremental step in moving forward I think is called for at this time.

CHAIRMAN BALLOU: I was just going to ask the Board if there was any objection to ending debate and calling the question. Two hands went up. I'm going to go to those two hands, and then I'm going to ask that same question. Dr. Rhodes.

DR. RHODES: Listen, all the discussions we've had, this Board is committed to the ecological reference points. It's just a matter of how we're getting there. Thirty-three years ago, I took another doctor's commitment that was to first do no harm. But I really want to go back to what Hippocrates said, and of the epidemics. I'm going a Robert Boyles to get us all in place here. But the physician must be able to tell the antecedents, know the present and foretell the future. He must meditate these things and have two special objects in view, with regard to disease.

We can substitute menhaden; namely to do good or to do no harm. I think the 240, while it may be allowable, is not allowing for the least likelihood of doing no harm, and doing the most good for the resource. The 216 will make a lot of people whole, will allow for states that want allocation to get it without negatively affecting states that currently have allocation.

Having it set until the ERP is ready to go allows the staff to not get caught up or this management Board to get caught up, in setting these same discussions year after year after year. Hopefully, allowing the ERP to be done that much more rapidly, so in a two-year or three-year time period we're ready to have the next level of discussion, so a different doctor, but same process.

CHAIRMAN BALLOU: David Bush.

MR. BUSH: Obviously once again we've got some excellent points around the table and points of view to consider. Some of the things that we've talked about are stability, and we do need that. We need that in the industry, we need that in the environment. I completely respect that. But we talk about stability a lot more when we're considering an increase. However, whenever the numbers start dropping, well stability is not as important as the resource.

Okay well I get that. I mean it's got to play fair both ways, given that setup. But the other thing is, the promises that we made yesterday. I had some interesting conversations yesterday evening and you know was put on the spot. I agree. I think we made some promises and we wrote some checks that we need to make sure that the bank has the money to cover when it comes up here in a few years.

We've mentioned the conservative nature of one number over the other. Just to point a couple of numbers out. I looked up yesterday while we were discussing this. From 1950 to 2016, our average landings in metric tons were 333,000 metric tons. From 1950 to 1980, it was 410,000 metric tons, and from '80 to 2016, it was 266,000 metric tons. Keep in mind that we haven't exceeded 266,000 metric tons since before 1995, but up through 2016 that is still our average. As far as being conservative, we're talking about 216 to 240.

I was looking yesterday at the numbers put up on the board, and it seems like that 230, 240 appears to be a crossover point to where once you get above that some of the zeros start shifting into whole numbers. I don't know if maybe this would be appropriate if the makers of the motions might consider it, maybe amending the motion to include some of the better values of both of these motions. If so, I would be willing to do that if I could get some help.

CHAIRMAN BALLOU: I think first of all I would like to ask is there any member of the Board who has not yet spoken on either of these motions, who would like to speak? Seeing none, and taking David Bush's comment into consideration. Is there any objection to calling the question and moving forward with the vote on the substitute? Seeing no objection; we will caucus for one minute and then vote on the substitute. All right, I'm going to call the question. **This is a vote on the move to substitute to set a total allowable catch of 240,000 metric tons for 2018 and 2019. All in favor of the motion please raise your hand. Hands down, all opposed please raise your hand. Hands down, null votes, abstentions; the motion fails 4 to 14.** We're back to the main motion; further discussion on the main motion. David Bush.

MR. BUSH: As I mentioned earlier, there were some very valid points in both. I think we need to, in my opinion, as soon as the ERPs are out use them. That needs to be in there. I think specified years, it's been mentioned a few times that we need to mention those exactly as well. While I think I agreed to second the motion with 240,000, it was more for discussion purposes, but also because I believe that these modest increases while they are great, you know to say that they're modest.

You know these folks who rely on stability also rely on good years, and they never experience the good years, only the bad. I think looking at the numbers that we looked at yesterday, we can certainly see that there are quite a few higher numbers that have been shown to be more than fair to both the environment and the fishery. With that being said, if you're willing to take an amended motion or to amend this motion to include some of those finer points, I would appreciate the opportunity.

CHAIRMAN BALLOU: You're welcome to do so if you would like.

MR. BUSH: All right, and I'll need some assistance, but I would move to amend to set the total allowable catch and not to exceed 220,000 metric tons for 2018 and 2019. Sorry, help with the wording, or if the ecological reference points are available before then, however we would best word that.

CHAIRMAN BALLOU: Staff is putting the motion up on the board. Dave, I take this actually to be another move to substitute. Are you comfortable making that?

MR. BUSH: That's fine.

CHAIRMAN BALLOU: I don't see this as an amendment.

MR. BUSH: But I would want the maximum timeframe to be two years. I want it to be readdressed if we do not have these ERPs available by then it needs to be addressed, and not continue on. Whenever you're ready, I would like to speak to it for just a moment.

CHAIRMAN BALLOU: Yes let's just make sure we get it correct. First of all, and I realize this is a fine point. It could well be an amendment. But I just would like to suggest that it read; move to substitute, so Max if you could make that change, ***to set a total allowable catch not to exceed 220,000 metric tons for 2018 and 2019, or until ecological reference points are available for management use, whichever is first. Dave is that your intent to make that motion?***

MR. BUSH: **Yes.** I don't believe it needs to be specified, but I'm referring to the species-specific ecological reference points, but if that needs to be in there then that is fine as well.

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Rachel Dean, Dave, discussion on the motion?

MR. BUSH: Yes sir and I mention this allot, I'm the new kid on the block here. I'm trying to

understand what our goals here when we show up at each one of these meeting. I've talked to some of you earlier; you know on the federal side it's pretty easy, there is a lot more doctrine, there is a lot more guidance. These are the goals; this is what you should be striving towards.

Here it's not quite so easy. But I understand that we need to take care of the environment. I understand we need to take care of those who rely on it as well. I really do believe if we're willing to provide reductions to protect the fishery in a bad year, we should also have the intellectual honesty to provide the ability to harvest during good years as well.

Now that may go against the philosophy of stability; but at the same time you can't only have average years and bad years. There is only one way to get an average year, and that is to take a bad year and provide a good year to offset it. I think this does that. I think arguing once again for numbers, simply because they're round is silly, and I hate to be part of a discussion that does that like we did last year.

I chose 220, because I think 220 is the point where a lot of our zeros turn into again whole numbers, when we're talking about the possibility of exceeding certain targets or thresholds. That is my reason for choosing 220. If the seconder would like to provide any other comment, I would appreciate it.

CHAIRMAN BALLOU: Rachel, I will go to you, but first just by a show of hands, who else would like to speak? I'm assuming Rachel wants to speak in favor, although she doesn't necessarily need to. Who else on the Board would like to speak in favor of this motion to substitute? Just put your hands up so I can go down the list, at least initially. I see three hands. Thank you, those who wish to speak in opposition. I see two. With that I will go to Rachel Dean.

MS. RACHEL DEAN: Dr. Seuss, I am here, I am here. I struggled with this. My first meeting I got to go through as we were setting the TAC the last time. It was brutally painful. But there is something that has always resonated with me as I've participated in fisheries management, and that is that we are so quick to take and so reserved when it's time to give credit where credit is due.

I've heard both sides of the argument. I have heard that decreasing the TAC did nothing; which I would sit here and apologize to fishermen then. That weight is on me now as I look at a 0 percent chance; a 0 percent chance of exceeding the F target; which means 100 percent chance of not exceeding the F target.

If this was successful management, if this got us to where we are to where we're starting to see a resurgence of menhaden, bunker, peanuts, up and down the coast. Then I would ask that we give some credit where credit is due. This isn't putting us back to harvest levels that got us into an awful situation.

This is by no means putting us back to where we were. This is just putting us somewhere where we have put credit into the management system so far; and saying to our fishermen that management does work. Have a little faith, because it will be given back to you when it allows for it.

CHAIRMAN BALLOU: Ritchie White.

MR. WHITE: I'm going to oppose the substitute motion. There is also a piece of giving and taking, certainly is for the fishermen. But there is also for the resource that needs menhaden. We're certainly going to take some from all the description we've heard about the whales, the bluefish, the striped bass, and the birds that also need menhaden.

We've had a lot of comments about the support for ecological reference points. Clearly those, when we get those, are going to have us leave

more menhaden in the water. I think the 216 is a compromise from the people I talked with last night and yesterday afternoon that I was hearing 201,000 as a possible motion and 240. I think the 216 is a fair motion.

I also oppose putting the dates in there. I oppose putting the dates in there, because what if the reference points are not ready in 2019? Do we want to go through this process again for one year? I don't think so. I think the original motion allows a little bit of time to make sure that the reference points are in place.

CHAIRMAN BALLOU: Russ Allen.

MR. ALLEN: I thought Rachel hit all the points very well, so I won't reiterate what she had to say. I just know that this to me is a good compromise between the resource and the fishing industry. If we decide to move forward with some sort of fixed minimum, it should make everyone whole and give everyone enough of the resource for their own states.

I think it really is the good between 200 and 240. As Rachel said, there is a 0 percent chance of going over the target with this number. That came from the Technical Committee, which I believe would have no problem moving forward with this either.

CHAIRMAN BALLOU: John McMurray.

MR. JOHN McMURRAY: This is bizarre to me. This is a public resource. It's like nobody looked at or read the public comment or went to the public hearings. The public wants enough of these fish to stay in the water so they have access to these whales; they have access to the striped bass, access to the bluefish.

Does anybody care what the public wants? A 20,000-pound increase is a lot of fish; it is hundreds and millions of fish. The analysis that we have right now in impact is single species; it's based on a single species stock assessment.

We have no idea what the impact on predators will be.

I would argue that we should wait to see what that impact is, and that we know the tradeoffs. We have science to base those decisions on before doing something like this; which is just way over the top in my opinion. Frankly, 16,000 metric tons is a hard pill for me to swallow; but I think it's reasonable, 20,000 pounds is not. The public frankly is going to flip about this, and they have a good reason to. I'll leave it at that.

CHAIRMAN BALLOU: John, several times you said 20,000 pounds. You meant 20,000 metric tons, I believe.

MR. McMURRAY: Yes sir, thank you.

CHAIRMAN BALLOU: David Blazer.

MR. BLAZER: I'm in support of the substitute motion. I think the 220,000 metric tons is kind of a moderate increase; based on what the Technical Committee has provided for us and the risks that are involved there. I'm also supportive of just setting this for the two years. You know we fully want the ecological reference points to be here as soon as possible. We kind of mentioned that yesterday. But I think if we start to manage to that third and fourth year out, I think we need kind of a two-year timetable to kind of reevaluate at that time. If we've got to go through a TAC setting exercise in two years that is our responsibility. That is us as management Board, so I feel very comfortable in making those decisions in two years, and I think that's our job to do that so I'm fully supportive of the motion to substitute.

CHAIRMAN BALLOU: Dennis Abbott.

MR. ABBOTT: I'm not in support of the substitute motion. One of the comments that struck me this morning, we've talked about Dr. Seuss and other things to add a little levity to the conversation. But a comment that John

made across the table, having his son out there and seeing a whale and saying awesome.

Well, this spring or early summer Ritchie White took me and my grandson from Milwaukee out striper fishing. My grandson caught a nice striper; and his first comment was awesome. The awesome came from the fact that the stripers that we were catching this summer were extremely healthy. I don't know if it has a lot to do with menhaden in particular.

But Ritchie White and I fished a lot, and we would always when we had a fish on the line, how big, how big. Ritchie would always overestimate the size of them, because the fish seemed to be so strong. What I'm getting at is the general public wants to see menhaden in the water; thousands and thousands and thousands of people from, (Audience Applause) thank you but hold that back, we don't need that. We appreciate it, but we don't need it.

But, it's true that the general public wants to see fish in the water. Whether it's 216, 220, it might seem like a small figure. But I think the general public would really like to see that number under 200,000. If you really get down to it, they don't want to see the extraction of menhaden to go to fish meal or a lot of products for whatever that they don't understand.

But they understand what they see out in the water. For that reason I think that there is a compromise figure of 216, which comes out. It should keep most people whole, give all the states some piece of the pie, and keep the states of Virginia and New Jersey hopefully in a good position. I urge you to vote down the substitute motion. Vote on the main motion. I mean we could go on all day. We can go from 220, we can go 280.

Maybe I'll be prepared to make a motion next, or if 220 passes to make another motion for 214. But 216, seems to be the best compromise figure; and I urge my colleagues to vote down

the substitute motion. Vote for the main motion of 216,000 metric tons, and let's move on to the allocations.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: I don't know about a compromise when you start off with 216,000 metric tons. I'm not sure we have a flowing recollection of all the different steps that we've taken. But I have heard repeatedly about making states whole again; specifically Virginia, New Jersey, and also Maryland.

Starting in 2013, those were the three states that were above 1 percent, in terms of the allocation. I think that during the allocation process, when Robert Boyles was hosting at least eight calls. Most of the comments were about capacity; and I kept urging through the series of those phone calls, capacity isn't what you're doing now.

We want to know what capacity is as you look down the road a little bit. I'm not sure that that ever occurred. I'm not sure there were every enough discussions about what capacity really is. I do know Rhode Island has capacity that wasn't there many years ago; or at least the boats weren't ready to embark on taking some of that capacity from the total allowable catch.

I also know that Maine ran into a situation where the episodic problem was more than episodic; it was bordering on catastrophic, with the constructs that we have, and with the episodic being held at 1 percent. I also know that New York was sweating bullets; having gone through two seasons of menhaden kills, and somehow being included with New England, which is fine, in the episodic events.

We have these situations that when I saw 216,000, if you'll notice, I didn't speak in favor of 240,000. I said 216,000 is not the right amount. We have a little way to go. Pat Keliher started the situation today and made me a little

bit nervous; because it was sort of open ended on this minimal quota situation.

No matter where you look, you're talking minimum being 39 million, with a half percent, 70 million with 1 percent, and 83 million that probably couldn't be used out of 141 million that would be for 2 percent. I know everyone has good intentions; and I think they stand by that and I stand with them, in terms of the reference points.

But we made a decision, and the decision was we're still united. We want those biological/ecological reference points. We have a pretty good feel that it's going to be sometime in 2019 for peer review. I think the substitute motion gives a little more assurance that two things can be captured today.

One will be to make states whole on a situation which I'm not going to recount; unfortunately, many of you remember as I do what we've been through, all the steps. I won't recount them on where we are today compared to where we were in 2012. The second thing is there is capacity that hasn't been there before.

That has to be recognized, and that is fair. I can't tell you right now how many menhaden are left in the water; because when they did the updated assessment and you had the NAD situation, you had those northern fish, which sort of perturbed the model a little bit. It's difficult to say whether the 68 percent that were left in the water at the time of the benchmark is higher or not. We just don't know; and I have asked that question, because there is concern for forage, definite concern. There is also a concern by all of us for forage in the form of herring; forage in the form of the alosine. Menhaden is not exactly the only forage species out there; and I think as we go through this, whatever we do we ought to start making renewed commitments on the alosine, and we ought to get the New England Council to maybe make some renewed commitments

on herring. Thank you for your time. I do support the substitute motion.

CHAIRMAN BALLOU: Allison Colden.

DR. COLDEN: I would just like to make a comment, and maybe reframe. Actually Rob just touched on this. Reframe the concept of the timelines that are included in each of these motions. Option B was adopted as our reference points yesterday by this Board; with many of the comments expressing confidence that the menhaden-specific ERPs would be ready for primetime in 2019, or at least out for peer review.

Personally, I don't see if the Board was so confident in that fact yesterday, why it would be necessary to change or limit the TAC setting exercise here for two years, if there was a high level of confidence that those models would be ready as we saw in our discussions yesterday.

CHAIRMAN BALLOU: Ray Kane.

MR. RAYMOND W. KANE: Yes, I'm going to speak. I'm going to oppose the substitute. I'm in favor of the main motion. I've heard around the table fishermen want to see an increase. Well, if I'm not mistaken we started at 185,000 metric ton, and then we went to 200,000 metric ton. Once again, we're increasing.

Fishermen should be able to walk away from here saying well we did get an increase. What nobody has reflected on is the bluefin tuna fishery in New England. For the first time in years the vessels, 35 and 40 foot vessels, didn't have to steam 130 miles out to the Hague Line to catch the quota in general category.

We had fish, many a fish were landed within three miles of the coast this year, and I venture to say vessels didn't have to fish more than 30 miles offshore. If you've ever fished for a living, you know what I'm talking about. When you're on a 35 foot vessel or a 100 foot vessel;

hundred foot vessels belong 130 miles offshore, 35 foot vessels don't.

My concern is also ecological reference points. I think this is a modest increase. People will be happy with it. I've had a lot of constituents back home, the bluefin tuna fishermen especially; tell me why are they going to raise it at all? We finally have menhaden back in our waters. I mean we had 800 pound bluefin tuna in 20 feet of water this year.

A pod of them came up in 30 feet of water. To address Mr. O'Reilly, you know there is an issue with herring. There is a reason why all these big animals came that close to the shore, because of the abundance of menhaden on the backside of Cape Cod. Once again, I oppose the substitute, and I'm in favor of the main motion.

CHAIRMAN BALLOU: Is there anyone who has not yet spoken on the substitute who would like to? David, you had your hand up. Last crack, final comment then we'll vote.

MR. BUSH: A couple of points I guess I would like to bring out. One, we've talked about reinvesting for a conservatory effect. Given the allocation schemes, states can do what they want with what they get; so if their particular state is now seeing an increase in menhaden and what not, and they don't want to use that as a fishery base. That is up to that state to sort of determine what they would do with that; and we'll be discussing that in other options here shortly.

I mean that's certainly the potential; I'm not saying that would be the case, but it could. Another thing I guess I would like to point out. You know our current trajectory, our management philosophy has gotten us where we are, not a particular number. While it's nice that we've finally seen an increase from where we were to 200,000 metric tons, you know we're also at the lowest point, the lowest harvest limit we've ever been at.

Again, I spoke of the averages over the years. We've never come close to our average, even over the past 20-30 years for the last ten years. It's not because they're not out there, it's because they've been limited from catching it. We've gotten to the point now where it's once again fighting over scraps.

We forget the big picture. We forget that there is more fish; and we certainly don't want to do things to cause harm to the ecosystem. But we don't even have the capacity to harvest what we use to harvest for decades; and we still have those fish and the predators that relied on them. I've talked to the bad guys, the big bad guys that are in the room before today, before this meeting.

I've never once had them come to me and ask me, we need you to get all you can get. We want you to double the quotas. They've never asked that. They said this appears to be what's fair. This appears to be what the science supports. You know I've talked to them. I've talked to the other folks. Well, they say the same thing; this appeared to be fair what the science supports.

If we're going to do a modest increase, and we have the range from about 200 to 240, 220, I mean my math is a little rusty. But that seems about in the middle. Again, it doesn't crossover that threshold that starts putting us in harm's way. Then I guess the final note. You know the abundance is either due to our management actions or it is not. If it is due to our management actions, we're doing the right thing. If it's not due to our management actions, then apparently we have less control than we thought.

CHAIRMAN BALLOU: One minute caucus and then we'll vote on the motion to substitute. Okay I'm going to call the question. I'm sorry, Andy.

MR. SHIELS: Could we have a roll call vote, please?

CHAIRMAN BALLOU: We can, and we will, and we will move south to north and Megan will call the roll.

MS. WARE: U.S. Fish and Wildlife.

MR. MILLARD: No.

MS. WARE: NOAA Fisheries.

MR. BURNS: No.

MS. WARE: Florida.

MR. ESTES: No.

MS. WARE: Georgia.

MR. WOODWARD: No.

MS. WARE: South Carolina.

DR. RHODES: No.

MS. WARE: North Carolina.

DR. DUVAL: No.

MS. WARE: Virginia.

MR. O'REILLY: Yes.

MS. WARE: Potomac River.

MR. GARY: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Pennsylvania.

MR. SHIELS: No.

MS. WARE: New Jersey.

MR. ALLEN: Yes.

MS. WARE: New York.

MR. GILMORE: No.

MS. WARE: Connecticut.

MS. GIANNINI: No.

MS. WARE: Rhode Island.

MR. BORDEN: No.

MS. WARE: Massachusetts.

MS. MESERVE: No.

MS. WARE: New Hampshire.

MS. CHERI PATTERSON: No.

MS. WARE: Maine.

MR. KELIHER: No.

CHAIRMAN BALLOU: **The motion fails 5 to 13. We're back to the main motion;** and I believe Megan has a suggested clarification on that so I'm going to turn the microphone over to Megan.

MS. WARE: For the main motion, this sets a number that the TAC cannot exceed, but this does not specify what the TAC is in 2018 and/or 2019. If the intent for the maker of the motion is to set it at 216, perhaps we could do a friendly amendment. It says move to set a total allowable catch to not exceed and be set at 216.

MR. ESTES: That's fine.

CHAIRMAN BALLOU: Let's put that up there. **The revised motion, which is the main motion, which is the motion before the Board is to move to set a total allowable catch not to**

exceed, and be set at 216,000 metric tons, until such time that ecological reference points are utilized for Atlantic menhaden management. I was going to ask if there is any objection to making that friendly amendment. Seeing no objection; the motion as amended is before the Board, and we have apparently comments on it starting with Roy Miller and then Rachel Dean.

MR. MILLER: Did I hear Megan mention 2018 and 2019 as part of that friendly motion; because that wording didn't make it onto the board.

MS. WARE: I didn't. I think the intent, and makers of the motion please correct me, was that there not be years in this so I have not put in years. But I was just trying to clarify that the 216 is actually the TAC that they are interested in.

CHAIRMAN BALLOU: Rachel Dean.

MS. DEAN: I would like to think that this is a friendly amendment; but I think that we're probably going to want it as a substitute motion if I may. Can I do that at this time?

CHAIRMAN BALLOU: Well there is a big difference between a friendly and a substitute.

MS. DEAN: Let me read it out. Let me share where I'm going, and we'll go. I think that I would like to move to make a substitute motion that would say: **Move to set a total allowable catch not to exceed and be set at 216,000 metric tons for 2018 and 2019 or until such a time that ecological reference points are utilized for Atlantic menhaden management.**

CHAIRMAN BALLOU: I don't think that's a friendly. It could be an amendment, it could be a substitute. Let's just call it as substitute, just to kind of keep on track here.

MS. DEAN: I would like to speak to it if I could.

CHAIRMAN BALLOU: I'll give you that chance. I just want to make sure that it's up on the board clearly and accurately as you intend. This would be to, once Max gets done, move to substitute to set a total allowable catch not to exceed and be set at 216,000 metric tons for 2018 and 2019 or until such time that menhaden-specific ecological reference points be available for management use. Is that your motion, Rachel?

MS. DEAN: Yes.

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Steve Train? Rachel, would you like to speak to your motion?

MS. DEAN: At this point in time I guess I'm really kind of, Ritchie White said it that you know, I don't really think that I want to go through this again. To be honest, I'll go through it as many times as I need to, I will. I'll come here, I'll pack the bags and I'll come here. To be honest, I think that the public will too.

This isn't necessarily so that only the fishermen can state their case. But I think that I want the reference points. I'm ready for them. I just don't know if we can accomplish the timeframe. If we see something that tells us that we can increase that TAC, then I think that we should come back to the table and we should have that discussion. Just like we included the language that says not to exceed, so suggesting that we could reduce that.

CHAIRMAN BALLOU: Just so I understand exactly what this would do. This would set the quota at 216,000 metric tons for 2018 and 2019. You know this issue that it can't exceed; I'm not really sure how that plays in now, so I'm looking for clarification from either you or other members of the Board as to how they would view this.

Then it goes on to say or until such time that menhaden-specific reference points, which I guess would imply that it could happen sooner and if it does they would trump. But if they

don't happen sooner, it would be 216 for 2018 and 2019, and I'm just sort of wrestling in my own head with what not to exceed now, how that plays into this. Rachel.

MS. DEAN: Yes, and we would be back here at 2020, and I'll leave the second part of that question to I guess back to maybe the seconder.

CHAIRMAN BALLOU: That would be Steve Train, so Steve you're next.

MR. TRAIN: When I seconded this, my understanding would be that with the dates on there we could decide after 2019 whether to continue to wait if the numbers were not available, or we could act and set a new number. That's where the "or" is. That is what I thought I was seconding.

The reason I think that is important is although we have a lot of faith in getting the ecological reference point numbers out for 2020. If the peer review doesn't accept it, or we run into other problems, we could be into 2023, working under 216,000 metric ton. I think a date certain is important; but it gives us a chance to extend it if we think we're getting close with this "or" in this part of the motion.

CHAIRMAN BALLOU: Robert Boyles.

MR. BOYLES: This is good conversation, and I'm struggling with this as well. I think my interest in this portion of the discussion and the debate is and Mr. Estes made the comment at the very beginning about accountability. I think in some of my conversations over the last several weeks, I may have shared with you concerns over further delays in biological/ecological reference points.

My interest in the main motion as I understand it and in reference to Mr. Estes was this was some internal accountability. Having said that and I would look to you, Mr. Chairman. I don't know that anything that we do here today necessarily binds a future Board. If conditions

change, I would think that as Ms. Dean referenced, we would come back and look at those conditions to see, is it time for a course correction?

But again, my interest in the main motion, and I think in the substitute, I'm not clear, is some internal Board accountability. To take Mr. McMurray's point, you know we had thousands, tens of thousands of comments from the public saying you all commit, you all do this. You all do biological/ecological reference points.

I think the message, I hope that was sent yesterday is we are committed. I've seen no disagreement about that around the table. This is just designed to provide a little bit more internal accountability. I need to wrestle with the substitute; but again, if we can get to the substitute. If the substitute ensures that internal Board accountability then I can support it.

CHAIRMAN BALLOU: I've got Adam Nowalsky next.

MR. NOWALSKY: I'm in support of the idea of adding a timeline. My question with the two years at this point, as we've gone through the discussion and I know it was my motion earlier. Is that enough or if we're going to go down the road of holding ourselves accountable as a Board. Before I get to that question, let me just say that accountability to ourselves and the public. You know we've heard comments asking why we aren't doing exactly what the public asks us to do. Well, there were other comments that asked us to do certain things here.

Just because we didn't do exactly what any one of those people wanted us to do, didn't mean that we haven't considered it, and it hasn't strongly factored into our ultimate decision that we make around the table here today in future decisions. I think all of that public comment on both sides is excellent. It's needed; and it helps hold us accountable, and I think that we're being responsive to it. But my question at this

point is that should the ERPs get done as we heard yesterday what their cautiously optimistic about, I think was the term I heard, and should they be peer reviewed in 2019. Would our spec setting process for 2020 already have occurred by the time they're available to use, and would the timeframe here not be better for 2018, '19 and '20, because our spec setting process would already have occurred in 2019?

MS. WARE: There is not obviously a date for that peer review yet in 2019; so I can't say what month that is going to occur. It is important to consider that specification process for 2020. What I can say is that Amendment 3 says that the Board can following peer review of those menhaden-specific ERPs, can adopt those through Board action or through an addendum process. An amendment is not needed, so if it's through Board action those could be implemented in 2020. An addendum would obviously take a little bit longer, but it facilitates public comment if the Board is interested in that.

CHAIRMAN BALLOU: Adam, do you have a follow?

MR. NOWALSKY: Does staff feel if the cautiously optimistic timeline of development of ERPs comes to fruition, is 2018 and 2019 spec setting enough? Would those ERPs be useful to us in a reasonable timeframe for 2020, or would we still need spec setting for 2020 without use of the ERPs?

CHAIRMAN BALLOU: Bob Beal.

EXECUTIVE DIRECTOR BEAL: Let me give it a try. Keep in mind that spec setting is not part of Amendment 3. That is outside the Amendment 3 framework. Specs are something that needs to be done either multiyear, single year, however this Board chooses to do that. If 2020 is added to this motion, and I'm not saying whether it should or shouldn't be.

Then if the ecological reference points are available and the Board wants to modify the 2020 total allowable catch that will take a two-thirds vote by the Board. Robert Boyles hinted at this a minute ago. You know the actions of this Board really can't tie the hands of any subsequent Boards or subsequent meetings of this Board.

Even though this motion says 216, not to exceed 216 for the next two years, if there is a compelling reason and this Board votes through a two-thirds majority to make a change, even in 2019. They have that ability. The Board can't tie the hands of future Boards. ASMFC and the Policy Board and the Charter reflect that.

There is a Commission-specific provision that any final actions taken by the Commission and spec setting is a final action, can be rescinded or modified through a two-thirds vote. Including 2020 in here would then have that two-thirds majority requirement in place to change 2020. The flexibility is still there, the hurdle is just a little bit higher, and I think it would need to be compelling to more of the Board to make a change in 2020. That is the quick procedural summary of where we are, and the Board can decide where to go from there.

CHAIRMAN BALLOU: Dennis Abbott.

MR. ABBOTT: I'll pass.

CHAIRMAN BALLOU: Dr. Rhodes.

DR. RHODES: Well, this is just a question. I don't see a difference between these two motions; other than we're setting a limit for two years and having an "or" in there. If we do not have the ecological reference point's ready in 2020, we default back to 216. It's an identical motion the way it's written with the "or" in there, I believe. I mean I'll stand for other people reading it. But the way it reads is we're setting it for '18, '19, and then we have "or" so if 2020 it's not ready, doesn't it default back to 216 the way it's currently written?

CHAIRMAN BALLOU: Let me do this. I have several folks on the list, but I would like to ask if anyone has a response to the issue just raised by Dr. Rhodes; and I see three emphatic hands up, so I'm going to go left to right, Robert Boyles first.

MR. BOYLES: Point of parliamentary inquiry, Mr. Chairman. What is two-thirds vote of this Board?

EXECUTIVE DIRECTOR BEAL: It depends. The provisions of the Charter say that there are 18 votes on this Board, so two-thirds; you know you get the math. But there is a provision that if the Federal Services abstain, the denominator can change so it can be 18, 17, or 16, depending on the number of votes cast by the Federal Services, so it depends.

CHAIRMAN BALLOU: Rob O'Reilly, and if you could, Rob, just specifically to the point that Dr. Rhodes raised a minute ago regarding the difference between these two motions. I think it's important to kind of focus on that first, and then we'll go to the other comment.

MR. O'REILLY: Highly focused. I think, do we have a default position? Didn't we run into a little bit of trouble when we realized we really couldn't fall back to a quota from the previous year or a TAC? If that has not been remedied then Dr. Rhodes suggestion might run us into a problem again.

CHAIRMAN BALLOU: Are you speaking to the Indecision Clause that's in the document?

MR. O'REILLY: And what we did with the Indecision Clause, yes.

CHAIRMAN BALLOU: We agreed that if the Board could not agree on specifications for the next year that specifications in place for the last year, the current year as it were, would continue forward. It would be a status quo situation.

MR. O'REILLY: Thank you, Dr. Rhodes.

CHAIRMAN BALLOU: Rachel Dean, on the specific issue of the difference between these two motions.

MS. DEAN: Yes, I think that we've mentioned before that sometimes it's just to keep it in our memory, and by including the 2018 and 2019, my intention there was just that we would be reminded that these discussions can happen. That is not to say that those discussions wouldn't happen if it wasn't in there; but again, I just want that reminder that the option is there.

CHAIRMAN BALLOU: I have four more people on the list, and then I'm going to see if the Board would like to move forward with voting on this. Next is Tom Fote.

MR. FOTE: Our long history of setting two-year, three-year specs have not worked out so well; especially with some of the species we've gone through like summer flounder, black sea bass and others. I agree with Malcolm; this is a lot to do about nothing. Either one of the motions mean the same thing to me, because we're going to bring it up for discussion.

I guess the first motion is just clearer. I don't like putting years in, because we have a habit of pushing years off anyway. The Board can decide. It reminds me of New Jersey's budget. Most people don't realize in New Jersey that when you pass a budget every year it supersedes all the other budgets.

All the dedicated funds you made for the last 20 years can be superseded by the next budget, which is unusual I think for any other state but New Jersey, because we do things kind of funny there. This reminds me of that; because we always have the option of coming back and doing whatever we want the next following year, it just takes a two-thirds vote, and if anything is that strong we should do it. I support 11, just because it makes it clearer.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: It was really more a point of information. My understanding, in terms of timeframe, you know with regard to the menhaden-specific ecological reference points that the peer review is right now currently expected to be completed by 2019, in conjunction with the new benchmark assessment, correct? Okay I'm seeing nods from staff around the table. That was the only point I wanted to bring up is that those will be in conjunction with the new benchmark.

CHAIRMAN BALLOU: Loren Lustig.

MR. LUSTIG: First of all I would like to sincerely complement Rachel, for her use of the word honesty. Not only did she use it sort of introspectively for herself, she also referenced the honesty given to us by the recreational anglers who are in this room, who represent tens of thousands of additional recreational anglers.

I'm really big into honesty and civility during this discussion. Now, somebody mentioned the word levity recently; especially in regards to Dr. Seuss. I assure you I am deadly, deadly serious about this whole matter, okay. There is a time for levity, but there is also a time for serious consideration.

CHAIRMAN BALLOU: Ritchie White – pass, last comment on this, Doug Brady.

MR. BRADY: To Dr. Rhodes point. Under 13, do I take it to read that there is no possibility until ecological reference points are available that the TAC could be over 216,000 metric tons? I mean I think both motions are saying that if you adopt either one there is no possibility the TAC would be set over 216,000 metric tons until we get ERPs. Is that the way I would read this?

CHAIRMAN BALLOU: My reading is that Motion 13 specifies that for 2018 and 2019 the TAC shall be set at and shall not exceed 216,000 metric tons. That could be trumped, because it then says "or" until such time that menhaden-

specific ecological reference points be available for management use.

I take it therefore that it would be open; in terms of what the specifications would be for 2020. It would require a subsequent Board action versus Motion 12, which would enable that same metric, if you will, to continue forward beyond 2019. I don't see that and maybe I'm misreading it, and if I am and I see Rachel's hand up, please clarify, so Rachel.

MS. DEAN: I think it should probably say "or unless."

CHAIRMAN BALLOU: Do you want to urge that that be modified as such?

MS. DEAN: Please.

CHAIRMAN BALLOU: ***Let's see if there is any objection to modifying the substitute to replace the word "until" with the word "unless." Is there any objection to making that amendment to the substitute motion? Seeing no objection; the substitute motion is so amended.*** Are there any other particularly members of the Board who have yet to speak on this issue who would like to before we call the question? There has been obviously a little bit of an added wrinkle just noted. Eric Reid.

MR. REID: At this point we're splitting hairs, and in my case I don't have the luxury of being able to do that all that much. That's levity without Dr. Seuss if you don't mind, I appreciate that. That is what we're doing. What I would really like to see is take a five minute break. Let the four people involved in these two motions figure out what they really want to say and get it over with; instead of spending the entire Board's time trying to do the same thing, Mr. Chairman.

CHAIRMAN BALLOU: Dennis Abbott.

MR. ABBOTT: I've been sitting here for, when I was going to speak the last time that I was

interested in making a motion to limit debate; which would require a vote of the Board, because I think we've heard enough. Just like Eric just said, it's time to vote, and if the Board is interested in voting, **I think I would like to make a motion to limit debate.**

CHAIRMAN BALLOU: Is there a second to that motion? Seconded by Loren Lustig, **is there any objection to the motion to limit debate and vote on the substitute motion? Seeing no objection; we will close debate and we will caucus for 30 seconds and then vote on the substitute motion.** Okay, before I call the question I believe Robert Boyles has a point of inquiry.

MR. BOYLES: I was asking ISFMP Director and the Executive Director to clarify for me what staff's interpretation of the difference between the two. My question specifically related to the question of binding future Boards. I think Toni had some comments that helped clarify it for me that may help the Board.

CHAIRMAN BALLOU: Toni Kerns.

MS. TONI KERNS: Two things that Robert and I talked about; sort of the difference between these two motions. Under 13 the Board would come back and revisit specifications after 2019; regardless of the progress of the ecological reference points. Under 12, you could continue on until perpetuity, I guess.

Then under either motion, if the Board wants to have a TAC that is different than 216 in future years, you would have to come back and do a two-thirds majority vote, because you have set a TAC at 216, even if it is less than 216. Under Motion 12, you still have to come back and have a two-thirds majority vote, because you've set it at 216 in this motion. Under 13 you only have to do the two-thirds majority vote for '18 and '19, because you haven't set a TAC beyond that in Motion 13.

CHAIRMAN BALLOU: Does that answer your question, Robert?

MR. BOYLES: Yes sir, thank you.

CHAIRMAN BALLOU: We've ended debate. Are there any clarifying questions? Really, Loren, I'm hesitant to go to you only because we really have closed debate, caucused, and we're really ready to vote. I would take a question, but only on a point of order. Go ahead, Loren.

MR. LUSTIG: Pennsylvania requests a roll call vote.

CHAIRMAN BALLOU: That is an appropriate request. We will have a roll call vote; and I will ask Megan to call the roll moving from north to south.

MS. WARE: Maine.

MR. KELIHER: Yes.

MS. WARE: New Hampshire.

MS. PATTERSON: Yes.

MS. WARE: Massachusetts.

MS. MESERVE: No.

MS. WARE: Rhode Island.

MR. REID: No.

MS. WARE: Connecticut.

MS. GIANNINI: Yes.

MS. WARE: New York.

MR. GILMORE: No.

MS. WARE: New Jersey.

MR. ALLEN: Yes.

MS. WARE: Pennsylvania.

MR. SHIELDS: No.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: Potomac River.

MR. GARY: Yes.

MS. WARE: Virginia.

MR. O'REILLY: Yes.

MS. WARE: North Carolina.

DR. DUVAL: Yes.

MS. WARE: South Carolina.

MR. BOYLES: No.

MS. WARE: Georgia.

MR. WOODWARD: No.

MS. WARE: Florida.

MR. ESTES: No.

MS. WARE: NOAA Fisheries.

MR. BURNS: Yes.

MS. WARE: Fish and Wildlife.

MR. MILLARD: Yes.

CHAIRMAN BALLOU: The motion passes 11 to 7. The substitute becomes the main, and I would like to think that we might be ready to take final action on this particular issue; and

then perhaps have a break and take on the other issues. Unless anyone wanted to make any other motions to amend or substitute. I'm not encouraging that I'm just making the offer. Dennis Abbott.

MR. ABBOTT: I would make another motion to limit debate. I think we've had enough debate on this; it's time to vote.

CHAIRMAN BALLOU: Okay. Is there any objection to limiting debate and taking final action at this point? Seeing no objection; I appreciate the sentiment. I don't think we need to put that in the form of a motion. There is unanimous consent on the part of the Board to do that; so we will now do that. This will be the main motion. We will take a vote. Is there a request for a roll call? Oh, it has to be a roll call because this is final action on specifications. That said; we'll call the roll and we'll just stay with the flow on going north to south.

MS. WARE: Maine.

MR. KELIHER: Yes.

MS. WARE: New Hampshire.

MR. ABBOTT: Yes.

MS. WARE: Massachusetts.

MS. MESERVE: Yes.

MS. WARE: Rhode Island.

MR. REID: No.

MS. WARE: Connecticut.

MS. GIANNINI: Yes.

MS. WARE: New York.

MR. GILMORE: Yes.

MS. WARE: New Jersey.

MR. ALLEN: Yes.

MS. WARE: Pennsylvania.

MR. SHIELS: No.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: Potomac River.

MR. GARY: Yes.

MS. WARE: Virginia.

MR. O'REILLY: Yes.

MS. WARE: North Carolina.

DR. DUVAL: Yes.

MS. WARE: South Carolina.

MR. BOYLES: Yes.

MS. WARE: Georgia.

MR. WOODWARD: Yes.

MS. WARE: Florida.

MR. ESTES: No.

MS. WARE: NOAA Fisheries.

MR. BURNS: Yes.

MS. WARE: U.S. Fish and Wildlife.

MR. MILLARD: Yes.

CHAIRMAN BALLOU: **The motion passes 15 to 3; and** we have dispensed with that agenda

item, and we are now going to take a ten minute break and reconvene at 10:04. Thank you.

(Whereupon a recess was taken.)

CHAIRMAN BALLOU: I'm going to call the meeting back to order. The next order of business is to continue forward with the other issues in the amendment. Moving in sequential order the next would be quota allocation and timeframes. As set forth in the amendment there are six options for allocation methods; and five options for allocation timeframes. The intent is to find a way to move on both; a sort of Tier 1 approach combined with a Tier 2 approach. With that is there anyone who would like to make a motion on the issue of quota allocation and timeframes? Pat Keliher.

MR. KELIHER: Last night I had indicated I had put together a bundled motion; and after thinking through it last night, and after going through this morning, I have broken it apart and I have sent Megan some language that needs to be tweaked just a little bit. She may have already tweaked it.

I would move to choose the following options in Draft Amendment 3: Section 4.3.2 Allocation Method Option C with a jurisdictional allocation with a Minimum Base Allocation of 0.75 percent fixed minimum for the Quota Timeframe of 2012 to 2016. Section 4.3.3 Quota Transfer Option A: Quota Transfer would be permitted. Section 4.3.4: Quota Rollover Option A: Unused Quota May Not Be Rolled Over. I will end there; Mr. Chairman.

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Ritchie White? Moved by Pat Keliher; seconded by Ritchie White to do just what Pat read into the record, and is now up on the screen. Is there discussion on the motion? Emerson Hasbrouck.

MR. HASBROUCK: I would like to offer an amendment to that motion.

CHAIRMAN BALLOU: Go ahead.

MR. HASBROUCK: Such that Section 4.3.3 Allocation method Option C; jurisdictional allocation with a minimum base allocation of a 1.0 fixed minimum.

CHAIRMAN BALLOU: Is there a second to that motion to amend? There is, Nichola Meserve moves to second the motion to amend, so moved and seconded to amend the main motion by changing what I understand to be the first part, and that is in lieu of a 0.75 percent fixed minimum, a 1 percent fixed minimum. I'm sorry, I know Max is putting that up on the board, but Emerson did you want to maintain the quota timeframe of 2012 through 2016?

MR. HASBROUCK: Yes.

CHAIRMAN BALLOU: Maybe we don't need that. I guess we're just modifying that one portion therefore of the first bullet in the main motion; discussion on the motion to amend, Jim Gilmore.

MR. GILMORE: I actually can support both motions. But we're back in the same issue is that a 1 percent to me is cleaner; because we essentially cover I think everybody's fishery, in terms of both bait harvest and possibly episodic event. We go into a 0.75 then I would feel more comfortable, and I probably would argue later on that we go and have some episodic event, you know because we're kind of pushing up against maybe some of the actual harvest going on right now. It's another chicken and egg thing. I like 1 percent without episodic event. I like 0.75 with an episodic event.

CHAIRMAN BALLOU: David Borden.

MR. BORDEN: I would just like to follow up on Jim's point; and point out a nuance of the linkage here with other issues. The percentages can be used by any state; regardless of what the percent is. The percent can be used by any state for catches in both state and federal

waters episodic program can only be used for catches in state waters.

Now that sets up the dynamic where, and I'll use Rhode Island as an example of this so everybody understands it. The guy sitting immediately to my right had some of the vessels in Point Judith landing menhaden from federal waters. They were part of a herring catch. If you have one program you can land those, and if you have the other type of program you can't land those. This subtle distinction that a percent is, I think more desirable from a coastwide perspective as opposed to the episodic program.

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: I'm not opposed to the motion to amend. I think I would still argue for some sort of an episodic, because of the potential for fish die offs that we have within the state of Maine are real, and have big economic impacts. I was trying to not look like I was going for too much of a fish grab here; to be honest, trying to have some recognition to both New Jersey and Virginia and also to the other jurisdictions to the south. I can go either way; but I would want to see some sort of an episodic, and obviously I'll talk to that later.

CHAIRMAN BALLOU: Emerson Hasbrouck.

MR. HASBROUCK: My motion to amend does not preclude an episodic event. My motion does not relate to episodic events at all. That's another issue. But also, in terms of minimum allocation, states like New York and there are other states as well, did not have a very good data collection system in place for bait fisheries, which includes menhaden.

There were other species as well. In New York, we weren't able to get our reporting system in place until just over the past few years. Now that we've got that reporting system in place, we realize that the fishery is more extensive and more robust than what was originally

recorded or not recorded. I think with again at least a 1 percent, it could even go for more.

But 1 percent brings us to a place where we can cover our current fishery with a slight expansion. Additionally, in terms of public comment, we've heard a lot yesterday and today about public comments. I know that in New York, and I don't recall from Megan's presentation yesterday public comment in other states. But there was significant public comment in support of states having at least a 1 percent fixed-minimum.

CHAIRMAN BALLOU: Ritchie White.

MR. WHITE: I struggle with this, but I'm going to oppose the amendment. When I originally talked about a 216,000 ton quota, I talked about compromise and I talked about trying to meet everybody in the middle. My concern with the 1 percent is that it will not keep Virginia and New Jersey whole in this process.

I say that we don't have to keep Virginia and New Jersey whole. This is allocation. But I think in a compromise situation, I think it will be wise to. I think the three-quarter percent; I believe we can make both those states whole, combination of the quota they would get and then added to that would be some chance at the unused allocation that would go into a pool from the states that would not be using their three-quarter percent. Based on that thinking I'm going to oppose 1 percent and stick with the original motion.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: I oppose the amendment, the 1 percent, also in opposition to the idea that having a combination, which was mentioned of Episodic Event, which is about 4.8 million pounds, and then tacking on this 0.75, which is pretty close to about 58 million pounds. They are definitely not linked in magnitude. I mean a 1 percent Episodic Event is relatively small; compared to providing a minimum, even at a half a percent to all the states.

The problem is the way things stand now. If you look at 2012 through 2016, the best performance by the states that would be receiving the minimal, in addition to the three states that are already above 1 percent is there would be a lot of unused quota. That might be okay for some states that wish to do that.

We talked about opt-in and opt-out; but clearly, I don't want to call this a precedent, because it's been around, but other than American eel, where certain states were provided 2,000 pounds that did not have previous landings. That was done in the quota-building process, and the quota hasn't come due yet. But that was in a process taken by the ASMFC. Here we already have a quota system; and part of the situation is going to be a minimum, which we're not sure what will happen. Clearly, I would rather substitute for this if you don't mind.

CHAIRMAN BALLOU: I prefer to vote first on the amendment; and then entertain a motion to substitute.

MR. O'REILLY: I think that's fine; but please know that Virginia is opposed.

CHAIRMAN BALLOU: Other comments on the motion to amend. Is the Board ready for the question? Is there a need to caucus; 30 second caucus? Robert.

MR. BOYLES: Maybe a question for staff. At the TAC at 216,000 metric tons, just for my purposes can you tell me what that equates to in pounds?

CHAIRMAN BALLOU: Megan is looking that up.

MR. BOYLES: And what 1 percent equals, if you would, please Megan.

MS. WARE: The total TAC in pounds is 476,198,486; and for 1 percent it is like 4.76 million, roughly.

CHAIRMAN BALLOU: Okay I'm going to call the question. All in favor for the motion to amend please raise your hand. Hands down; those opposed please raise your hand. Hands down; thank you, null votes, abstentions, we have two abstentions. **The motion fails 6 to 10 with 2 abstentions. We're back to the main motion. Rob O'Reilly, did you want to offer a substitute?**

MR. O'REILLY: Yes, and I'll have some brief remarks about it. **But I would move to substitute Option F under Section 4.3.2 as the allocation method.**

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Dave Bush. Moved by Rob O'Reilly and seconded by Dave Bush to substitute what I understand to be, is it your intent, Rob to substitute the entire main motion with your substitute motion?

MR. O'REILLY: My understanding, it would just be at the top of the main motion with the allocation method; not the transfers and not the rollover.

MS. WARE: Rob, there are two sub-options for Option F. Do you want to include which sub-option you are interested in?

MR. O'REILLY: I was hoping that would be discussed after this; because that has an importance of its own, in terms of the allocation. I think really what we're looking at in F is we have reached that situation with Sub-option 1, where it would be a 50/50 distribution between bait and reduction, and Sub-option 2 is 70 percent to bait, 30 percent reduction.

The reason I'm hesitant to declare one is I think, just like Robert Boyles just did. I think it's important that we know the outcome of Sub-option F; in terms of what's going to be available. I don't think anyone is working on their calculator fast enough to help me out on that. We're looking at when 212,500 are exceeded, which with 216,000 it is.

That's going to leave approximately another 212,500 is 468.4 million, and 216,000 metric tons is 476.1 million. We're looking at about 8 million pounds. I think in the sense of fairness, I think we ought to know that the Board can say, well that either does help my situation or it does not. That is a really long response, Megan.

CHAIRMAN BALLOU: It's okay, and it does sound like that if I understand how this would go that if the Board were to approve this amendment, there would then be a subsequent motion to clarify the particular sub-option associated with this.

MR. O'REILLY: That's correct.

CHAIRMAN BALLOU: Okay I'll take comments both in favor and opposed. If you wish to speak in favor of this motion, please raise your hand, question, John Clark.

MR. CLARK: Option F states that the timeframe is 2009 to 2011; whereas the motion states the timeframe is 2012 to 2016. Could Rob clarify which timeframe he wants to use for Option F?

CHAIRMAN BALLOU: I think Megan has a response.

MS. WARE: The part up to the 212,500 metric tons that is our current allocation method; so that is based on the 2009 to 2011. The part above, so the difference between 216 and 212,500 metric tons, I am assuming that is what that 2012 to 2016 timeframe is applying to. We can try and clarify that if you would like in the motion.

MR. CLARK: Well, that is kind of confusing, because under Option F the additional is just either divvied up between the bait and the reduction fishery. It doesn't say anything about a timeframe there. The base option F does specify a timeframe; and it's not the timeframe that is in the motion right now. That is where we need some clarification.

MS. WARE: Yes, so what the amendment says is for the sub-options; depending on if it's a 50/50 or a 70/30 split. That distribution is "based on landings during the timeframe chosen in Tier 2," which is the timeframe options. That difference, and if we need to I can pull up the picture that describes this option, because maybe that will help. But I'll look to Rob to see if he is looking to have that difference be based on the 2012 to 2016; and maybe if he is we can clarify that in the motion.

MR. CLARK: Well, Megan I'm just saying that it says at or below a TAC of 212,500, which is our base situation. The quota is allocated based on average landings from 2009; you know the current allocation method, whereas this motion up here would imply that no, we're not using that timeframe. It makes a big difference to states like ours which timeframe is used.

CHAIRMAN BALLOU: John, this is my take on where we are. Rob's motion to substitute would replace all of the first bullet in the main motion. That quota timeframe 2012 to 2016 would not apply; because it's not applicable to Option F. ***This is a motion, and make sure it's correctly worded.***

Substitute Option F under Section 4.3.2: fully replacing the way the current main motion is proposed with regard to Option C, and what Megan has been referring to is that if this motion were to pass, we would necessarily have to come back and address the timeframe issue associated with a delta between 212,500 and 216. Does that make sense?

MR. CLARK: Yes, I have that. Okay, it's just the way the motion is. I see, so the entire timeframe is gone then from the original motion.

CHAIRMAN BALLOU: That is my interpretation. Rob, do I have that correct?

MR. O'REILLY: You do, and Megan had it right as well. Another decision would have to be

made if this passes. Then we'll have to choose one of the sub-options and also the timeframe is under Tier 2.

CHAIRMAN BALLOU: Okay, we have a few hands up. I guess I'll just try and just alternate back and forth, without necessarily figuring out if it is pro or con. I'll go next to Adam Nowalsky.

MR. NOWALSKY: We have a motion to substitute; but if I'm clear on what you're saying, we're not substituting 18 for 16; we're only amending 16 to remove the first bullet point with the information contained in 18.

CHAIRMAN BALLOU: That's correct.

MR. NOWALSKY: Okay so that would probably best be clarified as an amendment to the original motion then.

CHAIRMAN BALLOU: I concur, so let's make it that; thank you for that clarification, so motion to amend the first bullet in lieu for substituting for the entire motion, thank you. It is now a motion to amend and it only refers to the first bullet under 16; with that further discussion on the motion to amend. Nichola Meserve.

MS. MESERVE: I can't support the substitute motion. I don't feel that this Option F meets one of the main objectives of this amendment document; which is to develop a management program which ensures fair and equitable access to the fishery for all regions and gear types. Given the TAC that we have selected, this is going to redistribute a very small amount of quota to the other states, and not meet the needs that we have identified.

There has been some discussion that while we can use the Episodic Event Program to address those needs still. But as pointed out that doesn't provide for the state flexibility to manage that episodic amount as best fits the needs of the states. I can't support the substitute and support the main motion.

CHAIRMAN BALLOU: David Bush.

MR. BUSH: One of the reasons why I supported this, and let me preface it with it's no front page news that North Carolina has long had a reduction fishery until of recent years when we decided that was the route we didn't want to pursue anymore. We would most certainly like to have more poundage than we have; at least enough to make it economically feasible to pursue a bait fishery. We most certainly would love to do anything we can to get that without damaging those who depend on it on a regular basis.

We won't pursue that bait fishery at the expense of communities that rely on it. We understand that different states have different fisheries that they are heavily reliant on. We all know that North Carolina has a big fishery that we're reliant on. While we would pursue a bait fishery at almost all cost, we would not do so at the expense of other communities, other infrastructures, other states that have grown to rely on it due to the actions of this Board.

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: I want to echo Nichole's comments. I'm having a real hard time with this being equitable. What I was trying to move forward in the original motion was some sort of balance between the jurisdictions. Maine caught over 4 million pounds alone; and if my rough last year and my rough estimates, this would split between jurisdictions just under 5 million, if our math is right. I've got very big problems with this motion; and I will be opposing it.

CHAIRMAN BALLOU: Emerson Hasbrouck.

MR. HASBROUCK: I'm also opposed to this amendment. I agree with Pat and Nichola that this does not meet the goals of equitable distribution to states that don't have much quota.

CHAIRMAN BALLOU: Any other comments on the motion to amend? Seeing none; is the Board ready for the question? If so, do you need time to caucus? Let's give it a 15 second caucus, just to make sure. Okay, it looks like the Board is ready. **All in favor of the motion to amend please raise your hand, thank you. Those opposed, please raise your hand, thank you. Any null votes, any abstentions? We have two. The motion fails 1 to 15 with 2 abstentions. We're back to the main motion.** Is there any further discussion regarding the main motion? Seeing none; is the Board ready to vote on the main motion, which has three parts? There it is up on the board. This would be a vote on all three parts; the allocation methodology, the timeframe, quota transfers and quota rollovers. It would address all three components.

If the Board is ready for the question I will call it. **All in favor of the motion please raise your hand, thank you. Opposed please raise your hand, thank you; any null votes, any abstentions? We have two. The motion passes 14 to 2 with 2 abstentions.** We are moving along. Now up to, let me pause. There is a motion that was tabled. Is there any interest in bringing that back now or at any point? I guess that's a decision for the Board. Adam Nowalsky.

MR. NOWALSKY: **I would move to bring that previous motion, take it from the table.**

CHAIRMAN BALLOU: Is there a second to that motion to bring the tabled motion back? There is; it is seconded by Emerson Hasbrouck. Moved by Adam Nowalsky and seconded by Emerson Hasbrouck, to bring back the tabled motion for consideration by the Board. I forget whether this is even debatable or not.

But let's just see if there is any objection to doing that. Seeing none; that motion is back before the Board and we'll wait for Max to try to catch up and see if we can get that back up on the screen. Okay, I think we have it up. Let's

just make sure we've got it correct. I know there were a couple tweaks made to it. I assume this is the motion as it stood prior to when it was tabled earlier this morning; so it's back before the Board, discussion on this motion. Emerson Hasbrouck.

MR. HASBROUCK: I have a question about process here. I generally support this motion. However, is the decision on states opting in or opting out, is that going to be brought back to the Board for decision at our February meetings, or is this going to be a staff decision or an Administrative Committee decision? How is that going to work?

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: The way it is crafted is that any quota that is not received by state is then redistributed to the other jurisdictions. I see it this is a staff effort to say this is where we are, as far as what states have requested. It goes into a pot, and then that would be automatically redistributed.

CHAIRMAN BALLOU: Emerson Hasbrouck.

MR. HASBROUCK: Thank you, yes follow up on that. I'm referring to the part that says in terms of opting in: that the states which opt in much demonstrate that the state has the intent and ability to commercially harvest some or all of its menhaden quota, et cetera, et cetera, and how it could be demonstrated et cetera. I understand the part of it just going into a common pool; but who is going to make that determination as to whether or not the states have the ability to catch their allocation if they opt in?

CHAIRMAN BALLOU: Pat, do you want to speak to that?

MR. KELIHER: I'll try, Mr. Chairman. The way I've envisioned it, maybe wrongly here, is that states would submit with their request what they have for regulations on the books

associated with that fishery. If a jurisdiction didn't have regulations on the books associated with that fishery, then they wouldn't be able to request quota associated with it. In concept that is where I was trying to go.

CHAIRMAN BALLOU: Discussion on the motion; John Clark.

MR. CLARK: Just further clarification I guess; because you have the option to opt out of the program, so you can either opt out or opt in. You have to opt in, and if you do opt in you have to prove you can catch what you're – I'm sorry if I'm repeating some of the things here. It just seems a little contradictory here, these first two lines.

CHAIRMAN BALLOU: I'll leave that open unless somebody wants to grab onto it. Next I have Steve Train.

MR. TRAIN: I like this option. The last thing we just voted on prevents rollover; which I think is a good thing. But we're talking about a highly migratory species up and down the entire east coast. Sometimes they're in some places and sometimes they aren't. We're not allowing the rollover, yet the population might be healthy.

We have some jurisdictions that might not choose to prosecute this fishery; but we've determined that the resource is healthy, and some areas may be seeing a larger abundance. To allow this to happen and go back in a general pool, I think is perfectly reasonable and a very healthy thing to do as far as the fishery goes.

CHAIRMAN BALLOU: Jim Gilmore.

MR. GILMORE: Just to go back to Pat's comment, because it made me feel a lot more comfortable with this motion. The bar would be if you have regulations in place to harvest that would be the only requirement you would need; and if that's the case, I'm completely okay with this and support the motion.

CHAIRMAN BALLOU: Pat, do you want to say that on the record, please?

MR. KELIHER: That's the intent.

CHAIRMAN BALLOU: That could be clarified in the motion. It's up to the Board to decide whether they want to try to perfect this, clarify it. But we've just had a good exchange regarding intent. Next I have Rob O'Reilly.

MR. O'REILLY: I think roughly it looks like about 43 to 44 million pounds from the last motion on the 1 percent would be allocated; and clearly that exceeds the capacity that we think we know around the table. My question is, the last motion also talked about the transferability. I'm wondering how that coupling works with the opt-in situation opt out. For example, which comes first or are they coupled together? A state may choose to opt out, and then does the state have the ability to transfer right after that?

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: There are probably a hundred different "what ifs" here. Again, the intent, jurisdiction opts in; they don't have fish within their state waters. They are not harvesting those fish. They end up with a surplus at the end of the year. The ability is for another state could request a transfer to help with any overage that might have happened within their jurisdiction. I'm trying to create some certainty up front for states that will promulgate fisheries; and the flexibility on the back end, in case they go over what their targets are.

CHAIRMAN BALLOU: Russ Allen.

MR. ALLEN: I have a few problems with this motion. One of those hits really hard at New Jersey; because we already have two species where we have quota that we do not use. One is striped bass; where we have a commercial quota, and we have as everybody knows, a

recreational program that allows some of that harvest.

But we do not reach the total harvest. The other is horseshoe crabs; where we have a quota that we do not use. I would really have a hard time if this passed; trying to defend how we don't use that horseshoe crab quota. It's really hard for me to even think about this. I can feel for Pennsylvania on that one; where they are trying to be conservative, and this doesn't let them do that.

CHAIRMAN BALLOU: Senator Miner.

SENATOR MINER: I'm trying to get, I guess a feel for the sentence that says any quota that is not received by a state would then be redistributed. Is it the intent here that that redistribution could occur either at the front end or in the back end of that given year; so it either could be used to cover overages of another jurisdiction or it could be used in the pool on the front end, to theoretically increase the quota that states might get that are still in the fishery?

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: The intent is for it to be redistributed on the front end. The ability within the last motion spoke to the ability to transfer. That would be on the back end of the fisheries.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: A couple things I guess. I apologize that on the previous motion, I just wanted to clarify for the record that our vote was based on the timeframe, not necessarily the method that was used. That timeframe was not really good for North Carolina; but it is what it is. I'm still struggling with demonstrating intent and ability to commercially harvest some or all of that quota; and I guess I'm concerned about if there are years where due to whatever.

I mean we're in a hurricane belt; you know that impacts a lot of our fisheries pretty significantly, and if folks don't have the opportunity to get out there that it would impact our ability to opt in to our full allocation. I'm still struggling a little bit with that part of the decision making process. I absolutely appreciate what Pat's trying to do here; just trying to wrap my head around it.

CHAIRMAN BALLOU: I'll just say, my understanding of the way this motion reads is that there are three ways that you could demonstrate your intent and ability. One would be the issuance of permits for applicable gear types or species. The other would be via historic landings. The other would be the abundance of menhaden in state and/or federal waters. As I read this motion literally, those are the three standards that would be applied to a state's request. Dr. Duval.

DR. DUVAL: Follow up. I mean right now the timeframes for harvest that we're using in this amendment did not allow states and jurisdictions that previously had reduction fisheries to be able to. Those landings were not included in those historic timeframes; so are we going to be allowed to use that as demonstration of availability of menhaden in our waters?

CHAIRMAN BALLOU: I guess I have my interpretation; but I would rather look to the maker of the motion as to what your intent is with regard to historic landings, and how that should be applied.

MR. KELIHER: To the literal sense, historic landings. I was trying to be inclusive; as we developed this in trying to give some flexibility. It is any one or combination of those three criteria. In my mind, Maine had a reduction fishery at one time. That would come into play here if we were in the situation to want to consider the use of this.

CHAIRMAN BALLOU: I'll just challenge you; if you don't mind. Does historic in your opinion mean any time prior to, or at some fixed time prior to or during some fixed timeframe prior to?

MR. KELIHER: In my mind it is any time prior to.

CHAIRMAN BALLOU: That clarifies the intent. Andy Shiels.

MR. SHIELS: We're in a unique position; and I really appreciate Russ Allen mentioning that. This really looks extremely complicated for something that could be very simple. The question I have as almost an objective observer is what is the need for all the language? We just said what the distribution is going to be; three-quarters of a percent.

You take the total amount; somebody already calculated it, what each state should have. You divide that up, and that's what the state's quota is and you're done. There doesn't seem to be a need for a state to determine now or at the beginning of the year whether they're going to be in or out of the fishery.

If they decide, if two or three states decide to hold their quota for whatever reason, maybe because the environmental activist and encouragers and the recreational fishermen say to that state, we really don't want you to catch that full quota. We know it's available; but we would like to meet with you, and we think maybe you should only take 50 percent of the quota that's due you, because it's affecting our local waters.

That option would exist if you don't have all this language. This seems to me that it's almost like a states' rights issue that the states now are going to give up their authority to make a decision how they want to spend their marbles. We were all given 200,000 marbles or 212,000 marbles; metric tons are marbles yesterday. Today we're given 216,000 metric tons of marbles. New Hampshire might decide to keep

all their marbles; or they might decide to give some of their marbles away. That should be their right that I don't think should be predetermined at the beginning. Let the state's decide how they want to spend their marbles.

CHAIRMAN BALLOU: Robert Boyles.

MR. BOYLES: I'm struggling with this. You know we've just made, if this amendment passes, if the whole amendment passes, we have just allocated 3.5 million pounds. You all have given me 3.5 million pounds, the Palmetto state 3.5 million pounds of menhaden that we don't have those fisheries developed. I think that is clearly a policy call.

That is a motion that passed; and if the amendment passes that will be our operating stance. I appreciate the intent of the motion, you know as one of the states with really not a dog in this fight. I appreciate the intent of the motion to perhaps soften the blow or to ease the impact of the entire amendment, whatever we pass here today.

At the same time, I struggle with the whole idea. I should have prefaced this at the beginning. It is my full intent that we will have biological/ecological reference points; which will first determine how many fish we're going to leave in the water. This is I think I've described to a number of you, at its essence an allocation amendment.

The first order question is how much to leave in the water. I think we've committed to that through our actions yesterday and today and through the intent of the amendment. Once we've determined what that level of ecosystem services is, then the real question is how are we going to split this portion of the pie that we take out of the oven to eat?

I struggle. You know South Carolina just has no capacity for 3.5 million pounds of menhaden at three-quarters of a percent. I'm certainly willing to play ball for the good of the cause in

implementing this policy of managing these species for ecological services; as well as supporting a bait and a reduction fishery.

But I struggle with this. I don't know that the Commission, I would look to staff, is this precedent setting, in terms of giving a state a share of the pie that we have absolutely no intention of using? That is another policy call that I'm just struggling with. I've enjoyed the conversation. Let me rephrase that. I'm learning a lot through the conversation; and will continue to grapple with it.

CHAIRMAN BALLOU: I do know you asked a question. We'll see if we can get a staff response to that. But I'll next go to Ritchie White.

MR. WHITE: I support this and I'll give you the example of how this will affect New Hampshire; and how I see this working. Presently we have negligible landings. We also have a large purse seine vessel that lands millions of pounds of herring in New Hampshire annually. This year they talked about landing mixed loads of herring and menhaden.

It didn't happen this year. They also talked about additional availability of menhaden showing up; and they may want to land total loads of menhaden, and they come in at 400,000 pounds a trip. This would allow us to, we would opt in, and I'm just guessing, maybe a million and a half pounds. Put the balance right out of the gate into the pool; and see how it went for a few years. Maybe we would opt out of all of it in the future; if that vessel stopped landing in New Hampshire. But this gives the flexibility of us not being in a position where we would have to lock a fishery out; having no quota that we presently have. I think that is a fairness issue.

I also support this; because I think this is the compromise originally in the 216,000 metric tons that I was talking about. This gives each state a chance at a fishery; and this fishery is

changing, so we need some ability for states that haven't been fishing in recent times to have a chance to fish now. But it also puts back into the pool the fish that aren't used.

That gives the ability to try to make some state whole that may not be whole; with the use of the three-quarters of a percent going to the new states. I think that is the compromise; this balances it. I understand the angst of Pennsylvania. New Hampshire doesn't use their small, commercial striped bass quota either.

But I think looking at this in its entirety; and thinking about it in a compromised situation, and how without doing it this way maybe the 220,000 metric tons was a fairer target. That was my thinking in this whole process; starting with the 216. I hope the states will consider that approach to this and support it.

CHAIRMAN BALLOU: Toni Kerns, could you take a crack at answering Robert Boyles' question; which as I understood it was whether there is any precedent for an approach like this with regard to any other FMP that involves state-by-state allocation? Robert is involved in a sidebar right now; so hold on that Toni. I'll come back to you; because I want to make sure Robert's focused. Adam Nowalsky, you're next.

MR. NOWALSKY: I see this motion as having two relevant parts that we're discussing; one is the element of opting out, and being able to redistribute that to states that may need or want it. The second element of this is this opt-in provision which forces states, in my opinion, to demonstrate the intent to use their quota and if not, a sense that it would be taken from them without their consent.

That gives me trouble; and I hear that concern from some other members around the Board here as well, both in terms of how it might impact other species, precedent setting et cetera. I'm going to make a motion to substitute, Mr. Chairman. I believe it's going to include a number of these terms, so maybe

staff just wants to start with cut and pasting. I'll go along here with it.

My motion to substitute is: at the start of each fishing year and no later than January 31st, states may declare if they want to opt-out of the fixed minimum program. States, do you want me to just read the whole thing or just let staff go along with me and read as it comes up on the board?

MS. KERNS: Adam, do you have it on a piece of paper or no?

MR. NOWALSKY: I can come up there and give it to you if you would like.

MS. KERNS: You can read it into the record; and then if you could just come up and help us get it up on the screen appropriately.

MR. NOWALSKY: That would be fine. At the start of each fishing year and no later than January 31st, states may declare if they want to opt out of the fixed minimum program. States may declare if they have the option, and decline their fixed minimum allocation or maintain 10,000 pounds for bycatch purposes, and to decline the remainder of the quota.

If a jurisdiction declines its full allocation, it must identify the amount they do not wish to receive. Any quota that is not received by a state is redistributed to the other jurisdictions based on historic landings from the time period selected. Essentially what I'm doing is removing the requirements for opting in; and focusing on opt out entirely.

CHAIRMAN BALLOU: Let's do this. The Board will be at ease for five minutes as we get that motion up on the board.

MR. NOWALSKY: I think a lot of people want to take the break; but it's pretty darn close with what's up there.

CHAIRMAN BALLOU: We'll take a five minute break; just to get this motion up, and then we'll pick up right where we left off, starting with is there a second to the motion.

(Whereupon a recess was taken.)

CHAIRMAN BALLOU: I would like to resume; and I would like to go back to Adam to first ensure that the motion he has up is accurate, in terms of what he intends. Then I am going to see if there is a second. Then I'm going to allow Adam to speak to it, and then I'm going to allow. I'm sorry; I'm getting ahead of myself. Let's just stop right there. Adam, is this the motion you would like to make with regard to the wording that's up on the board right now?

MR. NOWALSKY: With a nod of great thanks to staff, yes it is. Would you like me to reread it at this point?

CHAIRMAN BALLOU: Please do.

MR. NOWALSKY: Move to substitute that "at the start of each fishing year and no later than January 31st, states may declare if they want to opt out of the fixed-minimum program. States may declare to opt out of the program and decline their fixed-minimum allocation, or maintain 10,000 pounds for bycatch purposes and decline the remainder of their quota.

If a jurisdiction declines its full allocation, it must specifically identify the amount they do not wish to receive. Any quota that is not received by a state is redistributed to the other jurisdictions; based on historic landings from the time period selected by the Board in this Amendment."

CHAIRMAN BALLOU: Is there a second to that motion? Dr. Duval seconds the motion; so the motion has been made and seconded, and Adam I'll go to you first to have you speak to it. Then I have some thoughts about some public input on this.

MR. NOWALSKY: First let me identify what is different about this with regards to what already exists in the draft amendment; the specific language with Option C. This includes more specificity in two areas. One, it provides the specificity of the date by which this declaration needs to occur; and two, it provides the specificity of what would happen to that quota that is not utilized by individual states. The draft amendment is silent on what occurs right now. This specifically lays that out through the last sentence.

This issue of fixed minimum is a bit of a difficult one; because essentially what we're doing is taking fish that states have had historical allocations of, historical use, and saying we're making a unilateral decision to hand it out, essentially. That is a tough pill. If it is the intent of the Board; as the original motion did, to force states to prove that they can use those fish.

Then I would say that that whole fixed-minimum approach is flawed, and that we as a Board should go back and reconsider it. But if that is in fact the decision that we're making that we're going to go down that road; then to go ahead and put the requirement on those states to say and oh by the way. Even though we decided to give it to you, if you can't show we're going to use it we're going to take it back; that is even more flawed, and I can't support that. That is my justification for this motion to substitute.

CHAIRMAN BALLOU: Because both this substitute motion and the main motion, which addressed the issue of we'll call it opt-in versus opt-out lend a lot of specificity with regard to the provision that was only set forth in the amendment in general terms. I'm going to allow some public input on this.

But it really needs to be specific to the issue before the Board right now on opt-in versus opt-out. Is there anyone from the public who would like to address the Board on either the main or substitute motion? I see two hands;

and I'll go first to the gentleman approaching the microphone. Thank you. Could you please introduce yourself?

MR. MONTY DEIHL: Thank you, Mr. Chairman, Monty Diehl from Omega Protein. If my math is correct, did it on my phone in the back. I just witnessed the Board vote for about an 8 percent increase in the overall TAC because of the health of the stock and how well it's doing; and in fact some argued that it could have been raised much more.

But based on this motion, again we could probably ask staff for clarification. It essentially means about an 8 to 10 percent reduction for Virginia; in Virginia's harvest from this year. For me that's laying off a lot of people from work. It even means now I have assets that I no longer need. Should I go to a state who I've heard around the table saying they want to grow an industry, they want to build an industry?

Do I now need to go and try to sell vessels, sell equipment, and even maybe barter labor to those states to grow something on the backs of people who have been doing this, like mine, for five generations? I can't even believe what I hear; I honestly can't. It also completely changes the mix, the supply and demand mix.

I'm not in the bait market. But it completely changes the supply and demand mix for bait; because you're now taking fish that had been used for reduction and not on the bait market, and you're moving millions and millions of pounds of those into the bait market, and you have industries, bait industries who have built again for many, many generations to build up a business. Now they're going to compete in a flooded bait market. I don't know if that's even being considered here. But I just wanted to point that out. From a Virginia standpoint, from a taxpayer in Virginia standpoint, and from a very large employer who represents an awful lot of people, this is not going in a very good direction. Thank you, Mr. Chairman.

CHAIRMAN BALLOU: Thank you, is there anyone else who would like to address the Board? Yes, sir.

MR. JEFF REICHLE: Thank you, Mr. Chairman, Jeff Reichle from Lunds Fisheries. Yes, I would like to echo a lot of what Monty just said; and just say that what I've seen happen today has totally destroyed what I understand fishery management to be. For the most part, fisheries have always been managed and allocated based on history and recency; and that was completely thrown out the window today.

You know there are a couple states that have history; recent history and history going way back. What you've basically done today is done a total reallocation to other states. If that stands, then I do not agree with this amendment. I think I agree with the original motion, so that we have the opportunity to get some of the quota that has been taken from us for no good reason back. Thank you.

CHAIRMAN BALLOU: Yes sir, in the back. If there is anyone else would like to speak, please come forward and be ready to take the microphone. I don't see any other hands up; but I just want to move on after this. Thank you.

MR. JIMMY KELLUM: Jimmy Kellum; from Virginia. My company is Kellum Maritime; we fish for bait and for reduction, and sell to Omega. I appreciate what Adam is trying to do here; but this doesn't fix the fact that we just transferred 301,000 bushels from reduction to bait. Do you have any idea what that is going to do to the bait industry?

The bait industry will collapse; based on what we've done in the last hour. This doesn't fix what we've done. We need to go backwards and say, we made a serious mistake here, because we have made a mistake. We have pillaged New Jersey and Virginia; on the theory that some other states may establish a bait business. I'm on the AP Committee, and they'll

tell you I was all in favor of the four states getting more quota, but not to this degree. We need to rethink this. Thank you.

CHAIRMAN BALLOU: Thank you very much for those comments; one last comment, thank you.

MR. A. J. ERSKINE: My name is A.J. Erskine; I'm with Mid-Atlantic Bait in Virginia. I agree with the previous comments. I disagree with this amendment. I think we did make a mistake with the fixed minimum. We are talking about economically changing the bait market drastically; so we're opposed.

CHAIRMAN BALLOU: Thank you, so now I would like to go back to the Board for comments on this motion to substitute. I had four names that were already in queue; and I'm just going to go right through those to see if they would like to speak on the substitute motion, starting with Cheri Patterson.

MS. PATTERSON: Ritchie covered what I was going to say, thank you.

CHAIRMAN BALLOU: Colleen Giannini.

MS. GIANNINI: I was looking for just some confirmation on Pat's original motion; that a state's decision to opt in and then subsequent declaration for the amount of quota it would like in that year, wouldn't be affected in subsequent years.

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: Correct, it would be an annual decision by the state.

MS. GIANNINI: Okay, and then just a quick follow up, I guess just a comment in this. I think that this motion here that Adam has up, I think it could be maybe a lot simpler, and I don't know if it would work better just to simply end that states may declare to opt out of the program and decline their fixed minimum

allocation, and not necessarily have to have a 10,000 pound for bycatch purpose in there.

CHAIRMAN BALLOU: Duly noted. Next I have Rob O'Reilly.

MR. O'REILLY: Certainly the speakers from the public, I certainly echo what they have to say from Virginia. I do think that there was a mistake earlier on; and you know it's too late in one way. The 220,000 metric tons would have solved some of these problems, and we could have gotten away from the fixed minimum that I've talked about a couple of times, as to what the ramifications and repercussions will be from that.

I don't really think that making a situation like this more palatable is something that we should avoid. I think we should try and do that. I've been hearing making certain states whole; although, and I don't take any offense at all. I did hear Ritchie White say, but maybe we don't have to make them whole.

But clearly, we need to be a little more careful about what we're doing. I see what's up on the board, and no disrespect to Pat or to Adam, I see it as a contrivance. I see it as an outfall of having not thought through some of the decisions that we made. I can't support it; and I regret that we didn't make some earlier decisions that maybe wouldn't get us in this place.

If I look across the table at New Jersey, I see their workforce diminishing; if I think of Virginia, our workforce diminishing. I mean how many things can we add on to our lives in the states that we have to monitor and keep sacred; when we don't need to start doing that and we shouldn't have started doing this on this situation. It was fixable earlier on.

CHAIRMAN BALLOU: Nichola Meserve.

MS. MESERVE: I prefer the initial motion to this substitute. The purpose of the reallocation

option that we selected was to meet the needs of more states for their commercial fisheries; and allocating 3.5 million pounds to a state without a fishery runs counter to that objective. For consistency purposes, I think we need to look at that objective when it comes to this motion as well. ASMFC does have a long-held practice; I guess I would call it, of allowing states to be more conservative than the requirements. But I don't think that that has normally come at the disadvantage to other states, and that is what the initial motion was trying to address in some part. I don't support the substitute.

CHAIRMAN BALLOU: Toni Kerns, did you have something you wanted to add?

MS. KERNS: Just for clarification. The first two sentences are sort of in opposition of each other here in the motion; because the first one says you can declare to opt out and decline all of your allocation or maintain just the 10,000 pounds. But then the second sentence says if a jurisdiction declines its full amount it must specify the amount that they don't wish to receive.

I think if a state wanted to keep part of the allocation, you could just say states may declare to opt out of the program and decline all or part of their fixed minimum, instead of restricting it to just being able to keep 10,000 pounds. Does that make sense, Adam? Do you see where I'm thinking the two sentences may go against each other?

CHAIRMAN BALLOU: I do believe I see your point. Adam, do you want to speak to that?

MR. NOWALSKY: Your suggestion would be to remove the "or maintain 10,000 pounds through the period?"

MS. KERNS: Yes, if that is the intention yes; but also say decline all or part of your fixed minimum, so it allows the state to determine what is being declined. If they want to keep

half, then they can still keep half. If that is what your intention was here.

MR. NOWALSKY: My intention is definitely to allow states to choose the portion they wish to decline; so I'll leave it up to the discretion of staff and the Chair whether having that information on the record is sufficient, or if they have word smithing they would like to offer.

CHAIRMAN BALLOU: I believe staff is undertaking word smithing. Let's see if we can get it to a point that would comport with your intent, Adam.

MR. NOWALSKY: I have no objection to how it's being modified pending the final result.

CHAIRMAN BALLOU: Let's read back into the record where this motion now stands as amended. Move to substitute that at the start of each fishing year and no later than January 31st; states may declare if they want to opt-out of the fixed minimum program. States may declare to opt-out of the program and decline all or part of their fixed minimum allocation.

If a jurisdiction declines part of their allocation it must specifically identify the amount they do not wish to receive. Any quota that is not received by a state is redistributed to the other jurisdictions based on historic landings from the time-period selected by the Board in this Amendment. Adam, does that meet with your intent?

MR. NOWALSKY: Yes, thank you.

CHAIRMAN BALLOU: Is there any objection from the Board to modifying the motion as now written? Seeing no objection that change has been accepted and the motion stands as it does; further discussion on the motion, Doug Brady.

MR. BRADY: I'm trying to get my arms around this motion versus the prior motion; and I guess I'll direct the question to maybe Robert Boyles

in the case of maybe South Carolina. The language in the prior motion dealing with the intent and the ability to demonstrate that you can harvest your quota that's allocated, if that one passed South Carolina has no, I mean there are states that have nothing in the regulations that allow them to do that. Obviously they could pass things.

Would by default South Carolina automatically give up their quota; because they don't have anything in place to show intent or ability to harvest? Under this motion, all the states can for whatever reasons just say we're not going to opt out; we're just not going to opt out, and therefore we'll keep out quota to do whatever we want to with it.

Under the prior motion, some states that don't have a fishery at the present, by default would not get their quota. Do you understand what I'm trying to? I think from what was said at the public comment, the concern may be that under this provision it's just so easy to take quota that is not going to be utilized, or negotiated in other ways.

But it penalizes potentially severely the states that are getting less of a quota by what we're doing by the 75 or the three-quarter percent. But Robert, I would just ask you that. Did you read the first motion to say by default that if that one passed that South Carolina would not get any quota? Do you follow my question?

CHAIRMAN BALLOU: Robert, it's your call as to whether you feel like you want to respond to that or not.

MR. BOYLES: I think what our particular situation is, to answer Doug's question, is the gear that would process menhaden is unlawful in South Carolina, outlawed by the Legislature years ago, nothing to say that a processor couldn't fish federal waters, if the fish were there. For instance, we don't have the processing capacity necessarily. Not to say that it couldn't develop. Doug, I'm not sure if that

answers your question; but that is kind of where we are in South Carolina.

CHAIRMAN BALLOU: Let's leave that one there for now and circle back if need be. Loren Lustig.

MR. LUSTIG: I will be brief. With my new found skills for word smithing, I would like to thank Ritchie White for reminding us of the benefits of compromise. If we dig in our heels there is going to be plenty of blood on the floor all around the table. I'm in favor of compromise. The gentleman who just spoke from Lund Fisheries reminded us of the importance of history. I was a history major in college. I understand history. If I was to choose a historic date to hearken back to, it would be the famous voyage of Captain John Smith in the Chesapeake. All right that is the date I would like to use as a baseline.

CHAIRMAN BALLOU: Senator Miner.

SENATOR MINER: The word "may" says to me that we may not need any of this language at all; either in the original motion, which would be 18 or 19. What this does in my view is changes an allocation from currency, which it is under the original what's been passed so far, 216,000 metric tons to a non-currency, because it automatically goes back to the Board for reallocation.

From a state's rights perspective, it seems to me that I would want Connecticut to have this allocation as a currency. It may very well be that we could choose to transfer it. But my read of this is that by making the declaration to opt out of the program, we devalue that currency. It automatically goes back into the pool.

I don't know what state would actually do that; and therefore that goes to my question of why do we even need either one of these? I understand the original intent of the original motion; which was try to set that base number as low as possible, and create a feeling that for

those states that were harmed in this redistribution process, there was some mechanism to get it back.

But I would suggest that the state of Connecticut could still enter into an agreement with the state of Virginia or the state of New Jersey to redistribute our allocation in the form of currency back to one of those states, should we choose to do it, without either of these motions. I'm probably inclined not to support either one of them.

CHAIRMAN BALLOU: I think it is a very good time to remind the Board that the amendment right now has a specific provision addressing this issue; which would be changed by either of these motions. Let's just say for the sake of discussion, neither of these motions passed. The default would be the following.

Should a jurisdiction desire to forego the fixed-minimum quota it has been allocated, it may on an annual basis choose to decline its quota completely, or maintain 10,000 pounds for bycatch purposes, and decline the remainder of the quota. Quota which is relinquished by the states will be redistributed to the other jurisdictions.

Should a state choose to relinquish its annual quota, the Commission must be notified through the Annual Compliance Report process. I just want to make it clear that that is what the amendment currently says with regard to the allocation method that's already been adopted. These motions seek to tweak that, change that, and modify it. Eric Reid.

MR. REID: I just want some clarification. Mr. Keliher's original motion had two other portions in it. Are those two other portions still in play in this?

CHAIRMAN BALLOU: I'm going to have Megan answer it.

MS. WARE: I don't believe so. But I would look to the maker of the motion to clarify that.

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: Because this is a motion to substitute, I don't believe that would be the case. I think this would completely replace my motion.

CHAIRMAN BALLOU: We have that now on the record. David Borden.

MR. BORDEN: I would just like to go back to the point that you made about the language in the document; and just remind everybody of what Ritchie White pointed out, and I thought it was a good example of how the mechanism would work. If the state of New Hampshire has a herring fishery that's taking place, and they need for the sake of argument 400,000 pounds of menhaden, in order to eliminate the bycatch and regulatory discards.

They would have the option of selecting 400,000 pounds. I don't think the state of New Hampshire wants to have a directed fishery. I don't think it may necessarily, and this is my read, but they would like the opportunity to select a number above 10,000 pounds so that they could eliminate bycatch. I just remind everybody of that. This system doesn't work very well when we promote regulatory discards. But I think there is a lot of merit in what Ritchie said before.

CHAIRMAN BALLOU: Any further discussion on the motion to substitute; David Bush and then Dr. Duval?

MR. BUSH: I'm glad you let me go first; because I can never follow her. She's a tough act, right? I'm still wading through this and there are a lot of different things that could happen from this. Now in my mind, and it may be different for some folks, but we've achieved our conservatory effect by the overall TAC that we put into place.

What the original motion in my mind would do, although the dates is something that I would question, would be to make states actively pursue their catch, and if they are not going to or can't demonstrate that they can, then that puts it back into play for everybody else. That doesn't mean that say North Carolina is going to come up the Potomac River and start fishing for menhaden.

But the overall quota itself has already accounted for the conservatory hopes that we want to achieve here. Again, I'm sort of trying to walk my way through this. In my mind I would think that maybe the first motion would be something to maybe take a little bit of the sting out of the initial cut that we already had. Again, I'm sure I'll learn more before we get done here.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: I seconded the motion for purposes of discussion. I think it's been very robust; and I really appreciate the public comment, and I appreciate what Adam was trying to do, in terms of I guess providing some assurance to states. But I also hear that the previous motion would actually provide more assurance of making certain that the quota that is available is available to those areas that actually need it. I appreciate what Adam was going to try to do, but I think I'm actually not going to support the substitute motion based on the public comments.

CHAIRMAN BALLOU: I echo the comment just made that we've had a robust discussion; and I'm going to take that as a queue to call the question. With that 30 second caucus and then we'll vote on the motion to substitute. Okay, I'm going to call the question. All in favor of the motion to substitute please raise your hand.

Hands down, all opposed please raise your hand; thank you, any null votes, any abstention? There are two. The motion fails 2 to 14 with two abstentions. We're back to the

main motion and after Max catches up, we'll put that back up on the board. Is there any further discussion on this main motion? John Clark.

MR. CLARK: I'm sorry to keep coming back, but the intent of this is to put it on the states that this fixed minimum is much more than most states will use. A state would have to actually state early in the year that they are going to use what they get; and if not, it automatically goes back into the pool to be redistributed.

Obviously from the concerns that were brought up by the public, this would have to be done in a very timely manner. Do we need to have more details in this motion, or do we need to further specify how we are going to reallocate unused, fixed minimum quota from these states?

CHAIRMAN BALLOU: I think the motion is quite detailed and quite clear on that; but I'll look to other Board members to see if they feel a need for additional clarity. David Borden.

MR. BORDEN: To John's question. My read is slightly different here, and I think it's pretty explicit in the motion. If Delaware didn't need their full allocation, they could request any amount up to the full allocation. But that is up to the state of Delaware.

MR. CLARK: I get that Dave. I'm just saying, the fact is I could for whatever reason say I want the full 0.75 percent of the quota, and not get anywhere near that. Then it doesn't get reallocated; to me that is a real problem. Because we have enough quota that is being taken from Virginia and New Jersey; that if enough states did what I just said that reallocation wouldn't happen in a timely enough manner to help those fisheries catch. As with many states, we're dependent on those states to provide bait for our crab fishery and for other fisheries. This is a big question is how this is going to work.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: I think to John's point. You know the motion that we passed previously included the transfer provision. I think I would look to that to ensure that quota is available to be used. I mean I know that North Carolina this past year was approached by several states earlier, actually pretty early in the year to see if we might be able to transfer some of our quota to them, to alleviate the issue of an abundance of menhaden that they were encountering off their waters. I would hope that that transfer provision would be utilized in that situation.

MR. CLARK: Well transfers are voluntary. All I'm saying is I'm just giving a worse-case scenario here is that a state could take the minimum, not transfer it, and we would have problems in the fishery. That is the only reason I wanted to see more specific language.

CHAIRMAN BALLOU: Good exchange; any further discussion on the motion? Seeing none; is the Board ready. Does the Board need time to caucus? David Borden, one minute caucus. Yes, one minute caucus and then we'll vote on this main motion. Okay, is the Board ready for the question? I see some caucusing still going on. Now it looks like it is ending.

Okay, all in favor of the motion please raise your hand; thank you. Those opposed please raise your hand; thank you, null votes, abstentions, two. Robert.

MR. BOYLES: Mr. Chairman, a motion to recess please.

CHAIRMAN BALLOU: First we need to clarify the vote; because I think we may have missed one, so I am going to ask for a recount, because I think our math came our wrong here, so let's make sure we get this right. **Those in favor of the motion please raise your hand and keep them up; thank you. Those opposed please raise your hand; thank you. The motion fails 7 to 9 with two abstentions.** The request to

recess could be coupled with a lunch break. Are we at that point, Robert, or were you looking for something shorter term?

MR. BOYLES: That was my intent, yes sir.

CHAIRMAN BALLOU: Let's break for lunch, and Toni, what time do we want to reconvene, or Bob?

MS. KERNS: Let's reconvene at 1:00 p.m. please.

CHAIRMAN BALLOU: We will reconvene at 1:00 p.m.; enjoy your lunch, thank you.

(Whereupon a recess was taken.)

PROCEEDINGS OF THE FIRST FEW MINUTES OF THE BOARD RECONVENING ARE UNAVAILABLE. IT IS CLEAR FROM THE MOTIONS THAT MR. BOYLES MADE THE FOLLOWING MOTION WHICH WAS SECONDED BY MR. MILLER.

Move to reconsider the allocation method.

MR. BORDEN: I would just ask Robert if he could provide us with a little bit of insight on where he wants to go with this.

CHAIRMAN BALLOU: Well, I think that's the second part. First is whether the Board feels comfortable bringing this motion back before the Board. Then I think Robert will have the opportunity to speak of how he may wish to subject it to reconsideration. I believe it's a two-part process, but I look to the Board for input on that. I see two hands. Adam Nowalsky.

MR. NOWALSKY: I believe because the original motion also included the two bullet points, and they were packaged together. I don't think we can just reconsider part of it. I understand that's the element we're looking to change. But I think we would be looking to reconsider that entirety of the motion.

Then once that's on the floor again, we would decide what else we were going to do. But I believe that's what we would be looking at; including the rollover and transfer provision we would be reconsidering as part of one reconsideration.

CHAIRMAN BALLOU: I totally concur with that. It would be the full motion back before the Board; which can then be addressed in however way the Board would like to. Is there any further discussion on the motion to reconsider? Emerson Hasbrouck.

MR. HASBROUCK: We had quite an extensive debate and discussion around that issue this morning; that went on for an extended period of time. I don't know why we need to revisit it; but maybe that will come out in the debate about, if it is brought back to the floor. I'm just concerned. We had a significant discussion this morning. I think we beat it to death pretty well.

CHAIRMAN BALLOU: Understood. Ray Kane.

MR. KANE: To reconsider, are we going to need two-thirds? No.

CHAIRMAN BALLOU: Majority vote. Is there any further discussion on the motion; Dennis Abbott?

MR. ABBOTT: Going along with what Emerson said. Surely we had plenty of discussion; and we reached some decisions. Like anything else, I think that when you do something and it advantages someone, there is probably someone else that is going to be disadvantaged. Apparently, not apparently that is what the feeling is with a number of people here.

Well at some point we have to make decisions and live by them. It just seems unseemly to have made a decision an hour and a half ago, and already we can't live with it. With due respect to Mr. Boyles, who I know is trying to do the right thing as Robert does a lot, he tries to make sure that everybody leaves the table

happy. Again, it's not going to happen. There is always displeasure with our decisions. We surely spent enough time this morning making a tough decision. I think that we should not reconsider and move along with our agenda.

CHAIRMAN BALLOU: Dave Bush.

MR. BUSH: Very briefly. I sat here while I watched quite a bit of folks skip lunch; folks that were on both the winning and losing sides working towards the middle, which I believe was the ultimate goal, not necessarily just the process for the sake of the process but an outcome we can all live with. I would certainly be in favor of hearing further discussion, if we can make this something that works for everyone.

CHAIRMAN BALLOU: Any further discussion on the motion to reconsider? Loren Lustig.

MR. LUSTIG: Just before you reconvened the meeting, I was speaking to my wife, Louise, and she said well when is the meeting supposed to be over? I said Louise, it's supposed to be over at 6:00 p.m. but it would not surprise me, since we're talking about the bottom line that I might be here until 9:00 or whenever. I agree with what I've heard around the table here. Sometimes long discussions sort of just overwhelm me. This is too important to sort of give it short shrift.

CHAIRMAN BALLOU: Any further discussion on the motion. Seeing none; is the Board ready for the question? Is there any need to caucus; a 30 second caucus? Okay, I'm going to call the question. **All in favor of the move to reconsider the allocation method please raise your hand, thank you. Those opposed please raise your hand, thank you. Are there any null votes, any abstentions? The motion passes 11 to 7; which means the motion is now back before the Board for consideration.** Robert Boyles.

MR. BOYLES: Thank you, good discussion and I agree; we'll try not to belabor this. My quote from Dr. Franklin, please, "For having lived long, I have experienced many instances of being obliged by better information or fuller consideration, to change opinions even on important subjects, which I once thought right but found to be otherwise. It is therefore that the older I grow, the more apt I am to doubt my own judgment, and to pay more respect to the judgment of others." Having said that Mr. Chairman, I'm reminded that being a guy from South Carolina; we know something about state's rights. We know something about public trust resource management; and it is very much my intention that we have a durable outcome as a result of our deliberations here today, and as we move forward with the implementation of the Amendment.

Let me be blunt. I think it's important that we all have something that we can live with; that we can go home with and say we've done our level best to be good stewards of our resources, good stewards of the trust that is given to us by our constituents, and in fact good stewards of the authority under which we are operating.

I'm concerned with my seatmate here Dr. Rhodes' comment referencing the Hippocratic Oath earlier that we might have jumped a little too quickly earlier today. Clearly there are allocations; very, very difficult issues associated with allocation. I have a new motion I would like to make that is up on the board.

If the Board will indulge me in it I will read it; and I think you will find that this is – fairness and equity are in the eye of the beholder – I think it's important that we do our level best to bring everyone along that we don't lose sight of the prize here. I think, Mr. Chairman, when I was sitting in your seat I suggested to the Board that this was a great big allocation amendment.

The first order question is how much do we leave in the water. I spoke to that issue yesterday. I won't revisit that in terms of

reference points. But I think it's important for the good of the cause. I think it's important for the commitment that the states made in 1942, when we were a little distracted with global events that there is more to be gained by cooperating and remaining committed to one another than by going it alone.

It is within that spirit that I offer this motion. **I would move to select Allocation Method Option C, a jurisdictional allocation with a fixed minimum with a 0.5 percent fixed minimum and the allocation timeframe 2009-2011. I would also move that we include incidental catch and small-scale fisheries Option B, modified to include purse seine smaller than 150 fathoms long by 8 fathom deep would be considered small scale gear, and episodic events Option A, with the 1 percent set aside. If I get a second, I'll explain further.**

CHAIRMAN BALLOU: Is there a second to the motion; seconded by Dave Bush? Moved and seconded to move this sort of three-part motion. Before I go to the Board for questions, Robert I would ask you. With regard to the motion that this is intended to replace, the motion that it would replace addressed transfers and rollovers, I believe. What is your intent with regard to those issues with this new motion?

MR. BOYLES: With the intent of transfers. My intent quite frankly, Mr. Chairman, as a state with no landings history, with no fishery that we would be prepared to contribute our share to be able to transfer that perhaps to the episodic events set aside, to bump up that number, to take into account the interest of those brethren along the northern coast. Also that would be available for transfer to other jurisdictions that may have overages.

CHAIRMAN BALLOU: If I might; just to make it clear. Is your intent to modify at all the prior decision made by the Board; with regard to allowing for transfers but not allowing for

rollover? I believe those were the two key aspects of the prior motion.

MR. BOYLES: Yes sir, Mr. Chairman. Thank you for clarifying that. That is my intent.

CHAIRMAN BALLOU: I guess we might want to think about whether we need to wrap those into this motion or not. I'll just sort of leave that hanging for a moment; to make sure that we've got the full mix before us. If this is to substitute in full, it looks like staff is already doing that as I speak, so how about that.

I think what Max has just done, if I'm not mistaken, I'm doing this on the fly here is added back in the two provisions from the original motion addressing transfers and rollovers. This sort of augments this motion now by incorporating those in. Robert is this consistent with your intent.

MR. BOYLES: Yes sir, Mr. Chairman. I would give a shout out to staff over lunch. They did provide a table that reflects what the current allocation is on the far right hand side of the page; and what is contemplated in this motion is in the far left hand column with the 2009-2011 TAC. I believe that has been distributed. I believe.

CHAIRMAN BALLOU: I believe you're right; and with that I will open the floor to questions or comments on the motion, starting with Adam Nowalsky.

MR. NOWALSKY: I appreciate the comment about a willingness to redistribute some of that unused quota. We had the conversation earlier this morning about the language that is currently in the Draft Amendment not being explicit in how that redistribution would occur. With this motion, how do you propose to move forward with that redistribution? How would it actually occur?

CHAIRMAN BALLOU: I think staff is prepared to address it; unless Robert, you want to jump in. All right, Megan.

MS. WARE: There are kind of two ways we could do that. We could do a separate motion to provide clarity on that; and maybe use some of the language from your motion before, if you would like to do that or if you would like to make an amendment or a friendly amendment, I would ask Robert Boyles to add in that sentence that said it is redistributed based on the timeframe selected by the Board. Then that's up to you guys.

CHAIRMAN BALLOU: As Adam mulls over that and other Board members as well, I'll go to Andy Shiels.

MR. SHIELS: This may surprise everybody, including myself in the room. But I support this motion. The reason I do is because I was under the understanding, mistakenly on my part that when we were talking about this earlier today. At the three-quarter percent fixed minimum that the states that did not have quota were getting quota, and Maryland and Virginia were unchanged. I was incorrect. When I found out that it was a half percent that's what I intended, sitting around the table.

I did not want to bring harm to Virginia or North Carolina, when the most important thing was a very modest increase of the total allowable catch.

Within that modest increase, the other states get an opportunity to fish. We argued back and forth whether Pennsylvania does or South Carolina will or will not prosecute that.

But I did not feel good about that as we left the room. I'm glad that somebody else brought it up. I do not prefer an alternative approach where we raise the TAC to provide this room. I think this is the right approach. I think Maryland and Virginia roughly stay the same. The other states get the benefit, a fishery that

they didn't have in the recent past, and so I support this motion.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: Thank you, Robert for bringing this forward, and I know several of you have been diligently trying to think of a little improvement. Sometimes when we do get involved in something that has so many layers, it is difficult to keep everything in mind. Andy, I think you're right. I think that it was quite a difference earlier with the way things were with the 0.75 fixed minimum compared to this, which is like about a 0.5 percent increase for Virginia.

I still don't know how all of this settles out. I mean you've heard this before, but the agency I work for really has very little to do with management of menhaden. It's the General Assembly that manages menhaden; and Senator Richard Stuart, who is a member of this Commission, and is also an attorney, sent a letter to the Commission and he really was somewhat critical, but on the fixed minimum especially.

He really questioned that if it was not illegal it certainly was inequitable and unjust, where there could possibly be horse trading of quotas. I think we've addressed that a lot before lunch; and wanting a method that that cannot happen. This is a big improvement. I do appreciate it; and so thank you for the time.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: Yes, I am supportive of what Robert is trying to do and reconsider, and do no harm here, and try to find the most equitable approach for everyone sitting around the table. I guess the concern that I have is with the Section 4.3.5 Option B, the incidental catch and small scale fisheries. Those harvests would not be counted towards the TAC under that option. Is that the intent?

CHAIRMAN BALLOU: I was having a sidebar, I'm sorry. If you could restate the question or maybe if somebody is ready to answer it. I missed it, I'm sorry.

DR. DUVAL: The motion on the board under Section 4.3.5, Incidental Catch and Small Scale Fisheries, Option B; under that option incidental catch does not count towards the TAC. I just wanted it clarified if that was the intent, to not have that catch count against the TAC.

MS. WARE: It is correct that that option does not count incidental catch towards the TAC.

CHAIRMAN BALLOU: Thank you, and my apologies for not following along. Additional comments on the motion. Emerson Hasbrouck.

MR. HASBROUCK: I'm a little confused here; in terms of proceeding under episodic events. I thought I heard the maker of the motion say something about discussing episodic events under that separate category. Is that not true, or does this motion take care of whatever we need to do under episodic events?

CHAIRMAN BALLOU: Well, I'll certainly let the speaker address that issue; but my take is this is addressing episodic events. I see the maker nodding in the affirmative; so that is the intent of the motion, to address episodic events among other things, additional discussion, Russ Allen.

MR. ALLEN: I'm not totally enthralled with this motion; but I see that there is a lot of work behind it to get it to where it needs to be. I'm having a hard time supporting it; but I'm as Rob said, real pleased that we're all working together on this to try to make it work for everyone. We already made half our constituents ticked off when we were doing certain things on this; and this will probably tick off the rest of them. I think this may end up being a best way forward; because I don't have a solution after this.

CHAIRMAN BALLOU: Yes, John Clark.

MR. CLARK: I'm just a little concerned about the allocation method here again. Once again we're allocating a large amount of quota to states that have not fished it, will not fish it. It just seems very inefficient. I think there has got to be better ways; and I thought I heard some discussed earlier that we could use, rather than going with this fixed minimum.

CHAIRMAN BALLOU: Nichola Meserve.

MS. MESERVE: I have the same concern as Dr. Duval with the Option B for the incidental catch and small scale fisheries; and it not counting towards the TAC, and also including small purse seines in that category now. It was also my hope with our initial selection of the 0.75 percent fixed minimums that we would be able to do away with the episodic event program; and the bycatch, what many people have referred to as a loophole, over the years. We're moving away from that direction here; so I can't support this motion.

CHAIRMAN BALLOU: Just for the Board's edification. My understanding is Option B as proposed under incidental catch and small scale fisheries, would not only now include purse seines as characterized, but would also include trawls, which was an issue brought up by the Advisory Panel. I just want to make sure the Board is clear that those would be gear types that would be allowed to fish; and that those landings in total would not be counted against the TAC, just to make sure we're all on the same page on this. I have Robert Boyles next.

MR. BOYLES: Again, thank you to the Board for indulging the discussion. I think the number of you I've talked to over the previous several months. Let me blunt and honest. There are a lot of things in the motion I just made that I don't like. I just don't like it. I won't be specific. I've talked to a number of you. I think you know what those things are.

I'm going to go back and tell you again; as a guy with no commodity in this fight. My interest is in the integrity and this body and this process. This body and this process that was tested this summer; and this body and this process that I think we're on notice, will be tested as a result of the actions that we take today.

I'm asking the Board's indulgence. There are things in here I don't like; make no mistake. But I think in the spirit and the interest of moving us forward, and not losing sight of the big prize; in my mind ecosystem reference points. That I think it's worth some give and take. It's perhaps a little bit of Frankenstein; in terms of a motion.

But I think if you look at the table, most jurisdictions end up better off than they are under the current allocation. I think we have sent a strong message with setting the TAC at 216,000 metric tons, to those folks who were gravely disappointed with our actions yesterday, with respect to our commitment to ecosystem reference points.

I think this is something; I would hope that this is something that the Board, perhaps more importantly the member states of our Commission, could live with as we move forward the development of ecosystem reference points. I would urge your consideration and urge your passage.

CHAIRMAN BALLOU: Eric Reid.

MR. REID: I'm a little bit concerned about Option B not accounting for small-scale fisheries. I have a question about the size of the purse seines that are in this fishery. We don't have a lot of purse seining in Rhode Island; but I know you do in Maine, and there is in Massachusetts as well.

Would a purse seine of this size fall – how many purse seiners do you have that use a net smaller than 150 by 8? I'm also concerned about episodic event being only 1 percent; if we go to

a half a percent fixed minimum. I guess my real question is about how much purse seine gear would fit into this category of not being considered or accounted for? Maybe somebody else could answer that.

CHAIRMAN BALLOU: I was just going to say, who might be best able to address that and I see Pat Keliher's hand up. Pat.

MR. KELIHER: The purse seines that are used in our fisheries right now are vastly larger than what is here. This would put a cap on the upper end size of a purse seine that would be able to be used. The fishery, we had a lot of people who are harvesting 6,000 pounds a day with purse seines that are twice this size.

They were doing that without a lot of spillage that was going over dead. We only one incidence of mortality associated with our fishery; with much larger seines. But the intent of that was to try to get the overall size under control; with the understanding that this is the language within Option B, which isn't here. This is for the 6,000 pound daily allocation. There is about 20-ish, could be more, and could be as many as 30 that will participate.

CHAIRMAN BALLOU: Ritchie White.

MR. WHITE: Pat just answered my question; and that is that this would be limited to 6,000 pounds a day.

CHAIRMAN BALLOU: Yes that's correct. Jim Gilmore.

MR. GILMORE: I'm just going to throw in, echo what Robert was speaking about. There are a lot of things I don't like in this reconsideration. But I think what we all need to keep in mind is as we move forward; I mean allocations is going to be our challenge for several species as we move forward over the next couple years.

We're getting into maybe even I walked in the room this morning, and what I want versus what I need. In terms of the Commission and

our guiding principles, we really need to look at cooperating, in terms of what our needs are, so that we can be functional as we move forward. It's easy to dig your heels in and maybe try to get what you can get out of the pie. But right now we really need to keep in the back of our minds is that we need to stick with those principles of the Commission, and really find a solution that keeps everyone's fishery viable.

That's probably the best term I can use. Other species that I won't mention right now, which we'll be talking about in a few months. It's really to have viable fisheries for all the states; and to cooperate the best we can to make that happen. As Robert said and I agree, there are things in here I don't like, but I support the motion, because I think it is what moves us forward in a cooperative fashion.

CHAIRMAN BALLOU: Steve Train.

MR. TRAIN: Like many that spoke already. If I had to pick this apart individually, I could probably find each item I don't like individually. But the quota allotment is obviously not enough to keep the Maine fishermen happy; if that was what we were working on. But when you tie all of these together, I think we can live with it and I can support the motion. But if we pull things out of it, I can't.

CHAIRMAN BALLOU: Emerson Hasbrouck.

MR. HASBROUCK: I pass, Mr. Chairman.

CHAIRMAN BALLOU: Pat Keliher. Is there anyone else on the Board who would like to address the motion; David Borden?

MR. BORDEN: Although I appreciate Robert's attempt here; I have problems with any portion of the landings not counting towards the quota. I think that sends the wrong message. I would have no problems if that were characterized as the soft cap. But I think there has to be a cap. The other thing that I've been personally

struggling here; and I think the Board has been struggling with.

I mean if you look at just fishery performance, and you can pick almost any timeline here recently. We have a whole group of states that really haven't had any performance in their jurisdictions. This is one of the flaws with the state minimum. In other words, we're allocating fish to states that have not had any type of performance.

Now much to his credit, Robert has been talking about foregoing his share of the allocation, I don't know how we get there. But I think we need to have a dialogue with the states that don't have any performance, history of performance in the fishery. Somehow, if we can get more jurisdictions to do exactly what Robert offered up, I think that's kind of the way forward. That would free up allocation to fix some of these issues. As I said, I don't know how to do that. If we had more time to do it, we could have a focused discussion individually or collectively on how to get there. We've done that on other species; black sea bass a long time ago, we had that type of discussion, and it was a negotiation.

To the extent that states that have not landed a pound for the last couple years, they're going to be allocated 2 plus million pounds. If they could say oh, well we'll take 500,000 instead of 2 million. That would solve a lot of the problems we're trying to deal with. I don't know how to generate that dialogue; or whether we have the time to generate that dialogue. But that I think is the way out of this box.

CHAIRMAN BALLOU: Allison Colden.

DR. COLDEN: I'll pass Mr. Chair, thank you.

CHAIRMAN BALLOU: Tom Fote.

MR. FOTE: Since Dave brought up black sea bass and how we got around that is because New Jersey gave up 20 percent of its quota.

Now when Bruce Freeman got back to New Jersey, there were not a lot of happy people there, because it was an arbitrary decision he made at the time. But that made the deal work then.

I don't see anybody sitting around this table wanting to give up 20 percent of their quota to help out, and try to make everybody happy. But that's how we got the black sea bass; by New Jersey stepping up to the table and giving up 20 percent of its quota.

CHAIRMAN BALLOU: Spud Woodward.

MR. WOODWARD: Just to get it on the record; in response to what Dave Borden said. The state of Georgia has no interest in prosecuting fisheries on its share of whatever we end up getting through these deliberations. I think if it will help the deliberations, you can certainly consider that our 2.6 million pounds is going to go wherever it can do the most good to help this situation. Since I'm going to be retiring at the end of December, I can make those kinds of promises, Tom.

CHAIRMAN BALLOU: Before I go back to David, anyone else who has not yet spoken. Cheri Patterson.

MS. PATTERSON: I could support everything here with the exception of Section 4.3.5. I think at least from our constituency and how most of us, some of us feel I should say, is that a lot of these ancillary numbers should be included in the TAC.

CHAIRMAN BALLOU: Roy Miller.

MR. MILLER: I would like to first express my appreciation to Robert; and all of the folks who worked on this issue since our lunch break. I'm very appreciative of the effort. Do I like all the details of this? I could quibble, like many others with individual points. I agree with Cheri, all catch including incidental catch in small scale fisheries I feel should go towards the quota.

But in general, I'm in favor of this and am appreciative of the effort.

CHAIRMAN BALLOU: Marty Gary.

MR. GARY: I appreciate all the discussion and hard work that everybody put into coming to this motion on the table now. Just a quick comment about Section 4.3.5, I won't speak for Maryland, but they probably have similar sentiment. It's essential for PRFC. We have a small-scale fishery. We typically hit our quota late summer into early autumn; and we're very reliant on that bycatch to continue us through the season.

We worked really hard on our accountability. We have trip level daily reporting submitted weekly, not monthly. When we hit 70 percent we have a mandatory call in for our 20 pound netters, and then when we hit the 90 percent threshold, we then switch over to bycatch. We really put in a lot of hard work with our harvesters and our staff; and make sure the accountability is there. I just want to make sure that you all know that that is really, really important to us. We need that there.

CHAIRMAN BALLOU: David Borden.

MR. BORDEN: I would just like to go back again and complement Spud and Robert for their willingness to try to strike a bargain here by enhancing it. I guess my suggestion would be to kind of break the mold here, is to take like a two or three minute caucus, ask the states that basically do not have significant fisheries talk among themselves, and see whether or not there are other jurisdictions that would be willing to give up some portion of their allocation. My suggestion would be anything that's given up would either be redistributed or go into Section 4.3.6.

CHAIRMAN BALLOU: We'll take that into consideration after I get Dave Blazer; who's next up. Then we'll try to figure out where we want to go from here.

MR. BLAZER: Really, what Marty said about the incidental catch. That is extremely important to our fishermen in the state of Maryland. I do want to remind everybody that in the management plan there is language in there. I won't read it verbatim, but basically that it's tracked.

If it becomes too much of a problem, it's too impactful that either that gear or trip reductions or other management measures can be taken as we follow that and learn that. There is some safety built in to that incidental catch for the small-scale fisheries. By the way, I'm supportive of this motion, even though it's not perfect for our situation. But again, I applaud the folks that helped put this together, and I'll be supporting it.

CHAIRMAN BALLOU: Dave Blazer. It's getting late, Dave Bush.

MR. BUSH: Although Mr. Blazer probably would like the opportunity to go again I guess. I don't know if it would be appropriate or not. We offered the opportunity, or you did, Mr. Chairman earlier for the public, one or two to weigh in on it, the original motion. Now this is a whole new grab bag, and those are the folks that we're trying to take care of. I don't know if maybe at your discretion, maybe a comment or two to see if this might be more livable.

CHAIRMAN BALLOU: It's a tough call. But I do feel that by and large this motion reflects provisions that are in the Amendment; and have already been subject to public comment. I am reluctant to open the door to additional comment; because I don't see this as being significantly different from what the options were as set forth in the Amendment.

That said; there is clearly interest. I think Adam Nowalsky expressed it, certainly David Borden did, and this issue of what happens under the fixed minimum program, which certainly the first part of this motion would enact. What

happens when states relinquish their quota? It's to be redistributed, it says that.

But it does not say how it's to be redistributed. It's really up to the Board whether you want to try to work through that issue question now, or potentially after a vote on this and coming back to it, or whether you just want to let it lay. It is what it is. I'll just sort of say that I sense that we're getting close to a vote.

But I'm aware that there have been a couple of points made regarding the implementation of the fixed minimum approach, particularly with regard to states that opt not to utilize their quota. I think there are two ways we could go; one would be to try to add on to this motion, the other would be to vote on this motion and then potentially circle back to that as a supplemental issue. I guess I'll take thoughts on that sort of piece; as well any other general comments.

I do sense we are approaching voting time, so I see three hands up. Let me go to the three hands that I see up; Nichola, Colleen, well we have four hands up. It sounds like there will be more discussion; as well there should be. This really is going to kind of be a big wrap, depending on the vote goes. Let's take the time we need to; to make sure we get it right. Nichola Meserve.

MS. MESERVE: I have now heard a number of Board members have concerns with the incidental catch and small-scale fishery Option B. There is also Option D in the document; which does provide the same 6,000 pound trip limit per day, or 12,000 pounds for the two permitted individuals on a vessel for the small-scale gears and the non-directed gears.

But those landings count towards the TAC and there is the 2 percent set aside. My question is actually for the maker of the motion; as to why, if there was a rationale for selecting Option B over Option D for the incidental catch, which

would count the bycatch landings towards the TAC.

CHAIRMAN BALLOU: Robert.

MR. BOYLES: It was offered in the form of an effort to build consensus.

CHAIRMAN BALLOU: Colleen Giannini.

MS. GIANNINI: Hi, I'm generally in support of the motion. I have the same concerns about Section 4.3.5; and because the incidental catch in the small scale comes in after a jurisdiction's quota is met. I'm just trying to wrap my head around what that magnitude is, given the increase in allocations with a fixed 5 percent, minimum?

MS. WARE: I mean obviously we can't necessarily predict what those will be. But I can say that especially last year, as there have been increases in the TAC, the magnitude of those incidental catch landings does seem to be declining. I will say that. I'm not sure if that will apply for this year. But that was a trend that we've seen to date.

CHAIRMAN BALLOU: Rachel Dean.

MS. DEAN: I just wanted to say that 4.3.5 is where we get behind this motion. The timeframe, 2009 to 2011 makes us uncomfortable, makes me uncomfortable. I won't speak for everyone. The half percent fixed minimum does not by any means get us to where we need to be. I just want to echo what Mary Gary said about how essential this is. I understand that there is the concern that some states would be allocated something that they don't intend to use. But the incidental catch and small-scale fisheries would mitigate that and essentially give that back to the states that are intending to use it.

CHAIRMAN BALLOU: Pat Keliher.

MR. KELIHER: We started today with the setting of a quota, or the TAC, which I supported in the end, hoping we could find a way to cut up this pie. It's obviously proving very difficult. I did not think I would be in a position where my fixed minimum was going to be half of what I was hoping it was going to get.

That being said, I am a reluctant supporter of this motion; assuming 4.3.5 remains in place, and I would urge the Board per David Borden's suggestion to take a pause and see where that exercise might get us regarding what jurisdictions, what state's might be willing to give up may help give us a clearer picture.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: We in Virginia also have a pound net fishery with quite a history; and of the seven gears that are involved in a quota, away from anything else, pound net is the one that is the largest. But it closes sort of without a pattern. It has been closed a couple of times since 2013; it has remained open.

You know there is a problem when it closes. I think we know with a fixed gear like that that discards are really not what we're aiming to do. I support the 4.3.5 provision. I also wanted to just ask Megan quickly on that magnitude question. Was it somewhere around 6 million pounds or something like that in one of those years for the bycatch? Does that ring a bell?

MS. WARE: Yes. I mean it sounds about right for the highest year; I believe was around 6 million. Then I can look it up, but I think last year was between 3 and 4 million.

MR. O'REILLY: Thank you, and if I may Mr. Chairman, based on last year that would be about 1.3 percent. Of course it's added on so it would be a little bit less; since it's not counting toward the TAC or towards the quota.

CHAIRMAN BALLOU: Steve Train.

MR. TRAIN: I wonder sometimes if everyone around the room remembers we've been working under what essentially is 4.3.5 from the beginning of this recent realm of management of menhaden. We've seen the stock continue to build; and it hasn't seemed to be an issue. I don't know why it's a sticking point now. Almost every state I look at has used it. It kind of makes this work. Without it, Maine can't support this.

CHAIRMAN BALLOU: Let's do this; well first let me go to Adam, and then I have a suggestion for a pause. Adam.

MR. NOWALSKY: If I could wait until after that pause; I had an idea I was going to toss out. But I'll be happy to do it offline, and then decide whether it warrants online discussion.

CHAIRMAN BALLOU: Let's pause for the purpose of essentially caucusing on whether the Board is ready to vote when we return; or whether there is any interest in doing any further modifications to the motion. We'll be paused for five minutes; and I'll call the meeting back to order.

(Whereupon a recess was taken.)

CHAIRMAN BALLOU: Okay that was a long recess; but hopefully a productive one. There certainly was plenty of engagement around the table. I see a couple hands up. I know David Borden has something he would like to say; as well Dr. Duval. I'll go to Dr. Duval first.

DR. DUVAL: Again, this is in regards to Section 4.3.5, the incidental catch and small-scale fisheries. You know we support counting all catch against the TAC. I recognize that moving to Option D would give a lot of people discomfort due to the 2 percent that will come off the top, and the impacts that might have to different jurisdictions allocations. I did want to ask Megan.

You know we do have a table in the Draft Amendment that indicates that on average the incidental catch has come out to 4.7 million pounds. Now, I was hoping if Megan could clarify for us that when you take the incidental catch that has occurred under this existing provision, and then add it to the total landings under the TAC. Have we exceeded the TAC in recent years?

MS. WARE: I've been doing a little research. Last year when we combined the directed landings and bycatch, we did not exceed the TAC. For the 2015 fishing year we did exceed it by 2 million pounds.

DR. DUVAL: Follow up, Mr. Chairman?

CHAIRMAN BALLOU: Sure.

DR. DUVAL: In 2015 the TAC was what?

MS. WARE: Approximately 414 million pounds.

DR. DUVAL: Okay. Thank you, I might have one more question.

CHAIRMAN BALLOU: Let me go to David Borden next.

MR. BORDEN: I will make this quick; and I kind of circled the table quickly. I mean we're trying to deal with two different problems here. One is in Section 4.3.6 the 1 percent. I had people say to me that they thought that percent was too low; and then this issue of 4.3.5 with the quota not counting.

I go back and reiterate, I'm not going to ask or put anybody on the spot, but if there are jurisdictions that would voluntarily contribute some portion of their minimum to those two activities; I think we could probably fix at least some of the issues we're trying to deal with.

CHAIRMAN BALLOU: Okay, additional comments if any; or is the Board ready for the question? It looks like the Board is ready for

the question; and I'm going to take the long recess we just had as the caucus opportunity. Without further ado; I will call the question, and ask all in favor of this motion please raise your hand.

MR. NOWALSKY: Mr. Chairman.
CHAIRMAN BALLOU: Yes.

MR. NOWALSKY: I would like to request a roll call vote.

CHAIRMAN BALLOU: We shall do that; and I'll look to Megan, and we'll go south to north.

MS. WARE: U.S. Fish and Wildlife.

MR. MILLARD: Abstain.

MS. WARE: NOAA Fisheries.

MR. BURNS: Abstain.

MS. WARE: Florida.

MR. ESTES: Yes.

MS. WARE: Georgia.

MR. WOODWARD: Yes.

MS. WARE: South Carolina.

DR. RHODES: Yes.

MS. WARE: North Carolina.

DR. DUVAL: Yes.

MS. WARE: Virginia.

MR. O'REILLY: No.

MS. WARE: Potomac River Fisheries Commission.

MR. GARY: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: Delaware.

MR. CLARK: Yes.
MS. WARE: Pennsylvania.

MR. SHIELDS: Yes.

MS. WARE: New Jersey.

MR. ALLEN: No.

MS. WARE: New York.

MR. GILMORE: Yes.

MS. WARE: Connecticut.

MS. GIANNINI: Yes.

MS. WARE: Rhode Island.

MR. REID: No.

MS. WARE: Massachusetts.

MS. MESERVE: No.

MS. WARE: New Hampshire.

MR. WHITE: Yes.

MS. WARE: Maine.

MR. KELIHER: Yes.

CHAIRMAN BALLOU: **The motion passes 12 to 4 with 2 abstentions.** I believe we have perhaps just one issue left; Chesapeake Bay Reduction Cap if I'm not mistaken, because I believe this issue will essentially dispense with all of the other issues that were pending. Before I go to the Chesapeake Bay cap issue, I just want to make sure that the Board is comfortable with where we are.

I should just say I assume the Board is comfortable with where we are; because otherwise we could get back into it. Seeing no hands; I will now seek a motion on the issue of the Chesapeake Bay cap. Maybe to fill this awkward gap, I'll ask Megan to review the option. We'll see if that might help spur some interest.

MS. WARE: For the Chesapeake Bay cap there are three options. The Board can maintain the cap at the 87,216 metric tons, reduce the cap to 51,000 metric tons, or remove the cap, which means that there are no restrictions on the reduction fishery in the Chesapeake Bay. Then there are also sub-options which ask whether a portion of unused cap can be rolled over to the next year. Right now we do have a rollover provision; it's about 10,000 metric tons. I'll look that up for you guys; but right now we do allow a portion of that to roll over.

CHAIRMAN BALLOU: With that is there anyone on the Board who would like to make a motion? Rob O'Reilly.

MR. O'REILLY: I'll make the motion for status quo for the Chesapeake Bay reduction fishery cap to be maintained at 87,216 metric tons. I'll have some explanation if I get a second.

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Adam Nowalsky? Moved and seconded, Rob the floor is yours.

MR. O'REILLY: I understand those who have talked to me over the last few weeks, and talked about support for lowering this cap to 51,000 metric tons. I'm not sure they have all the information; but there are a few pieces of pertinent information. The first is that everyone knows that the reduction fishery has not been achieving the cap by quite a bit over the last, I would say five years.

The other pertinent piece of information is while we lowered everything; in terms of the

fishery opportunities and quotas for 2013, starting in that season. We also lowered the cap from 109,000 plus metric tons are where it was starting in 2006. When there were increases, both in February of 2015 and also in 2017, almost a 10 percent and then a 6.4 percent increase in 2017.

The Bay cap remained unchanged. There were no calls to increase that Bay cap. I think probably we talked a lot about fair. I'm not going to say the equitable in this case; I'm just going to say fair. But a lot went into this cap. In 2006, it was set at the average of 2001 to 2005. I was at that meeting.

Every organization, whether NGO or not, was quite pleased that the cap of 109,000 plus metric tons was established. Given that type of information, I would not find it fair that we want to reduce; and some of the reasons behind wanting to reduce it really may serve as a bad situation for the idea that the reduction fishery has not been in the Bay, does not wish to be in the Bay when possible. But there is going to be a rainy day. When is the rainy day? Is the rainy day going to occur five years from now? It's sort of a penalty to lower this cap. Thank you for the time; and I hope for those who weren't involved back in 2006, and didn't watch the progression of this cap, because there was no progression after 2012 – it stayed the same – that they will appreciate my comments.

CHAIRMAN BALLOU: Just to clarify. You certainly implied this with your reference to status quo. Status quo would also involve Sub-option A under Option A; limited rollover of unused cap permitted up to 10,976 metric tons. Is that your intent?

MR. O'REILLY: That is correct; and again that was something that was worked out 11 years ago, and has worked very well. I think the main point here is that that is status quo.

CHAIRMAN BALLOU: Allison Colden.

21 DR. COLDEN: Obviously, as a person who lives in the Chesapeake Bay watershed and region, I think this is a very important discussion that warrants a lot more discussion. **I would like to offer as a substitute amendment to adopt Option B, Sub-option B to reduce the Bay cap to 51,000 metric tons with no rollover.** I would like to comment on that if I may.

CHAIRMAN BALLOU: Is there a second to that. There is a seconder, John McMurray seconds the motion to substitute so it's been moved and substituted, and Allison, the floor is yours.

DR. COLDEN: I think that many people around this table already know that the Chesapeake Bay is an extremely important nursery habitat; not only for Atlantic menhaden, but a number of the other species that these Boards manage, that this Commission manages. Even though there have been increased contributions of other places up and down the coast, in terms of menhaden recruitment. The Chesapeake Bay remains the largest contributor of menhaden to the coastwide stock.

It's because of this contribution, as well as the contribution of other organisms like particularly striped bass, from the Chesapeake Bay that this issue concerns not just the Bay states, but obviously every state that is sitting around this table. I would also like to point out that we haven't been seeing the same types of recovery that's been seen in New England.

That's not entirely shocking for anyone who has followed the work of Andre Buchheister and his colleagues, who noted that there are some climatic patterns that seem to correlate well with the recruitment of menhaden, and particularly that those patterns are negatively impact Chesapeake Bay, when they positively impact New England.

As long as we're continuing to see menhaden growing in New England that would imply that we would continue to see this low level of recruitment and low levels of menhaden within

Chesapeake Bay. I would encourage this body at this point in time to really err on the side of the ecosystem; as we all said that we are committed to. Remember all of the other species coming out of the Bay, and that the Chesapeake Bay menhaden populations are supporting, when we are considering this issue.

CHAIRMAN BALLOU: Thank you. John McMurray.

MR. McMURRAY: Setting a cap at 51,000 metric tons is essentially the status quo; as that's what they're catching now. Industry has consistently underperformed the cap. I would also note that if the entire cap were landed where it's set now that is about 100 million additional pounds, taken out of what I consider to be a very small area. That would most certainly have an impact on menhaden in that region and certainly the predators that eat them.

CHAIRMAN BALLOU: Ritchie White.

MR. WHITE: I have a question for Rob. I've heard that a lot of the concern on not lowering the cap is that the new owners of Omega have other uses for menhaden than are presently being used; which might prompt the harvesting of smaller fish. Can you comment on this? Can you, if you know, is there any commitment that the company will continue to harvest the fish size that they have been harvesting? My understanding is that that is why they're not catching their cap; because that size fish is not available in the Bay.

CHAIRMAN BALLOU: Rob.

MR. O'REILLY: Thank you for the question, Ritchie. No, I really can't comment; because I do not know the aspects of the future plans there at all. But I think the one thing is that the smaller fish are not desirable. I think I can say that; as much so for oil, which is a pretty good product from Omega.

The other thing, while I have the ability to say something, is that it's not really fair to say that because someone has harvested a certain amount by volition for the last five years that they should be held to that. That's sort of making a decision on a fishery that the fishery should make a decision on.

Clearly, if there was 109,000 metric ton cap in 2006 and that was the average of 2001 to 2005. It tells you that at times when the stock was available, but not as robust as it is today, there was more harvest then. Now the stock is healthier, and for business reasons is all that I could say. You know the reduction fishery has not taken place to the same extent in the Bay. But I don't think that is a signal to anyone to decide that's where you're going to stay, that's your line.

CHAIRMAN BALLOU: Dennis Abbott.

MR. ABBOTT: Rob just; clarify something for me, Rob. In this instance you don't want to go by history. In the last five years you haven't come near your quota, and you're saying you can't go by the fact that we didn't catch it. But yet when we were dealing with all the other matters, then history seems to mean everything. There is in my mind a bit of contradiction.

But as a comment, on the one hand I could believe that it doesn't matter whether the quota is at 87,216 or 51,000, because you're not catching it. What that number is really doesn't need to be changed on the one hand, because you're not getting up to the 51,000 anyways. I don't know, but I think it sends the wrong message of catching too many fish out of the Chesapeake. I know the recreational people don't want that. I could go either way, but I think that lowering that number probably does no harm to anyone.

CHAIRMAN BALLOU: Additional comments on the motion, before I go back to Allison who has

spoken already, I would like to get others in. Nichola Meserve.

MS. MESERVE: Just very quickly, I support the substitute and the comments from Allison and John. It seems like one example, one place where we could follow the overwhelming public comment on this issue, and not have an economic harm imposed by it.

CHAIRMAN BALLOU: Dr. Duval.

DR. DUVAL: I think just this cap is based on average harvest over a number of years; and I know that there was previously a research program that was focused on trying to determine whether or not localized depletion was occurring. You know that research was inconclusive. I guess I would just put out there that I would hope that in the future that this might be something that the Board would revisit, should there be conclusive science that indicates one way or another how a cap should be set.

CHAIRMAN BALLOU: Back to, who I now realize should be addressed as Dr. Colden, my apologies. I now see that I've been off for only the past ten hours, on improperly addressing you, so Dr. Colden, back to you.

DR. COLDEN: That's no problem. I just wanted to make one comment in response to Rob's comment about fairness and equity. At the current, under status quo, there is the possibility; there is the capacity to harvest 97,000 metric tons from Chesapeake Bay, almost half of the entire coastwide TAC that we've been discussing all afternoon.

I don't know whether the recreational anglers of Virginia and Maryland would consider that equitable; but I think I know the answer to that question. In terms of a business decision, it's obvious that if the business decision has been made to harvest at a specific level within the Bay over the past five years. That this is not a business decision that is negatively impacting

the bottom line; or else that decision would not have been made.

You know I think this reflects the past five-year's landings from the Bay. It's simply updating the window; the way that the cap was originally put in place. We're simply updating to the last five years; and making it similar to the way the cap was first implemented when it was first put in place. I hope folks will consider those comments when they are considering this.

CHAIRMAN BALLOU: Any additional comments on the motion? Rob O'Reilly.

MR. O'REILLY: Very briefly. I think the main issue is that this is a coastwide stock; and there is no scientific basis to indicate that the Chesapeake Bay has suffered from any localized depletion. I certainly understand those who hold to that concept; only because they think of the Chesapeake Bay as differently than the coastal area, but it's not.

It's a unit stock, a coastwide stock. Science has not shown anything else. I think that is important, and I think for that reason there was an option here to remove the cap as well, which hasn't been talked about. I think that is where maybe some would get some comfort by knowing a cap is there; but once you have that comfort, I don't think you need to go any further.

CHAIRMAN BALLOU: Any further comments on the motion to substitute? Seeing none; is the Board ready for the question? Is so does the Board need time to caucus? I'll assume there might be at least some time needed, so let's make it a 30 second caucus. There has been a request for a roll call; so I'll have Megan call the roll moving north to south.

MS. WARE: Maine.

MR. KELIHER: Yes.

MS. WARE: New Hampshire.

MS. PATTERSON: Yes.

MS. WARE: Massachusetts.

MS. MESERVE: Yes.

MS. WARE: Rhode Island.

MR. REID: Yes.

MS. WARE: Connecticut.

MS. GIANNINI: Yes.

MS. WARE: New York.

MR. GILMORE: Yes.

MS. WARE: New Jersey.

MR. ALLEN: No.

MS. WARE: Pennsylvania.

MR. SHIELS: Yes.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: Potomac River.

MR. GARY: Yes.

MS. WARE: Virginia.

MR. O'REILLY: No.

MS. WARE: North Carolina.

MR. BRADY: Yes.

MS. WARE: South Carolina.

MS. GIANNINI: Yes.

DR. RHODES: Yes.

MS. WARE: New York.

MS. WARE: Georgia.

MR. GILMORE: Yes.

MR. WOODWARD: Yes.

MS. WARE: New Jersey.

MS. WARE: Florida.

MR. ALLEN: No.

MR. ESTES: Yes.

MS. WARE: Pennsylvania.

MS. WARE: NOAA Fisheries.

MR. SHIELS: Yes.

MR. BURNS: Abstain.

MS. WARE: Delaware.

MS. WARE: Fish and Wildlife.

MR. CLARK: Yes.

MR. MILLARD: Abstain.

MS. WARE: Maryland.

CHAIRMAN BALLOU: **The motion passes 14 to 2 with 2 abstentions.** It now becomes the main motion; is there any further discussion on the main motion? Is there any further discussion on the main motion? Seeing none; is the Board ready to vote? If so do we need a roll call vote? Hearing no request, all in favor, yes there is a roll call vote on this now as the main motion. We'll call the vote again; same order.

MR. BLAZER: Yes.

MS. WARE: Potomac River.

MR. GARY: Yes.

MS. WARE: Virginia.

MR. O'REILLY: No.

MS. WARE: Maine.

MS. WARE: North Carolina.

MR. KELIHER: Yes.

MR. BRADY: Yes.

MS. WARE: New Hampshire.

MS. WARE: South Carolina.

MR. ABBOTT: Yes.

MR. BOYLES: Yes.

MS. WARE: Massachusetts.

MS. WARE: Georgia.

MS. MESERVE: Yes.

MR. WOODWARD: Yes.

MS. WARE: Rhode Island.

MS. WARE: Florida.

MR. REID: Yes.

MR. ESTES: Yes.

MS. WARE: Connecticut.

MS. WARE: NOAA Fisheries.

MR. BURNS: Abstain.

MS. WARE: Fish and Wildlife.

MR. MILLARD: Abstain.

CHAIRMAN BALLOU: **The motion passes 14 to 2 with 2 abstentions.** We're almost at the end, and I am not a glutton for punishment. But I have been advised by staff that left hanging is the issue of what will happen in terms of the administration of any quota allocated to a state under our fixed minimum program that a state opts not to utilize.

It's left vague in the document; and there are I think two ways to handle this. One is to get into it right now; and decide how best to administer that reallocation of unused quota, the other is to push it to an addendum process. What is the will of the Board? Does anyone not get the point; or understand why we're bringing this up? I think I'm bringing it up because staff has advised; but Bob.

EXECUTIVE DIRECTOR BEAL: I guess some concern about timing with the addendum process or potential addendum process. You know, the states are going to have to decide very soon if they're going to harvest some or all their quota in 2018. The earlier we know that the earlier the receiving states, if you want to call it that, can make their plans.

The assumption is Virginia may be one of the receiving states. Keep in mind that menhaden is managed through the Virginia State Legislature; rather than through VMRC, and legislative session begins at the beginning of the calendar year. The more Virginia knows, I think at the beginning of the year, the more information they have to work with going into the legislative sessions.

If there is an easy way to do it right now it would be a lot better. Easy and now is probably an oxymoron. But I think anything we can do to help staff understand how we're supposed to

divvy up the relinquished fish would help a lot of folks out, I think.

CHAIRMAN BALLOU: Thank you for that advice. With that advice, are there any suggestions from the Board? Pat Keliher.

MR. KELIHER: I move we have a caffeine break. No, Mr. Chairman I think we need some language. Do you have some language there, Megan? **Mr. Chairman, I would move that states must declare any relinquished quota by December 31st of the previous year. Any quota that is foregone by a state is redistributed to the other jurisdictions based on historic landings from the time period selected by the Board in this Amendment.**

CHAIRMAN BALLOU: Is there a second to that motion? Seconded by David Borden, Pat Keliher, do you want to speak more to it?

MR. KELIHER: I don't think this is perfect; by any stretch of the imagination. I think there were other comments during the last deliberation; in regards to have it going to very specific areas, whether it be the small-scale fishery or whether it be episodic. I don't think that is precluded from this motion. But it may need to be more specific. But I think the intent is to ensure that we have a clear understanding up front, and that clear understanding would be prior to December 31st.

CHAIRMAN BALLOU: Thank you. David Borden.

MR. BORDEN: I seconded it for discussion purposes. But I guess my question to Bob is, is December 31st adequate; in order to do what you want to do here, or should we back it up to like November 1st, or some date in November?

EXECUTIVE DIRECTOR BEAL: Mr. Chairman.

CHAIRMAN BALLOU: Please, I'm sorry.

EXECUTIVE DIRECTOR BEAL: It might be a better question for Rob O'Reilly. I don't know exactly when they have to have their legislative packages squared away to go into their

legislative process. The end of the year may be really tight for them; you're right, David. I don't know if mid-December is right or what it may be. But Rob may have a better sense of their legislative timing.

CHAIRMAN BALLOU: Rob, did you want to, yes I'm sorry.

MR. O'REILLY: I think December 1 would be better. I think that's a good suggestion. I think December 1 would be. It's going to be a little bit difficult the first time around to go through this. I understand that. But that would give time for the General Assembly Session in Virginia.

CHAIRMAN BALLOU: This is two weeks from today, more or less. Pat Keliher.

MR. KELIHER: I would accept that as a friendly if my seconder would.

CHAIRMAN BALLOU: **Is there any objection to amending the motion to change December 31 to December 1? Seeing none; the motion is amended,** and we're continuing our discussion on it. Dr. Rhodes.

DR. RHODES: Well, I had one other friendly amendment; because I've been hearing concerns about the 1 percent episodic event set aside. Would it be appropriate to put in here, any quota that is foregone by a state covers the 1 percent episodic event set aside, and the remainder is redistributed. That way no one has to worry about losing any of their 100 percent quotas.

CHAIRMAN BALLOU: My take is those are two very different approaches. One goes right down the list of allocations, allocation percentages for the 2009-2011 period, and redistributes accordingly. The other would do something different. Your approach would do something different; I don't see how that could be a friendly. It would have to be in the form of a substitute. Adam Nowalsky.

MR. NOWALSKY: Would there be any merit to specifying that the receiving states be states that did not relinquish quota; because I don't think it would make sense to donate back to states that are already giving something up. I might suggest consideration here that any quota that is foregone by a state is redistributed to the other jurisdictions that are not relinquishing quota. I'll put that out there for consideration.

CHAIRMAN BALLOU: That could be in the form of a friendly, I think. But first Bob Beal has a point.

EXECUTIVE DIRECTOR BEAL: I guess the way I was reading it, Adam, the notion that any foregone quota will be redistributed to other jurisdictions meant exactly what you said, which is jurisdictions other than the ones that relinquish quota. That is the way I was reading it; but maybe I was assuming too much.

CHAIRMAN BALLOU: Let me just ask Pat Keliher as the maker of the motion. Is that your intent?

MR. KELIHER: Our Executive Director did not assume too much, for once.

CHAIRMAN BALLOU: We have that clear on the record now that that is the intent. Nichola Meserve.

MS. MESERVE: Question to the maker of the motion whether this was intended to provide the flexibility to states to relinquish any amount of the fixed amount; as opposed to what the document currently says about 10,000 pounds for bycatch, or forego entirely.

MR. KELIHER: That's a great question. The intent would be to relinquish quota; with the understanding the document allows for that bycatch allocation.

CHAIRMAN BALLOU: Nichola, does that address your question?

MS. MESERVE: I think it's been answered. I guess I would have hoped that the states had more flexibility to give up any amount that they wanted to, as was part of the earlier motion today.

MR. KELIHER: I'm not opposed to that. It meets the intent of my original motion earlier in the day.

CHAIRMAN BALLOU: Again that is on the record as the intent. States have the flexibility to relinquish all or part of their quota. John Clark.

MR. CLARK: Just kind of a follow up. There could be a situation where, I'm just thinking of in our state. We would relinquish some of our quota; but it might turn out that in the fishing year of 2018, as we get to the end there would be more quota we could relinquish under this. It's only for the previous year. Would there be a way to relinquish quota during the fishing year also?

CHAIRMAN BALLOU: I think the answer to that is via transfer, yes, further discussion on the motion, Spud Woodward.

MR. WOODWARD: Just a question. If this motion were to pass, foregone means anything that is not transferred or used, is that correct?

CHAIRMAN BALLOU: I'm sorry, there is typing going on. I'm trying to follow, but let me see if Megan has a response.

MS. WARE: I'll just use a hypothetical. If Georgia wanted to forego half of their fixed minimum, half of your marbles would go through this process, and the other half you would still have. If you want to transfer those, you can do that.

MR. WOODWARD: Or I could transfer the entire quota to someone by declaring to do that on December 1st, which would leave nothing foregone. Is that correct?

MS. WARE: Correct. You would not opt out of the fixed minimum, so you would have all your marbles and you can do with them what you would like.

MR. WOODWARD: Well I would sure like to have all my marbles; it would be the first time in my life. I think I understand this, all right thank you.

CHAIRMAN BALLOU: As we were just having that good exchange, the motion has been perfected and it now reads: ***Move that states must declare any relinquished quota by December 1st of the previous year. States have the ability to declare how much of their quota to relinquish. Any quota that is foregone by a state is redistributed to the other jurisdictions based on historic landings from the time period selected by the Board in this Amendment. Is there any objection to that perfected language?*** I see no objection from the Board. Toni Kerns.

MS. KERNS: Just a perfection, perhaps instead of saying foregone, we should be consistent and say relinquished, quota that is relinquished by a state, just to be consistent.

CHAIRMAN BALLOU: That makes very good sense to me. ***Is there any objection to substituting the word foregone with the word relinquished? Seeing none; we have an even more perfected motion.*** Is there any more perfection that needs to be done, or any more discussion that needs to take place on this motion?

Seeing none; is the Board ready to vote on it? If so; do you need time to caucus? Let's just do a 15 second caucus. All right, I'm going to call the question. **All in favor of the motion please raise your hand, thank you. Those opposed please raise your hand. Are there any null votes, I see none. Are there any abstentions, and there are two. The motion passes 16 to 0 with 2 abstentions.** I now believe, if I'm not

mistaken but I may be, because I just see a hand go up. Robert Boyles.

MR. BOYLES: Mr. Chairman, I was going to offer a motion to approve the Amendment and they're not, okay, sorry.

CHAIRMAN BALLOU: We have one issue before that motion; which is moments away, I believe, and that is an implementation date. We do need an implementation date. Megan, if you could just speak to the options if you will that the Board has for an implementation date.

MS. WARE: It's really at the discretion of the Board; if there are certain timeframe constraints, states should probably come up with those now. My sense from the Board is that the intent is to have this implemented for the 2018 fishery.

CHAIRMAN BALLOU: We do need a motion on this. Would anyone like to make a motion regarding the implementation date for this Amendment? Tom Fote.

MR. FOTE: I make an implementation date of 2018.

CHAIRMAN BALLOU: Tom, would you want to make that January 1, 2018?

MR. FOTE: Yes.

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Loren Lustig? The motion is to move that states implement the provisions of Amendment 3 by January 1, 2018; discussion on the motion. John Clark.

MR. CLARK: As far as the Amendment won't be implemented until January 1, but Rob needs quota transfer to him by December 1. Do we have the quota as of the end of this meeting or as of January 1?

MS. WARE: I mean I can certainly work to get out the numbers as soon as I can as to what

your guys quota will be with the different set asides. Then you guys can make decisions as to whether you would like to relinquish quota or not; if that helps.

MR. CLARK: Right, I just wanted to make sure. Okay, so all the factors are going into effect as of today. We'll be transferring before the plan actually goes into effect.

MS. WARE: I think that's, I guess the intent of what the Board is deciding.

CHAIRMAN BALLOU: Just to clarify. We just agreed on some provisions that really are Amendment provisions that will actually kick in prior to January 1, 2018. John, to your point, I think it's a very fair point. But I think the record will reflect that those preliminary steps will be undertaken prior to implementation. You could argue they are part of implementation; but I think we're probably splitting hairs at this point, unless there is a feeling that we need to be more clear. Rob O'Reilly.

MR. O'REILLY: The Commissioner reminds me that the startup date is a little after January 1 for the General Assembly. But clearly that would be the implementation authority. It's not going to help the situation with the December 1 declarations. But January 1 might be a little bit too early to say that's the implementation.

I'm a little surprised. I think there probably are some other states that are going to need a little bit of time to do this as well. I remember in the past we've had to adopt even a May 1, which we don't want to do here. But I guess I'm asking the other states about this January 1 date. Maybe it might be better to put it into February.

CHAIRMAN BALLOU: Are there any thoughts by other Board members on whether January 1, 2018 is a date that they're comfortable with, or whether they wish to adjust? Cheri Patterson.

MS. PATTERSON: Question please. Megan, what is the harvest in the month of January?

MS. WARE: I don't know off the top of my head; but low.

CHAIRMAN BALLOU: Robert Boyles.

MR. BOYLES: Mr. Chairman, I would, I'm sorry you've got a motion. I'm sorry, never mind.

CHAIRMAN BALLOU: Any further discussion on the motion? Nichola Meserve.

MS. MESERVE: Just to clarify. Our state implementation plan is also due January 1, 2008, because Page 82 of the document has the option for two different dates for implementation plans being due, and then programs implemented.

CHAIRMAN BALLOU: Megan.

MS. WARE: Yes that's a good point. One option, taking into consideration what Rob O'Reilly said is we could do implementation plans due January 1, and then implementation date January 15, or February 1, whatever works. But that's just one suggestion.

CHAIRMAN BALLOU: There has been a suggestion. Is there an interest in modifying this motion? Robert Boyles.

MR. BOYLES: Move to amend.

CHAIRMAN BALLOU: Thank goodness, because we need this kind of excitement. Go ahead.

MR. BOYLES: I would move to amend that states submit implantation plans for Amendment 3 by January 1, 2018, and implement by January 15, 2018.

CHAIRMAN BALLOU: Is there a second to that motion; seconded by Jim Gilmore? Discussion on the motion to amend, is there any objection to the motion to amend? Seeing none; I'm sorry, Roy Miller.

MR. MILLER: Mr. Chairman, do we have to vote on those implementation plans?

MS. WARE: There is no voting. What has happened before is the Plan Review Team will review those; to make sure everyone has kind of checked the boxes on the various parts of the plan that the Board has voted on today. If there are any concerns then the PRT will notify the Board; potentially electronically or at the February meeting. We'll figure out the timing there. But that's how we have done it in the past.

CHAIRMAN BALLOU: I'll ask again, is there any objection to the motion to amend? Roy Miller.

MR. MILLER: I'm sorry, Mr. Chairman, I hate to be a nitpicker. But if the Board will be reading over these implementation plans, why not push back the actual implementation until the February meeting?

CHAIRMAN BALLOU: Toni Kerns.

MS. KERNS: Oftentimes we have a more complicated plan that will need information from the states. The states will have a lot more things to change. In this document for the most part, the only thing that you're going to be implementing is a quota. If a state can't implement the quota by January 15, then that is what we would need to know right now. Otherwise, I'm not sure there is going to be a lot of Plan Review Team review of the state implementation plans, because you're just going to come back and tell us yes, we're implementing our quota. I'll leave that with the Board to discuss.

CHAIRMAN BALLOU: Rob O'Reilly.

MR. O'REILLY: I know Robert Boyles has been trying to help me out here. I guess the situation is this isn't anticipated to be an emergency action at the General Assembly. The General Assembly goes into March, I think this year. I'm

looking to the back of the room and getting a head nod.

At the least, it would not be voted on and finalized through the House and the Senate, and be in the Governor's packet for him to either veto or sign, until March. I'm looking to the back of the room, or early April. Again, I'm a little surprised. First of all please know that this is a rare occasion; because usually VMRC is able to promulgate regulations fairly quickly, you know within a two month period.

It does put us in a bind that way, in that we really wouldn't have the quota ratified until early April. I don't know what to say other than that. I suppose we could be fishing not with reduction or with the snapper rig fisheries up until May, starting in May. But there is a bycatch situation, and the pound nets may start in late February some years. It depends. You know it's sort of a mess, I guess. But I think we can work around this better if it's not January 15, and again I know this is sort of a unique situation, just looking for some guidance.

CHAIRMAN BALLOU: Bob Beal.

EXECUTIVE DIRECTOR BEAL: A number of instances at the Commission, the Boards have set implementation dates, knowing that certain states or Commonwealths may take longer to implement. The compliance and other things have been really evaluated, based on whether a state is or is not moving toward implementation.

January 15 may not be the right date, but if it's March 1, or whatever it may be. The Commission is aware that states are working through their rule making or legislative processes to implement this Amendment. I think that is the most important thing. The other important thing is all states are working up the same sheet of music that know that the quotas that are approved through this Amendment and the spec setting process, are fully applicable to 2018.

We're not starting the year with a different quota, and then on the implementation date we're switching gears to a new quota. The Board today has approved the 2018 quotas that the states are going to be evaluated by. I think the implementation date may not be that critical. It's the state's working toward implementation of this that is the most important.

With that you guys can consider pushing back January 15 a little bit. But I don't know if we need to set the implementation date at sort of the least common denominator of the slowest legislative process; because some of the other states may need a shorter timeframe to sort of motivate them to implement the provisions earlier.

CHAIRMAN BALLOU: Eric Reid, did you have a comment?

MR. REID: I have a question. I think maybe Bob answered it; but I just want to be clear. What happens on January 1, as far as going fishing? What are we working off of? Are we working off of no quota? Are we working off of some quota? Do we have a bycatch? What do we have to work with?

CHAIRMAN BALLOU: Bob Beal

EXECUTIVE DIRECTOR BEAL: My understanding is you'll start with the allocations that are included in Amendment 3; based on the 216,000 metric ton quota that was approved earlier.

CHAIRMAN BALLOU: Yes, Andy Shiels.

MR. SHIELS: Would it make more sense to substitute the word implement and say no later than and pick a date; based on what Bob Beal said that you don't want to go for the fastest or the slowest state, but if it's no later than then everybody can work up to that date?

CHAIRMAN BALLOU: It's a suggestion. The Board can take that to heart, or we can just vote as proposed. I see two hands. Dr. Rhodes.

DR. RHODES: This harkens back to an issue that we often have before the Board when we change rules or limits; because South Carolina, all processes are done by the legislature, so Robert frequently is telling the Board that we will get this done as quickly as we can. However, it goes through the legislature. Virginia is in the same boat as us. We've never asked to change implementation dates, and I think the Board recognizes that if you're handcuffed by the legislature in certain areas you are, but you're working towards that goal.

This would be fine if other states require a little fire to get everything implemented by an earlier date, we would do that. We just stay aware of the fact that Virginia is moving as rapidly as their legislature allows. We've been in that boat 100 times, and you all have all forborne us during those times.

CHAIRMAN BALLOU: Robert Boyles.

MR. BOYLES: Mr. Chairman, I'm sorry. I meant to say April 15 for implementation date.

CHAIRMAN BALLOU: Is that serious?

MR. BOYLES: Yes sir, I did. I'm tired, I'm sorry, distracted.

CHAIRMAN BALLOU: *That's okay. Now we have a modified motion to amend that states submit implementation plans for Amendment 3 by January 1, 2018, and implement by April 15, 2018. Is there any objection to that modification to the amended motion? Seeing none; the motion stands amended, but we still haven't voted on it yet.*

Is the Board ready to vote? **Are there any further questions or discussions on this issue? Seeing none; is there any objection to adopting the motion to amend? Seeing no objections;**

the motion to amend is adopted by consent, and it becomes the main motion. Is there any further discussion on this now as the main motion? Seeing non hands; is there any objection to adopting this now as the final motion on implementation? Seeing no objections; the motion stands approved by consent, and now Robert, I do believe we're ready for one final motion. Right, yes we are.

MR. BOYLES: I would recommend to the Commission the approval of Amendment 3 to the Menhaden Interstate Fishery Management Plan as amended today.

CHAIRMAN BALLOU: Is there a second? Seconded by Jim Estes, moved by Robert Boyles and seconded by Jim Estes, is there discussion on this motion? This will be a final action by the Board; the final action on Amendment 3. It will be a roll call vote by necessity, and it will end the process of considering Amendment 3. Loren Lustig.

MR. LUSTIG: I certainly appreciate what we've had today; which has certainly been a very insightful discussion. I apologize to those of you might wish that I had forgotten, but I did not forget Rachel, my pal over here in Maryland using the word "unless." Here's my response. The Lorax said, "Unless someone like you cares a whole awful lot, it's not going to get better, it's not." I think what we proved to our critics and our supporters are that the people in this room care a whole awful lot. Thank you.

CHAIRMAN BALLOU: Any further discussion on this motion? Seeing none; I'll have Megan call the roll. We'll go north to south.

MS. WARE: Maine.

MR. KELIHER: Yes.

MS. WARE: New Hampshire.

MS. PATTERSON: Yes.

MS. WARE: Massachusetts.

MS. WARE: Georgia.

MS. MESERVE: Yes.

MR. WOODWARD: Yes.

MS. WARE: Rhode Island.

MS. WARE: Florida.

MR. REID: Yes.

MR. ESTES: Yes.

MS. WARE: Connecticut.

MS. WARE: NOAA Fisheries.

MS. GIANNINI: Yes.

MR. BURNS: Yes.

MS. WARE: New York.

MS. WARE: U.S. Fish and Wildlife.

MR. GILMORE: Yes.

MR. MILLARD: Yes.

MS. WARE: New Jersey.

CHAIRMAN BALLOU: **The motion passes 17 to 1 and the Amendment stands adopted.** Thank you, and before we move on to what I believe is our last agenda item, and it's a brief one, relatively brief. Indulge me for one minute, just one minute for some closing remarks. I would appreciate your time.

MR. ALLEN: Yes.

MS. WARE: Pennsylvania.

MR. SHIELDS: Yes.

I really feel like I've learned two things through this process. One is that I was advised early on that amendments are a big deal; and I found that to be true. Then I've really learned that amendments pertaining to menhaden are really big deals. It has been quite a journey; but the second lesson that I've learned is that the journey is made possible thanks to the team effort of so many people.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Maryland.

MR. BLAZER: Yes.

MS. WARE: Potomac River.

MR. GARY: Yes.

I'm sure I'm missing some key folks here, or key entities. But I think back to the Allocation Workgroup Process that Robert Boyles began prior to my Chairmanship, while he was still Chair, which really carried forward and was very much a part of the provisions that ended up in this Amendment.

MS. WARE: Virginia.

MR. O'REILLY: No.

MS. WARE: North Carolina.

DR. DUVAL: Yes.

I think of the Plan Development Team and listening into their many hours of meetings, and working through these issues. I think of the Technical Committee and the BERP Working Group, and of course the Advisory Panel; for all

MS. WARE: South Carolina.

MR. BOYLES: Yes.

of their hard work over the course of really, the past two years. This has been a long process.

Of course I recognize prior, and recognize again the enormous amount of public input that was provided for this process; and how well received and appreciated it was. Of course there is this Board, and I've never been so privileged to work with such a fine group of people. It has been an honor and really a great experience to work with you through this process and get to where we've gotten.

Last but not least this person to my right, Megan Ware, our FMP Coordinator (Applause), what a champion and what a dear friend and colleague. Thank you so much, Megan for all of your work. Boy, I'm sure it's going to feel good tomorrow to know that this is actually behind you. I believe Max might be stepping in, if I've got that right, so welcome, Max.

It's a cake walk, I assure you. Before we do turn to our last item, I just have to note how skilled and talented Russ Allen is, agreeing to serve as Vice Chair, and then also leaving us just at the point where he would have assumed the Chairmanship. Well played, Russ. But in all seriousness, thank you.

I know we acknowledged and thank you for your contributions to this Commission at the last meeting. But certainly, let's take this opportunity to thank Russ for all of his contributions to the Menhaden Board. Thank you. (Applause) With that we turn to our last agenda item, which is, I'm sorry, Dennis Abbott.

MR. ABBOTT: Excuse me, Mr. Chairman. You thanked an awful lot of people; but you didn't thank yourself, which is not appropriate to do. But on behalf of the Board, I would like to thank you for the work that you've put into this, and also like to thank you for the way that you have conducted all the meetings with the utmost consideration to every person in the room. I think you ought to be congratulated; and we

surely appreciate the work that you've done over the past two years. Thank you! (Applause)

CHAIRMAN BALLOU: Thank you very much and you're going to want to stand again; because I was just reminded that this is Spud Woodward's last meeting. Let's please stand and give a round of applause to our colleague, Spud Woodward. (Applause)

ELECTION OF VICE-CHAIR

CHAIRMAN BALLOU: With that we are indeed onto our last item of business; which is the election of a Vice-Chair. Does anyone have any recommendations or motions to make? Robert Boyles.

MR. BOYLES: **I would move that we nominate, select, and elect, and sentence Nichola Meserve as Vice-Chair of the Atlantic Menhaden Board, and if I could just to expedite things and the nominations be closed.**

CHAIRMAN BALLOU: I guess we need a second. Loren Lustig seconds that. Nominations are therefore closed. There is no chance Nichola that you're getting out of this one. **Is there any objection to the motion? Seeing none;** congratulations, Nichola and we look forward to your leadership as a follow to all that's been done by all of the prior Board Chairs and welcome and congrats.

MS. MESERVE: Big shoes to fill, but I expect nothing but smooth sailing for the next two years.

ADJOURNMENT

CHAIRMAN BALLOU: With that I believe the next order of business would be to adjourn; and then there might be a reconvening of the Business Section. Do I have that correct? Jim will be doing that; and Jim is already poised and ready to go, so this is going to be a quick transition. I will hereby adjourn this meeting of the Menhaden Board and turn it over to Jim Gilmore for the Business Section.

(Whereupon the meeting was adjourned
around 3:00 o'clock p.m. on November 14,
2017)



Atlantic States Marine Fisheries Commission

Atlantic Menhaden Board & Business Session Meeting Summary

Vision: Sustainably Managing Atlantic Coastal Fisheries

Atlantic Menhaden Management Board
& Business Session
Baltimore, MD
November 13 & 14, 2017

Toni Kerns, ISFMP, or
Tina Berger, Communications
For more information, please contact
the identified individual at
703.842.0740

Meeting Summaries, Press Releases and Motions

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ATLANTIC MENHADEN MANAGEMENT BOARD (NOVEMBER 13 & 14, 2017)

Meeting Summary

In addition to taking final action on Amendment 3 and setting the 2018 and 2019 total allowable catch limits for Atlantic menhaden (see press releases under Business Session), the Board elected Nichola Meserve (MA) as its Vice-Chair. For more information, please contact Megan Ware, Fishery Management Plan Coordinator, at mware@asmfc.org or 703.842.0740.

Motions

Main Motion

Move to adopt reference point Option E: BERP Workgroup Continues to Develop Menhaden-specific ERPs with Interim Use of 75% Target, 40% Threshold as described in Draft Amendment 3.

Motion made by Mr. Borden and seconded by Ms. Meserve. Motion substituted.

Motion to Substitute

Move to substitute to adopt Option B: BERP workgroup continues to develop Menhaden-specific ERPs with Interim Use of Single-species Reference Points as described in Draft Amendment 3.

Motion made by Mr. Keliher and seconded by Mr. Allen. Motion passes (Roll Call: In Favor – ME, NY, NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NOAA Fisheries, USFWS; Opposed – NH, MA, RI, CT, PA)

Main Motion as Substituted

Move to adopt Option B: BERP workgroup continues to develop Menhaden-specific ERPs with Interim use of Single-species Reference Points as described in Draft Amendment 3.

Motion to Amend

Move to amend to add to set the TAC at 200,000 metric tons for the next two years (2018-2019).

Motion made by Mr. Boyles and seconded by Mr. McMurray. Motion fails (Roll Call: In Favor – RI, CT, PA, SC, GA; Opposed – ME, NH, MA, NY, NJ, DE, MD, PRFC, VA, NC, FL, NOAA Fisheries, USFWS).

Main Motion as Substituted

Move to adopt Option B: BERP workgroup continues to develop Menhaden-specific ERPs with Interim Use of Single-species Reference Points as described in Draft Amendment 3.

Motion passes (16 in favor, 2 opposed).

Move that if the fixed minimum option is selected the following conditions would govern the activity:

At the start of each fishing year and no later than January 31st, states must declare if they want to participate in the fixed minimum program.

States have the option to opt -out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds for bycatch purposes and decline the remainder of their quota. States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its fixed minimum quota, a state can also chose to receive all, or part, of this amount. If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and ability to commercially harvest some, or all, of its

menhaden quota for a directed or bycatch fishery. This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state and/or federal waters. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historic landings from the time-period selected by the Board in this Amendment. Motion made by Mr. Keliher and seconded by Mr. White. Motion tabled until after Issue 2 is addressed.

Move to table until after Issue 2: Allocation Methods and Timeframes has been decided. Motion made by Mr. Nowalsky and seconded by Mr. O'Reilly. Motion carries unanimously.

Main Motion

Move to set a total allowable catch not to exceed 216,000 metric tons until such a time that ecological reference points are utilized for Atlantic menhaden management. Motion made by Mr. Estes and seconded by Mr. Woodward.

Motion to Substitute

Move to substitute to set a total allowable catch of 240,000 metric tons for 2018 and 2019. Motion made by Mr. Nowalsky and seconded by Mr. Bush. Motion fails (4 in favor, 14 opposed).

Main Motion

Move to set a total allowable catch not to exceed 216,000 metric tons until such a time that ecological reference points are utilized for Atlantic menhaden management. Motion made by Mr. Estes and seconded by Mr. Woodward.

Motion to Substitute

Move to substitute to set a total allowable catch not to exceed 220,000 metric tons for 2018 and 2019 or until menhaden-specific ecological reference points are available for management use, whichever is first. Motion made by Mr. Bush and seconded by Ms. Dean. Motion fails (Roll Call: In Favor – NJ, DE, MD, PRFC, VA; Opposed – ME, NH, MA, RI, CT, NY, PA, NC, SC, GA, FL, NOAA Fisheries, USFWS).

Main Motion

Move to set a total allowable catch not to exceed 216,000 metric tons until such a time that ecological reference points are utilized for Atlantic menhaden management. Motion made by Mr. Estes and seconded by Mr. Woodward. Motion substituted.

Motion to Substitute

Move to substitute to set a total allowable catch not to exceed and be set at 216,000 metric tons for 2018 and 2019 or unless menhaden-specific ecological reference points are available for management use. Motion made by Ms. Dean and seconded by Mr. Train. Motion passes (Roll Call: In Favor – ME, NH, CT, NJ, DE, MD, PRFC, VA, NC, NOAA Fisheries, USFWS; Opposed – MA, RI, NY, PA, SC, GA, FL).

14. Move to limit debate.

Motion made by Mr. Abbott and second by Mr. Lustig. Motion carries without objection.

Main Motion as Substituted

Main Motion: Move to set a total allowable catch not to exceed and be set at 216,000 metric tons for 2018 and 2019 or unless menhaden-specific ecological reference points are available for management use. Motion passes (Roll Call: In Favor – ME, NH, MA, CT, NY, NJ, DE, MD, PRFC, VA, NC, SC, GA, NOAA Fisheries, USFWS: Opposed – RI, PA, FL).

Main Motion

Move to choose the following options in Draft Amendment 3:

- **Section 4.3.2 Allocation Method Option C: Jurisdictional Allocation with Minimum Base Allocation with a 0.75% fixed minimum; Quota Timeframe 2012-2016**
- **Section 4.3.3 Quota Transfers Option A: Quota Transfers Permitted**
- **Section 4.3.4 Quota Rollover Option A: Unused Quota May Not Be Rolled Over**

Motion made by Mr. Keliher and seconded by Mr. White.

Motion to Amend

Move to amend to section 4.3.2 Allocation method Option C “with a 1% fixed minimum.”

Motion made by Mr. Hasbrouck and seconded Ms. Meserve. Motion fails (6 in favor, 10 opposed, 2 abstentions).

Motion to Amend

Move to amend to substitute the first bullet with “Option F under Section 4.3.2: Allocation based on TAC level.”

Motion made by Mr. O’Reilly and second by Mr. Bush. Motion fails (1 in favor, 15 opposed, 2 abstentions).

Main Motion

Move to choose the following options in Draft Amendment 3:

- **Section 4.3.2 Allocation Method Option C: Jurisdictional Allocation with Minimum Base Allocation with a 0.75% fixed minimum; Quota Timeframe 2012-2016**
- **Section 4.3.3 Quota Transfers Option A: Quota Transfers Permitted**
- **Section 4.3.4 Quota Rollover Option A: Unused Quota May Not Be Rolled Over**

Motion made by Mr. Keliher and seconded by Mr. White. Motion passes (14 in favor, 2 opposed, 2 abstentions).

Move to bring the tabled motion back for consideration by the Board.

Motion made by Mr. Nowalsky and seconded by Mr. Hasbrouck. Motion passes.

Main Motion

Move that if the fixed minimum option is selected the following conditions would govern the activity:

At the start of each fishing year and no later than January 31st, states must declare if they want to participate in the fixed minimum program.

States have the option to opt -out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds for bycatch purposes and decline the remainder of their quota. States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its

fixed minimum quota, a state can also chose to receive all, or part, of this amount. If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and ability to commercially harvest some, or all, of its menhaden quota for a directed or bycatch fishery. This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state and/or federal waters. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historic landings from the time-period selected by the Board in this Amendment. Motion made by Mr. Keliher and seconded by Mr. White.

Motion to Substitute

Move to substitute that “at the start of each fishing year and no later than January 31st, states may declare if they want to opt-out of the fixed minimum program.

States may declare to opt-out of the program and decline all or part of their fixed minimum allocation. If a jurisdiction declines part of their allocation it must specifically identify the amount they do not wish to receive. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historic landings from the time-period selected by the Board in this Amendment.”

Motion made by Mr. Nowalsky and seconded by Dr. Duval. Motion fails (2 in favor, 14 opposed, 2 abstentions).

Main Motion

Move that if the fixed minimum option is selected the following conditions would govern the activity:

At the start of each fishing year and no later than January 31st, states must declare if they want to participate in the fixed minimum program.

States have the option to opt -out of the program and decline their fixed minimum allocation, or maintain 10,000 pounds for bycatch purposes and decline the remainder of their quota. States also have the right to opt-in to the program and receive their full allocation. In declaring its intent to receive its fixed minimum quota, a state can also chose to receive all, or part, of this amount. If a jurisdiction declines its full allocation it must specifically identify the amount requested. States which opt-in must demonstrate that the state has the intent and ability to commercially harvest some, or all, of its menhaden quota for a directed or bycatch fishery. This can be demonstrated through the issuance of permits for applicable gear types or species, historic landings, or the abundance of menhaden in state and/or federal waters. Any quota that is not received by a state is re-distributed to the other jurisdictions based on historic landings from the time-period selected by the Board in this Amendment.

Motion made by Mr. Keliher and seconded by Mr. White. Motion fails (7 in favor, 9 opposed, 2 abstentions).

Move to reconsider the allocation method.

Motion made by Mr. Boyles and seconded by Mr. Miller. Motion passes (11 in favor, 7 opposed).

Move to select:

- **Section 4.3.2 Allocation Method: Option C, Jurisdiction Allocation with a Fixed Minimum with a 0.5% fixed minimum; Allocation Timeframe: 2009-2011**

- **Section 4.3.3 Quota Transfers Option A: Quota Transfers Permitted**
- **Section 4.3.4 Quota Rollover Option A: Unused Quota May Not Be Rolled Over**
- **Section 4.3.5 Incidental Catch and Small Scale Fisheries: Option B, modified to include purse seines smaller than 150 fathom long by 8 fathom deep would be considered small scale gear.**
- **Section 4.3.6 Episodic Events Option A: 1% Set Aside**

Motion made by Mr. Boyles and seconded by Mr. Bush. Motion passes (Roll Call: In Favor – ME, NH, CT, NY, PA, DE, MD, PRFC, NC, SC, GA, FL; Opposed – MA, RI, NJ, VA; Abstentions – NOAA Fisheries, USFWS).

Main Motion

Move to select under Section 4.3.7: Chesapeake Bay Reduction Fishery Cap, Option A: Cap set at 87,216 metric tons, and sub-option A: limited rollover of unused cap permitted up to 10,976 metric tons.

Motion made by Mr. O’Reilly and seconded by Mr. Nowalsky. Motion substituted.

Motion to Substitute

Move to substitute to select Option B: cap set at 51,000 metric tons and sub-option B: no rollover of unused cap permitted.

Motion made by Dr. Colden and seconded by Mr. McMurray. Motion passes (Roll Call: In Favor – ME, NH, MA, RI, CT, NY, PA, DE, MD, PRFC, NC, SC, GA, FL; Opposed – NJ, VA; Abstentions – NOAA Fisheries, USFWS).

Main Motion as Substituted

Move to select Option B: cap set at 51,000 metric tons and sub-option B: no rollover of unused cap permitted.

Motion passes (Roll Call: In Favor – ME, NH, MA, RI, CT, NY, PA, DE, MD, PRFC, NC, SC, GA, FL; Opposed – NJ, VA; Abstentions – NOAA Fisheries, USFWS).

Move that states must declare any relinquished quota by December 1st of the previous year. States have the ability to declare how much of their quota to relinquish. Any quota that is relinquished by a state is redistributed to the other jurisdictions based on historic landings from the time period selected by the Board in this Amendment.

Motion made by Mr. Keliher and second by Mr. Borden. Motion passes (16 in favor, 2 abstentions).

Main Motion

Move that states implement the provisions of Amendment 3 by January 1, 2018.

Motion made by Mr. Fote and seconded by Mr. Lustig. Motion amended.

Motion to Amend

Move to amend that states submit implementation plans for Amendment 3 by January 1, 2018, and implement by April 15, 2018.

Motion made by Mr. Boyles and seconded by Mr. Gilmore. Motion adopted by consent.

Main Motion as Amended

Move to amend that states submit implementation plans for Amendment 3 by January 1, 2018, and implement by April 15, 2018.

Motion adopted by consent.

Move to recommend to the Commission the approval of Amendment 3 to the Atlantic Menhaden Interstate Fishery Management Plan as amended today.

Motion made by Mr. Boyles and seconded by Mr. Estes. Motion passes (Roll Call: In Favor – ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, PRFC, NC, SC, GA, FL, NOAA Fisheries, USFWS; Opposed – VA).

Move to elect Nichola Meserve as Vice-Chair of the Atlantic Menhaden Board.

Motion made by Mr. Boyles and seconded by Mr. Lustig. Motion passes without objection.

BUSINESS SESSION (NOVEMBER 14, 2017)

Press Releases

ASMFC Approves Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden
Atlantic Menhaden Board Sets TAC at 216,000 MT for 2018 and 2019

Linthicum, MD – The Atlantic States Marine Fisheries Commission approved Amendment 3 to the Interstate Fishery Management Plan (FMP) for Atlantic Menhaden. The Amendment maintains the management program’s current single-species biological reference points until the review and adoption of menhaden-specific ecological reference points as part of the 2019 benchmark stock assessment process. It also addresses a suite of commercial management measures including allocation, quota transfers, quota rollovers, incidental catch, the episodic events set aside program, and the Chesapeake Bay reduction fishery cap.

In addition to its Amendment 3 deliberations, the Board set the total allowable catch for the 2018 and 2019 fishing seasons at 216,000 metric tons with the expectation that the setting of the TAC for subsequent years will be guided by menhaden-specific ecological reference points.

“Through adoption of Amendment 3 and the setting of the 2018 and 2019 TAC at a risk-averse level, the Board has demonstrated its continued commitment to manage the menhaden resource in a way that balances menhaden’s ecological role with the needs of its stakeholders,” stated Board Chair Robert Ballou of Rhode Island. “While the Amendment maintains the current reference points, the Board placed the development of menhaden-specific ecological reference points as its highest priority. While the Board’s action was not supported by the majority of public comment received, it is still a conservative management action relative to our understanding of stock status and many of the positive signals we see in the current stock conditions. Specifically, the 2017 Stock Assessment Update indicated the resource remains healthy, with increases in abundance particularly in the norther states. Risks to the resource under our current reference points are well understood, while changes to the TAC under the general forage fish guidelines are not as well understood. Further, the approved TAC, which represents a modest 8% increase in the coastwide quota, has zero percent chance of subjecting the resource to overfishing or causing it to be overfished.”

Amendment 3 also changes fishery allocations in order to strike an improved balance between gear types and jurisdictions. The Amendment allocates a baseline quota of 0.5% to each jurisdiction, and

then allocates the rest of the TAC based on historic landings between 2009 and 2011 (see table below). This measure provides fishing opportunities to states which currently have little quota while still recognizing historic landings in the fishery. The Board also agreed to maintain the quota transfer process, prohibit the rollover of unused quota, maintain the 6,000 lb trip limit for non-directed and small-scale gears following the closure of a directed fishery, and set aside 1% of the TAC for episodic events in the states of New York through Maine.

“The Board worked collaboratively and effectively to forge an outcome that is fair and responsive to the needs and interests of all East Coast states,” said Chair Ballou.

Table 1. Amendment 3 allocation percentages based on a 0.5% fixed minimum during the 2009-2011 timeframe.

State	Allocations (%)
Maine	0.52%
New Hampshire	0.50%
Massachusetts	1.27%
Rhode Island	0.52%
Connecticut	0.52%
New York	0.69%
New Jersey	10.87%
Pennsylvania	0.50%
Delaware	0.51%
Maryland	1.89%
Potomac River Fisheries Commission	1.07%
Virginia	78.66%
North Carolina	0.96%
South Carolina	0.50%
Georgia	0.50%
Florida	0.52%
Total	100%

Finally, the Amendment reduces the Chesapeake Bay cap, which was first implemented in 2006 to limit the amount of reduction harvest within the Bay, to 51,000 mt from 87,216 mt. This recognizes the importance of the Chesapeake Bay as nursery grounds for many species by capping recent reduction landings from the Bay to current levels.

States must submit implementation plans to the Commission by January 1, 2018 for final implementation by April 15, 2018. The Amendment will be available on the Commission’s website, www.asmfc.org, by the end of November. For more information, please contact Megan Ware, Fishery Management Plan Coordinator, at mware@asmfc.org or 703.842.0740.

ASMFC Approves Interstate FMP for the Atlantic Migratory Group Cobia

Linthicum, MD – The Atlantic States Marine Fisheries Commission approved the Interstate Fishery Management Plan (FMP) for Atlantic Migratory Group (AMG). The FMP complements many of the aspects of the South Atlantic Fishery Management Council’s (SAFMC) cobia regulations for federal waters extending from Georgia through New York. The FMP was initiated in response to recent overages of the federal annual catch limit (ACL) for AMG Cobia. Managing the recreational ACL on a coastwide basis has resulted in federal closures and significant overages in 2015 and 2016, disrupting fishing opportunities and jeopardizing the health of the stock.

Under the Interstate FMP, the recreational fishery will be managed with a one fish bag limit and minimum size limit of 36” fork length (FL) or total length equivalent. Vessel limits will be determined once individual states set their seasonal restrictions, but may not exceed six fish per vessel. State-specific allocations of a coastwide recreational harvest limit that is equivalent to the federal AMG cobia ACL of 620,000 pounds result in the following state-specific soft targets:

- Georgia: 58,311 pounds
- South Carolina: 74,885 pounds
- North Carolina: 236,316 pounds
- Virginia: 244,292 pounds

Recreational harvest overages of specific-state allocations will be evaluated over a three-year time period. If overages occur, states will be required to adjust management measures to reduce harvest in the subsequent three-year period.

The commercial fishery will maintain the current management measures as implemented through the SAFMC FMP and continue to be managed with a 33” FL minimum size limit and two fish limit per person, with a six fish maximum vessel limit. The federal ACL of 50,000 pounds is allocated to the entire commercial fishery from Georgia through New York. The commercial AMG cobia fishery will close once the ACL is projected to be reached.

The FMP provides the opportunity for states to declare *de minimis* status for their recreational fishery if landings constitute less than 1% of the recreational AMG cobia harvest. States must submit implementation plans to the Commission by January 1, 2018 for Technical Committee review and Board approval at the February 2018 meeting in Alexandria, Virginia. Approved plans must be implemented by April 1, 2018. For more information, please contact Dr. Louis Daniel, Fishery Management Plan Coordinator, at ldaniel@asmfc.org or 252.342.1478.

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PR17-58

Motions

On behalf of the Menhaden Board, I move the Commission approve Amendment 3 to the Atlantic Menhaden Interstate Fishery Management Plan as amended today.

Motion made by Mr. Ballou. Motion passes (Roll Call: In Favor – ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, NC, SC, GA, FL; Opposed – VA).

On behalf of the South Atlantic Board, I move the Commission approve the Cobia Interstate Fishery Management Plan.

Motion made by Mr. Estes. Motion carries unanimously (Roll Call: In Favor – ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, NC, SC, GA, FL; Opposed – VA).

Atlantic States Marine Fisheries Commission

Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden



November 2017

Vision: Sustainably Managing Atlantic Coastal Fisheries

Amendment 3 to the Interstate Fishery Management Plan for
Atlantic Menhaden

Prepared by

Atlantic States Marine Fisheries Commission
Atlantic Menhaden Plan Development Team

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This is a report of the Atlantic States Marine Fisheries Commission pursuant to U.S. Department of Commerce, National Oceanic and Atmospheric Administration Award No. NA15NMF4740069.



EXECUTIVE SUMMARY

Statement of the Problem

At its May 2015 meeting, the Atlantic Menhaden Management Board (Board) initiated the development of Amendment 3 to the Atlantic Menhaden Fishery Management Plan (FMP) to pursue the development of ecological reference points (ERPs) and revisit allocation methods.

Management Unit

The management unit for Amendment 3 is defined as the range of Atlantic menhaden within U.S. waters of the Northwest Atlantic Ocean, from the estuaries eastward to the offshore boundary of the Exclusive Economic Zone (EEZ). For the purposes of this Amendment, the term “state” or “states” also includes the Potomac River Fisheries Commission.

Description of Resource

Atlantic menhaden inhabit nearshore and inland tidal waters from Florida to Nova Scotia, Canada. Spawning occurs principally at sea. Eggs hatch at sea and the larvae are transported to estuaries where they grow rapidly as juveniles. Adults stratify by size during the summer, with older, larger individuals migrating north to New England and the Gulf of Maine and then south to Virginia and North Carolina by the fall. Adults that remain in the south Atlantic region during spring and summer migrate south later in the year, reaching northern Florida by fall.

Menhaden serve an important role in the marine ecosystem as they convert phytoplankton into protein and, in turn, provide a food source to a variety of species including larger fish (e.g., weakfish, striped bass, bluefish, cod), birds (e.g., bald eagles, osprey), and marine mammals (e.g., humpback whales, bottlenose dolphin). As a result, changes in the abundance of menhaden may have implications for the marine ecosystem.

Description of Fishery

Atlantic menhaden have supported one of the United States' largest fisheries since colonial times. The current commercial fishery is divided into the reduction fishery and the bait fishery (menhaden harvested to supply bait to other commercial and recreational fisheries). The reduction fishery processes menhaden to obtain fish oil and fish meal which is then used to produce a wide range of products. Reduction landings averaged 371,980 metric tons (mt) from 1940-1980, but only averaged 246,804 mt from 1980-2016. In 2016, reduction landings were 137,400 mt. Menhaden are used as bait in several valuable commercial fisheries, particularly the blue crab fishery of the Chesapeake Bay and the Atlantic lobster fishery. Reported bait landings averaged 35,314 mt from 1985-2016; however, bait landings have been increasing in recent years. In 2016, coastwide bait landings were 43,950 mt. Recreational harvest is not well captured by the Marine Recreational Information Program because there is not a known identified direct harvest for menhaden, other than for bait.

Goals and Objectives

The goal of Amendment 3 is to manage the Atlantic menhaden fishery in a manner which equitably allocates the resource's ecological and economic benefits between all user groups.

The primary user groups include those who extract and utilize menhaden for human use, those who extract and utilize predators which rely on menhaden as a source of prey, and those whose livelihood depends on the health of the marine ecosystem.

Reference Points

The Atlantic menhaden stock is managed with single-species reference points, based on the maximum and median geometric mean fishing mortality rate for ages 2-4 during 1960-2012, while the Biological Ecological Reference Points (BERP) Workgroup continues to develop menhaden-specific ERPs. Using the single-species reference points, the 2017 Stock Assessment Update found the fishing mortality target and threshold for Atlantic menhaden to be $F_{36\%MSP}$ and $F_{21\%MSP}$ and the corresponding fecundity target and threshold for Atlantic menhaden to be $FEC_{36\%MSP}$ and $FEC_{21\%MSP}$. As of 2016, the terminal year of the 2017 Stock Assessment Update, the stock is not overfished and overfishing is not occurring.

Monitoring Program Specifications

Quota Monitoring – At a minimum, states are required to maintain the timely quota monitoring system implemented under Amendment 2 in order to cap menhaden directed harvest within the total allowable catch (TAC) and minimize the potential for overages. For the reduction fishery, harvest is reported through Captains Daily Fishing Reports (CDFRs).

Biological Data Collection – Each state in the New England (ME, NH, MA, RI, CT) and Mid-Atlantic (NY, NJ, DE) regions are required to collect one 10-fish sample (age and length) per 300 mt landed for bait purposes. Each state in the Chesapeake Bay (MD, PRFC, VA) and South Atlantic (NC, SC, GA, FL) regions are required to collect one 10-fish sample (age and length) per 200 mt landed for bait purposes. In addition, each state with a pound net fishery must collect catch and effort data elements for Atlantic menhaden including total pounds (lbs.) landed per day and number of pound nets fished per day.

Recreational Fisheries Management Measures

No management measures for the recreational fisheries are included in this Amendment.

For-Hire Fisheries Management Measures

No management measures for the for-hire fisheries are included in this Amendment.

Commercial Fishery Management Measures

Total Allowable Catch Specification and Setting – The TAC will be set through Board action either on an annual basis or for multiple years with annual review. The Board will set the TAC based on the best available science (e.g., projection analysis), but if the projections are not recommended for use by the Technical Committee (TC), the Board will set a TAC based on the ad-hoc approach used by the Regional Fishery Management Councils (ORCS 2011).

For the 2018 and 2019 fishing years, the Board implemented a TAC of 216,000 mt based on projection analysis.

Quota Allocation – The Atlantic menhaden commercial TAC is managed with jurisdictional quotas. Each jurisdiction is allocated a 0.5% fixed minimum quota and the remainder of the TAC is allocated based on a three-year average of historic landings from 2009-2011, as shown below:

State	Allocation (%)
ME	0.52%
NH	0.50%
MA	1.27%
RI	0.52%
CT	0.52%
NY	0.69%
NJ	10.87%
PA	0.50%
DE	0.51%
MD	1.89%
PRFC	1.07%
VA	78.66%
NC	0.96%
SC	0.50%
GA	0.50%
FL	0.52%
TOTAL	100.00%

On an annual basis, states have the option to relinquish part or all of their fixed minimum quota. Any quota that is relinquished by a state will be redistributed to the other jurisdictions (i.e., those which have not relinquished quota) based on historic landings from 2009-2011.

Quota Transfers, Rollovers, and Payback – Two or more states, under mutual agreement, may transfer or combine their Atlantic menhaden quota. Once quota has been transferred to a state, the state receiving quota becomes responsible for any overages of transferred quota. The rollover of unused quota to the subsequent year is not permitted. Any overage of a state’s quota is subtracted from that specific state’s quota in the subsequent fishing year on a pound for pound basis.

Incidental Catch and Small-Scale Fisheries – After a quota allocation is met for a given jurisdiction, the fishery becomes an incidental catch fishery in which small-scale gears and non-directed gear types may land up to 6,000 lbs. of menhaden per trip per day. Two authorized individuals, working from the same vessel fishing stationary multi-species gear, are permitted to work together and land up to 12,000 lbs. from a single vessel – limited to one vessel trip per day.

Episodic Events Set Aside – 1% of the overall TAC is set aside for episodic events in the states of New York through Maine. In order for an eligible state to participate in the episodic events set aside program, states must implement the following provisions: 1) daily trip level harvester reporting; 2) restrict episodic events harvest and landings to state waters of the jurisdiction

approved to participate in the set aside; and 3) implement a maximum daily trip limit no greater than 120,000 lbs./vessel.

Chesapeake Bay Reduction Fishery Cap - The annual total allowable harvest from the Chesapeake Bay by the reduction fishery is limited to no more than 51,000 mt. Harvest above the cap in any given year will be deducted from the next year's allowable harvest. Any amount of un-landed fish under the cap cannot be rolled over into the subsequent year. As a result, the cap in a given year cannot exceed 51,000 mt.

Habitat Conservation and Restoration Recommendations

In order to ensure the productivity of populations, each state should identify and protect critical nursery areas within its boundaries for estuarine dependent, marine migratory species in general and Atlantic menhaden in particular. Such efforts should inventory historical habitats, identify habitats presently used and specify those that are targeted for recovery, and impose or encourage measures to retain or increase the quantity and quality of Atlantic menhaden essential habitats.

De minimis

A state can apply annually for *de minimis* status if a state does not have a reduction fishery. To be eligible for *de minimis* consideration in the bait fishery, a state must prove that its commercial bait landings in the most recent two years for which data are available did not exceed 1% of the coastwide bait landings. States granted *de minimis* status are exempt from collecting biological data and the adult catch per unit effort index data.

Implementation Schedule

States are required to submit implementation plans by January 1, 2018 and are required to implement the provisions of Amendment 3 by April 15, 2018.

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1.0 INTRODUCTION

The Atlantic States Marine Fisheries Commission (ASMFC or Commission), under the authority of the Atlantic Coastal Fisheries Cooperative Management Act, is responsible for managing Atlantic menhaden (*Brevoortia tyrannus*) from Maine through Florida. ASMFC has coordinated the interstate management of Atlantic menhaden in state waters (0-3 miles) since 1981. Amendment 3 to the Interstate Fishery Management Plan (FMP) for Atlantic menhaden replaces Amendment 2 (ASMFC, 2013). Management authority in the Exclusive Economic Zone (3-200 miles from shore) lies with NOAA Fisheries.

1.1 BACKGROUND INFORMATION

At its May 2015 meeting, the Atlantic Menhaden Management Board (Board) initiated the development of Amendment 3 to pursue the development of ecological reference points (ERPs) and revisit allocation methods. The Board approved the Amendment 3 Public Information Document for public comment in October 2016. Public comment was received and hearings were held between December 2016 and January 2017. At its February 2017 meeting, the Board tasked the Plan Development Team (PDT) with developing Draft Amendment 3. The Board approved Draft Amendment 3 for public comment in August 2017 and public comment was received through October 24th. The Board met on November 13 & 14, 2017 to take final action on Amendment 3.

1.1.1 Statement of Problem

1.1.1.1 Reference Points

Amendment 2 established single-species reference points to manage the menhaden stock. These reference points were based on maximum spawning potential (MSP) and included a measure of fishing mortality (F) and spawning stock biomass (SSB) to determine an overfishing and overfished status. Per Amendment 2, overfishing was defined by a target and threshold of $F_{30\%MSP}$ and $F_{15\%MSP}$, respectively, while an overfished stock was defined by a target and threshold of $SSB_{30\%MSP}$ and $SSB_{15\%MSP}$, respectively.

In 2015, the Board approved the Atlantic Menhaden Benchmark Stock Assessment, which updated the reference points for Atlantic menhaden in order to provide a better measure of sustainability (SEDAR, 2015). Specifically, the reference points were changed to be the maximum and median geometric mean F for ages 2-4 during 1960-2012, a period deemed sustainable. Corresponding reference points based on fecundity (FEC) were also established to determine an overfished status. This method was applied to the 2017 Stock Assessment Update. Resulting reference points were an overfishing threshold and target of $F_{21\%}$ and $F_{36\%}$, respectively, and an overfished threshold and target of $FEC_{21\%}$ and $FEC_{36\%}$, respectively. As of 2016, the terminal year used in the 2017 Stock Assessment Update, the stock is not overfished and overfishing is not occurring.

An important outcome of the 2015 Benchmark Stock Assessment and Peer Review Report was the high priority given to the development of ERPs for Atlantic menhaden management. Menhaden serve an important role in the marine ecosystem as they convert phytoplankton into protein and, in turn, provide a food source to a variety of species including larger fish (e.g., weakfish, striped bass, bluefish, cod), birds (e.g., bald eagles, osprey), and marine mammals (e.g., humpback whales, bottlenose dolphin). As a result, changes in the abundance of menhaden may have implications for the marine ecosystem. ERPs provide a method to assess the status of menhaden not only with regard to the sustainability of human harvest, but also with regard to their interactions with predators and the status of other prey species. This method accounts for several species' menhaden predation requirements when setting an overfished and overfishing threshold for menhaden. The benefit of this approach is that it allows fishery managers to consider the harvest of menhaden within a broad ecosystem context, which includes other fish, birds, mammals, and humans who utilize and depend on marine resources.

1.1.1.2 Quota Allocation

Amendment 2 established a first-ever commercial total allowable catch (TAC) for Atlantic menhaden and divided this catch into commercial quotas for participating jurisdictions from Maine through Florida. The allocation formula assigns each state a percentage of the TAC based on the jurisdiction's average landings between 2009 and 2011. Since it was implemented in 2013, the quota system has maintained the annual directed harvest of menhaden below the annual coastwide TAC set by the Board.

Amendment 2 required allocation to be revisited every three years. In reviewing menhaden allocations, the Board expressed interest in investigating different allocation methods and timeframes given concerns the current approach may not strike a balance between gear types and regions. Specifically, some states expressed concern that under the Amendment 2 allocation method, increases in the TAC resulted in limited benefits to small-scale fisheries. In addition, there was concern the Amendment 2 allocation method did not provide a balance between the present needs of the fishery and future growth opportunities. Given the apparent geographic expansion of the stock, particularly in New England, the 2009-2011 time-period on which allocation was based limited states who had minimal quota from participating in the growing fishery. Some states also found evidence of un-reported landings during the reference period, meaning the quota system may have reduced their fisheries to a greater extent than originally intended.

1.1.2 Benefits of Implementation

Amendment 3 is designed to consider the ecological role of menhaden in regards to management of the species and establish an allocation method which provides fair and equitable access to all participants in the fishery.

Amendment 3 contains a management program designed to account for the multiple roles menhaden play, both in supporting fisheries for human use and the marine ecosystem. Issues addressed in Amendment 3 include:

1. Reference Points: How menhaden are allocated between the marine ecosystem and those that harvest menhaden for human use.
2. Allocation Method: How menhaden are allocated between those jurisdictions and fisheries which directly or indirectly harvest menhaden.
3. Allocation Timeframe: The timeframe upon which the allocation method is based.
4. Quota Transfers: How menhaden quota is moved between those stakeholders which receive an allocation.
5. Quota Rollovers: Whether unused quota can be rolled over into the subsequent fishing year.
6. Incidental Catch: How landings from non-directed and small scale fisheries are accounted for in the management of the species.
7. Episodic Events Program: Whether there is a program designed to minimize discards in the fishery when menhaden are in greater abundance than they normally occur.
8. Chesapeake Bay Reduction Fishery Cap: Whether there is a cap which limits harvest by the reduction fishery in the Chesapeake Bay, an important nursery ground for menhaden.

1.1.2.1 Ecological Benefits

Atlantic menhaden occupy an important link in the coastal marine food chain as they transfer planktonic material into animal biomass. Due to their interconnectivity with other species, menhaden help to provide top-down controls on phytoplankton and zooplankton populations while supporting a variety of predator species. These predators include important commercial and recreational species such as striped bass and weakfish, iconic birds such as osprey and bald eagles, and charismatic marine mammals such as the humpback whale. Reduced menhaden populations may impact the abundance and diversity of predator populations, particularly if other prey options are limited or not available. Given menhaden are found from Maine to Florida, the species serves an ecological role along much of the Atlantic coast. Thus, maintaining a healthy Atlantic menhaden population contributes to a balanced marine ecosystem (see *Section 1.2.1.5 Ecological Roles* for additional information).

1.1.2.2 Social/Economic Benefits

Menhaden play an important ecological role while supporting valuable and culturally significant commercial fisheries. Incorporating ecological reference points into menhaden management may provide ancillary benefits to a wide variety of coastal stakeholders who value species which depend on menhaden as a food source. Establishing quota allocation methods that provide fair and equitable access to all fishery participants may enhance social and economic benefits by increasing derived value and stabilizing economic returns. This in turn improves resilience in fishery-dependent communities along the Atlantic coast.

1.2 DESCRIPTION OF THE RESOURCE

1.2.1 Species Life History

1.2.1.1 Stock Structure and Migration

Atlantic menhaden is a euryhaline species (i.e. tolerates a wide range of salinity) that inhabits nearshore and inland tidal waters from Florida to Nova Scotia, Canada. Size-frequency information and tagging studies indicate that the Atlantic menhaden resource is a single unit stock (Dryfoos et al., 1973; Nicholson, 1972; Nicholson, 1978). Recent genetic studies also support the designation of Atlantic menhaden as a single stock (Anderson, 2007; Lynch et al., 2010).

Spawning occurs principally at sea, with some activity in bays and sounds in the northern portion of its range (Judy and Lewis, 1983). Eggs hatch at sea and the larvae are transported by ocean currents (Checkley et al., 1988; Nelson et al., 1977; Quinlan et al., 1999) to estuaries where they metamorphose and grow rapidly as juveniles (Edwards, 2009). Adults stratify by size during the summer, with older and larger individuals migrating farthest, reaching Narragansett Bay by May and the Gulf of Maine by June. During November and December, most of the adult population moves south to the Virginia and North Carolina capes. Adults that remain in the south Atlantic region during spring and summer migrate further south later in the year, reaching northern Florida by fall. Schools of adult menhaden reassemble in late March or early April and migrate northward. By June the population is redistributed from Florida to Maine (Ahrenholz, 1991).

1.2.1.2 Age and Growth

During the 1950s and early 1960s, Atlantic menhaden older than age-6 were present in the spawning population; however, fish older than age-6 have been uncommon in recent years. Today, the majority of the landings are comprised of fish ages 1-4 (SEDAR, 2015).

The growth of Atlantic menhaden varies from year-to-year and occurs primarily during the warmer months (AMTC, 2006). Growth of juveniles is density-dependent (Ahrenholz et al., 1987) such that growth rates are accelerated during the first year when juvenile abundance is low and are reduced when juvenile abundance is high. Lengths of young-of-year menhaden range in size, and this variation is a function of density, timing of larval ingress, temperature, and food availability (Ahrenholz, 1991; Houde, 2011). Adult menhaden can reach a total length of up to 500 mm and a weigh over 1.5 kg (Cooper, 1965; SEDAR, 2015; Smith and O'Bier, 1996). Due to their extensive migratory range (see *Section 1.2.1.1*), larger fish of a given age are captured farther north than smaller fish of the same age (Nicholson, 1978; Reish et al., 1985). This fact complicates attempts to estimate overall growth for the entire stock from size-at-age data compiled from a single area along the coast.

1.2.1.3 Spawning and Reproduction

Some Atlantic menhaden become sexually mature during their first year, with more than 50% mature at age-2 (SEDAR, 2015). First-spawning age-3 fish have accounted for most of the stock's egg production since 1965 (Vaughan and Smith, 1988). Atlantic menhaden mature at

smaller sizes at the southern end of their range (180 mm FL in the south Atlantic versus 210 mm FL in the Chesapeake Bay and 230 mm farther north) because of latitudinal differences in size-at-age and the fact that larger fish of a given age are distributed farther north than smaller fish of the same cohort (Lewis et al., 1987).

Spawning of Atlantic menhaden is thought to occur throughout the year (Higham and Nicholson, 1964); however, it varies by season and region based on migration patterns. Spawning in the north occurs in the summer months (Judy and Lewis, 1983; Kendall and Reintjes, 1975; Lozano and Houde, 2012), spawning in the Mid-Atlantic occurs in early fall, and peak spawning in the South Atlantic Bight occurs in December (Higham and Nicholson, 1964; Judy and Lewis, 1983; Lozano and Houde, 2012). Spawning is followed by the coastward dispersion of eggs and larvae, and ingress into estuaries where juvenile development occurs (Houde et al., 2016; Lozano and Houde, 2013; Rice et al., 1999; SABRE, 1999; Warlen, 1994; Warlen et al., 2002).

Timing and location of spawning seem to be limited by temperature, usually occurring in waters warmer than 14-16°C (Stegmann et al. 1999, Light and Able, 2003), or within the 15-20°C isotherms (MDSG 2009). Hall et al. (1991) report that temperatures below 5°C or above 33°C are lethal to larvae. Based on a review of field and laboratory studies, Warlen et al. (2002) concluded that optimum temperature for hatching, larval survival, and growth is $\geq 16^\circ\text{C}$. Reported salinities range from ~25 to 33 (MDSG 2009), although salinity tolerances for eggs and larvae are wide ranging. Available literature has not been summarized to indicate typical or persistent locations of continental shelf spawning areas but egg concentrations have been observed near shorelines, bay mouths, inlets, and 70 to 140 km offshore (Judy and Lewis 1983; Kendall and Reintjes, 1975; Marak et al., 1962).

Recently, there has been progress in relating measures of primary productivity to recruitment and growth of young-of-year (YOY) menhaden. Research has shown there is a positive correlation between recruitment and euphotic-zone *chl-a* and integrated annual primary production in the Chesapeake Bay (Houde and Harding, 2009), suggesting that menhaden populations are controlled in part by bottom-up processes (i.e., quantity of food available). Despite these findings, additional work has found no significant correlation between YOY menhaden abundance and *chl-a* for the entire four-decade period that included times of both low and high menhaden recruitment events in Chesapeake Bay. The strong correlation between YOY menhaden abundance and *chl-a* in recent years (1989-2004) as noted above did not persist throughout the longer time series (1966-2006). On average, years with low freshwater flow and low turbidity supported higher abundances and recruitment of YOY menhaden (Houde et al., 2016; Love et al., 2006; Lynch et al., 2010). Other correlations between YOY menhaden abundance and environmental or hydrographic variables were not significant or were only marginally significant (e.g., negative correlations with total dissolved phosphorus and with abundances of zooplankton taxa favored by low salinities). These conflicting bodies of work further highlight the complexity that exists between nutrient cycling, climatic drivers, and understanding the life history traits of Atlantic menhaden.

1.2.1.4 Mortality

The Atlantic menhaden population is subject to a high natural mortality rate, particularly during the first two years of life. Estimates of natural mortality have ranged from $M = 0.37$ (Schaaf and Huntsman, 1972) to $M = 0.52$ (Dryfoos et al., 1985). Previous assessments, beginning with Ahrenholz et al. (1987), used $M = 0.45$, whereas the 2015 Benchmark Stock Assessment used a time varying but age constant natural mortality to better account for known sources of natural mortality such as predation, pollution, habitat degradation, toxic algal blooms, and hypoxia (SEDAR, 2015).

Predation remains a large source of natural mortality for menhaden due to their high abundance in estuaries and coastal waters (Ahrenholz, 1991). Many large piscivorous sea mammals, birds, and fish are potential predators of Atlantic menhaden, including bluefish, striped bass, king mackerel, Spanish mackerel, pollock, cod, weakfish, silver hake, tunas, swordfish, bonito, tarpon, and a variety of sharks. See additional details in *Section 1.2.1.5: Ecological Roles*.

Coastal pollution, habitat degradation, and disease also threaten marine fish species such as Atlantic menhaden which spend their first year of life in estuarine waters and the rest of their life in both ocean and estuarine waters. Fish kills, due principally to low dissolved oxygen conditions, disease, and parasites are additional yet poorly understood sources of natural mortality (Burkholder et al., 1992; Blazer et al., 1999; Noga, 2000; Law, 2001; Glasgow et al., 2001; Vogelbein et al., 2001; Kiryu et al., 2002; Reimschuessel et al., 2003; Burkholder et al., 2005). A variety of diseases are thought to affect menhaden survival (Stephens et al., 1980; Noga and Dykstra, 1986; Noga et al., 1988; Levine et al., 1990a; Levine et al., 1990b; Dykstra and Kane, 2000; Goshorn et al., 2004; Stine et al., 2005; Blazer et al., 2007). Menhaden are also known to induce fatal hypoxic events, where reports of such school-induced hypoxia and resulting fish kills going back to the 1800's (Oviatt et al., 1972; Smith, 1999).

1.2.1.5 Ecological Roles

Menhaden occupy an important link in the coastal marine food chain, transferring planktonic material into animal biomass. As a result, menhaden influence the conversion and exchange of energy and organic matter within the coastal ecosystem throughout their range (Lewis and Peters, 1984; Peters and Lewis, 1984; Peters and Schaaf, 1981). Studies have indicated that menhaden are a part of the diet of many species including striped bass, bluefish, weakfish, and piscivorous birds (Viverette et al. 2007). As a result, changes in the abundance and distribution of menhaden can have impacts on a variety of species given their role in the food web.

Atlantic menhaden occupy two distinct types of feeding niches during their lifetime. Phytoplankton is the major food of juvenile and young adult menhaden. The role of zooplankton in the diet becomes more important in older menhaden as gill-raker spacing on their filtering apparatus increases in size (Friedland et al., 1984; 2006). The relative importance of each food type varies with ontogeny, region, and local availability.

The role of Atlantic menhaden in systems function and community dynamics has received much attention in recent years. Spatially-explicit bioenergetics models have been used to estimate the carrying capacity of menhaden in the Chesapeake Bay as well as the reduction of habitat volume from eutrophication and hypoxia (Brandt and Mason, 2003; Luo et al., 2001). Additionally, simulation models of Narragansett Bay and the Chesapeake Bay indicate that Atlantic menhaden could have substantial effects on zooplankton and phytoplankton populations, and on nutrient dynamics (Durbin and Durbin 1975; 1998; Gottlieb 1998). However, a study by Lynch et al. (2010) suggests that the menhaden population probably plays little role in removing nitrogen from Chesapeake Bay waters, and may actually provide additional nitrogen to Bay phytoplankton. Results suggest that YOY menhaden focus their grazing on patches of elevated phytoplankton abundance and/or supplement their diet with other sources (e.g. zooplankton and detritus) to maintain a positive nitrogen balance. As a result, the study suggests that menhaden may play a minimal role in net nitrogen removal from the Chesapeake Bay.

1.2.2 Stock Assessment Summary

Based on tagging (Dryfoos et al., 1973; Nicholson, 1978) and genetic studies (Anderson, 2007; Lynch, 2010), the Atlantic menhaden fishery is believed to be a single stock or population of fish, and is assessed as a single coastwide stock. Data used in the stock assessment includes commercial and recreational landings at-age from Maine to Florida, two fishery independent adult indices based on nine state surveys, one each for the northern and southern regions, and a juvenile abundance index (JAI) developed from state seine, trawl, and other gear surveys along the coast.

Growth is estimated using a time invariant weight-length relationship based on fishery-dependent data that is bias corrected using the methods in Schueller et al. (2014). Weight at age is estimated from overall weight-length parameters and annual lengths at age. Maturity at age is developed using maturity records from reduction fishery catches and NEAMAP survey data. A logistic regression is fit to length and maturity data in addition to using time-varying lengths at age to calculate time-varying maturity at age. Natural mortality is calculated by an age-varying, time invariant approach using the methods of Lorenzen (1996) that are scaled to tagging estimates of natural mortality. This estimate of natural mortality accounts for multiple sources of mortality including predation, pollution, habitat degradation, toxic algal blooms, and hypoxia. The assessment model is structured into “fleets-as-areas” in order to account for differences between bait and reduction fisheries in the north and south. In addition, dome shaped selectivity is used for all fishery fleets.

The Beaufort Assessment Model (BAM) is used to produce final assessment results. This is a statistical forward-projection model that has been used in previous Atlantic menhaden assessments (SEDAR, 2015).

1.2.2.1 Abundance and Structure

Annual Atlantic menhaden population size (age 0 and older at the start of the fishing season) has ranged from approximately 10 to 85 billion fish since 1955 (Figure 1). Population size averaged 45.0 billion menhaden during 1955-1959 when landings were high (averaging >600,000 mt). During the 1960's, the menhaden stock contracted geographically, and the population averaged 14.9 billion fish. Total menhaden landings dropped to a low of 172,200 mt in 1969. In the 1970s and 1980s the menhaden population began to expand and the population size averaged 30.8 billion fish. During this time period, average landings rose to over 300,000 mt. During the 1990s, the Atlantic menhaden stock contracted again, and catches declined from 429,300 mt in 1990 to 206,000 mt in 1999. From 2000-2016, the population size averaged 16.4 billion fish and total catches have averaged about 200,000 mt per year.

The oldest menhaden age classes comprise the smallest proportion of the population (Figure 1), but this proportion has increased in recent years (SEDAR, 2015). For this reason, biomass is likely increasing at a faster rate than abundance because of the increased number of older fish at age and the associated increase in weight at age (SEDAR, 2015).

1.2.2.2 Fishing Mortality

Highly variable fishing mortalities are noted throughout the entire time series and are dependent upon fishing effort. The highest fishing mortalities for the commercial reduction fishery in the north are estimated to have occurred in the 1950s (Figure 2), whereas the highest fishing mortality rates for the commercial reduction fishery in the south are estimated to have occurred during the 1970s and 1990s (Figure 2). The highest fishing mortalities for the commercial bait fishery in the north are estimated to have occurred in the 1950s and 1990s (Figure 3), while the highest fishing mortality rates for the commercial bait fishery in the south are estimated to have occurred during the late 1990s and early 2000s (Figure 3).

In the 2015 Benchmark Stock Assessment, the Technical Committee (TC) initially recommended that the Board adopt a fishing mortality threshold based on the maximum F value at age-2 during the 1960-2012 time period and a target fishing mortality based on the median F value during this time period. However, in order to provide a more robust measure of fishing pressure under changing selectivity, it was recommended by the Peer Review panel that the geometric mean fishing mortality on ages-2 to -4 be used instead of the suggested age-2 reference points. This recommendation was accepted for use by the TC because these ages represent the fully selected fishing mortality rates depending upon the year and fishery (i.e., bait and reduction). As a result of the 2017 Stock Assessment Update, the fishing mortality reference points are F-target ($F_{36\% MSP}$) = 0.80 and F-threshold ($F_{21\% MSP}$) = 1.85.

Based on these reference points, fishing mortality has remained below the fishing mortality threshold (1.85) since the 1960s, hovered around the target (0.80) throughout most of the time-series, and was estimated to be 0.51 in 2016 (the terminal year of the assessment).

1.2.2.3 Recruitment

Age-0 recruits of Atlantic menhaden (Figure 4) were high during the late 1950s, especially the 1958 year-class. Recruitment was generally poor during the 1960s and high during the late 1970s and early 1980s. Since then, recruitment has been low with notable year classes in 2005 and 2010. The estimated number of age-0 fish in 2016 (the terminal year of the assessment) was 13.36 billion fish.

1.2.2.4 Spawning Stock Biomass (Fecundity)

Often reproductive capacity of a stock is modeled using female weight-at-age, primarily because of a lack of fecundity data. To the extent that egg production is not linearly related to female weight, indices of egg production (fecundity) are better measures of the reproductive output of a stock at a given size and age structure. Additionally, fecundity better emphasizes the important contribution of older and larger individuals to egg production. Thus, in the most recent benchmark stock assessment (SEDAR, 2015), modeling increases in egg production with size was preferable to female biomass as a measure of the reproductive capability of the stock.

Population fecundity (*FEC*, number of maturing ova) was highest in the early 1960s, early 1970s, and the present decade, and has generally been higher with older age classes making up a larger proportion of the population (Figure 5). Large values of population fecundity were present in 2012 and 2013. Throughout the time series, age-2 and age-3 fish have produced most of the total estimated number of eggs spawned annually; however, in more recent years, ages-4+ have contributed a higher proportion to the overall number of eggs.

1.2.2.5 Maximum Spawning Potential

Amendment 2 (2013) implemented maximum spawning potential (MSP) based reference points that relate current stock conditions as a percent of unfished conditions. An unfished stock is equal to 100% MSP. Considering the modeling and data input changes that occurred in the 2015 Benchmark Stock Assessment, the TC and Peer Review Panel recommended new MSP based reference points that are applicable to the results of the assessment (ASMFC 2015).

The fecundity (*FEC*) reference points match the *F* reference points, meaning they are equal to the fecundity estimated when the population reaches equilibrium when fishing under the fishing mortality target and threshold MSP levels, respectively. The associated reference points for population fecundity are *FEC*-target ($FEC_{36\%MSP} = 99,467$ (billions of eggs), and *FEC*-threshold ($FEC_{21\%MSP} = 57,295$ (billions of eggs). In other words, the *FEC* target would maintain 36% of the spawning potential of an unfished stock, and the threshold would preserve 21% of the spawning potential of an unfished stock. In 2016, fecundity was estimated to be 83,486 billion eggs.

1.2.3 Current Stock Status

The current stock status determination is based on the 2017 Atlantic Menhaden Stock Assessment Update (ASMFC, 2017). The fishing mortality reference points are *F*-target ($F_{36\%} = 0.80$ and *F*-threshold ($F_{21\%} = 1.85$). The associated reference points for population fecundity are

FEC -target ($FEC_{36\%}$) = 99,467 (billions of eggs), and FEC -threshold ($FEC_{21\%}$) = 57,295 (billions of eggs). As of 2016, overfishing is not occurring because fishing mortality for the terminal year is estimated to be $F = 0.51$, below both the target and the threshold (Figure 6). Additionally, the stock is not overfished because fecundity for 2016 is estimated to be $FEC = 83,486$ billion eggs, above the threshold and just below the target (Figure 7).

1.3 DESCRIPTION OF THE FISHERY

1.3.1 Commercial Fishery

Atlantic menhaden have supported one of the United States' largest fisheries since colonial times. Menhaden have repeatedly been listed as one of the nation's most important commercial fisheries in terms of quantity. Preliminary Atlantic menhaden landings in 2016 totaled 181,344 mt (399.8 million lbs.) (Table 2). Landings records indicate that roughly 25 million mt (55.1 billion lbs.) of Atlantic menhaden have been caught by fishing fleets operating from Maine to Florida since 1940.

Native Americans were the first to use menhaden, primarily as fertilizer. Colonists soon recognized the value of menhaden as fertilizer and local seine fisheries gradually developed from Maine to New York. In 1811, the menhaden oil industry began in Rhode Island (Frye, 1999). Numerous small factories were located along the Northeast coasts; however, their supply was limited to fish that could be captured by the traditional shore-based seines. In 1845, the purse seine was introduced, enabling fishermen to harvest a larger quantity of menhaden further from shore. By 1870, the industry had expanded southward, with several plants in the Chesapeake Bay and North Carolina areas (Whitehurst, 1973). The industry gradually developed during the late 1800s and early 1900s and was described in considerable detail prior to World War I by Greer (1915). After World War I, the primary use of menhaden changed from fertilizer to animal feed due to the development of a process known as fish reduction. Menhaden meal began to be mixed into poultry, swine, and cattle feeds as the amount used for fertilizer decreased (Harrison, 1931). The current commercial fishery is divided into the reduction fishery, in which menhaden are produced into fish meal and fish oil, and the bait fishery, in which menhaden are harvested as a bait source for other commercial and recreational fisheries. A variety of gears are used to harvest menhaden commercially.

1.3.1.1 Reduction Fishery

Vessels, Reduction Plants, and Harvest Capacity

Several technological advances have helped the menhaden reduction fishery maintain its viability over the last century. The early menhaden purse seine reduction fishery utilized sailing vessels; however, the introduction of coal-fired steamers after the Civil War enabled the reduction fishery to fish further grounds. In the 1930s, vessels again improved through the use of diesel-power which replaced many of the coal-fired steamers. A critical development in the reduction fishery was the use of spotter aircraft in 1946. This practice is still used today to locate schools of menhaden. The refrigeration of vessel holds in the 1960s and 1970s was another crucial development for the reduction fishery. Despite restricted access to a number of

traditional fishing grounds, a reduced fleet size, and fewer processing plants to land fish, refrigerated holds enabled the fleet to maximize the harvest during peak resource availability. Refrigeration also allowed the fleet to stay out longer and access a wider geographic area, greatly improving the ability to catch fish when and where they were available. All seven vessels in the menhaden fleet in 2013 utilized refrigerated fish holds, compared to only 60% of the fleet in 1980.

Currently, menhaden reduction operations use spotter aircraft to locate schools of menhaden and direct vessels to the fish. When a school is located, two purse boats, with a net stretched between them, are deployed. The purse boats encircle the school and close the net to form a purse, or bag. The net is then retrieved to concentrate the catch, and the mother ship comes along the side and pumps the catch into refrigerated holds. Individual sets can vary from 10 mt to more than 100 mt, and large vessels can carry 400-600 mt of refrigerated fish.

Overall, the total number of vessels participating in the menhaden reduction fishery has declined through time. Greer (1915) reported 147 vessels in 1912. During 1955-1959, about 115-130 vessels fished during the summer season, while 30-60 participated in the North Carolina fall fishery. As the resource declined during the 1960s, fleet size decreased by more than 50%. Through the 1970s, approximately 40 vessels fished during the summer season, while roughly 20 were active in the fall fishery. During 1980-1990, 16-33 vessels fished the summer season, and the level of effort in the fall fishery ranged from 3 to 25 vessels. In 2013, only seven vessels participated in the reduction fishery.

One of the major changes in the reduction fishery has been the decrease in the number of operating reduction plants. During peak landing years (1953-1962), there were anywhere from 19 to 25 reduction plants in operation located along the Atlantic coast from Maine to Florida. Many plants closed in the late 1960s as the resource began to decline and, in 1975, there were 12 reduction plants in operation. In 1985, this decreased to six plants and by 1994, there were only three plants located in Virginia and North Carolina. A major change in the reduction industry took place following the 1997 fishing season, when the two reduction plants operating in Reedville, VA, consolidated into a single company and a single factory; this significantly reduced effort and overall production capacity. Another major event within the industry occurred in the spring of 2005 when the fish factory in Beaufort, North Carolina, closed and the owners sold the property to coastal developers. Today, there is a single reduction plant along the U.S. Atlantic coast located in Reedville, Virginia.

Reduction landings averaged 310,900 mt from 1940-2016, but only averaged 161,700 mt from 2000 – 2016 (Table 3, Figure 8). Reduction landings since 1940 peaked in 1956 at 712,100 mt, with the lowest value since 1940 occurring in 2013 (131,000 mt). It is important to note that 2013 was the first year a TAC was implemented in the menhaden fishery. This TAC represented a 20% reduction from average landings in 2009-2011. Other causes of declines in reduction harvest include lower menhaden abundance, reduced fleet size, and reduced reduction plant capacity.

The menhaden reduction fishery is seasonal as the presence of menhaden schools is dependent on the temperature of coastal waters. Two fairly distinct fishing seasons occur: the 'summer fishery' and the 'fall fishery'. The summer fishery begins in April with the appearance of schools of menhaden off the North Carolina coast. The fish migrate northward, appearing off southern New England in May-June. The fall fishery begins when migratory fish appear off Virginia and North Carolina. In early fall, this southward migration is initiated by cooling ocean temperatures. By late November-early December, most of the fish are found between Cape Hatteras and Cape Fear, North Carolina.

Reduction Fishery Products

Menhaden reduction plants, through a process of heating, separating, and drying, produce fish meal, fish oil, and fish solubles from fresh menhaden. Meal is a valuable ingredient in poultry and livestock feeds because of its high protein content (at least 60%). Meal can also be found in pet foods for fish and dogs. Menhaden oil is (or has been) used in cooking oils, margarine, soap, linoleum, waterproof fabrics, and certain types of paint. Menhaden oil is often marketed as a source of omega-3 fatty acids and can be incorporated into food and beverage products as well as dietary supplements. Solubles are the aqueous liquid component remaining after oil removal. In general, most meal producers add the soluble component to the meal to create a product termed "full meal." Solubles can be used in the aquaculture industry as an attractant and as a fertilizer.

Internal Waters Processing

Section 306 of the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265) allows foreign fish processing vessels to operate within the internal waters of a state with the permission of the Governor of that state. Up to three internal waters processing (IWP) ventures operated within Maine's coastal waters during 1988-1993. Under state jurisdiction, a foreign vessel was permitted to process menhaden caught by US vessels into fish meal and oil during the 1988-1993 fishing seasons. In 1987, two New England-based menhaden vessels began to fish in the Gulf of Maine, landing the catch at a Canadian processing plant. Another Canadian factory in Nova Scotia processed menhaden in 1992 and 1993. No menhaden have been processed in the North Atlantic since the summer of 1993.

1.3.1.2 Bait Fishery

Menhaden from bait fisheries is primarily harvested with purse seines, pound nets, gill nets, and trawls, with a smaller amount of harvest coming from cast nets, fyke nets, and haul seines. Menhaden are taken for bait in almost all Atlantic coast states and are frequently used for bait in crab pots, lobster pots, and hook and line fisheries (both sport and commercial).

Since 1985, the proportion of menhaden landed as bait has generally increased (Table 3, Figure 8). Reported bait landings averaged 10% of the total Atlantic menhaden landings from 1985-2000 and 20% of total landings from 2001-2016. This increase in the percent of coastal bait landings can be attributed to better data collection in the fishery and a decline in coastal reduction landings. The closure of reduction plants in New England and the Mid-Atlantic may

have influenced growth in the bait fishery, making more product available for the lobster and crab pot fisheries, as well as bait for sport fishermen. Additionally, the passage of a net ban in Florida in November 1994 reduced the availability of bait in that state, which may have opened up new markets for menhaden bait caught in Virginia and the Mid-Atlantic states. The appearance of growth in the Atlantic coast bait fishery must be tempered by the knowledge that reporting systems for bait landings have historically been incomplete.

Menhaden bait landings have not always been well-documented leading to an under-estimate of historic harvest. Historically, there have been some well-documented, large-scale, directed bait fisheries for menhaden using gears such as purse seines, pound nets, and gill nets; however, there have also been many small-scale directed bait fisheries, such as those using cast nets and beach seines, which have supplied large quantities of bait and had few, if any, reporting requirements. Estimates of menhaden bait landings have improved over the years as most states implemented reporting requirements for the smaller scale fisheries by the late 2000s. States were required to implement timely reporting as a part of Amendment 2 (2012) in order to monitor quota allocations.

Given the geographic expanse of the menhaden bait fishery, there are regional differences in how and when menhaden are harvested. In the southeast, menhaden landings are dominated by Florida and North Carolina. In Florida, menhaden landings are primarily landed with cast nets since the state implemented a net ban in 1994. Prior to this time, Florida had significant bait landings from gill nets and purse seines. Fishermen in North Carolina use cast nets, gill nets, and pound nets to harvest menhaden. The principal use for menhaden as bait in North Carolina is in the blue crab fishery. In addition, some keep menhaden alive in holding tanks for “slow trolling” of species such as king mackerel. There are no directed menhaden fisheries in South Carolina and Georgia.

Menhaden bait landings in Virginia are dominated by purse seine vessels referred to as ‘snapper rigs’. These vessels range from about 80-135 ft long and primarily sell bait to the sport and crab fisheries. In contrast, the Maryland and Potomac River bait fisheries are primarily executed by pound nets, a large fixed gear. The pound net fishery in the Chesapeake Bay region is carried out by numerous small, non-refrigerated vessels. Maximum hold capacity of these pound net vessels is 9 mt or less, but daily catches are usually well below vessel capacity and are limited by the number of fish encountered in the fixed gear. The majority of these fish supply the local blue crab fishery.

In the Mid-Atlantic, there has been an expansion of the purse seine bait fishery, particularly in New Jersey. The New Jersey menhaden fishery utilizes about 20 carry vessels and about 15 catch vessels per year. Most operations have a catch vessel paired with a specific carry vessel, but some vessels are both catch and carry. Carry vessel length ranges from 59-90 ft and catch vessel length ranges from 40-88 ft. Net length is restricted to 150 fathoms (900 ft) by

regulation. In New York and Delaware, menhaden bait landings are primarily caught in pound nets, gill nets, casts, and seines.

In the New England region, purse seine landings in Maine, Massachusetts and Rhode Island account for the majority of the recorded bait landings. The New England operators are fairly small, typically with one harvest vessel, ranging in size from the 30 to 90 ft in length. In Rhode Island, there is a historic floating fish trap fishery which harvests the majority of menhaden landed in the state. In Connecticut, smaller directed gill net fisheries also harvest menhaden. The bulk of menhaden landings for bait in New England are used in the lobster fishery.

1.3.2 Recreational Fishery

Menhaden are important bait in many recreational fisheries and, as a result, some recreational fishermen employ cast nets to capture menhaden or snag them with hook and line.

Recreational harvest is not well captured by the Marine Recreational Information Program (MRIP) because there is not a known direct harvest for menhaden, other than for bait. MRIP intercepts typically capture the landed fish from recreational trips as fishermen come to the dock or on the beach. Since the menhaden caught by recreational fishermen are used as bait during their trip, they typically are not part of the catch that is seen by the surveyor completing the intercept.

From what is known, recreational catch has varied over time with a high of 672.3 mt in 1992 and a low of 12.2 mt in 2000. The average harvest between 1981 and 2015 was 206.8 mt. Landings have averaged 382.5 mt between 2011 and 2015. Recreational landings from 2016 were 759.7 mt, a new high for the time series (Figure 9).

1.3.3 Subsistence Fishing

No subsistence fisheries for Atlantic menhaden have been identified at this time.

1.3.4 Non-Consumptive Factors

Menhaden provide an important forage base for many fish, bird, and marine mammal species. Please refer to *Section 1.1.2.1 Ecological Benefits*.

1.3.5 Interactions with Other Fisheries

Incidental bycatch of other finfish species in menhaden purse seines has been a topic of interest and concern for many years (Christmas et al., 1960; Oviatt, 1977; Smith, 1896). Past studies have indicated that there is little or no bycatch in the menhaden purse seine fishery; however, there is currently no requirement for at-sea observers.

The Virginia Institute of Marine Science studied bycatch levels of finfish, turtles, and marine mammals in the Atlantic menhaden fishery. Results from that study indicated that bycatch in the 1992 Atlantic menhaden reduction fishery was minimal, comprising about 0.04% by number (Austin et al., 1994). The maximum percentage of bycatch occurred in August (0.14%) while the lowest occurred in September (0.002%). Among important recreational species, bluefish accounted for the largest portion of bycatch (0.0075% of the total menhaden catch). No marine mammals, sea turtles, or other protected species were killed, captured, entangled, or observed during sampling.

Additional data are available from the Gulf of Maine IWP fishery in 1991. Every catch unloaded onto the processing vessel was inspected by a state observer. A total of 93 fish were taken as bycatch along with roughly 60,000,000 individual menhaden (D. Stevenson, Maine DMR, pers. comm.; as cited in ASMFC 1992).

1.4 HABITAT CONSIDERATIONS

1.4.1 Physical Description of Habitat

1.4.1.1 Gulf of Maine

The Gulf of Maine is a semi-enclosed sea of 36,300 mi² (90,700 km²) bordered on the northeast, north and west by the coasts of Nova Scotia, New Brunswick, and the New England states. To the south and east, the Gulf is open to the North Atlantic Ocean; however, Georges Bank forms a partial southern boundary below about 165 ft (50 m). The interior of the Gulf of Maine is characterized by five major deep basins (>600 ft, 200 m) which are separated by irregular topography that includes shallow ridges, banks, and ledges. Basins make up about 30% of the floor area (Thompson, 2010). Retreating glaciers (18,000–14,000 years ago) left behind a variety of patchily distributed sediment types including silt, sand, clay, gravel, and boulders (NMFS, 2015). Major tributary rivers are the St. John in New Brunswick; St. Croix, Penobscot, Kennebec, Androscoggin, and Saco in Maine; and Merrimack in Massachusetts.

The predominantly rocky coast of Maine is characterized by steep terrain and bathymetry, with numerous islands, embayments, pocket beaches, and relatively small estuaries. Tidal marshes and mud flats occur along the margins of these estuaries. Farther south, the coastline is more uniform with few sizable bays, inlets, or islands, but with many small coves. Extensive tidal marshes, mud flats, and sandy beaches along this portion of the coast are gently sloped. Marshes exist along the open coast and within the coves and estuaries.

The surface circulation of the Gulf of Maine is generally counterclockwise, with an offshore flow at Cape Cod which joins the secondary, clockwise gyre on the northern edge of Georges Bank. The Northeast and Great South Channels, which bookend Georges Bank, serve as the primary inflow and outflow channels of marine waters, respectively. Some of the water entering the Northeast Channel flows into the Bay of Fundy; another portion turns west to feed the Maine Coastal Current, initiating the counterclockwise direction of flow. The counterclockwise gyre is more pronounced in the spring when river runoff adds to the southwesterly flowing coastal

current. Surface currents reach velocities of 1.5 knots (80 cm/sec) in eastern Maine but gradually diminish to 0.2 knots (10-20 cm/sec) in Massachusetts Bay where tidal amplitude is about 10 ft (3 m) (Thompson, 2010).

There is great seasonal variation in sea surface temperature in the Gulf, ranging from 4°C in March throughout the Gulf to 18°C in the western Gulf and 14°C in the eastern Gulf in August. The Gulf of Maine sea surface temperature has been warming steadily over the last 35 years. In the most recent decade, the warming trend (0.23 °C /year) was faster than 99 percent of the global ocean (Pershing et al., 2015). The warming is related to a northward shift in the Gulf Stream and to changes in the Atlantic Multidecadal Oscillation and Pacific Decadal Oscillation (Pershing et al., 2015). The salinity of the surface layer also varies seasonally, with minimum values in the west occurring during summer, from the accumulated spring river runoff, and during winter in the east under the influence of runoff from the St. Lawrence River (from the previous spring). With the seasonal temperature and salinity changes, the density stratification in the upper water column also exhibits a seasonal cycle. From well mixed, vertically uniform conditions in winter, stratification develops through the spring and reaches a maximum in the summer. Stratification is more pronounced in the southwestern portion of the Gulf where tidal mixing is diminished.

1.4.1.2 Mid-Atlantic Region

The coastal zone of the Mid-Atlantic states varies from a glaciated coastline in southern New England, to the flat and swampy coastal plain of North Carolina. Along the coastal plain, the beaches of the barrier islands are wide, gently sloped, and sandy, with gradually deepening offshore waters. The area is characterized by a series of sounds, broad estuaries, large river basins (e.g., Connecticut, Hudson, Delaware, and Susquehanna), and barrier islands. Conspicuous estuarine features are Narragansett Bay (Rhode Island), Long Island Sound and Hudson River (New York), Delaware Bay (New Jersey and Delaware), Chesapeake Bay (Maryland and Virginia), and the nearly continuous band of estuaries behind barrier islands along southern Long Island, New Jersey, Delaware, Maryland, Virginia, and North Carolina. The complex estuary of Currituck, Albemarle, and Pamlico Sounds behind the Outer Banks of North Carolina (covering an area of 2,500 square miles) is an important feature of the region. Coastal marshes border those estuaries along much of the glaciated coast from Cape Cod to Long Island Sound. Nearly continuous marshes occur along the shores of the estuaries behind the barrier islands.

At Cape Hatteras, the Continental Shelf extends seaward approximately 20 mi (33 km), and gradually widens northward to about 68 mi (113 km) off New Jersey and Rhode Island where it is intersected by numerous underwater canyons. Surface circulation north of Cape Hatteras is generally southwesterly during all seasons, although this may be interrupted by coastal in-drafting and some reversal of flow at the northern and southern extremities of the area. Speeds of drift north of Cape Hatteras are on the order of six miles (9.7 km) per day. There may be a shoreward component to this drift during the warmer half of the year and an offshore component during the colder half. The western edge of the Gulf Stream meanders off Cape Hatteras, sometimes coming within 12 mi (20 km) of the shore; however, it becomes less

discrete and veers to the northeast above Cape Cod. Surface currents as high as 4 knots (200 cm/sec) have been measured in the Gulf Stream off Cape Hatteras.

Hydrographic conditions in the Mid-Atlantic region vary seasonally due to river runoff and changing water temperatures. The water column becomes increasingly stratified in the summer and homogeneous in the winter due to fall-winter cooling of surface waters. In the winter, the mean range of sea surface temperatures is 0-7°C off Cape Cod and 1-14°C off Cape Charles (at the southern end of the Delmarva Peninsula). In the summer, the mean range is 15-21°C off Cape Cod and 20-27°C off Cape Charles. The tidal range averages slightly over 3 ft (1 m) on Cape Cod, decreasing to the west. Within Long Island Sound and along the south shore of Long Island, tide ranges gradually increase, reaching 6 ft (2 m) at the head of the Sound and in the New York Bight. South of the Bight, tide ranges decrease gradually to slightly over 3 ft (1 m) at Cape Hatteras. Prevailing southwest winds during the summer along the Outer Banks often lead to nearshore upwelling of colder bottom water from offshore, so that surface water temperatures can vary widely during that period (15-27°C over a period of a few days).

The waters of the coastal Mid-Atlantic region have a complex and seasonally dependent circulation pattern. Seasonally varying winds and irregularities in the coastline result in the formation of a complex system of local eddies and gyres. Surface currents tend to be strongest in late spring, due to river runoff, and during periods of highest winds in the winter. In late summer, when winds are light and estuarine discharge is minimal, currents tend to be sluggish, and the water column is generally stratified.

1.4.1.3 South Atlantic Region

The south Atlantic coastal zone extends in a large oceanic bight from Cape Hatteras south to Biscayne Bay and the Florida Keys. North of Florida, the south Atlantic coastal zone is bordered by a coastal plain that stretches inland for a hundred miles and a broad continental shelf that reaches into the ocean for nearly an equal distance. This broad shelf tapers down to a very narrow and precipitous shelf off the southeastern coast of Florida. The irregular coastline of North Carolina, South Carolina, Georgia, and eastern Florida is generally endowed with extensive bays and estuarine waters, bordered by nutrient-rich marshlands. Barrier beaches and dunes protect much of the shoreline. Along much of the southern coast from central South Carolina to northern Florida, estuarine salt-marsh is prominent. Most of the east coast of Florida varies little in general form. Sand beaches with dunes are sporadically interrupted by mangrove swamps and low banks of earth and rock.

The movements of oceanic waters along the South Atlantic coast have not been well defined. The surface currents, countercurrents, and eddies are all affected by environmental factors, particularly winds. The Gulf Stream flows along the coast at 6-7 miles per hour (10-11 km/hr). It is nearest to the coast off southern Florida and gradually moves away from the coast as it flows northward. Inshore of the Gulf stream, there is a current that flows southward for most of the year in regions north of Cape Canaveral.

Sea surface temperatures during the winter increase southward from Cape Hatteras to Fort Lauderdale, Florida, with mean minimums ranging from 2-20°C and maximums ranging from 17-26°C. In the summer, the increases are more gradual, ranging north to south from minimums of 21-27°C to maximums of 28-30°C. Mean sea-surface salinity is generally in the range of 34 to 36 ppt year round. Mean tidal range is just over 3 ft (1 m) at Cape Hatteras and increases gradually to about 6-7 ft (2 m) along the Georgia coast. Tides decrease south of Cape Canaveral to 3 ft (1 m) at Fort Lauderdale.

1.4.2 Environmental Requirements of Atlantic Menhaden

1.4.2.1 Temperature, Salinity, and Dissolved Oxygen

While Atlantic menhaden occur throughout a wide range of physicochemical conditions, several studies have raised questions about the species' environmental limits and optimum conditions. In particular, studies have noted an affinity of young menhaden for low salinity waters. Wilkens and Lewis (1971) speculated that larval menhaden require low salinity water to metamorphose properly, and Lewis (1966) found that, although larvae metamorphosed in salinities of 15-40 ppt, one-third of the juveniles developed slightly crooked vertebral columns. Furthermore, larvae reared by Hettler (1976) at a lower salinity of 5-10 ppt exhibited significantly higher activity levels, metabolic rates, and growth rates than those reared at 28-34 ppt. Rogers et al. (1984) noted that pre-juveniles of many fishes, including those of *Brevoortia* species, enter estuarine habitats during seasonal peaks of freshwater influx when the area of low salinity and fresh tidal water is greatest.

Studies also suggest that temperature also has an important effect on larval development and dispersion. In the South Atlantic region, sea surface temperature readings during the months of highest egg capture were generally 12-20°C (Walford and Wicklund, 1968). In the North Atlantic, the lowest temperature at which Atlantic menhaden eggs and larvae were collected was between 10 and 13°C (Ferraro, 1980). The temperature range for the Mid-Atlantic region was 0-25°C, but most eggs and larvae were collected at 16-19°C (Kendall and Reintjes, 1975). Studies suggest that the limits of larval temperature tolerance are affected by acclimation time. Survival above 30°C (Lewis and Hettler, 1968) and below 5°C (Lewis, 1965) was progressively extended by acclimation temperatures closer to test values, suggesting that rapid changes to extreme temperatures are more likely to be lethal than prolonged exposure to slowly changing values. Mortality of juvenile Atlantic menhaden to a temperature decrease of 10°C (from 15 to 5°C) was less when temperature was decreased at a rate of 6.7°C/h or lower.

A potential management consideration is that, historically, estuarine zones received freshwater from contiguous wetlands and riverine systems. However, channelization, diking of river courses, ditching and draining of marginal wetlands, and urbanization have reduced the freshwater retention capacities of coastal wetlands. Furthermore, extensive filling of estuarine marshlands has diminished the area receiving runoff in many locations. In combination, these changes cause the rapid discharge of freshwater during brief periods and reduced amounts of freshwater at other times. High inflows, particularly those that occur in early spring after the arrival of pre-juvenile menhaden, can expose fish to extreme fluctuations of temperature,

turbidity, and other environmental conditions. Although the effects of altered freshwater flow regimes on Atlantic menhaden are not known, effects on other estuarine dependent, offshore spawned fishes range from disappearance (Rogers et al., 1984) to death (Nordlie et al., 1982).

Dissolved oxygen, particularly at low levels, can also impact the survival of menhaden. Lewis and Hettler (1968) observed increased survival of juveniles at 35.5°C with increased dissolved oxygen (DO) saturation. Burton et al. (1980) reported a mean lethal DO concentration of 0.4 mg/l, but warned against interpretation of this value as “safe”, in view of the interactive nature of environmental factors.

1.4.2.2 Primary Production

Abundance of YOY juvenile menhaden is strongly and positively correlated with *chl-a* and primary production in the Chesapeake Bay (Houde and Harding, 2009). Although recent research indicates that age-1+ menhaden may derive most energy from zooplankton food (Lynch et al., 2010; Friedland et al., 2011), it is apparent that YOY menhaden can efficiently filter small phytoplankton (Friedland et al., 2006) and that it is their primary food. The timing, intensity, quality, and spatial variability of the spring phytoplankton bloom in the Chesapeake Bay show high inter-annual variability and are strongly affected by climate (Adolf et al., 2006; Miller and Harding, 2007). This variability in primary production is likely a key factor controlling production potential of young menhaden in estuarine habitats.

1.4.2.3 Sediments and Turbidity

Forest clearing, and the removal of the buffer provided by trees, shrubs, plants, and wetlands, has led to changes in sediment loading due to unrestricted stormwater flow (Brush, 1986). This results in erosion that brings increased sediment into estuaries, such as the Chesapeake Bay. In addition, the dramatic increase in impermeable surfaces has also increased runoff, as impervious surfaces amplify storm water discharges into streams (Goetz and Jantz, 2006). One consequence of these changes is that sediment grain size has changed over time so that very fine sediment now predominates, which reduces light penetration. Secchi disk readings from the Chesapeake Bay have steadily declined since 1985 from just over 2 meters to about 1 meter in 2008 (Greer, 2008). Because filter feeding juvenile menhaden can retain particles as small as 5-7 μm , and to a minor extent particles $<5 \mu\text{m}$, there is a possibility that menhaden feeding could be compromised (Friedland et al., 1984).

The resulting increased turbidity acts to shade submerged aquatic vegetation (SAV), thus decreasing the extent and composition of SAV beds. Loss of SAV may indirectly affect menhaden by increasing turbidity even further as a result of increased sediment resuspension (Orth et al., 2006), which in turn can lower phytoplankton productivity. SAV has also been shown to exercise control over ecosystem function through nutrient recycling and linkage to fish productivity (Orth et al., 2006; Hughes et al., 2009), which may impact menhaden abundance, although specific impacts are not known at present.

1.4.2.4 Water Movement

Currents and circulation features play an important role in cueing reproduction, and in controlling dispersal of larval stages, assuring that some larvae are transported to the coastal estuaries and embayments that serve as juvenile nurseries. Most larval menhaden are found shoreward of the Gulf Stream Front (GSF); those sampled in the GSF, or seaward of it, presumably are rapidly advected northeast and lost to the population although it is possible that warm-core rings and onshore streamers could return some larvae to the shelf (Hare and Govoni, 2005). There is ample evidence, based on observations and models, that coastward transport of larvae is supported by favorable winds and currents on the shelf (Checkley et al. 1988; Werner et al., 1999). Models and observations of advective mechanisms at estuary mouths present a less-clear picture of how menhaden larvae move into estuaries, although it is apparent that winds, tides, and larval behavior control the ingress.

Inter-annual variability in recruitment is believed to be, at least partly, controlled by variability in oceanographic conditions that affect hydrography, circulation, and possibly biological productivity. Weather and climate patterns are probable drivers of such variability. Wood et al. (2004) demonstrated that prevalence of a late-winter climate pattern that brings dry and warm weather to the Mid-Atlantic region is associated with high recruitment of Atlantic menhaden. This weather pattern may promote favorable shoreward transport or feeding conditions for early-stage menhaden larvae while on the continental shelf.

1.4.2.5 Substrate and System Features

The association of Atlantic menhaden with estuarine and nearshore systems during all phases of its life cycle is well documented. It is evident that young menhaden require these food rich waters to survive and grow, and the fishery is concentrated near major estuarine systems. Filling of estuarine wetlands, in addition to exacerbating extremes in environmental conditions, has physically limited the nursery habitat available to Atlantic menhaden and other estuarine-dependent species. The relative importance, however, of different habitat types (i.e. sounds, channels, marshes) and salinity regimes has received little detailed attention (Rogers and Van Den Avyle 1989).

1.4.3 Identification and Distribution of Essential Habitat

Estuarine and nearshore waters along the Atlantic coast from Florida to Nova Scotia serve as important habitat for juvenile and/or adult Atlantic menhaden. Within this wide geographic range, hydrographic and circulation features constrain population distribution (MDSG 2009). Adult menhaden distribution is bounded by the Gulf Stream Front on the seaward side and by water temperatures greater than 10°C (MDSG 2009).

Adult Atlantic menhaden spawn in oceanic waters along the continental shelf, as well as in sounds and bays in the northern extent of their range (Judy and Lewis, 1983). Winds and tides transport larvae shoreward from the shelf (Checkley et al., 1988; Werner et al., 1999) toward nursery grounds in the estuaries. Larvae are between one and three months old, usually closer to two months, at first ingress into estuaries (Warlen et al., 2002; MDSG, 2009). After entering

the estuary, larvae congregate in large concentrations near the upstream limits of the tidal zone, where they metamorphose into juveniles (June and Chamberlin 1959, Houde 2011).

Historically, Chesapeake Bay was considered to be the most productive nursery area (contributing 69% of Atlantic menhaden recruits [age 1] to the coast wide population), followed by the south Atlantic (17%), and the Mid-Atlantic sections from Maryland to New York (12%) (Ahrenholz et al., 1989; ASMFC, 2004; Anstead et al., 2017). However new research credits the Chesapeake Bay with 30% of age 1 recruits and New England and the southeast estuaries contributing equal portions to the population (Anstead et al., 2016). Furthermore, recruits from all three areas, in the same proportions, have been shown to persist in the population beyond the first year to ages 2-4, therefore becoming part of the reproductive population (Anstead et al. 2017).

1.4.4 Anthropogenic Impacts on Atlantic Menhaden and Their Habitat

The human population along the coast is steadily increasing, and the average number of people per square mile in coastal counties has nearly doubled since 1960 (U.S Census Bureau 2010). Increasing human presence precipitates industrial and municipal expansion, thus intensifying anthropogenic pressure on resources and accelerating competition for use of land and water. Consequently, estuarine and coastal habitats have been significantly reduced and continue to be stressed by dredging, filling, coastal construction, energy plant development, pollution, waste disposal, nutrient loading, and other human-related activities.

Degraded water quality in estuaries threatens critical nursery habitat for young menhaden. Concern has been expressed (Ahrenholz et al., 1987) that the outbreaks of ulcerative mycosis in the 1980s may have been symptomatic of deteriorating water quality in estuarine waters along the east coast. Human population growth and increasing development in the coastal zone are expected to further reduce water quality unless steps are taken to ameliorate their effect on the environment (Cross et al., 1985). Altering habitats and water quality can affect menhaden habitat use and productivity - responses that are magnified in estuaries where human use and biological productivity heavily interact.

Perhaps the most significant physical alteration of the Chesapeake Bay watershed in recent decades has been the increase in impervious surfaces. More than 400,000 hectares are currently categorized as impervious surface and that value continues to climb (Brush 2009). These surfaces increase the nutrient, sediment, and contaminant flow rate to the Chesapeake Bay (Clagett 2007), and exacerbate eutrophication and expansion of hypoxic and anoxic zones. Although not well studied at present, reduced water quality associated with increases in impervious surfaces could diminish habitat quality for menhaden or their predators.

Menhaden fish kills, both human-caused and naturally occurring, are a persistent problem in bays and estuaries throughout the range. Most states keep records of fish kills, documenting water quality, number of fish killed, and likely causes. Localized die-offs often occur due to critically low dissolved oxygen (DO) levels, which may result from a variety of factors including

high temperature, low flow, overcrowding, or algal blooms. Infectious diseases, parasites, toxicants, or miscellaneous human activity (e.g. thermal shock or fishing discards) may also cause localized mortality. In Maryland, nearly 50 years of records document annual menhaden kills ranging from tens to tens-of-millions of fish (max est. 47M fish in 1974), caused by a variety of factors from concussive explosions to disease and toxicants from spills or discharge (C. Poukish, MD DNR, pers. comm.). The most common factor was low DO in the presence of algal blooms, which causes an annual spring die-off. In the Neuse and Tar-Pamlico River estuaries in North Carolina, low oxygen events cause significant mortality of Atlantic menhaden and other fish species nearly every summer (R. Wilson Laney, USFWS, pers. Comm.). In Florida, nutrient inputs, exacerbated by low flushing in the Indian River Lagoon, result in Harmful Algal Blooms (HABs) and, ultimately, menhaden kills (K. Smith, FL FWC, pers. comm.).

In recent years the menhaden population appears to be rebounding and expanding to reoccupy its historic geographic range. With more fish returning to areas heavily used and impacted by humans, the potential for fish kills increases. For example, in 2016, tens of thousands of menhaden were killed when a lock closure trapped them in the Shinnecock Canal in New York.

At one time, fish kills may have solely been a natural occurrence, but anthropogenic impacts to water quality and flow have certainly exacerbated the frequency and intensity of these mortality events. State efforts to track fish kills can provide information on patterns and trends. North Carolina, for example, instituted a fish kill investigation procedure in 1996 to collect and track fish kill information. Data is maintained in a central database and is reviewed as part of an effort to monitor water quality trends.

A growing body of literature is beginning to describe shifts in species distributions and spawning locations and seasons, possibly due to a changing climate on the Atlantic coast (e.g. Walsh et al., 2015; Kleisner et al., 2016). Menhaden ingress to estuaries is sensitive to changes in wind patterns and temperatures, which are known to be variable and may be influenced by climate change (Quinlan et al., 1999; Austin, 2002). Moreover, nursery habitats within bays and estuaries are likely to be altered by the effects of climate change, in some cases potentially enhancing menhaden productivity and other cases, resulting in lower production and recruitment. The effects of climate change are predicted to include: increased water temperatures, sea-level rise, and changes in precipitation patterns and climate variability (Sherman et al., 2009). These changes can influence salinity, temperature, and nutrients throughout nursery grounds.

In addition to long-term climate change, the Atlantic coast has also experienced shorter-term, decadal fluctuations in weather, shifting between cold-wet and warm-dry periods. Austin (2002) showed that the 1960s were warmer and wetter than the 1970s and 1990s in the Mid-Atlantic. Menhaden recruitment success tends to be relatively high in years when late winter-spring conditions are warm and dry (Wood, 2000). Although menhaden recruitment has been correlated with the Atlantic Multidecadal Oscillation (Buchheister et al., 2016), the correlation between Chesapeake Bay and southern New England is reversed and the mechanisms of influence are unknown. The generally low recruitment of YOY menhaden in recent years appear

to be constrained by frequent cool and wet winter-spring conditions that favor recruitment of anadromous spawners, but not offshore-spawning fishes such as menhaden (Kimmel et al., 2009). It is not certain whether climate change will have positive or negative impacts on the long-term abundance and productivity of menhaden.

1.4.5 Description of Programs to Protect, Restore, & Preserve Atlantic Menhaden Habitat

The federal Coastal Zone Management Act provides a framework under which individual coastal states have developed their own coastal habitat protection programs. In general, wholesale dredging and filling are not allowed. Individual development projects are subject to state and federal review and permit limitations. Every Atlantic coast state has a coastal habitat protection program in place (Table 11.27 in ASMFC 1992). These protection programs have greatly reduced the loss of vital coastal habitat to dredging and filling since the mid-1970s. Virtually all proposals affecting coastal habitat are now reviewed by a variety of local, state, and federal agencies, and wholesale destruction of coastal wetlands is rare. Many important estuarine habitats are now protected as part of various wildlife refuges, national and state parks, and public and private nature preserves. In addition, a federal permit program is conducted by the U.S. Army Corps of Engineers, generally in cooperation with the state programs. Every state also conducts water quality protection programs under the federal Clean Water Act. National Pollution Discharge Elimination System permits are required for point-source discharges.

Unfortunately, these programs provide much less control over non-point pollution, especially from agricultural and silvicultural activities, and excess nutrient inputs from diverse sources continue to contribute to hypoxic and anoxic conditions in estuarine menhaden habitat. Additional work to more precisely define menhaden habitat parameters for all life stages and to develop accompanying map products is needed to inform diverse multi-agency and project applicant consultations and permitting processes so that further impacts to menhaden habitats are avoided or minimized.

1.5 IMPACTS OF THE FISHERY MANAGEMENT PROGRAM

1.5.1 Biological and Ecological Impacts

1.5.1.1 Reference Points

Sustained use of the existing single-species reference points using the method outlined in the 2015 Stock Assessment will continue to provide a greater measure of sustainability than the reference points established in Amendment 2; however, these reference points consider the status of menhaden independent of other species. The adoption of menhaden-specific ERPs will expand the focus of menhaden management by assessing the status of menhaden in relation to other prey and predator species. Menhaden-specific ERPs will seek to ensure maintenance of a forage base needed to support species such as striped bass, bluefish, and weakfish.

1.5.1.2 Total Allowable Catch

Limiting menhaden harvest through a Total Allowable Catch (TAC) provides a way to maintain the menhaden population above the overfished threshold and below the overfishing threshold. After the TAC is harvested in a given year, the directed fishery closes. This allows for greater protection of the spawning biomass, as opposed to allowing directed fishing to continue above and beyond the TAC. If properly set and enforced, quotas will prevent overfishing and ensure a sustainable resource for the future. Maintenance of a sustainable resource will also increase the forage base for commercially and recreationally important predator species.

1.5.1.3 Quota Allocation

The purpose of quota allocation in this Amendment is to identify an equitable and balanced approach through which menhaden quota can be distributed to various fisheries, gear types and jurisdictions. An allocation method which addresses the needs of each user group and is flexible to respond to future changes in the fishery will provide stability for the fishery and resource.

1.5.1.4 Chesapeake Bay Reduction Fishery Cap

The intent of the Chesapeake Bay Reduction Fishery Cap is to ensure protection of an important nursery ground for menhaden. This protection helps support menhaden recruitment in the Bay and protects a forage base for predators such as striped bass.

The Chesapeake Bay Reduction Fishery Cap was originally implemented in 2005 to prevent localized depletion of menhaden. Given the concentrated harvest of menhaden within the Chesapeake Bay, there was concern that localized depletion could be occurring in the Bay. In 2005, the Board established the Atlantic Menhaden Research Program (AMRP) to evaluate the possibility of localized depletion. Results from the peer review report in 2009 were unable to conclude localized depletion is occurring in the Chesapeake Bay and noted that, given the high mobility of menhaden, the potential for localized depletion could only occur on a “relatively small scale for a relatively short time”.

While the AMRP peer review report was not able to provide conclusive evidence that localized depletion is occurring, maintenance of the Chesapeake Bay reduction fishery cap does provide a greater level of protection in the region than the TAC alone.

1.5.1.5 Data Collection and Reporting Requirements

This Amendment requires states to implement timely quota monitoring programs so that the harvest of menhaden stays within the TAC and the potential for overages is limited. Furthermore, purse seine or bait seine vessels are required to submit Captain’s Daily Fishing Reports, or a similar trip report, on a daily basis, and states must collect biological samples relative to their level of harvest. This level of reporting is necessary for the implementation of a quota management system, as lengthy delays could lead to quota overages or premature closures of the fishery. Furthermore, continued biological sampling will increase knowledge on the stock’s age structure, improving the precision of menhaden abundance estimates in future stock assessments.

1.5.2 Social and Economic Impacts

This Amendment includes several measures which could carry social and economic impacts, notably potential changes to the reference points and allocation method. The use of menhaden-specific ERPs, when they are ready for management, may affect those who derive value from finfish, coastal birds, or marine mammals which predate upon menhaden. Ensuring a stable forage base for these species could increase their abundances, leading to positive social and economic impacts for individuals, groups, or communities which rely on these resources for consumptive (e.g., commercial or recreational harvest) or non-consumptive (e.g., bird or whale watching) purposes. Individuals who hold non-use values (e.g., existence value from knowing a particular environmental resource exists or bequest value from preserving a natural or cultural heritage for future generations) associated with affected species may also benefit from increased abundances. Estimates of potential economic or social impacts to these stakeholders as a result of menhaden-specific ERPs is challenging given complex and dynamic ecological relationships as well as the lack of socioeconomic data, especially for nonmarket goods and services.

For the commercial fisheries, the use of menhaden-specific ERPs, when they are ready for management, may lead to changes in the TAC. The extent and distribution of negative socioeconomic effects arising from changes to the TAC is dependent on price elasticities (responsiveness of demand to a change in price), substitute products, fishing costs, alternative employment opportunities, fishing community structure, and possibly other factors.

Identifying quota allocation methods which are fair and equitable among fishery sectors, gear types, and regions will enhance socioeconomic net benefits if changes in allocation result in higher value use of the menhaden resource. Shifts in allocation, while potentially beneficial overall, could disadvantage individual stakeholders through reductions in harvests, revenues, and profits. Implementation of data collection programs to ensure effective quota monitoring may add additional management costs.

A recently completed socioeconomic study of the commercial bait and reduction fisheries, funded by the ASMFC, contains several findings which elucidate possible social and economic impacts resulting from changes in menhaden management. In this study, researchers interviewed and surveyed industry members to uncover salient themes, analyzed historic landings data to resolve market relationships, performed economic impact analyses to consider the effects of various TAC changes, and conducted a public opinion survey to assess attitudes toward menhaden management (see Whitehead and Harrison, 2017 for the full report). Interviews and surveys of commercial fishers and other industry members found mixed opinions on several subjects; however, many agreed that the demand for menhaden bait, oil, and meal has increased in recent years. Exogenous demand increases, if leading to increases in ex-vessel prices, could benefit menhaden bait and reduction industry members; however, it is important to note that these benefits are unrelated to management actions discussed in this Amendment.

Analysis of historic landings data revealed that prices for menhaden were negatively related to landings levels, but that this relationship was small and insignificant in some instances. In particular, state-level analysis showed ex-vessel price is insensitive to landings. This finding suggests that reductions in the TAC might reduce commercial fishery revenues as decreases in landings are not fully compensated by higher prices. Ex-vessel prices of menhaden are not uniform along the coast, with some states having higher prices than others.

Economic impact analyses of changes to the TAC found income and employment decreases (increases) corresponding to TAC decreases (increases), with the largest impacts concentrated in New Jersey and Virginia. For example, the analysis suggests that when totaling direct, indirect, and induced economic changes in the bait fishery, a 5% increase in the TAC from the 2017 baseline would result in 18 more jobs, a \$476,000 increase in total earnings, and a \$1.7 million increase in total economic output. Looking at the reduction sector, a 5% increase in the TAC from the 2017 baseline is estimated to increase total economic output (includes direct, indirect, and induced economic effects) by \$3.6 million in Northumberland county and add 77 full and part-time jobs. Interestingly, subsequent analysis of coastal county income and employment changes in response to changes in bait landings (not reduction landings) showed little effect, casting some doubt on the conclusion that adjustments in menhaden TAC consistently lead to changes in fishery income and employment in the bait fishery. It may also be that the magnitude of impact is dependent the size of the fishery in each state and the ability of fishermen to harvest other species.

A public opinion survey asked respondents to vote for or against hypothetical TAC changes which led to associated changes in fishery revenues, jobs, and ecosystem services. Results from this survey indicated that the public recognized management tradeoffs and were willing to trade some economic losses for improvements in ecosystem services. For example, survey respondents were willing to forgo \$10.5-12 million in ex-vessel revenue in exchange for positive impacts on gamefish. On the other hand, survey respondents were willing to accept \$4-7 million in additional ex-vessel revenue in exchange for negative impacts to gamefish. The range of results is due to the variety of model configurations used in the analysis. It is also important to note that respondent characteristics and attitudes (ie: knowledge of menhaden, perceived importance of fishery to state) significantly influenced voting patterns.

2.0 GOALS AND OBJECTIVES

2.1 HISTORY OF MANAGEMENT

The first coastwide Atlantic menhaden FMP was approved in 1981 (ASMFC 1981). The 1981 FMP did not recommend or require specific management actions, but provided a suite of options should they be needed. After the FMP was approved, a combination of additional state restrictions, the establishment of local land use rules, and changing economic conditions resulted in the closure of most reduction plants north of Virginia (ASMFC 1992). In 1988, ASMFC concluded that the 1981 FMP had become obsolete and initiated a revision to the plan.

The 1992 Plan Revision included a suite of objectives to improve data collection and promote awareness of the fishery and its research needs (ASMFC 1992). Under this revision, the menhaden program was directed by the Board, which at the time was composed of up to five state directors, up to five industry representatives, one representative from the National Marine Fisheries Service, and one representative from the National Fish Meal and Oil Association.

Amendment 1, passed in 2001, provided specific biological, social/economic, ecological, and management objectives for Atlantic menhaden. No recreational or commercial management measures were implemented as a result of Amendment 1. Representation on the Board was also revised in 2001 to include three representatives from each state in the management unit, including the state fisheries director, a legislator, and a governor's appointee. This restructuring brought the Board's composition in line with others at the Commission. The reformatted Board has passed two amendments and six addenda to the 1992 FMP revision.

Addendum I (2004) addressed biological reference points for menhaden, specified the frequency of stock assessments to be every three years, and updated the habitat section of the FMP.

Addendum II (2005) instituted a harvest cap on the reduction fishery in the Chesapeake Bay. This cap, based on average landings from 2000-2004, was established for the 2006 through 2010 fishing seasons. Addendum II also outlined a series of research priorities to examine the possibility of localized depletion of Atlantic menhaden in the Chesapeake Bay. They included: determining menhaden abundance in Chesapeake Bay; determining estimates of removal of menhaden by predators; exchanging of menhaden between bay and coastal systems; and conducting larval studies.

Addendum III (2006) revised the Chesapeake Bay Reduction Fishery Cap to 109,020 mt, which is an average of landings from 2001-2005. Implementation of the cap remained for the 2006 through 2010 fishing seasons. Addendum III also allowed a harvest underage in one year to be added to the next year's quota. As a result, the maximum cap in a given year was extended to 122,740 mt.

Addendum IV (2009) extended the Chesapeake Bay harvest cap three additional years (2011-2013) at the same levels as established in Addendum III.

Addendum V (2011) established a new F threshold and target rate based on maximum spawning potential (MSP) with the goal of increasing abundance, spawning stock biomass, and menhaden availability as a forage species.

Amendment 2, approved in December 2012, established a 170,800 mt total allowable catch (TAC) for the commercial fishery beginning in 2013. This TAC represented a 20% reduction from average landings between 2009 and 2011. The 2009-2011 time period was also used to allocate the TAC among the jurisdictions. In addition, the Amendment established requirements for

timely reporting and required states to be accountable for their respective quotas by paying back any overages the following year. The amendment included provisions that allowed for the transfer of quota between jurisdictions and a bycatch allowance of 6,000 pounds per trip for non-directed fisheries that operated after a jurisdiction's quota has been landed. Further, it reduced the Chesapeake Bay reduction fishery harvest cap by 20% to 87,216 mt.

At its May 2015 meeting, the Board established an 187,880 mt TAC for the 2015 and 2016 fishing years. This represents a 10% increase from the 2013 and 2014 TAC. In October 2016, the Board approved a TAC of 200,000 mt for the 2017 fishing year, representing a 6.45% increase from the 2015 and 2016 fishing years.

In August 2016, the Board approved Addendum I which added flexibility to the current bycatch provision by allowing two licensed individuals to harvest up to 12,000 pounds of menhaden bycatch when working together from the same vessel using stationary multi-species gear. The intent of this Addendum was to accommodate cooperative fishing practices which traditionally take place in the Chesapeake Bay.

In May 2013, the Board approved Technical Addendum I which established an episodic events set aside program. This program set aside 1% of the coastwide TAC for the New England States (Maine through Connecticut) to harvest Atlantic menhaden when they occur in higher abundance than normal. In order to participate in the program, a state must reach its individual quota prior to September 1, require daily harvester reporting, and implement a trip limit no greater than 120,000 pounds. At its October 2013 meeting, the Board extended the episodic event set aside program through 2015, adding a re-allocation provision that distributes unused set aside as of October 31 to all states based on the same allocation percentages included in Amendment 2. At its May 2016 meeting, the Board again extended the episodic events program until final action on Amendment 3 and added New York as an eligible state to harvest under the program.

At its February 2014 meeting, the Board passed a motion to manage the menhaden cast net fisheries under the bycatch allowance for 2014 and 2015, with the states bearing responsibility for reporting. At its November 2015 meeting, the Board approved a motion to continue the management of cast net fisheries under the bycatch allowance for 2016. In February 2017, the Board extended management of the cast net fishery under the bycatch provision until implementation of Amendment 3.

2.2 PURPOSE AND NEED FOR ACTION

The 2015 Atlantic Menhaden Benchmark Stock Assessment and Peer Review Report categorized the development of ERPs as a high priority for management of the species. Currently, the stock is assessed with single-species biological reference points, which are defined in the 2015 Stock Assessment. While the stock assessment accounts for natural mortality, this factor alone may not adequately account for the unique and significant ecological services that menhaden provide, or how changes in the population of predator

species may impact the abundance of menhaden. Menhaden-specific ERPs are intended to consider the multiple roles that menhaden play, both in supporting fisheries for human use and their role in the marine ecosystem.

In addition, Amendment 2 requires quota allocations to be revisited every three years. The Atlantic menhaden quota is currently allocated to Atlantic coast jurisdictions based on average landings between 2009 and 2011. In revisiting the allocations, the Board decided to investigate different allocation methods and timeframes given concerns that the Amendment 2 allocation method does not strike a balance between gear types and regions, as well as current and future harvest opportunities. Some states also expressed concerns about unreported landings during the baseline years and the administrative burden of managing small allocations, the cost of which may outweigh the value of the fishery they are allocated.

2.3 GOAL

Amendment 3 replaces Amendment 2 to the 1981 FMP for Atlantic Menhaden.

The goal of Amendment 3 is to manage the Atlantic menhaden fishery in a manner which equitably allocates the resource's ecological and economic benefits between all user groups. The primary user groups include those who extract and utilize menhaden for human use, those who extract and utilize predators which rely on menhaden as a source of prey, and those whose livelihood depends on the health of the marine ecosystem. Pursuit of this goal will require a holistic management approach which allocates the resource in a method that is biologically, economically, and socially sound in order to protect the resource and those who benefit from it.

2.4 OBJECTIVES

The following objectives are intended to support the goal of Amendment 3.

- Maintain the Atlantic menhaden stock at levels which sustain viable fisheries and support predators which depend on the forage base.
- Ensure sufficient menhaden spawning stock biomass to prevent stock depletion and recruitment failure.
- Construct regulations based on the best available science and coordinate management efforts among the Atlantic coast jurisdictions.
- Develop a management program which ensures fair and equitable access to the fishery for all regions and gear types.
- Support a greater understanding of menhaden biology and multi-species interactions that may bear upon predator-prey dynamics.
- Maintain existing culture and social features of the fishery to the extent possible.

2.5 MANAGEMENT UNIT

The management unit for Amendment 3 is defined as the range of Atlantic menhaden within U.S. waters of the northwest Atlantic Ocean, from the estuaries eastward to the offshore boundary of the EEZ. This definition is consistent with recent stock assessments which treat the entire resource in U.S. waters of the northwest Atlantic as a single stock. For the purposes of this Amendment, the term “state” or “states” also includes the Potomac River Fisheries Commission.

2.5.1 Management Area

The management area for Amendment 3 shall be the entire Atlantic coast distribution of the resource from Maine through Florida.

2.6 REFERENCE POINTS

2.6.1 History of Reference Points

2.6.1.1 Amendment 1 Reference Points

The reference points outlined in Amendment 1 (2001) were developed from the historic spawning stock per recruit (SSB/R) relationship. As such, F_{REP} was selected as the $F_{threshold}$, representing replacement level of stock, and F_{target} was based on F_{MAX} , representing the maximum fishing mortality before the process of recruitment overfishing begins. The Board also adopted a spawning stock biomass target, a proxy for B_{MSY} (the biomass that allows the fish stock to produce maximum sustainable yield), and a spawning stock biomass threshold.

2.6.1.2 Addendum 1 Reference Points

Based on the 2003 Benchmark Stock Assessment for Atlantic menhaden, the reference points were modified per the recommendation of the TC (ASMFC 2004). The TC recommended using population fecundity (number of maturing or ripe eggs) as a more direct measure of reproductive output of the population compared to spawning stock biomass (the weight of mature females). For Atlantic menhaden, older menhaden release more eggs than younger menhaden per unit of female biomass. By using the number of eggs released, more reproductive importance is given to older fish in the population. The TC also recommended modifications to the fishing mortality (F) target and threshold. Specifically, the TC recommended continued use of F_{REP} as the $F_{threshold}$, but estimated it using fecundity per recruit rather than the SSB per recruit. They also recommended that the F_{target} be based on the 75th percentile. This approach was consistent with the approach used for the $F_{threshold}$. For biomass (or egg) benchmarks, the TC recommended maintaining the approach used in Amendment 1.

2.6.1.3 Addendum V Reference Points

In November 2011, Addendum V was approved, which established an interim fishing mortality threshold of $F_{15\%MSP}$ and target of $F_{30\%MSP}$, where MSP is the maximum spawning potential.

2.6.1.4 Amendment 2 Reference Points

The Board adopted an interim biomass threshold of $SSB_{15\%MSP}$ and target of $SSB_{30\%MSP}$ to match the interim fishing mortality reference points adopted through Addendum V.

2.6.1.5 2015 Benchmark Stock Assessment Reference Points

As a part of the 2015 Stock Assessment, the TC recommended that the Board adopt reference points based on the maximum and median geometric mean fishing mortality rate for ages 2-4 during 1960-2012. The 1960-2012 time period represents a time with little to no restrictions on total harvest in which the population appears to have been sustainable given that the population did not experience collapse. Because the fisheries have dome-shaped selectivity, which varies by fleet over time, the age at full fishing mortality changes over time. Ages 2-4 represent the ages of fully selected fishing mortality rates depending upon the year and fishery (i.e., bait and reduction). The Board accepted these updated reference points following approval of the 2015 Stock Assessment for management use.

2.6.1.6 2017 Stock Assessment Update

Using the method outlined in the 2015 Stock Assessment (*Section 2.6.1.5*), the 2017 Stock Assessment Update determined the overfishing threshold and target to be $F_{21\%MSP}$ and $F_{36\%MSP}$, respectively. The overfished threshold and target were calculated to be $FEC_{21\%MSP}$ and $FEC_{36\%MSP}$, respectively.

2.6.2 ASMFC Multi-Species Management Efforts

In May 2010, the Board tasked the Multi-Species Technical Committee (MSTC), along with the Atlantic Menhaden TC, with developing alternative reference points for menhaden that account for predation. These groups led to a reformation of the subcommittee that updated and refined the Multispecies Virtual Population Analysis (MSVPA). The MSVPA-X model generated a natural mortality matrix which could be input to the single-species menhaden assessment. While this approach was attempted for several Atlantic menhaden stock assessments, the Board tasked this group with developing ERPs for menhaden using multispecies models. This joint subcommittee was eventually renamed the Biological Ecological Reference Points Workgroup (BERP Workgroup) because model consideration for the Board task expanded beyond the MSVPA. The overarching goal of the BERP Workgroup is to develop menhaden-specific ERPs that account for the abundance of menhaden and the species role as a forage fish.

In the *Ecological Reference Points for Atlantic Menhaden* report, the BERP Workgroup presented a suite of preliminary ERP models and ecosystem monitoring approaches for feedback as part of the 2015 Benchmark Stock Assessment (Appendix E, SEDAR 40 Stock Assessment Report). In this report, the BERP Workgroup recommended the use of facilitated workshops to develop specific ecosystem and fisheries objectives to drive further development of ERPs for Atlantic menhaden. This Ecosystem Management Objectives Workshop (EMOW) contained a broad range of representation including Commissioners, stakeholders, and technical representatives to provide various perspectives on Atlantic menhaden management. The EMOW identified potential ecosystem goals and objectives that were reviewed and

approved by the Board. The BERP Workgroup then assessed the ability of each preliminary ERP model to address the identified management objectives and performance measures, and selected models accordingly.

Currently, the BERP Workgroup is evaluating this suite of multispecies models to ensure they are able to generate ERPs which meet as many management objectives as possible. One of the models under consideration is a Bayesian surplus production model with a time-varying population growth rate. This model estimates the trend in total Atlantic menhaden stock biomass and fishery exploitation rate by allowing the population growth rate to fluctuate annually in response to changing environmental conditions. The approach produces dynamic, maximum sustainable yield-based ERPs that account for the forage services menhaden provide. Another production model being evaluated is a Steele-Henderson model, which permits non-fisheries effects (predation and environmental) to be quantified and incorporated into the single-species stock assessments. As a result, fixed and time-varying ecological thresholds can be estimated. This approach is not intended to replace more complex multispecies ecosystem assessment models, but rather to expand the scope of the single-species assessments to include the effects of fishing, predation, and environmental effects. Finally, a multispecies statistical catch-at-age model is being considered. In this approach, single-species models are linked using trophic calculations to provide a predator-prey feedback between the population models. The model is believed to be an improvement from the existing MSVPA because the use of statistical techniques may help to estimate many of the model parameters while incorporating the inherent uncertainty in the data. An external model being considered is an Ecopath with Ecosim model; however, the application of this model is to explore tradeoffs, not quota setting advice. For example, this model could be used to project fishery performance under the various reference points produced from the other multi-species models.

The development of menhaden-specific ERPs is expected to continue over the next couple of years. In 2017, the BERP Workgroup will finish their review of the merits of each modeling approach and decide which models are appropriate frameworks for menhaden ERPs. In 2018, the BERP Workgroup will hold data workshops to collect, select, and standardize the data that will be used as model inputs. This will include data that pertains not only to menhaden abundance but also the abundance of species such as bluefish, striped bass, and other prey species. In early 2019, assessment workshops will be held to review preliminary model results and in the fall of 2019, the multi-species models will be peer-reviewed, along with the current single-species model, which has traditionally been used for menhaden management. This will allow for direct comparison between the two modeling approaches. Table 4 outlines the current schedule for the BERP Workgroup.

2.6.4 Definition of Overfishing and Overfished/Depleted

The Board will evaluate the current status of the Atlantic menhaden stock with respect to its reference points. Changes to the reference points can be made through Board action following a peer-reviewed stock assessment or through Adaptive Management (*Section 4.6*). The Board

can adopt any advice of the stock assessment report or peer review report. Reference points can be recalculated during an update or benchmark stock assessment.

Threshold reference points are the basis for determining stock status (i.e., whether overfishing is occurring or if a stock is overfished). When the fishing mortality rate (F) exceeds the $F_{\text{threshold}}$, then overfishing is occurring. This means that the rate of removal of fish by the fishery exceeds the ability of the stock to replenish itself. When the biomass or reproductive output (measured as population fecundity) falls below the threshold, then the stock is overfished, meaning there is insufficient mature female biomass or egg production to replenish the stock.

Reference points will direct the Board on when additional management measures are needed in the menhaden fishery. If the current F exceeds the threshold level, the Board will take steps to reduce F to the target level. If current F exceeds the target, but is below the threshold, the Board may consider steps to reduce F to the target level. If current F is below the target F , then no action is necessary to reduce F . Similarly, if the current biomass/fecundity is below the threshold level, the Board will take steps to increase biomass/fecundity to the target level; if current biomass/fecundity is below the target, but above the threshold, the Board may consider steps to increase biomass/fecundity to the target level. If current biomass/fecundity is above the target biomass/fecundity, then no action is necessary to increase biomass/fecundity.

2.6.5 Reference Points

The Atlantic menhaden stock is managed with single-species reference points, based on the maximum and median geometric mean fishing mortality rate for ages 2-4 during 1960-2012, while the BERP Workgroup continues to develop menhaden-specific ERPs. Using this method, the 2017 Stock Assessment Update found the fishing mortality target and threshold for Atlantic menhaden to be $F_{36\%MSP}$ and $F_{21\%MSP}$ and the corresponding fecundity target and threshold for Atlantic menhaden to be $FEC_{36\%MSP}$ and $FEC_{21\%MSP}$. As of 2016, the terminal year of the 2017 Stock Assessment Update, the stock is not overfished and overfishing is not occurring (Figures 6 and 7). The expected timeline for completion of menhaden-specific ERPs is late 2019, as outlined in *Section 2.6.2*.

2.6.6 Stock Rebuilding Program

If it is determined that the Atlantic menhaden resource is experiencing overfishing or has become overfished, the Board will initiate and develop a rebuilding schedule.

3.0 MONITORING PROGRAM SPECIFICATION

In order to achieve the goals and objectives of Amendment 3, the collection and maintenance of quality data is necessary.

3.1 COMMERCIAL CATCH AND LANDINGS PROGRAM

The reporting requirements for the Atlantic menhaden fishery are based on Captains Daily Fishing Reports (CDFRs) and a Board approved method for timely quota monitoring (*Section 3.1.2*). ASMFC, National Marine Fisheries Service (NMFS), US Fish & Wildlife Service (USFWS), the New England, Mid-Atlantic, and South Atlantic Fishery Management Councils, and all the Atlantic coastal states have developed a coastwide fisheries statistics program called the Atlantic Coastal Cooperative Statistics Program (ACCSP). A minimum set of reporting requirements for fishermen and dealers has been developed as the standard for data collection on the Atlantic coast.

3.1.1 Reduction Fishery Catch Reporting Process

Daily vessel unloads (in thousands of standard fish) are emailed to NMFS each day. Harvest by the Reedville menhaden fleet is reported through Captains Daily Fishing Reports (CDFRs), which are deck logbooks that are maintained by the Virginia reduction purse-seine vessels. CDFRs are an important tool to monitor reduction harvest in the Chesapeake Bay so that harvest does not exceed the Chesapeake Bay Reduction Fishery Cap (*Section 4.3.7*).

Total removals by area are calculated at the end of the fishing season. At-sea catches from the CDFRs are summed by vessel, and compared to total vessel unloads from company catch records. Individual at-sea sets are then multiplied by an adjustment factor (company records/at-sea estimates). Adjusted catches by set are converted to mt, and summed by fishing area. Catch totals are reported by ocean fishing areas and the Chesapeake Bay Bridge Tunnel delineates catches inside and outside of the Chesapeake Bay.

A NMFS port agent samples purse-seine catches dockside in Reedville, VA throughout the fishing season (May through December), providing data for age composition determination.

3.1.2 Bait Fishery Catch Reporting Process

Quota monitoring is dependent upon the strength of state specific monitoring programs. As a part of Amendment 2, each state was required to implement a timely quota monitoring system in order to maintain menhaden harvest within the TAC and minimize the potential for overages. Table 5 outlines the reporting requirements of each jurisdiction under Amendment 2.

In order to monitor the menhaden quota allocations prescribed in Amendment 3, states must, at a minimum, maintain the current quota monitoring system in place. States must require menhaden purse seine and bait seine vessels (or snapper rigs) to submit CDFR's or similar daily trip level reports. Mandatory reporting requirements will be reviewed as a part of the annual fishery review (*Section 5.3 Compliance Reports*). States which habitually exceed their quota should assess the effectiveness of their current reporting program and make changes as necessary (e.g. increase the frequency of reporting). It is recommended that states collect the following ACCSP data elements: (1) trip start date; (2) vessel identifier; (3) individual fisherman

identifier; (4) dealer identification; (5) trip number; (6) species; (7) quantity; (8) units of measurement; (9) disposition; (10) county or port landed; (11) gear; (12) quantity of gear; (13) number of sets; (14) fishing time; (15) days/hours at sea; (16) number of crew; and (17) area fished. See Tables 5 and 6 for details on these data elements.

Per *Section 4.5.3.1*, New Hampshire, Pennsylvania, South Carolina, and Georgia are exempt from timely quota monitoring.

Any changes to a state's current quota monitoring program must be reviewed by the PRT and approved by the Board.

3.1.2.1 Incidental Catch Reporting

Landings of menhaden under *Section 4.3.5: Incidental Catch and Small Scale Fisheries* must be reported as a part of the Annual Compliance Report. Landings of menhaden after the directed fishery has closed are required to be reported through the timely reporting system outlined in *Section 3.1.2*.

3.1.2.2 Episodic Events Reporting

States participating in the Episodic Events Program (*Section 4.3.6*) must implement daily trip level harvester reporting. Each state must track landings and submit weekly reports to ASMFC staff. As the set aside is used, staff may request states submit reports on a more frequent basis, in order to avoid overages.

3.2 RECREATIONAL FISHERY CATCH REPORTING PROCESS

The Marine Recreational Information Program (MRIP) contains estimated Atlantic menhaden catches from 1981-2016. Recreational harvest of menhaden was previously collected through the Marine Recreational Fisheries Statistics Survey (MRFSS), which was a recreational data collection program used from 1981-2003. The MRFSS program was replaced by MRIP in 2004 and was designed to provide more accurate and timely reporting as well as greater spatial coverage. The MRFSS and MRIP programs were simultaneously conducted in 2004-2006 and this information was used to calibrate past MRFSS recreational harvest estimates against MRIP recreational harvest estimates. Recreational catches of menhaden were downloaded from <http://www.st.nmfs.noaa.gov/st1/recreational/queries/index.html> using the query option.

An online description of MRIP survey methods can be found here: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index#meth>

3.3 FOR-HIRE FISHERY CATCH REPORTING PROCESS

ACCSP standards allow for the use of MRIP for-hire sampling or a census system such as ACCSP's eTrips. For-hire sampling provides bimonthly data but eTrips can provide data within a 24-hour period.

3.4 SOCIAL AND ECONOMIC COLLECTION PROGRAMS

Data on a number of variables relevant to social and economic dimensions of menhaden fisheries are collected through existing ACCSP data collection programs and MRIP; however, no explicit mandates to collect socioeconomic data for menhaden currently exist. In addition to landed quantities, commercial menhaden harvesters and dealers may report ex-vessel prices or value, fishing and landing locations, landing disposition, and a variety of measures capturing fishing effort. MRIP regularly collects information on recreational fishing effort and landings, and occasionally gathers socioeconomic data on angler motivations and expenditures; however, menhaden which are caught and then subsequently used as recreational bait are not always effectively captured in the survey.

A recent socioeconomic study of commercial menhaden fishery was conducted to collect information on the bait and reduction sectors and help inform management decisions (Whitehead and Harrison 2017). As a part of the study, researchers interviewed 43 industry members from both the bait and reduction fisheries to better understand gear usage, substitute products, market changes, and fishing community characteristics. Those interviewed include commercial fishermen, bait dealers, bait shop owners, and reduction facility managers. The study also performed county level, state-level, and coastwide analysis on menhaden landings and ex-vessel value to determine socioeconomic trends in the fishery. In addition, an economic impact analysis was conducted to determine effects (including direct, indirect, and induced impacts) from changes to the TAC. Finally, a public opinion survey was conducted in eight states to determine the public's tradeoff between economic increases and ecosystem services. Over 2,000 members of the public participated in the survey.

While this socio-economic study helped provided a more complete picture of the menhaden commercial fishery, information on factors such as fishing costs, employment levels, processing and distribution are not collected regularly for commercial menhaden fisheries. This information would be useful for future socioeconomic analyses.

3.5 BIOLOGICAL DATA COLLECTION PROGRAMS

3.5.1 Fishery-Dependent Data Collection

3.5.1.1 Reduction Fishery

The Beaufort Laboratory of the Southeast Fisheries Science Center conducts biological sampling of the Atlantic menhaden reduction fishery (Smith 1991). The program began sampling in the Mid-Atlantic and Chesapeake Bay areas during 1952-1954 and has continued uninterrupted since 1955, sampling the entire range of the Atlantic menhaden purse-seine reduction fishery. Detailed descriptions of the sampling procedures and estimates gathered through the program are cited in Smith (1991).

The biological data, or port samples, for length- and weight-at-age are available from 1955 through 2016, and represents one of the longest and most complete time series of fishery data

in the nation. The NMFS employs a full-time port agent at Reedville, VA to sample catches throughout the fishing season for age and size composition of the reduction catch (Table 8).

3.5.1.2 Bait Fishery

10 Fish Sampling

Each state in the New England (ME, NH, MA, RI, CT) and Mid-Atlantic (NY, NJ, DE) regions are required to collect one 10-fish sample (age and length) per 300 mt landed for bait purposes. The TC recommends collecting the samples by gear type. One 10-fish sample consists of 10 fish collected from a distinct landing event (e.g., purse seine trip, pound net set). Each collection of 10 fish is from an independent sampling event; multiple 10-fish samples should not be collected from the same landing event.

Each state in the Chesapeake Bay (MD, PRFC, VA) and South Atlantic (NC, SC, GA, FL) regions are required to collect one 10-fish sample (age and length) per 200 mt landed for bait purposes. The TC recommends collecting the samples by gear type. One 10-fish sample consists of 10 fish collected from a distinct landing event (e.g., purse seine trip, pound net set). Each collection of 10 fish is an independent sampling event; multiple 10-fish samples should not be collected from the same landing event.

De minimis states are not required to conduct fishery-dependent biological sampling in the menhaden fishery (*Section 4.5.3: De Minimis Fishery Guidelines*).

Table 9 shows the number of 10-fish samples collected by the jurisdictions in 2016 as well as the number of age and length samples collected.

Pound Net Monitoring

Catch information from pound net fisheries is critical to determine changes in the relative abundance of adult menhaden along the east coast. At a minimum, each state with a pound net fishery must collect catch and effort data elements for Atlantic menhaden including total pounds (lbs.) landed per day and number of pound nets fished per day. A pound net fishery includes floating fish traps and fishing weirs. These are harvester trip level ACCSP data requirements. In order to characterize selectivity of this gear in each state, a goal of collecting five 10-fish samples annually is recommended. One 10-fish sample consists of 10 fish collected from a distinct landing event (e.g., pound net set). Each collection of 10 fish is an independent sampling event; multiple 10-fish samples should not be collected from the same landing event.

3.5.2 Fishery-Independent Data Collection

Assessment of the Atlantic menhaden stock requires information from a variety of fishery-independent surveys along the coast. As a part of the 2015 Benchmark Stock Assessment and the 2017 Stock Assessment Update, sixteen fishery-independent surveys were used to create a Juvenile Abundance Index, seven surveys were used to create a Northern Adult Index, and two surveys were used to create a Southern Adult Index. For many of the surveys used, the primary objective is to measure the abundance of species other than menhaden; however the bycatch

of menhaden in these surveys can provide important information regarding stock conditions. Table 10 shows the surveys used to assess the status of Atlantic menhaden in the 2015 and 2017 stock assessments. State and federal agencies and academic institutions conducting these surveys are encouraged to continue them into the future to allow for the best possible assessment of Atlantic menhaden recruitment.

3.5.3 Observer Programs

As a condition of state and/or federal permitting, many vessels are required to carry at-sea observers when requested. A minimum set of standard data elements are to be collected through the ACCSP at-sea observer program (refer to the ACCSP Program Design document for details). Specific fisheries priorities will be determined by the Discard/Release Prioritization Committee of ACCSP.

3.6 ASSESSMENT OF STOCK CONDITION

An Atlantic menhaden stock assessment will be performed every three years by the Stock Assessment Subcommittee (SAS). The TC and Advisory Panel (AP) will meet to review the stock assessment and all other relevant data sources. The stock assessment report shall follow the general outline as approved by the Interstate Fisheries Management Program Policy Board (ISFMP Policy Board) for all Commission-managed species. In addition to the general content of the report as specified in the outline, the stock assessment report may also address the specific topics detailed in the following sections. Specific topics in the stock assessment may change as the SAS continues to provide the best model and metrics possible to assess the Atlantic menhaden stock.

3.6.1 Assessment of Population Age/Size Structure

Estimates of Atlantic menhaden age and size structure are monitored based on results of the stock assessment. Improvements to data sources and modeling assumptions during the 2015 Benchmark Stock Assessment, such as increased sampling of the bait fishery, addition of several surveys, and incorporation of dome shaped selectivity, greatly improved the understanding of size and age distribution of the menhaden stock.

3.6.2 Assessment of Annual Recruitment

Recruitment of Atlantic menhaden is currently estimated through two primary methods. The first is the estimate of recruitment to age-1 from the stock assessment model. The second is the examination of various fishery-independent data sources, including the juvenile abundance indices that are integrated in to the statistical modeling process.

3.6.3 Assessment of Fecundity

Population fecundity, a measure of total egg production by the population, is estimated from the stock assessment model every three years. Given egg production is not linearly related to female weight, indices of egg production may provide a better measures of reproductive output of a stock.

3.6.4 Assessment of Fishing Mortality

Fishing mortality rates are estimated by the stock assessment model. Currently, fishing mortality rates are estimated for the reduction fishery, the bait fishery, and the recreational fishery.

3.7 STOCKING PROGRAM

There is currently no stocking program in place for Atlantic menhaden.

4.0 MANAGEMENT PROGRAM

4.1 RECREATIONAL FISHERY MANAGEMENT MEASURES

No recreational fishery management measures are included in this amendment. Recreational landings of Atlantic menhaden are currently believed to be insignificant in terms of total harvest. Therefore, regulation of the recreational fishery is unnecessary at this time. The Board has the option of considering management changes to the recreational fishery through a future addendum, as detailed in Adaptive Management (*Section 4.6*).

4.2 FOR-HIRE FISHERIES MANAGEMENT MEASURES

No management measures for the for-hire fisheries are included in this amendment. The Board has the option of considering management changes to the recreational fishery through a future addendum, as detailed in Adaptive Management (*Section 4.6*).

4.3 COMMERCIAL FISHERY MANAGEMENT MEASURES

4.3.1 Total Allowable Catch

The Board will set an annual or multi-year TAC based on the following procedure.

The Atlantic Menhaden TC will annually review the best available data including, but not limited to, commercial and recreational catch/landing statistics, current estimates of fishing mortality, stock status, survey indices, assessment modeling results, and target mortality levels. The TC will calculate TAC options based on the Board selected method of setting a TAC (see *Section 4.3.1.1*). The Board will set an annual TAC through Board action, with the option of setting a multi-year TAC.

4.3.1.1 TAC Setting Method

The Board will set the TAC based on the best available science (e.g., projection analysis); however, if projections are not recommended for use by the TC, the Board will set a quota based on an ad-hoc approach. This could include the ad-hoc approach used by the Regional Fishery Management Councils (Berkson et al., 2011) or an ad-hoc approach that is informed by the Commission's ongoing development of a Risk and Uncertainty Policy.

Projection Analysis Used to Set a TAC (Preferred Method)

Projection analysis is conducted to explore a range of TAC alternatives and determine the percent risk of exceeding the F_{target} or the $F_{\text{threshold}}$. Monte Carlo Bootstrap runs of the base model run are used as the basis for the projection analysis. The Board can request specific TAC levels to be explored through the projection analysis or specify the probability level of the fishing mortality rate being between the F_{target} and $F_{\text{threshold}}$. Important assumptions of the projection analysis are that it does not include structural (model) uncertainty, fisheries are assumed to continue fishing at their estimated current proportions of total effort, and mortality is assumed to occur throughout the year.

Ad-hoc Approach to Setting a TAC

Should the TC not recommend the use of projection analysis to inform the specification process, an ad hoc approach used by several regional Fishery Management Councils can be adopted. This ad-hoc method is typically used for species with poor assessment data or uncertain stock assessment results. In these situations, Councils use landings/catch data as the only reliable means of setting harvest limits. A document entitled "Calculating Acceptable Biological Catch for Stocks that Have Reliable Catch Data Only (Only Reliable Catch Stocks – ORCS)" was published, and serves as guidance to set interim removal levels under these conditions (Berkson et al., 2011).

In summary, the ORCS approach estimates an overfishing limit (OFL) by first identifying an estimate of historic catch, called the 'catch statistic'. This is typically based off of the mean or median of landings over a specific number of years. The catch statistic is then multiplied by a scalar, which is identified based on the status of the stock and the risk of overexploitation. This scalar can be greater than 1 for species which are not heavily exploited. The resulting value is a proxy for the OFL.

To account for the Council's risk tolerance when setting an Allowable Biological Catch, the resulting value is then multiplied by a precautionary scalar that ranges from 0 to 1. The appropriate multiplier is cautiously decided based on factors such as life history, ecological function, stock status, and an understanding of exploitation. A lower scalar represents a lower level of risk and a more conservative approach to the management of the species. In contrast, a higher scalar indicates a higher level of management risk, but may be appropriate if the stock has a low risk of overexploitation.

Should this process be adopted in the Atlantic menhaden fishery, the TC will recommend a catch statistic and a scalar that is based on the stock’s risk of overexploitation. The Board will then decide on the second scalar which represents the Board’s level of risk tolerance.

4.3.1.2 Indecision Clause

If the Board is unable to approve a TAC for the subsequent fishing year by December 31st of the current year, the TAC for the subsequent year will be set at the current year’s TAC.

4.3.2 Quota Allocation

The Atlantic menhaden commercial TAC is managed with jurisdictional quotas. Each jurisdiction is allocated a 0.5% fixed minimum quota and the remainder of the TAC is allocated based on a three-year average of historic landings from 2009-2011 (see table below). States have the responsibility to close their directed commercial fisheries once their quota (or a percentage thereof) has been reached. Every state is required to submit their official closure notice to the Commission as a part of annual compliance reports.

States, on an annual basis, have the option to relinquish part, or all, of their fixed minimum quota. States must declare, to the FMP Coordinator, any relinquished quota by December 1st of the preceding fishing year and the amount that is being relinquished. Any quota that is relinquished by a state will be redistributed to the other jurisdictions (i.e. those which have not relinquished quota) based on historic landings from 2009-2011.

Table 1. Jurisdictional allocations under Amendment 3.

State	Allocation (%)
ME	0.52%
NH	0.50%
MA	1.27%
RI	0.52%
CT	0.52%
NY	0.69%
NJ	10.87%
PA	0.50%
DE	0.51%
MD	1.89%
PRFC	1.07%
VA	78.66%
NC	0.96%
SC	0.50%
GA	0.50%
FL	0.52%
TOTAL	100.00%

It is important to note that, at its August 2017 meeting, the Menhaden Board approved a proposal by New York to recalibrate their historic menhaden landings due to inconsistent

reporting prior to Amendment 2. In this proposal, New York compares average annual landings from 2009-2012 (a time period with inconsistent reporting) to average annual landings from 2013-2016 (a time period with greater reporting compliance). The difference between these two time periods (multiplier=2.9) is used to scale historic landings prior to 2013. The allocation percentages presented above are based on recalibrated landings for New York. The New York proposal can be found in Appendix 1.

4.3.2.1 Overage Payback

Any overage of a quota allocation is subtracted for that specific quota allocation in the subsequent year on a pound for pound basis. Overage determination is based on final allocations, including transfers if applicable. Overages will be subtracted from the subsequent year's quota following submission of state compliance reports. Should overages change as preliminary data is finalized, quotas will be re-adjusted accordingly.

4.3.2.2 Allocation Revisit Provision

Quota allocations will be revisited every three years following implementation of Amendment 3, or can be revisited at any time through the adaptive management process (*Section 4.6*).

4.3.3 Quota Transfers

Two or more regions or states, under mutual agreement, may transfer or combine their Atlantic menhaden quota. Transfers do not permanently affect state-specific shares of the coastwide quota, i.e., the state-specific allocation percentages remain fixed. Once quota has been transferred, the state receiving quota becomes responsible for any overages of their new quota (the receiving state's original quota plus any quota transferred). Overages will be deducted from the corresponding state's quota the following fishing season.

All transfers require a donor state (giving the quota) and a receiving state (receiving the quota). Transfers cannot be greater than the amount of quota allocated to the donor region or state for that fishing year. In order to initiate a transfer, a member of each state agency involved must submit a signed letter to the Commission identifying the involved parties, the pounds of quota to be transferred, and justification for the transfer (i.e. an expected quota overage, safe harbor landings, etc). The Executive Director, the ISFMP Director, and/or the FMP Coordinator will review all transfer requests. The transfer becomes final upon receipt of signed letters from the Commission to the donor and receiving parties. In the event that the donor or receiving member of a transaction subsequently wishes to change the amount of the transfer, both parties have to agree to the change and submit letters to the Commission which are signed by a member of the state agency. Parties participating in a quota transfer may add a provision which notes that if the donor state or region incurs an overage in the current fishing year due to the transfer, the overage will be accommodated and paid back by the receiving state in the subsequent year.

If a state receives multiple requests to transfer quota at the same time, it is recommended that the state considers the requests in the order in which they were received. Transfer requests intended to resolve issues other than quota overages (i.e. safe harbor) may need to be addressed ahead of the order in which they were received.

4.3.4 Quota Rollovers

Unused quota may not be rolled over from one fishing year to the next.

4.3.5 Incidental Catch and Small Scale Fisheries

After a quota allocation is met for a given jurisdiction, the fishery moves to an incidental catch fishery in which small-scale gears and non-directed gear types may land up to 6,000 pounds of menhaden per trip per day. Two authorized individuals, working from the same vessel fishing stationary multi-species gear, are permitted to work together and land up to 12,000 pounds from a single vessel – limited to one vessel trip per day. A trip is based on a calendar day such that no vessel may land menhaden more than once in a single calendar day. The use of multiple carrier vessels per trip to offload any bycatch exceeding 6,000 pounds of Atlantic menhaden is prohibited.

For the purposes of this Amendment, small-scale gears include cast nets, traps (excluding floating fish traps), pots, haul seines, fyke nets, hook and line, bag nets, hoop nets, hand lines, trammel nets, bait nets, and purse seines which are smaller than 150 fathom long and 8 fathom deep. Non-directed gears include pound nets, anchored/stake gillnets, drift gill net, trawls, fishing weirs, fyke nets, and floating fish traps. Stationary multi-species gears are defined as pound nets, anchored/stake gill nets, fishing weirs, floating fish traps, and fyke nets. Tables 11 and 12 show landings under the current bycatch provision from 2013-2016.

Landings under the incidental catch provision will be reported to the Board as a part of the annual FMP Review (*Section 5.3: Compliance Report*). Should a specific gear type show a continued and significant increase in landings under the incidental catch provision, or it becomes clear that a non-directed gear type is directing on menhaden under the incidental catch provision, the Board has the authority, through Adaptive Management (*Section 4.6*), to alter the trip limit or remove that gear from the incidental catch provision.

4.3.6 Episodic Events Set Aside Program

1% of the TAC is set aside for episodic events, which are defined by any instance in which a qualified state has reached its annual quota allocation available to them prior to September 1 and the state can prove the presence of unusually large amounts of menhaden in its state waters. The goal of the set aside is to add flexibility to the management of the species so that states can harvest menhaden during episodic events, reduce discards, and prevent fish kills. Eligibility to participate in the episodic events set aside program is reserved for the states of

Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, and New York. Landings per year under the set aside can be found in Table 13.

4.3.6.1 Mandatory Provisions

In order for an eligible state to participate in the episodic events set aside program, states must implement the following provisions.

1. Participating states must implement daily trip level harvester reporting. Each state must track landings and submit weekly reports to ASMFC staff. Should several states be approved to participate in the episodic event set aside program, ASMFC staff may require more frequent reporting to ensure the set aside is not exceeded.
2. Episodic events harvest and landings must be restricted to state waters of the jurisdiction approved to participate in the set aside.
3. Participating states must implement a maximum daily trip limit no greater than 120,000 pounds/vessel. A daily trip is defined by a calendar day such that no vessel harvesting under the episodic events program may land menhaden twice in a single calendar day.

4.3.6.2 Declaring Participation

A state must apply to participate in the episodic events program prior to September 1st. In order to apply, a state must send a letter to the ASMFC Executive Director, ISFMP Director, and FMP Coordinator declaring interest in harvesting under the set aside. The letter must demonstrate the following:

1. The state has implemented the mandatory provisions stated in Section 4.3.6.21.
2. The applying state has fully harvested its annual quota allocation prior to September 1.
3. The state has unusually large amounts of menhaden in its state waters. This can be demonstrated through:
 - Surveys (aerial, seine) which indicate high biomass;
 - Landings reports which indicate an unusually high rate of menhaden harvest at the time of declaration into the set aside;
 - Or information highlighting the potential for fish kills, associated human health concerns, and the ability of harvest under the set aside to reduce or eliminate the fish kill.
4. The state has not declared *de minimis* status. If a qualifying state was previously granted *de minimis* status, it will lose that status and will need to collect biological data and catch and effort data for an adult index as required by Section 3.5: *Biological Data Collection Programs*.

Once the application letter is received by ASMFC staff, the PRT will review the state's compliance with the requirements of the episodic events set aside program. Once verified, ASMFC will send a letter notifying the state that it can harvest menhaden under the set aside. Only harvest that occurs on or after the date of the aforementioned notification letter, and prior to the states eligibility ending, will be considered episodic event set aside harvest. ASMFC staff will also notify the Board when any state is approved to harvest under the set aside.

4.3.6.3 Procedure for Unused Set Aside

If an episodic event is not triggered by September 1 in any state, the unused set aside quota will be rolled into the overall TAC on September 1 and redistributed based on the allocation method and timeframe selected in *Section 4.3.2*. If an episodic event is triggered, any unused set aside as of October 31st of each year will be redistributed based on the allocation method and timeframe selected in *Section 4.3.2*.

4.3.6.4 Procedure for Set Aside Overages

If the episodic event set aside is exceeded, any overages will be deducted from the next year's episodic event set aside amount. Unused quota from a region or state can be transferred to the set aside to reduce an overage.

4.3.7 Chesapeake Bay Reduction Fishery Cap

The annual total allowable harvest from the Chesapeake Bay by the reduction fishery is limited to no more than 51,000 mt. The intent of the Cap is to prevent all of the reduction fishery harvest from occurring in the Chesapeake Bay, a critical nursery area for Atlantic menhaden. Harvest for reduction purposes shall be prohibited within the Chesapeake Bay when 100% of the cap is harvested from Chesapeake Bay, which is defined as areas shoreward of the Chesapeake Bay Bridge Tunnel. Harvest above the Cap in any given year will be deducted from the next year's allowable harvest. Furthermore, unused quota from a region or state cannot be transferred to the Cap to reduce an overage. Any amount of un-landed fish under the Cap cannot be rolled over into the subsequent year. As a result, the Cap in a given year cannot exceed 51,000 mt.

4.4 HABITAT CONSERVATION AND RESTORATION RECOMMENDATIONS

In order to ensure the productivity of populations, each state should identify and protect critical nursery areas for Atlantic menhaden within its boundaries. Such efforts should inventory historical habitats, identify habitats presently used by menhaden, and impose or encourage measures to retain or increase the quantity and quality of Atlantic menhaden habitat.

4.4.1 Preservation of Existing Habitat

States should provide inventories and locations of critical Atlantic menhaden habitat to other state and federal regulatory agencies. Regulatory agencies should be advised on the types of threats to Atlantic menhaden populations and recommended measures that should be employed to avoid, minimize or eliminate any threat to current habitat extent or quality.

4.4.2 Habitat Restoration and Improvement

While Atlantic menhaden appear to be utilizing the bulk of their historic nursery areas, water quality in these areas should be maintained or improved, if impaired, to prevent hypoxic fish

kills and minimize the threat of increased mortality due to disease and parasitism. Protection of wetlands will protect and improve menhaden habitat.

4.4.3 Avoidance of Incompatible Activities

Federal and state fishery management agencies should take steps to limit the introduction of compounds which are known, or suspected, to accumulate in any animal species' tissue and which pose a threat to human health or any animals' health.

Each state should establish windows of compatibility for activities known or suspected to adversely affect Atlantic menhaden life stages and their habitats, such as navigational dredging, inlet modifications, and dredged material disposal, and notify the appropriate construction or regulatory agencies in writing.

Projects involving water withdrawal from nursery habitats (e.g. power plants, irrigation, water supply projects) should be scrutinized to ensure that adverse impacts resulting from larval/juvenile impingement, entrainment, and/or modification of flow, temperature and salinity regimes due to water removal, will not adversely impact estuarine dependent species, including Atlantic menhaden, especially early life stages.

Each state which contains Atlantic menhaden nursery areas within its jurisdiction should develop water use and flow regime guidelines which are protective of these nursery areas and which will ensure to the extent possible, the long-term health and sustainability of the stock.

4.4.4 Fishery Practices

The use of any fishing gear or practice which is documented by management agencies to have an unacceptable impact on Atlantic menhaden (e.g. habitat damage, bycatch mortality) should be prohibited within the effected essential habitats.

4.5 ALTERNATIVE STATE MANAGEMENT REGIMES

States are required to obtain prior approval from the Board of any changes to their management program for which a compliance requirement is in effect. Changes to non-compliance measures must be reported to the Board but may be implemented without prior Board approval. A state can request permission to implement an alternative management measure to any mandatory compliance measure only if that state can show, to the Board's satisfaction that its alternative proposal will have the same conservation value as the measure contained in this amendment or any addenda prepared under Adaptive Management (*Section 4.6*). States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes to a state's plan must be submitted in writing to the Board and to the Commission as part of the Annual Compliance Reports.

4.5.1 General Procedures

A state may submit a proposal for a change to its regulatory program or any mandatory compliance measure under this amendment to the Commission. Such changes shall be submitted to the Chair of the Plan Review Team (PRT), who shall distribute the proposal to appropriate groups, including the Board, the PRT, the TC, and the AP.

The PRT is responsible for gathering the comments of the TC and the AP. The PRT is also responsible for presenting these comments to the Board for decision.

The Board will decide whether to approve the state proposal for an alternative management program if it determines that it is consistent with the target fishing mortality rate applicable as well as the goals and objectives of this amendment.

In order to maintain consistency within a fishing season, new rules should be implemented prior to the start of the fishing season. Given the time needed for the TC, AP, and Board to review the proposed regulations, as well as the time required by an individual state to promulgate new regulations, it may not be possible to implement new regulations for the on-going fishing season. In this case, new regulations should be effective at the start of the following season after a determination to do so has been made.

4.5.2 Management Program Equivalency

The TC, under the direction of the PRT, will review any alternative state proposals under this section and provide its evaluation of the adequacy of such proposals to the Board. The PRT can also ask for reviews by the Law Enforcement Committee (LEC) or the AP.

4.5.3 *De Minimis* Fishery Guidelines

The ASMFC Interstate Fisheries Management Program Charter (ISFMP Charter) defines *de minimis* as “a situation in which, under the existing condition of the stock and scope of the fishery, the conservation and enforcement actions taken by an individual state would be expected to contribute insignificantly to a coastwide conservation program required by a Fishery Management Plan or amendment,” (ASMFC 2016).

A state can apply annually for *de minimis* status if a state does not have a reduction fishery, following the procedure in *Section 4.5.3.2*. To be eligible for *de minimis* consideration in the bait fishery, a state must prove that its commercial bait landings in the most recent two years for which data are available did not exceed 1% of the coastwide bait landings.

4.5.3.1 *Plan Requirements if De Minimis Status is Granted*

If *de minimis* status is granted, the *de minimis* state is required to implement, at a minimum, the coastwide management requirements contained in *Section 4.0*. Additionally, all *de minimis*

states except New Hampshire, Pennsylvania, South Carolina, and Georgia must adhere to timely quota monitoring as approved by the Board (*Section 3.1.2*).

States granted *de minimis* status are exempt from collecting biological data and the adult CPUE index data (*Section 3.5.1.2*).

If the coastwide fishery is closed for any reason through Emergency Procedures (*Section 4.7*), *de minimis* states must close their fisheries as well.

Any additional components of the FMP, which the Board determines necessary for a *de minimis* state to implement, can be defined at the time *de minimis* status is granted.

4.5.3.2 Procedure to Apply for De Minimis Status

States must specifically request *de minimis* status each year. Requests for *de minimis* status will be reviewed by the PRT as part of the annual FMP review process (*Section 5.3: Compliance Report*). Requests for *de minimis* must be submitted to the ASMFC Atlantic Menhaden FMP Coordinator as a part of the state's yearly compliance report. The request must contain the following information: all available commercial landings data for the current and 2 previous full years of data, commercial regulations for the current year, and the proposed management measures the state plans to implement for the year *de minimis* status is requested. The FMP Coordinator will then forward the information to the PRT.

In determining whether or not a state meets the *de minimis* criteria, the PRT will consider the information provided with the request, the most recent available coastwide landings data, any information provided by the TC and SAC, and projections of future landings. The PRT will make a recommendation to the Board to either accept or deny the *de minimis* request. The Board will then review the PRT recommendation and either grant or deny the *de minimis* classification.

The Board must make a specific motion to grant a state *de minimis* status. By deeming a given state *de minimis*, the Board is recognizing that: the state has a minimal Atlantic menhaden fishery; there is little risk to the health of the menhaden stock if the state does not implement the full suite of management measures; and the overall burden of implementing the complete management and monitoring requirements of the FMP outweigh the conservation benefits of implementing those measures in that particular state.

If commercial landings in a *de minimis* state exceed the *de minimis* threshold, the state will lose its *de minimis* classification, will be ineligible for *de minimis* in the following year, and will be required to implement all provisions of the FMP. If the Board denies a state's *de minimis* request, the state will be required to implement all the provisions of the FMP. When a state rescinds or loses its *de minimis* status, the Board will set a compliance date by which the state must implement the required regulations.

4.6 ADAPTIVE MANAGEMENT

The Board may vary the requirements specified in this Amendment as a part of adaptive management in order to conserve the Atlantic menhaden resource. The elements that can be modified by adaptive management are listed in *Section 4.6.2*. The process under which adaptive management can occur is provided below.

4.6.1 General Procedures

The PRT will monitor the status of the fishery and the resource and report on that status to the Board annually or when directed to do so by the Board. The PRT will consult with the TC, SAC, and AP in making such review and report.

The Board will review the report of the PRT, and may consult further with the TC, SAC, or AP. The Board may, based on the PRT report or on its own discretion, direct the PDT to prepare an addendum to make any changes it deems necessary. The addendum shall contain a schedule for the states to implement the new provisions.

The PDT will prepare a draft addendum as directed by the Board, and shall distribute it to all states for review and comment. A public hearing will be held in any state that requests one. The PDT will also request comment from federal agencies and the public at large. After a 30-day review period, staff, in consultation with the PDT, will summarize the comments received and prepare a final version of the addendum for the Board.

The Board shall review the final version of the addendum prepared by the PDT, and shall also consider the public comments received and the recommendations of the TC, LEC, and AP. The Board shall then decide whether to adopt, or revise and then adopt, the addendum.

Upon adoption of an addendum by the Board, states shall prepare plans to carry out the addendum, and submit them to the Board for approval according to the schedule contained in the addendum.

4.6.2 Measures Subject to Change

The following measures are subject to change under adaptive management upon approval by the Board:

1. Management areas and unit
2. Reference points, including an overfishing and overfished definition
3. Rebuilding targets and schedules
4. TAC specification
5. Quota allocation
6. Quota transfers
7. Quota rollovers
8. Episodic events set aside program

9. Incidental catch and small-scale fishery provision
10. *De minimis* specifications
11. Chesapeake Bay reduction fishery cap
12. Effort controls
13. Fishing year and/or seasons
14. Trip limits
15. Limited entry
16. Area closures
17. Fishery closures
18. Gear restrictions including mesh sizes
19. Recreational fishery management measures
20. For-hire fishery management measures
21. Research set aside programs
22. Research or monitoring requirements
23. Frequency of revisiting the allocation method
24. Frequency of stock assessments
25. Reporting requirements
26. Measures to reduce or monitor bycatch
27. Observer requirements
28. Recommendations to the Secretaries for complementary actions in federal jurisdictions
29. Any other management measures currently included in Amendment 3

4.7 EMERGENCY PROCEDURES

Emergency procedures may be used by the Board to require any emergency action that is not covered by, is an exception to, or a change to any provision in Amendment 3. Procedures for implementation are addressed in the ISFMP Charter, Section Six (c)(10) (ASMFC 2016).

4.8 MANAGEMENT INSTITUTIONS

The management institutions for Atlantic menhaden shall be subject to the provisions of the ISFMP Charter (ASMFC 2016). The following is not intended to replace any or all of the provisions of the ISFMP Charter. All committee roles and responsibilities are included in detail in the ISFMP Charter and are only summarized here.

4.8.1 Atlantic States Marine Fisheries Commission and ISFMP Policy Board

The Commission and the ISFMP Policy Board are generally responsible for the oversight and management of the Commission's fisheries management activities. The Commission must approve all FMPs and amendments, including Amendment 3. The ISFMP Policy Board reviews any non-compliance recommendations of the various Boards and, if it concurs, forwards them to the Commission for action.

4.8.2 Atlantic Menhaden Management Board

The Board was established under the provisions of the Commission's ISFMP Charter (Section Four; ASMFC 2016) and is generally responsible for carrying out all activities under this Amendment.

The Board establishes and oversees the activities of the PDT, PRT, TC, SAS and the BERP Workgroup, and the AP. In addition, the Board makes changes to the management program under adaptive management, reviews state programs implementing the amendment, and approves alternative state programs through conservation equivalency. The Board reviews the status of state compliance with the management program annually, and if it determines that a state is out of compliance, reports that determination to the ISFMP Policy Board under the terms of the ISFMP Charter.

4.8.3. Atlantic Menhaden Plan Development Team

The PDT is composed of personnel from state and federal agencies who have scientific knowledge of Atlantic menhaden and management abilities. The PDT is responsible for preparing and developing management documents, including addenda and amendments, using the best scientific information available and the most current stock assessment information. The ASMFC FMP Coordinator chairs the PDT. The PDT will either disband or assume inactive status upon completion of Amendment 3.

4.8.4 Atlantic Menhaden Plan Review Team

The PRT is composed of personnel from state and federal agencies who have scientific and management ability and knowledge of Atlantic menhaden. The PRT is responsible for providing annual advice concerning the implementation, review, monitoring, and enforcement of Amendment 3 once it has been adopted by the Commission. After final action on Amendment 3, the Board may elect to retain members of the PDT as members of the PRT, or appoint new members.

4.8.5 Atlantic Menhaden Technical Committee

The TC consists of representatives from state or federal agencies, Regional Fishery Management Councils, the Commission, a university, or other specialized personnel with scientific and technical expertise, and knowledge of the Atlantic menhaden fishery. The Board appoints the members of the TC and may authorize additional seats as it sees fit. The role of the TC is to assess the species' population, provide scientific advice concerning the implications of proposed or potential management alternatives, and respond to other scientific questions from the Board, PDT, or PRT. The SAS reports to the TC.

4.8.6 Atlantic Menhaden Stock Assessment Subcommittee

The SAS is appointed and approved by the Board, with consultation from the Atlantic Menhaden TC, and consists of scientists with expertise in the assessment of the Atlantic menhaden population. Its role is to assess the Atlantic menhaden population and provide scientific advice concerning the implications of proposed or potential management alternatives, and to respond to other scientific questions from the Board, TC, PDT or PRT. The SAS reports to the TC.

4.8.7 Biological Ecological Reference Point Workgroup

The BERP Workgroup is comprised of representatives from each technical committee for weakfish, striped bass, bluefish, and menhaden, in addition to state and federal biologists with expertise on multispecies modeling approaches. The intent of the BERP Workgroup is to assist the Commission with its multispecies modeling efforts and facilitate the use of multispecies model results in management decisions. More specifically, the BERP Workgroup is tasked with identifying potential ecological reference points that account for Atlantic menhaden's role as a forage fish.

4.8.8 Atlantic Menhaden Advisory Panel

The AP is established according to the Commission's Advisory Committee Charter. Members of the AP are citizens who represent a cross-section of commercial and recreational fishing interests and others who are concerned about Atlantic menhaden conservation and management. The AP provides the Board with advice directly concerning the Commission's Atlantic menhaden management program.

4.8.9 Federal Agencies

4.8.9.1 Management in the Exclusive Economic Zone

Management of Atlantic menhaden in the EEZ is within the jurisdiction of the three Regional Fishery Management Councils under the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.). In the absence of a Council Fishery Management Plan, management is the responsibility of the National Marine Fisheries Service as mandated by the Atlantic Coastal Fisheries Cooperative Management Act.

4.8.9.2 Federal Agency Participation in the Management Process

The Commission has accorded U.S Fish and Wildlife Service (USFWS) and National marine Fisheries Service (NMFS) voting status on the ISFMP Policy Board and the Atlantic Menhaden Management Board in accordance with the Commission's ISFMP Charter. NMFS can also participate on the Atlantic Menhaden PDT, PRT, TC and SAC.

4.8.9.3 Consultation with Fishery Management Councils

At the time of adoption of Amendment 3, none of the Regional Fishery Management Councils

had implemented a management plan for Atlantic menhaden, nor had they indicated an intent to develop a plan.

4.9 RECOMMENDATION TO THE SECRETARY OF COMMERCE FOR COMPLEMENTARY MEASURES IN FEDERAL WATERS

The quota management approach adopted can be implemented and monitored within the jurisdictions of the Atlantic states. Therefore, a specific recommendation to the Secretary for complimentary action in federal jurisdictions is unnecessary at this time. The Board may consider further recommendations to the Secretary if changes to Amendment 3 occur through the adaptive management process (*Section 4.6*).

4.10 COOPERATION WITH OTHER MANAGEMENT INSTITUTIONS

The Board will cooperate, when necessary, with other management institutions during the implementation of this amendment, including NMFS and the New England, Mid-Atlantic, and South Atlantic Fishery Management Councils.

5.0 COMPLIANCE

The full implementation of the provisions included in this amendment is necessary for the management program to be equitable, efficient, and effective. States are expected to implement these measures faithfully under state laws. ASMFC will continually monitor the effectiveness of state implementation and determine whether states are in compliance with the provisions of this fishery management plan.

The Board sets forth specific elements that the Commission will consider in determining state compliance with this fishery management plan, and the procedures that will govern the evaluation of compliance. Additional details of the procedures are found in the ISFMP Charter (ASMFC 2016).

5.1 MANDATORY COMPLIANCE ELEMENTS FOR STATES

A state will be determined to be out of compliance with the provision of this fishery management plan according to the terms of Section Seven of the ISFMP Charter if:

- Its regulatory and management programs to implement Amendment 3 have not been approved by the Board; or
- It fails to meet any schedule required by Section 5.2, or any addendum prepared under adaptive management (*Section 4.6*); or
- It has failed to implement a change to its program when determined necessary by the Board; or
- It makes a change to its regulations required under *Section 4* or any addendum prepared under adaptive management (*Section 4.6*), without prior approval of the Board.

5.1.1 Regulatory Requirements

To be considered in compliance with this fishery management plan, all state programs must include a regime of restrictions on Atlantic menhaden fisheries consistent with the requirements of *Section 3.1: Commercial Catch and Landings Programs*; *Section 3.5: Biological Data Collection Programs*; and *Section 4.3: Commercial Fishery Management Measures*. A state may propose an alternative management program under *Section 4.5: Alternative State Management Regimes*, which, if approved by the Board, may be implemented as an alternative regulatory requirement for compliance.

States may begin to implement Amendment 3 after final approval by the Commission. Each state must submit its required Atlantic menhaden regulatory program to the Commission through ASMFC staff for approval by the Board. During the period between submission and Board approval of the state's program, a state may not adopt a less protective management program than contained in this Amendment or contained in current state law. The following lists the specific compliance criteria that a state/jurisdiction must implement in order to be in compliance with Amendment 3:

- Commercial fishery management measures as specified in *Section 4.3* including the Total Allowable Catch (*Section 4.3.1*), Overage Payback (*Section 4.3.2.1*), Quota Allocation (*Section 4.3.2*), Quota Transfers (*Section 4.3.3*), Quota Rollovers (*Section 4.3.4*), Incidental Catch and Small-Scale Fishery Provision (*Section 4.3.5*), Episodic Events Set Aside (*Section 4.3.6*), and the Chesapeake Bay Reduction Fishery Harvest Cap (*Section 4.3.7*).
- Monitoring requirements as specified in *Section 3.1*
- Fishery dependent data collection programs as specified in *Section 3.5.1*
- All state programs must include law enforcement capabilities adequate for successful implementation of the compliance measures contained in this Amendment.
- There are no mandatory research requirements at this time; however, research requirements may be added in the future under Adaptive Management, *Section 4.6*.
- There are no mandatory habitat requirements in Amendment 3. See *Section 4.4* for habitat recommendations.

5.2 COMPLIANCE SCHEDULE

States must implement this Amendment according to the following schedule:

January 1, 2018:	Submission of state programs to implement Amendment 3 for approval by the Board. Programs must be implemented upon approval by the Board.
April 15, 2018:	States with approved management programs must implement Amendment 3. States may begin implementing management programs prior to this deadline if approved by the Board.

5.3 COMPLIANCE REPORTS

Each state must submit to the Commission an annual report concerning its Atlantic menhaden fisheries and management program for the previous year, no later than April 1st. A standard compliance report format has been prepared and adopted by the ISFMP Policy Board. States should follow this format in completing the annual compliance report.

The report shall cover:

- The previous calendar year's fishery and management program including mandatory reporting programs (including frequency of reporting and data elements collected), fishery dependent data collection, fishery independent data collection, regulations in effect, total harvest (including directed landings, incidental and small-scale fishery landings, landings under the episodic events program, and landings by gear type), date of closure of the directed fisheries, *de minimis* requests, and future regulatory changes.
- The planned management program for the current calendar year summarizing regulations that will be in effect and monitoring programs that will be performed, highlighting any changes from the previous year.

5.4 PROCEDURES FOR DETERMINING COMPLIANCE

Detailed procedures regarding compliance determinations are contained in the ISFMP Charter, Section Seven (ASMFC 2016). In brief, all states are responsible for the full and effective implementation and enforcement of fishery management plans in areas subject to their jurisdiction. Written compliance reports as specified in the Amendment must be submitted annually by each state with a declared interest. Compliance with Amendment 3 will be reviewed at least annually; however, the Board, ISFMP Policy Board, or the Commission may request the PRT to conduct a review of state's implementation and compliance with Amendment 3 at any time.

The Board will review the written findings of the PRT within 60 days of receipt of a State's compliance report. Should the Board recommend to the Policy Board that a state be determined out of compliance, a rationale for the recommended noncompliance finding will be addressed in a report. The report will include the required measures of Amendment 3 that the state has not implemented or enforced, a statement of how failure to implement or enforce required measures jeopardizes Atlantic menhaden conservation, and the actions a state must take in order to comply with Amendment 3 requirements.

The ISFMP Policy Board will review any recommendation of noncompliance from the Board within 30 days. If it concurs with the recommendation, it shall recommend to the Commission that a state be found out of compliance.

The Commission shall consider any noncompliance recommendation from the ISFMP Policy Board within 30 days. Any state that is the subject of a recommendation for a noncompliance finding is given an opportunity to present written and/or oral testimony concerning whether it

should be found out of compliance. If the Commission agrees with the recommendation of the ISFMP Policy Board, it may determine that a state is not in compliance with Amendment 3, and specify the actions the state must take to come into compliance.

Any state that has been determined to be out of compliance may request that the Commission rescind its noncompliance findings, provided the state has revised its Atlantic menhaden conservation measures.

5.5. ANALYSIS OF THE ENFORCEABILITY OF PROPOSED MEASURES

All state programs must include law enforcement capabilities adequate for successfully implementing that state's Atlantic menhaden regulations. The LEC will monitor the adequacy of a state's enforcement activity.

6.0 RESEARCH NEEDS

The following list of research needs have been identified in order to enhance the state of knowledge of the Atlantic menhaden resource. Research recommendations are broken down into several categories: data; assessment methodology, habitat, and socio-economic. Each category is further broken down into recommendations that can be completed in the short term (within 5 years) and recommendations that will require a long term commitment (6+ years).

6.1 STOCK ASSESSMENT AND POPULATION DYNAMICS RESEARCH NEEDS

6.1.1 Annual Data Collection

Short Term:

1. Continue current level of sampling from bait fisheries, particularly in the mid-Atlantic and New England. Analyze sampling adequacy of the reduction fishery and work with industry and states to effectively sample areas outside of that fishery.
2. Conduct ageing validation study to confirm scale to otolith comparisons. Use archived scales to do radio isotope analysis.
3. Conduct a comprehensive fecundity study.
4. Place observers on boats to collect at-sea samples from purse-seine sets.
5. Investigate relationship between fish size and school size in order to address selectivity.
6. Investigate relationship between fish size and distance from shore.
7. Evaluate alternative fleet configurations for removal and catch-at-age data.
8. Investigate inter-annual variability in the maturity of menhaden via collection of annual samples along the Atlantic coast.

Long Term:

1. Develop a menhaden specific coastwide fishery independent index of adult abundance at age.
2. Conduct studies on spatial and temporal dynamics of spawning.
3. Conduct studies on the productivity of estuarine environments related to recruitment.
4. Investigate environmental covariates related to recruitment.
5. Validate multispecies/ecosystem model parameters through the development and implementation of stomach sampling program that will cover major menhaden predators along the Atlantic coast. Validation of prey preferences, size selectivity and spatial overlap is critically important to the appropriate use of such model results.

6.1.2 Assessment Methodology

Short Term:

1. Conduct Management Strategy Evaluation (MSE) on the various reference point options (single-species, multi-species) for menhaden.
2. Continue to develop an integrated length and age based model.
3. Continue to improve methods for incorporation of natural mortality.
4. Consider estimating (time-varying) growth within the assessment model.
5. Account for co-variation among parameters and inputs in future uncertainty analyses of the assessment model.
6. Examine the variance assumption and weighting factors of all the likelihood components in the model.

Long Term:

1. Develop a seasonal spatially-explicit model, once sufficient age-specific data on movement rates of menhaden are available.
2. Continue exploring the development of multispecies models that can take predator-prey interactions into account. This should inform and be linked to the development of assessment models that allow natural mortality to vary over time.
3. Evaluate the sensitivity of reference points to recent productivity trends.
4. Reconsider models that allow natural mortality to vary over time.
5. Collect age-specific data on movement rates of menhaden to develop regional abundance trends.
6. Investigate the effects of global climate change on distribution, movement, and behavior of menhaden.

6.2 HABITAT RESEARCH NEEDS

1. Study specific habitat requirements for all life history stages.
2. Develop habitat maps for all life history stages.
3. Identify migration routes of adults.
4. Study the effects of large-scale climatic events and the impacts on Atlantic menhaden.
5. Evaluate effects of habitat loss/degradation on Atlantic menhaden.

6.3 SOCIO-ECONOMIC RESEARCH NEEDS

1. Develop a mechanism for estimating or obtaining data for economic analysis on the reduction fishery, due to the confidential nature of the data.
2. Conduct studies to fully recognize the linkages between the menhaden fishery and the numerous other fisheries which it supports and sustains.
3. Conduct studies on the recreational component of the menhaden fishery to better understand what gear is being used, where it is being prosecuted, disposition of the catch, and who the users may be in terms of socioeconomic issues and other factors.
4. Analyze the social aspects of the non-consumptive sector, including components of the bird watching and whale watching industries, including where they live and what their particular interests are in menhaden.

7.0 PROTECTED SPECIES

In the fall of 1995, Commission member states, NMFS, and USFWS began discussing ways to improve implementation of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) in state waters. Historically, these policies had been only minimally implemented and enforced in state waters (0-3 miles). In November 1995, the Commission, through its ISFMP Policy Board, approved an amendment to its ISFMP Charter (Section Six (b)(2)) requiring protected species/fishery interactions to be discussed in the Commission's fisheries management planning process. As a result, the Commission's fishery management plans describe impacts of state fisheries on certain marine mammals and endangered species, collectively termed "protected species". The following section outlines: (1) the federal legislation which guides protection of marine mammals and sea turtles, (2) the protected species with potential fishery interactions; (3) the specific types of fishery interaction; (4) population status of the affected protected species; and (5) potential impacts to Atlantic coast state and interstate fisheries.

7.1 MARINE MAMMAL PROTECTION ACT REQUIREMENTS

Since its passage in 1972, one of the underlying goals of the MMPA has been to reduce the incidental serious injury and mortality of marine mammals in the course of commercial fishing operations to insignificant levels approaching a zero mortality and zero serious injury rate. Under the 1994 Amendments, the Act requires NMFS to develop and implement a take reduction plan to assist in the recovery of, or prevent the depletion of, each strategic stock that interacts with a Category I or II fishery. A strategic stock is defined as a stock: (1) for which the level of direct human-caused mortality exceeds the potential biological removal (PBR)¹ level; (2) which is declining and is likely to be listed under the Endangered Species Act (ESA) in the

¹ PBR is the number of human-caused deaths per year each stock can withstand and still reach an optimum population level. This is calculated by multiplying the minimum population estimate by the stock's net productivity rate and a recovery factor ranging from 0.1 for endangered species to 1.0 for healthy stocks.

foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA. Category I and II fisheries are those that have frequent or occasional incidental mortality and serious injury of marine mammals, whereas Category III fisheries are those which have a remote likelihood of incidental mortality and serious injury to marine mammals. Each year NMFS publishes a List of Fisheries (LOF), which classifies commercial fisheries into one of these three categories.

Under 1994 mandates, the MMPA also requires fishermen in Category I and II fisheries to register under the Marine Mammal Authorization Program (MMAP). The purpose of this is to provide an exception for commercial fishermen from the general taking prohibitions of the MMPA. All fishermen, regardless of the category of fishery in which they participate, must report all incidental injuries and mortalities caused by commercial fishing operations within 48 hours.

Section 101(a)(5)(E) of the MMPA allows for authorization of the incidental take of ESA-listed marine mammals in the course of commercial fishing operations if it is determined that: (1) incidental mortality and serious injury will have a negligible impact on the affected species or stock; (2) a recovery plan has been developed or is being developed for such species or stock under the ESA; and (3) where required under MMPA Section 118, a monitoring program has been established, vessels engaged in such fisheries are registered, and a take reduction plan has been developed or is being developed for such species or stock. MMPA Section 101(a)(5)(E) permits are not required for Category III fisheries, but any serious injury or mortality of a marine mammal must be reported.

7.2 ENDANGERED SPECIES ACT REQUIREMENTS

The taking of endangered sea turtles and marine mammals is prohibited and considered unlawful under Section 9(a)(1) of the ESA. In addition, NMFS or the USFWS may determine Section 4(d) protective regulations to be necessary and advisable to provide for the conservation of threatened species. There are several mechanisms established in the ESA which allow for exceptions to the prohibited take of protected species listed under the ESA. Section 10(a)(1)(A) of the ESA authorizes NMFS to allow the taking of listed species through the issuance of research permits, which allow ESA species to be taken for scientific purposes or to enhance the propagation and survival of the species. Section 10(a)(1)(B) authorizes NMFS to permit, under prescribed terms and conditions, any taking otherwise prohibited by Section 9(a)(1)(B) of the ESA if the taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. In recent years, some Atlantic state fisheries have obtained section 10(a)(1)(B) permits for state fisheries. Recent examples are at http://www.nmfs.noaa.gov/pr/permits/esa_review.htm#esa10a1b.

Section 7(a)(2) requires federal agencies to consult with NMFS to ensure that any action that is authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species. If, following completion of the consultation, an action is found to

jeopardize the continued existence of any listed species or cause adverse modification to critical habitat of such species, reasonable and prudent alternatives need to be identified so that jeopardy or adverse modification to the species does not occur. Section (7)(o) provides the actual exemption from the take prohibitions established in Section 9(a)(1), which includes Incidental Take Statements that are provided at the end of consultation via the ESA Section 7 Biological Opinions.

7.3 PROTECTED SPECIES WITH POTENTIAL FISHERY INTERACTIONS

A number of protected species inhabit the management unit, which includes inshore and nearshore waters, for Atlantic Menhaden. Ten are classified as endangered or threatened under the ESA; the remainder are protected under provisions of the MMPA. The species found in coastal Northwest Atlantic waters are listed below.

Endangered

Right whale	<i>(Eubalaena glacialis)</i>
Blue Whale	<i>(Balaenoptera musculus)</i>
Fin whale	<i>(Balaenoptera physalus)</i>
Leatherback turtle	<i>(Dermochelys coriacea)</i>
Kemp’s ridley	<i>(Lepidochelys kempii)</i>
Hawksbill turtle	<i>(Eretmochelys imbricata)</i>
Shortnose sturgeon	<i>(Acipenser brevirostrum)</i>
Atlantic sturgeon	<i>(Acipenser oxyrinchus oxyrinchus)</i>

Threatened

Loggerhead turtle	<i>(Caretta caretta)</i>
North Atlantic Green turtle dps	<i>(Chelonia mydas)</i>

MMPA

Includes all marine mammals above in addition to:

Minke whale	<i>(Balaenoptera acutorostrata)</i>
Humpback whale	<i>(Megaptera novaeangliae)</i>
Bottlenose dolphin	<i>(Tursiops truncatus)</i>
Atlantic-white sided dolphin	<i>(Lagenorhynchus acutus)</i>
Harbor seal	<i>(Phoca vitulina)</i>
Grey seal	<i>(Halichoerus grypus)</i>
Harp seal	<i>(Phoca groenlandica)</i>
Harbor porpoise	<i>(Phocoena phocoena)</i>

In the Northwest Atlantic waters, protected species utilize marine habitats for feeding, reproduction, nursery areas, and migratory corridors. For several stocks of marine mammals, including humpback whales, menhaden are an important prey species. Some species occupy the area year round while others use the region only seasonally or move intermittently

nearshore, inshore, and offshore. Interactions may occur whenever fishing gear and marine mammals overlap spatially and temporally.

For sea turtles, the Atlantic seaboard provides important developmental habitat for post-pelagic juveniles, as well as foraging and nesting habitat for adults. The distribution and abundance of sea turtles along the Atlantic coast is related to geographic location and seasonal variations in water temperatures. Water temperatures dictate how early northward migrations begin each year and is a useful factor for assessing when turtles will be found in certain areas. Interactions may occur whenever fishing gear and sea turtles overlap spatially and temporally.

7.3.1 Marine Mammals

Five marine mammal species are primarily known to co-occur with or become entangled in gear used by the Atlantic menhaden fishery. They include the Atlantic right whale, humpback whale, fin whale, coastal bottlenose dolphin, and harbor porpoise.

North Atlantic Right Whale

The North Atlantic right whale (*Eubalaena glacialis*) is among the most endangered large whale species in the world. Despite decades of conservation measures, the population remains at low numbers. In 2012, 440 individually recognized whales were known to be alive (Corkeron et al., 2016). Models using data collected through the mid-1990s indicated that if the conditions present at that time were to continue, western North Atlantic right whales would be extinct within 200 years (Caswell et al., 1999).

North Atlantic right whales have a wide distribution throughout the Atlantic Ocean but are generally found west of the Gulf Stream, from the southeast U.S. to Canada (Kenney, 2002; Waring et al., 2009). North Atlantic right whales frequent Stellwagen Bank, Jeffreys Ledge, the Bay of Fundy, and Browns Banks in the warmer months. The distribution of right whales in the summer and fall is linked to the distribution of zooplankton (Winn et al., 1986). Right whales feed by swimming continuously with their mouths open, filtering large amounts of water through their baleen and capturing zooplankton on the baleen's inner surface. Calving occurs in the winter months in coastal waters off of Georgia and Florida (Kraus et al., 1988). Mid-Atlantic waters are used as a migratory pathway from the spring and summer feeding/nursery areas to the winter calving grounds off the coast of Georgia and Florida.

The North Atlantic Right Whale is listed as endangered throughout its range. Ship strikes and fishing gear entanglements are the principal factors believed to be hindering recovery of western North Atlantic right whales population (NMFS, 2012). Data collected from 1970 through 1999 indicate that anthropogenic interactions in the form of ship strikes and gear entanglements were responsible 19 out of 45 reported right whale deaths (Knowlton and Kraus, 2001).

Humpback Whale

Humpback whales, known for their displays of breaching and bubble net feeding, can be found in all major oceans. In the western North Atlantic, humpback whales calve and mate in the West Indies and then migrate to northern feeding areas during the summer months. In the Gulf of Maine, sightings are most frequent from mid-March through November (CETAP, 1982). There they feed on a number of species of small schooling fish, particularly sand lance, mackerel, and Atlantic herring. Humpback whales have also been observed feeding on krill (Wynne and Schwartz, 1999).

In the western Atlantic Ocean, humpback whales have become increasingly more abundant. The overall North Atlantic population, estimated from genetic tagging data collected by the Years of the North Atlantic Humpback (YONAH) project, was estimated to be 4,894 males and 2,804 females in the 1990's. As a result, the West Indies population of humpback whales, which migrates up to New England, was not considered at risk of extinction or likely to become threatened within the foreseeable future (81 FR 62259, September 8, 2016). While not listed as endangered or threatened, the major known sources of anthropogenic mortality and injury of humpback whales are commercial fishing gear entanglements and ship strikes.

Fin Whale

Fin whales inhabit a wide range of latitudes between 20 to 75 degrees north and 20 to 75 degrees south (Perry et al., 1999). Like right and humpback whales, fin whales are believed to use high latitude waters primarily for feeding, and low latitude waters for calving. However, evidence regarding the location of where fin whales primarily winter, calve, and mate is still scarce. Clark (1995) reported a general pattern of fin whale movements in the fall from the Labrador/Newfoundland region, south past Bermuda and into the West Indies, but also noted strandings along the U.S. Mid-Atlantic coast from October through January. This could suggest the possibility of an offshore calving area (Clark 1995; Hain et al. 1992). The predominant prey of fin whales varies greatly in different areas depending on what is locally available (IWC, 1992). In the western North Atlantic, fin whales feed on a variety of small schooling fish (e.g., herring, capelin, and sand lance) as well as squid and planktonic crustaceans (Wynne and Schwartz, 1999).

The fin whale is listed as endangered throughout its range. Like right whales and humpback whales, anthropogenic mortality of fin whales includes entanglement in commercial fishing gear and ship strikes (NMFS, 2011). Of 12 fin whale mortalities recorded between 2009 and 2013, nine were associated with vessel interactions (Waring et al., 2016). Experts believe that fin whales are struck by large vessels more frequently than any other cetacean (Laist et al., 2001).

Bottlenose Dolphin

Common bottlenose dolphins are found throughout the western Atlantic coast, with primary habitat along the U.S. ranging from New York through Florida. The distribution of the species changes seasonally, with a greater abundance of bottlenose dolphins found in the Mid-Atlantic waters in the summer (NMFS, 2008). In the winter, most bottlenose dolphins are found south

of the Virginia-North Carolina border (NMFS, 2008). The species is often aggregated in groups, ranging up to 15 individuals inshore and even larger herds offshore. Bottlenose dolphins eat a variety of prey including invertebrates and fish.

On the Atlantic coast, five stocks of common bottlenose dolphins are considered depleted under the MMPA, meaning that the population stock is below its optimum sustainable level (Waring et al., 2016). The primary source of human-induced mortality is interactions with fishing gear, particularly coastal gillnets. Between 1995 and 2000, 12 bottlenose dolphin mortalities were reported in gillnets targeting dogfish, striped bass, Spanish mackerel, kingfish, and weakfish (NMFS, 2008). Four more mortalities were observed in 2003-2006 (NMFS, 2008). In response, a Bottlenose Dolphin Take Reduction Plan was implemented in May 2006 to reduce the incidental mortality and serious injury of bottlenose dolphins in commercial fishing gear (71 FR 24776, April 26, 2006).

Harbor Porpoise

The harbor porpoise ranges from West Greenland to North Carolina. The southern-most stock of harbor porpoise is referred to as the Gulf of Maine/Bay of Fundy stock and spends its winters in the Mid-Atlantic region. Harbor porpoises are generally found in coastal and inshore waters, but will also travel to deeper, offshore waters. There are insufficient data to determine population trends for this species because harbor porpoises are widely dispersed in small groups, they spend little time at the surface, and their distribution varies from year to year depending on environmental conditions (NMFS, 2002). Shipboard line transect sighting surveys have been conducted to estimate population size of the harbor porpoise stock. The best estimate of abundance for the Gulf of Maine/Bay of Fundy harbor porpoise stock is 79,883 individuals from a 2011 survey (NMFS, 2016).

The Gulf of Maine harbor porpoise was proposed to be listed as threatened under the ESA on January 7, 1993, but NMFS determined this listing was not warranted (NMFS, 1999). NMFS removed this stock from the ESA candidate species list in 2001. The primary threat to the harbor porpoise is incidental catch in fishing gear, such as gillnets and trawls. The Harbor Porpoise Take Reduction Plan was implemented to reduce incidental mortality and serious injury in gillnet fisheries in the Gulf of Maine and mid-Atlantic.

7.3.1.1 Gear Interactions with Marine Mammals

Marine mammal interactions have been documented in the primary fisheries that target menhaden, including the purse seine, pound net, and gillnet fisheries, and in those fisheries for which menhaden is bycatch, including trawl, haul seine, pound net and gillnet fisheries. The bycatch reports included below do not represent a complete list but rather available records. It should be noted that without an observer program for many of these fisheries, actual numbers of interactions are difficult to obtain.

Purse Seine

The U.S. Mid-Atlantic menhaden purse seine fishery is currently listed as a Category II fishery while the Gulf of Maine menhaden purse seine fishery is listed as a Category III fishery (82 FR 3655, January 12, 2017).

Historically, Atlantic menhaden purse seine fishermen reported an annual incidental take of one to five coastal bottlenose dolphins (NMFS, 1991). This information comes from reports required under a small take exemption issued under the then Section 101(a)(4) of the MMPA. The Atlantic purse seine fishery reported the lethal incidental take of one minke whale in 1990 (NMFS, 1993); however, the target species of the purse seine (i.e. tuna or menhaden) is unknown. In addition, an incidental take of a humpback whale in the mid-Atlantic menhaden purse seine fishery was reported in 2001 (66 FR 6545, January 22, 2001); however, in 2005 humpback whales were removed from the list species killed or injured in the fishery because an interaction had not been reported in subsequent years. In 2006, the mid-Atlantic menhaden purse seine fishery was elevated from a Category III fishery to a Category II fishery (71 FR 48802, August 22, 2006). This change was made after interactions with bottlenose dolphins in other purse seine fisheries, such as those in the Gulf of Mexico. This required the fishery to comply with registration requirements, applicable take reduction plan requirements, and observer coverage. Limited observer coverage has occurred in the fishery since 2008.

Pound Nets

The Virginia pound net fishery is listed as a Category II fishery in the 2017 LOF due to documented interactions with bottlenose dolphins (82 FR 3655, January 12, 2017). Between 2004 and 2008, there were 17 bottlenose dolphins killed in pound net gear and 3 bottlenose dolphins were released alive (76 FR 37716, June 28, 2011). There is no formal observer coverage for the Virginia pound net fishery but there has been sporadic monitoring by the Northeast Fishery Observer Program. All other Atlantic coast pound net fisheries are listed as a Category III fishery.

Gillnets

The mid-Atlantic gillnet fishery is listed as a Category I fishery in the 2017 LOF (82 FR 3655, January 12, 2017). The fishery was originally listed as a Category II fishery but in 2003, it was elevated to a Category I fishery after stranding and observer data documented the incidental mortality and serious injury of bottlenose dolphins (68 FR 41725, July 15, 2003). Other species with documented interactions include the harbor porpoise, common dolphin, harbor seal, harp seal, long-finned pilot whale, short-finned pilot whale, and white-sided dolphin; however, since gillnet fisheries target many species, not all incidents may have occurred while harvesting menhaden. Between 1995 and 2013, observer coverage has ranged from 1% to 5%.

The Chesapeake Bay inshore gillnet, the North Carolina inshore gillnet, the northeast anchored float gillnet, the northeast drift gillnet, and the southeast Atlantic gillnet fisheries are all listed as Category II fisheries in the 2017 LOF (82 FR 3655, January 12, 2017). The primary species reported interacting with these gears is the bottlenose dolphin; however, the harbor seal, humpback whale, and white-sided dolphin have been documented in the northeast anchored

float gillnet. Both the Chesapeake Bay inshore gillnet and the North Carolina inshore gillnet fisheries were elevated from a Category III fishery to a Category II fishery in the 2006 and 2001 LOFs, respectively (66 FR 42780, August 15, 2001; 71 FR 48802, August 22, 2006).

The Delaware River inshore gillnet, the Long Island Sound inshore gillnet, the southeast Atlantic inshore gillnet, and the Rhode Island/Southern Massachusetts/New York Bight inshore gillnet fisheries are listed as Category III fisheries in the 2017 LOF (82 FR 3655, January 12, 2017). There have been no documented interactions with marine mammals in the past five years with the exception of the southeast Atlantic inshore gillnet fishery which has documented an interaction with a bottlenose dolphin.

Haul/Beach Seine

The Mid-Atlantic haul/beach seine fishery is listed as a Category II fishery in the 2017 LOF due to interactions with coastal bottlenose dolphin (82 FR 3655, January 12, 2017). NMFS has recorded one observed take of a bottlenose dolphin in this fishery in 1998 (Waring and Quintal 2000). Harbor porpoise was removed from the list of species killed or injured in the Mid-Atlantic haul/beach seine fishery due to no other interactions between 1999 and 2003. The fishery was observed from 1998-2001 but there has been limited observer coverage since 2001.

Fyke Net, Floating Fish Trap, Fish Weir

Floating fish traps, northeast and Mid-Atlantic fyke nets, and fish weirs are listed as a Category III fishery in the 2017 LOF (82 FR 3655, January 12, 2017). There are no documented interactions between marine mammals in the northeast/mid-Atlantic fyke net fishery nor the floating fish trap fisheries. In the Mid-Atlantic mixed species weir fishery there have been documented interactions with bottlenose dolphins.

Trawls

The mid-Atlantic mid-water trawl fishery is listed as a Category II fishery in the 2017 LOF (82 FR 3655, January 12, 2017). In 2001, the mid-Atlantic mid-water trawl fishery was elevated to Category I based on mortality and injury of common dolphins and pilot whales. In 2007, the fishery was down-graded to a Category II fishery due to reductions in the interactions with common dolphins and pilot whales (72 FR 14466, March 28, 2007). The mid-Atlantic mid-water trawl fishery continues to be listed as a Category II fishery due to interactions with white-sided dolphins. Interactions with other species include the gray seal and the harbor seal. Observer coverage in the fishery has ranged from 0% to 13.33% between 1997 and 2008.

The northeast mid-water trawl fishery is also listed as a Category II fishery in the 2017 LOF (82 FR 3655, January 12, 2017). The fishery has had documented interactions with the common dolphin, gray seal, harbor seal, long-finned pilot whale, short-finned pilot whales, and minke whale. Importantly, not all mid-water trawls target menhaden as this is the primary gear used in the northeast groundfish fisheries. Observer coverage in the fishery has ranged from 0% to 19.9% between 1997 and 2008.

Cast Net

Currently, cast net is listed as a Category III fishery in the 2017 LOF (82 FR 3655, January 12, 2017). There are no documented marine mammal species incidentally injured or killed in the cast net fishery.

Traps/Pots

The Atlantic mixed species trap/pot fishery is listed as a Category II fishery in the 2017 LOF (82 FR 3655, January 12, 2017). The gear is primarily involved in entanglement events with species such as the fin whale and the humpback whale. Historically, the minke whale and the harbor porpoise were also listed as species injured or killed by the Atlantic mixed species trap/pot fishery but these species were removed in 2005 because interactions had not been documented in recent years. There is no observer program for this fishery.

7.3.2 Sea Turtles

All sea turtles that occur in U.S. waters are listed as either endangered or threatened under the ESA. Five sea turtle species occur along the U.S. Atlantic coast, namely the loggerhead (*Caretta caretta*), Kemp's Ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*).

Loggerhead Turtle

The loggerhead turtle is the most abundant species of sea turtle in U.S. waters, commonly occurring throughout the inner continental shelf from Florida through Cape Cod, Massachusetts. This species is found in a wide range of habitats throughout the temperate and tropical regions of the globe, including the open ocean, continental shelves, bays, lagoons, and estuaries (NMFS, 2013). NMFS and USFWS have identified five nesting sub-populations along the northwest Atlantic Ocean. They include 1) southern Florida through Georgia; 2) Florida through Key West; 3) the Dry Tortugas; 4) the northern Gulf of Mexico; 5) and the greater Caribbean (76 FR 58867, September 22, 2011). Nesting sites along the coast of the U.S. primarily occur from Virginia through Alabama (76 FR 58867, September 22, 2011). The activity of the loggerhead is limited by temperature, with loggerhead turtles not appearing in the Gulf of Maine before June and generally leaving by mid-September. Loggerhead sea turtles are primarily benthic feeders, opportunistically foraging on crustaceans and mollusks. Under certain conditions they also feed on finfish, particularly if they are easy to catch (*e.g.*, caught in gillnets or inside pound nets where the fish are accessible to turtles).

The northwest Atlantic population of loggerhead turtles is listed as threatened under ESA. Threats to the population include destruction of nesting habitat as the result of development and erosion, sand dredging, fishing practices, and marine pollution (76 FR 58867, September 22, 2011).

Kemp's Ridley

Kemp's ridley sea turtles are found throughout the Gulf of Mexico and North Atlantic coast; however their only major nesting site is in Rancho Nuevo, Tamaulipas, Mexico (Carr 1963). Juvenile Kemp's ridleys use northeastern and mid-Atlantic waters of the U.S. Atlantic coastline

as primary developmental habitat, with shallow coastal embayments serving as important foraging grounds during the summer months. Juvenile ridleys migrate south as water temperatures cool, and are predominantly found in shallow coastal embayments along the Gulf Coast during the fall and winter months. Kemp's ridleys can be found from New England to Florida, and are the second most abundant sea turtle in Virginia and Maryland waters (Keinath *et al.* 1987; Musick and Limpus, 1997). In the Chesapeake Bay, ridleys frequently forage in shallow embayments, particularly in areas supporting submerged aquatic vegetation (Lutcavage and Musick, 1985; Bellmund *et al.*, 1987; Keinath *et al.*, 1987; Musick and Limpus, 1997). These turtles primarily feed on crabs, but also consume mollusks, shrimp, and fish (Bjorndal, 1997).

Kemp's ridley are listed as endangered primarily as the result of the destruction of habitat, particularly nesting habitat in Mexico, bycatch in fisheries, the harvesting of eggs and nesting turtles, and vessel collisions.

Green Turtle

Green turtles are distributed throughout the world's oceans, primarily between the northern and southern 20° isotherms (Hirth, 1971). Most green turtle nesting in the continental United States occurs on the Atlantic Coast of Florida, with documented nests also along the Gulf coast of Florida and the Florida Panhandle. While nesting activity is important in determining population distributions, the availability and location of foraging grounds also plays an important role in their spatial distribution. Juvenile green sea turtles occupy pelagic habitats after leaving the nesting beach and are primarily omnivorous (Bjorndal, 1985). At approximately 20 to 25 cm carapace length, juveniles leave pelagic habitats and enter benthic foraging areas, shifting to an herbivorous diet (Bjorndal, 1997). Post-pelagic green turtles feed primarily on sea grasses and benthic algae (Bjorndal, 1985). Known feeding habitats along U.S. coasts of the western Atlantic include shallow lagoons and embayments in Florida, such as the Indian River Lagoon (Ehrhart *et al.*, 1986). Along the Atlantic coast, green turtles can be found from Florida up to Massachusetts.

Green turtles are listed as threatened along the North Atlantic. Threats to the North Atlantic population of green turtles includes the degradation of nesting beaches due to coastal development, the degradation of forage habitat due to pollution, the illegal harvest of green turtles and their eggs, entanglement in fishing gear such as gillnets, trawls, longlines, and traps, vessel strikes, and the persistence of an often lethal disease known as fibropapillomatosis (81 FR 20057, May 6, 2016).

Leatherback Turtle

The leatherback is the largest living turtle and its range is farther than any other sea turtle species (NMFS, 2013). Leatherback turtles are often found in association with jellyfish, with the species primarily feeding on Cnidarians (medusae, siphonophores) and tunicates (salps, pyrosomas). While these turtles are predominantly found in the open ocean, they do occur in coastal water bodies such as Cape Cod Bay and Narragansett Bay, particularly the fall. The most significant nesting in the U.S. occurs in southeast Florida (NMFS, 2013).

The leatherback turtle is listed as endangered throughout its range. Primary causes of this

population decline include the degradation of nesting beaches as the result of coastal development and beach sand mining, the poaching of eggs on nesting beaches, increased human pollution in pelagic waters, the presence of disease and parasites, and the entanglement of leatherbacks in active and abandoned fishing gear (NMFS, 2013).

Hawksbill Turtle

The hawksbill turtle is found throughout the world's oceans, primarily between 30°N and 30°S latitude. In the continental U.S., hawksbill turtles commonly occur in southern Florida and the Gulf of Mexico, with a preferred habitat being coral reefs and other hard bottom habitats (NMFS, 2007). Nesting sites in the Atlantic are typically found in Mexico, Puerto Rico, and the U.S. Virgin Islands (NMFS, 2007). During their juvenile life stage, hawksbill turtles occupy the pelagic environment, floating with algal mats in the Atlantic (NMFS 2007). The diet of hawksbill turtles primarily consists of sponges, invertebrates, and algae (NMFS 2007).

The hawksbill turtle is listed as endangered throughout its range. Primary threats to the population include loss of coral reef habitat, the illegal harvest of eggs and nesting females, increased recreational and commercial use of beaches, and the incidental capture of hawksbill turtles in fishing gear (NMFS 2007).

7.3.2.1 Potential Impacts of Menhaden Fishery on Sea Turtles

The Atlantic seaboard provides important developmental habitat for post-pelagic juveniles, as well as foraging and nesting habitat for adult sea turtles. The distribution and abundance of sea turtles along the Atlantic coast is related to geographic location and seasonal variations in water temperatures. Water temperatures dictate how early northward migration begins each year and is a useful factor for assessing when turtles will be found in certain areas. Moderate to high abundances of sea turtles have been observed both offshore and nearshore when water temperatures are greater than or equal to 21° C. As a result, sea turtles do not usually appear on the summer foraging grounds in the Gulf of Maine until June, but are found in Virginia as early as April. As water temperatures decline below 11° C, abundance declines and turtles typically move from cold inshore waters in the late fall to warmer waters in the Gulf Stream, generally south of Cape Hatteras, North Carolina.

The effect of water temperature on the distribution of sea turtles is important in assessing possible interactions with the menhaden fishery. Menhaden are also affected by water temperatures and similarly migrate north in the spring and south in the fall. Thus, the menhaden purse seine fishery exhibits seasonal changes, with the fishery ramping up off North Carolina in April and extending into New England in June. Observer data indicates minimal interaction between these purse seines and sea turtles. From September 1978 through early 1980, approximately 40 sea days were observed for fish sampling aboard menhaden purse seiners fishing from Maine south to North Carolina. No sea turtles were recorded as bycatch (S. Epperly, NMFS SEFSC, pers. comm.). Other gears used to catch menhaden include trawls, fixed nets, gillnets, haul/beach seines, pound nets, and cast nets. Several states have indicated that sea turtles have been incidentally captured in menhaden fixed nets and trawls, but not seine nets (ASMFC, Atlantic Coastal Fisheries Characterization Database, unpubl. data). An observer

program for protected species has not been established for the menhaden fishery. However, under the ESA Annual Determination to Implement Sea Turtle Observer Requirement (80 FR 14319, April 18, 2015), two fisheries that target menhaden are included. These include the Chesapeake Bay Inshore Gillnet Fishery and Mid-Atlantic menhaden purse seine fishery,

7.3.3 Atlantic Sturgeon

The Atlantic sturgeon is an ancient anadromous fish that can live up to 60 years. Historically, sturgeon were found from Canada through Florida; however, the species currently extends through Georgia (ASMFC 1998). As adults, Atlantic sturgeon live in the ocean and migrate from the south Atlantic in the winter to New England waters in the summer (ASMFC 1998). Precise spawning locations of sturgeon are not known but it is thought that they prefer hard substrates such as rock or clay (Gilbert, 1989). As juveniles, sturgeon reside in brackish water near river mouths before moving into the coastal ocean waters. The diet of this species is primarily composed of mussels, shrimp, and small fish (ASMFC 1998).

Since 1998, there has been a moratorium on the harvest of Atlantic Sturgeon in both state and federal waters; however, the population has continued to decline and, in 2012, Atlantic sturgeon became listed under the ESA. The listing identifies five distinct population segments, which include the Gulf of Maine, the New York Bight, the Chesapeake Bay, Carolina, and the South Atlantic (77 FR 5914 and 77 FR 5880, February 6, 2012). All population segments are listed as endangered except for the Gulf of Maine population, which is listed as threatened. Primary threats to the species include historic overfishing, the bycatch of sturgeon in other fisheries, habitat destruction from dredging, dams, and development, and vessel strikes (77 FR 5914; 77 FR 5880).

Impacts on the Atlantic sturgeon population as a result of the menhaden fishery would likely occur through bycatch in gear types such as gillnets, pound nets, and purse seines. There has been no reported or observed bycatch of Atlantic sturgeon in the menhaden gillnet fisheries (77 FR 5880). Furthermore, some states have implemented measures to reduce the bycatch of sturgeon by restricting the use of gillnet gear in coastal waters and instituting seasonal closures for anchored or staked gillnets when sturgeon may be present (77 FR 5880). As a result, impacts to the sturgeon population from the menhaden fishery are thought to be limited.

7.3.4 Seabirds

Like marine mammals, seabirds are vulnerable to entanglement in commercial fishing gear. Under the Migratory Bird Treaty Act, it is unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory birds except as permitted by regulation (16 U.S.C. 703). Given that an interaction has not been quantified in the Atlantic menhaden fishery, impacts to seabirds are not considered to be significant. Endangered and threatened bird species, such as the piping plover, are unlikely to be impacted by the gear types employed in the menhaden fishery. Other human activities such as coastal development, habitat

degradation and destruction, and the presence of organochlorine contaminants are considered to be the major threats to some seabird populations.

7.4 PROPOSED FEDERAL REGULATIONS/ACTIONS PERTAINING TO THE RELEVANT PROTECTED SPECIES

In May 2016, NMFS proposed areas of Atlantic Sturgeon critical habitat along the Atlantic coast. The proposed critical habitat primarily consisted of rivers including the Penobscot River in Maine, the Hudson River in New York, the Potomac River in Maryland, and the Neuse River in North Carolina (81 FR 36077; 81 FR 35701). Comments on the proposal were accepted through the fall of 2016; however, a final rule has not yet been released.

7.5 POTENTIAL IMPACTS TO ATLANTIC COASTAL STATE AND INTERSTATE FISHERIES

There are several take reduction teams, whose management actions have potential impacts to coastal menhaden fisheries. The Northeast sink and Mid-Atlantic coastal gillnet fisheries are the two fisheries regulated by the Harbor Porpoise Take Reduction Plan (50 CFR 229.33 and 229.34). Amongst other measures, the plan uses time area closures in combination with pingers in Northeast waters, and time area closures along with gear modifications for both small and large mesh gillnets in mid-Atlantic waters. Although the plan predominately impacts the dogfish and monkfish fisheries due to higher porpoise bycatch rates, other gillnet fisheries are also affected.

The Atlantic Large Whale Take Reduction Plan (50 CFR 229.32) addresses the incidental bycatch of large baleen whales, primarily the northern right whale and the humpback whale, in several fisheries including the Northeast sink gillnet and Mid-Atlantic coastal gillnet. Amongst other measures, the plan closes right whale critical habitat areas to specific types of fishing gear during specific seasons, and modifies fishing gear and practices. The Atlantic Large Whale Take Reduction Team continues to identify ways to reduce possible interactions between large whales and commercial gear. In 2014 and 2015, the Atlantic Large Whale Take Reduction Plan was modified to reduce the number of vertical lines associated with trap/pot fisheries and required expanded gear markings for gillnets and traps in Jeffrey's Ledge and Jordan Basin (79 FR 35686, June 27, 2014; 80 FR 30367, May 28, 2015).

The Bottlenose Dolphin Take Reduction Team first convened in 2001 to discuss incidental catch of coastal bottlenose dolphins in Category I and II fisheries. In 2006, a Bottlenose Dolphin Take Reduction Plan was established, which created gear regulations for the mid-Atlantic coastal gillnet fishery, the Virginia pound net fishery, the mid-Atlantic beach seine fishery, and the North Carolina inshore gillnet fishery, among others. Specifically, the plan established mesh sizes for the gill net fisheries and prohibited night fishing for some regions and gear types (71 FR 24776, April 26, 2006).

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9.0 TABLES

Table 2: Atlantic menhaden total commercial landings by jurisdiction (in pounds). This includes directed landings, landings under the bycatch allowance, and episodic events landings. Included in this table is New York's recalibrated landings.

	ME	NH	MA	RI	CT	NY	NJ	DE	MD	PFRC	VA	NC	SC	GA	FL
1985	C	C	3,039,625	8,388,046	234,800	2,612,786	2,879,766	176,135	5,372,193	16,768,889	620,119,243	97,738,403	C	-	7,579,674
1986	C	C	3,411,000	10,389,187	254,400	1,157,906	2,453,593	C	5,449,350	10,971,973	445,664,204	66,377,931	9,952	-	7,997,973
1987	C	C	1,215,175	13,609,224	94,900	599,147	2,563,163	22,034	5,793,683	13,120,698	622,989,111	55,498,571	C	-	2,776,777
1988	C	C	8,047,320	15,583,437	175,200	1,460,529	1,984,045	127,713	6,430,164	13,231,368	565,962,962	73,715,713	C	-	1,026,228
1989	C	C	1,459,402	19,033,173	148,500	1,301,178	2,854,361	104,382	6,166,236	8,334,174	590,581,595	66,756,288	C	-	1,372,959
1990	5,744,597	264,500	1,709,605	17,102,650	96,706	1,882,405	9,041,459	167,116	1,662,275	4,523,776	699,320,699	72,231,989	-	-	2,636,497
1991	C	C	12,798,310	5,090,375	96,300	1,883,680	16,597,402	278,774	3,540,179	5,376,264	638,130,543	110,528,754	C	-	2,062,983
1992	C	C	13,499,450	2,849,359	91,200	3,278,878	27,470,906	131,033	1,777,088	5,061,565	566,222,504	57,515,712	C	-	2,788,592
1993	C	C	1,211,569	5,146,280	195,827	3,039,248	28,296,741	164,406	2,326,613	7,884,001	622,024,284	64,711,384	C	-	2,584,766
1994	-	-	351,251	533,800	60,128	2,785,679	38,176,201	78,672	2,369,071	6,680,937	502,576,593	73,853,901	-	-	1,387,012
1995	-	-	2,910,613	5,873,315	255,264	3,152,199	36,572,507	101,388	4,264,754	7,002,818	691,212,717	58,374,046	-	-	687,944
1996	-	-	8,500	802	82,851	32,261	35,516,726	100,063	3,906,808	5,111,423	579,027,717	56,583,873	-	-	294,936
1997	C	C	238,500	5,750	72,329	1,604,968	38,118,579	55,733	3,457,237	5,757,370	494,098,429	56,295,597	C	-	408,492
1998	C	C	121,200	400	338,817	1,246,083	33,287,641	58,048	2,933,818	3,980,738	513,869,130	97,473,775	C	-	301,566
1999	-	-	292,800	2,330	30,298	703,714	27,753,567	78,551	4,460,534	4,860,883	374,934,651	57,434,540	-	-	288,144
2000	-	-	72,600	320,000	14,423	1,639,293	31,266,780	47,995	3,935,307	5,023,374	358,228,939	42,034,812	-	-	260,710
2001	-	-	144,600	-	38,865	1,670,079	26,375,573	53,257	3,970,243	3,329,035	484,517,820	57,261,488	-	-	179,951
2002	-	-	301,500	5,750	1,138,788	1,288,543	24,716,412	80,261	4,023,389	3,122,050	362,633,153	55,600,503	-	-	55,304
2003	-	-	218,255	62	46,515	939,018	17,080,463	43,193	3,163,252	2,438,790	372,479,419	68,444,122	-	-	35,810
2004	C	C	-	39,232	33,210	1,574,628	20,678,813	75,635	5,369,952	5,411,043	394,093,117	48,318,743	C	-	21,220
2005	-	-	2,177,724	14,453	30,636	2,523,783	17,574,826	120,658	10,635,776	4,759,905	370,689,041	50,987,985	-	-	39,404
2006	-	-	2,524,255	15,524	866,235	2,352,417	21,290,309	111,405	6,841,296	3,413,517	369,912,280	12,846,438	-	-	157,117
2007	C	C	5,543,805	8,948	90,254	1,401,010	37,202,485	81,850	11,210,764	5,036,906	416,447,111	1,134,167	C	-	71,373
2008	C	C	14,131,256	269,288	104,881	1,188,244	38,210,688	72,970	8,153,008	4,820,645	344,813,285	645,231	C	-	60,098
2009	166,942	33	6,719,048	107,548	170,907	957,546	33,329,177	69,476	7,756,192	3,191,905	349,413,370	2,124,733	-	-	52,800
2010	C	C	4,973,857	78,149	42,489	1,143,147	50,497,253	51,933	6,903,300	2,790,728	430,527,995	1,299,130	C	-	76,593
2011	56,000	-	116,151	83,899	26,929	808,686	74,324,485	70,326	6,505,890	2,759,597	411,802,254	3,529,967	-	-	146,534
2012	C	C	1,648,395	106,606	37,454	748,289	85,457,890	140,375	13,746,098	5,892,228	386,545,236	538,783	C	-	126,141
2013	-	-	2,314,888	99,821	26,463	1,187,525	39,819,342	125,909	7,074,727	3,295,295	315,724,384	454,172	-	-	224,872
2014	-	-	2,226,294	500,903	36,552	825,549	41,449,670	161,524	7,005,271	3,175,893	324,209,381	917,375	-	-	220,587
2015	C	C	2,932,828	2,060,381	87,472	1,467,861	47,810,037	150,542	7,551,430	2,739,035	351,281,666	896,919	C	-	377,729
2016	4,548,566	-	3,069,433	317,328	66,957	1,439,173	45,826,473	75,238	5,635,694	2,504,823	335,641,958	397,725	-	-	272,425

Table 3: Bait and reduction landings from 1985-2016 in thousands of mt.

	Reduction Landings (1000 mt)	Bait Landings (1000 mt)
1985	306.7	26.6
1986	238.0	21.6
1987	327.0	25.5
1988	309.3	43.8
1989	322.0	31.5
1990	401.2	28.1
1991	381.4	29.7
1992	297.6	33.8
1993	320.6	23.4
1994	260.0	25.6
1995	339.9	28.4
1996	292.9	21.7
1997	259.1	24.2
1998	245.9	38.4
1999	171.2	34.8
2000	167.2	33.5
2001	233.7	35.3
2002	174.0	36.2
2003	166.1	33.2
2004	183.4	34.0
2005	146.9	38.4
2006	157.4	27.2
2007	174.5	42.1
2008	141.1	47.6
2009	143.8	39.2
2010	183.1	42.7
2011	174.0	52.6
2012	160.6	63.7
2013	131.0	37.0
2014	131.1	41.8
2015	143.5	45.9
2016	137.4	44.4

Table 4: Timeline for BERP Workgroup development of menhaden-specific ecosystem reference points.

2016	Summer	Review steele-henderson multi-species model
		Evaluate data needs of model
		Review preliminary methodology of statistical catch-at-age and production models
Fall	Review results of Ecopath with Ecosim model	
2017	Winter	Review multi-species statistical catch at age model
		Evaluate data needs of model
	Summer	Review multi-species production model
		Evaluate data needs of model
	Fall	Review finalized modeling plan and candidate models
		Decide which candidate models will be included for ERP development and peer review
Discuss data requirements of the models and data sources		
2018	Winter	Data Workshop #1
		Review data sources for the multi-species models
		Develop criteria for inclusion of data in models
	Summer	Data Workshop #2
		Approve data sources of multi-species models
Discuss standardization of data across sources		
2019	Winter	Assessment Workshop #1
		Review base run results from multi-species models
		Discuss sensitivity runs for models
	Spring	Assessment Workshop #2
		Review final model results of multi-species models
	Summarize findings and recommendations	
	Summer	Write stock assessment report
Fall	Peer Review Workshop	
Independent review of multi-species models and single-species BAM model		

Table 5: 2016 reporting requirements in the menhaden commercial fishery per state.

State	Dealer Reporting	Harvester Reporting	Notes
ME	monthly	monthly/daily	Harvesters landing greater than 6,000 lbs must report daily during episodic event
NH	weekly	monthly	Exempt from timely reporting. Implemented weekly, trip level reporting for state dealers.
MA	weekly	monthly/daily	Harvesters landing greater than 6,000 lbs must report daily
RI	twice weekly	quarterly/daily	Harvesters using purse seines must report daily
CT	weekly/monthly	monthly	No directed fisheries for Atlantic menhaden
NY	Weekly	monthly	Capability to require weekly harvester reporting if needed
NJ	weekly	monthly	All menhaden sold or bartered must be done through a licensed dealer
DE	—	monthly/daily	Harvesters landing menhaden report daily using IVR
MD	monthly	monthly/daily	PN harvest is reported daily, while other harvest is reported monthly.
PRFC	—	weekly	Trip level harvester reports submitted weekly. When 70% of quota is estimated to be reached, then pound netters must call in weekly report of daily catch.
VA	—	monthly/weekly/daily	Purse seines submit weekly reports until 97% of quota, then daily reports. Monthly for all other gears until 90% of quota, then reporting every 10 days.
NC	monthly (combined reports)		Single trip ticket with dealer and harvester information submitted monthly. Larger dealers (>50,000 lbs of landings annually) can report electronically, updated daily.
SC	monthly (combined reports)		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
GA	monthly (combined reports)		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
FL	monthly/weekly (combined reports)		Monthly until 50% fill of quota triggers implementation of weekly.

Table 6: ACCSP data elements, and descriptions, for commercial harvester reporting.

DATA ELEMENT	DESCRIPTION
Form Type/Version Number	Version identification number for the ACCSP reporting form
Reporting Form Series Number	Individual number for each reporting form (ie: trip ticket number)
Trip Start Date	Date trip started
Vessel Identifier	Unique vessel ID such as US Coast Guard documentation or state registration number
Individual Fisherman Identifier	Identified unique to a fisherman
Dealer Identification	Identifier for the dealer at point of transaction
Unloading Date	Date of the landing at dealer
Trip Number	Sequential number representing the number of a trip taken in a single day by either a vessel or individual
Species	Genus and species for each species landed, sold, released, or discarded
Quantity	Amount that is landed, sold, released, or discarded
Units of Measure	Landed units
Disposition	Fate of catch
Ex-vessel Value or Price	Dollar value or price for each species that is landed or sold
County or Port Landed	Location within a state where the product was landed
State Landed	State where the product was landed or unloaded
Gear	Types(s) of gear used to catch the landed species
Quantity of Gear	Amount of gear employed
Number of Sets	Total number of sets or tows of gear during a trip
Fishing Time	Total amount of time that the gear is in the water
Days/Hours at Sea	Time from the start of the trip to the return to the dock
Number of Crew	Number of crew, including the Captain
Area Fished	NOAA Fisheries statistical area where fishing occurred
Distance From Shore	Determination of catch distance from shore
Sale Disposition	To whom catch was sold

Table 7: ACCSP standard measurements of gear quantity, fishing time, and sets for commercial harvester reporting.

TYPE OF GEAR	QUANTITY	FISHING TIME	# SETS
Pound nets, traps and pots	# of traps, pots, or pound nets fished	Total soak time for each pot, trap, or pound net	# of strings hauled or # of pound nets fished
Trawls	# of trawls towed	Total tow time of each trawl	# of tows
Gill Nets	Float line length for string	Total soak time	# of strings/hauls
Nests/cast nets	# of pieces of apparatus	Search time	# of hauls/throws
Hook and line	# of lines	Total soak time	n/a
Purse seines	Length of floatline	Total search time	# of sets
Hand gear	# of lines	Total soak time	n/a

Table 8: Number of ten fish samples from the reduction fishery landings at Reedville, VA from 2007-2016.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
# 10 fish samples	379	277	283	327	323	263	213	208	256	251

Table 9: Number of ten fish samples required and collected by each jurisdiction in the bait fishery in 2016. Number of samples required is based on total bait landings in that jurisdiction.

State	#10-fish samples required	#10-fish samples collected	Gear/Comments
ME	7	9	purse seine
MA	5	7	purse seine (2), cast net (5)
RI	0	5	floating fish trap
CT	0	1	gill nets
NY	2	9	seines
NJ	69	113	purse seine (100), and other gears (13)
DE	0	5	drift gill net
MD	13	19	pound net
PRFC	6	9	pound net
VA	74	82	pound net (16), gill net (64), haul seine (2)
NC	1	6	gillnet, seine
Total	177	265	

Table 10: Fishery independent surveys used in the juvenile abundance index, the northern adult index, and the southern adult index as a part of the 2015 Stock Assessment.

Index	Survey
Juvenile Abundance Index	Rhode Island Trawl Survey
	Connecticut Seine Survey
	Connecticut Thames River Survey
	Connecticut Long Island Sound Trawl Survey
	New York Peconic Bay Trawl Survey
	New York Western Long Island Sound Seine Survey
	New Jersey Ocean Trawl Survey
	New Jersey Juvenile Striped Bass Seine Survey
	Delaware Bay Juvenile 16ft Trawl Survey
	Delaware Inland Bay Juvenile Trawl Survey
	Maryland Juvenile Striped Bass Seine Survey
	Maryland Coastal Trawl Survey
	Virginia Striped Bass Seine Survey
	VIMS Juvenile Trawl Survey
	South Carolina Electrofishing Survey
Georgia Trawl Survey	
Northern Adult Index	Connecticut Long Island Sound Trawl Survey
	New Jersey Ocean Trawl Survey
	Delaware Bay Juvenile 16ft Trawl Survey
	Delaware Bay Juvenile 30ft Trawl Survey
	Chesapeake Bay Fishery-Independent Multispecies Survey
	ChesMMAP
	VIMS Juvenile Trawl Survey
Southern Adult Index	Georgia Trawl Survey
	SEAMAP Trawl Survey

Table 11: Total number of bycatch trips by year from 2013-2016 separated into 1,000 pound landings bins

Bins (LBS)	2013 Trips	2014 Trips	2015 Trips	2016 Trips	Total Trips	% of Total Trips 2013-2016
1-1000	1,875	3,673	3,163	1,450	10,161	69%
1001-2000	252	517	582	148	1,499	10%
2001-3000	148	318	316	73	855	6%
3001-4000	110	190	139	48	487	3%
4001-5000	131	206	132	48	517	4%
5001-6000	158	265	196	108	727	5%
6000+	130	109	140	33	412	3%
Total	2,804	5,278	4,668	1,908	14,658	

Table 12: Average landings under the bycatch allowance from 2013–2016 by gear type (stationary and mobile) and jurisdiction. Highlighted cells represent the gear type with the highest landings within a jurisdiction. (C) = confidential landings, and (-) = no landings. Total confidential landings are 183,747 pounds (i.e., the sum of all C’s in the table below). Note that sum of pounds and percent of total columns do not include confidential data.

State/Jurisdiction	ME	RI	CT	NY	NJ	DE	MD	PRFC	VA	FL	Sum lbs (NonConf)	% of Total
Stationary Gears While Fishing												
Pound net	-	47,907	-	96,176	C	-	1,974,979	688,428	112,609	-	2,920,097	61.62%
Anchored/stake gill net	-	C	913	0	79,850	23,227	19,722	1,704	966,832	C	1,092,248	23.05%
Pots	-	-	-	C	-	C	C	-	-	C	-	0.00%
Fyke nets	-	-	-	-	C	-	C	26	77	-	103	0.00%
Mobile Gears While Fishing												
Cast Net	-	C	-	152,669	C	-	C	-	-	150,585	303,253	6.40%
Drift Gill net	-	-	-	24,443	83,697	53,381	12,061	-	62,189	-	235,771	4.98%
Purse Seine	C	-	-	-	-	-	-	-	-	-	-	0.00%
Seines Haul/Beach	-	-	-	177,173	-	-	C	35	3,840	-	181,048	3.82%
Trawl	-	C	C	6,565	C	-	-	-	-	-	6,565	0.14%
Hook & Line	-	C	C	-	-	-	C	-	-	C	-	0.00%
Sum lbs (NonConf)	-	47,907	913	457,025	163,547	76,608	2,006,762	690,193	1,145,547	150,585	4,739,085	
% of Total	0.00%	1.01%		9.64%	3.45%	1.62%	42.34%	14.56%	24.17%	3.18%		

Table 13: Episodic event set aside for 2013-2016 and the percent used by participating states.

Year	Set Aside (lbs.)	Landed (lbs.)	% Used	Participating State	Unused Set Aside Reallocated (lbs.)
2013	3,765,491				
2014	3,765,491	295,000	8%	RI	3,470,491
2015	4,142,040	1,883,292	45%	RI	2,258,748
2016	4,142,040	3,810,145	92%	ME, RI, NY	331,895

10.0 FIGURES

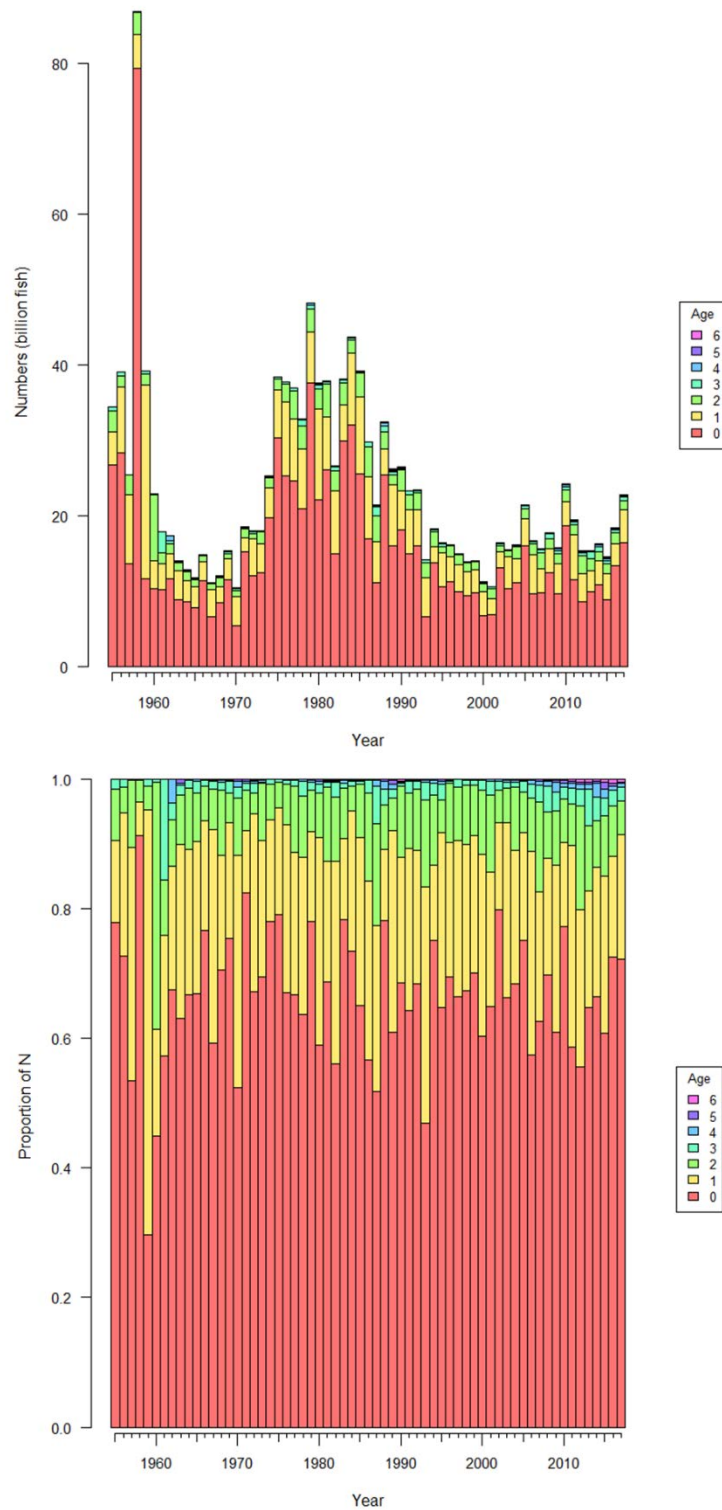


Figure 1. Numbers at age (upper panel) and proportion of numbers at age (lower panel) estimated from the base run of the BAM for ages 0-6+ during the time period 1955-2016. (Source: 2017 Stock Assessment)

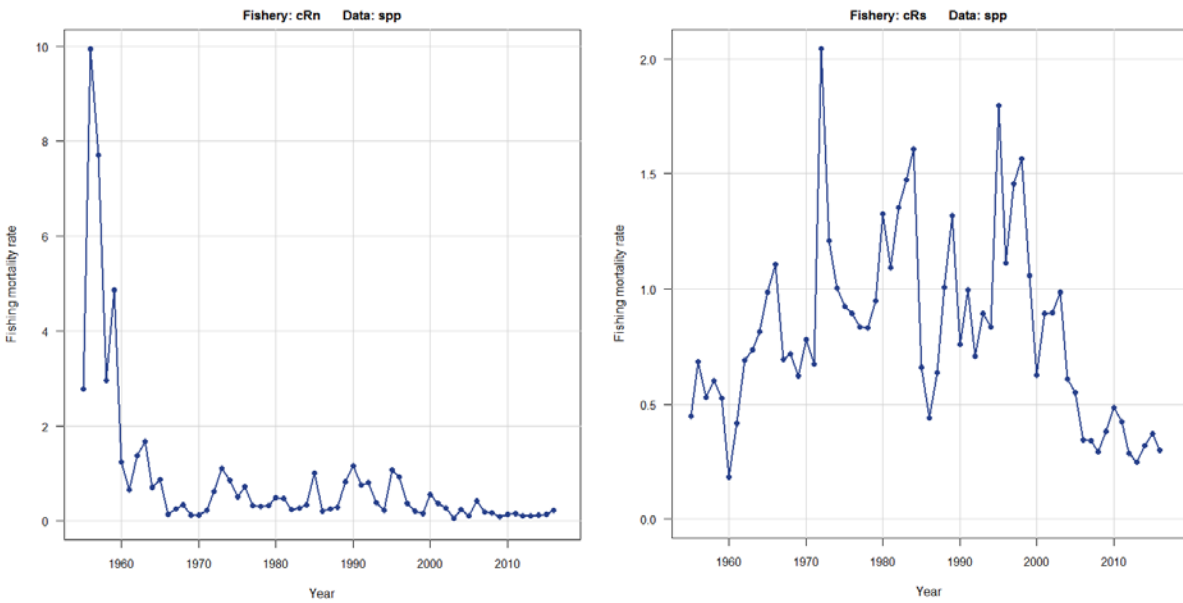


Figure 2. Fishing mortality rate for the northern commercial reduction fishery (left) and southern commercial reduction fishery (right) from 1955- 2016. The northern region is defined as waters north of Machipongo Inlet, VA and the southern region is comprised of waters south of Machipongo Inlet, VA. (Source: 2017 Stock Assessment)

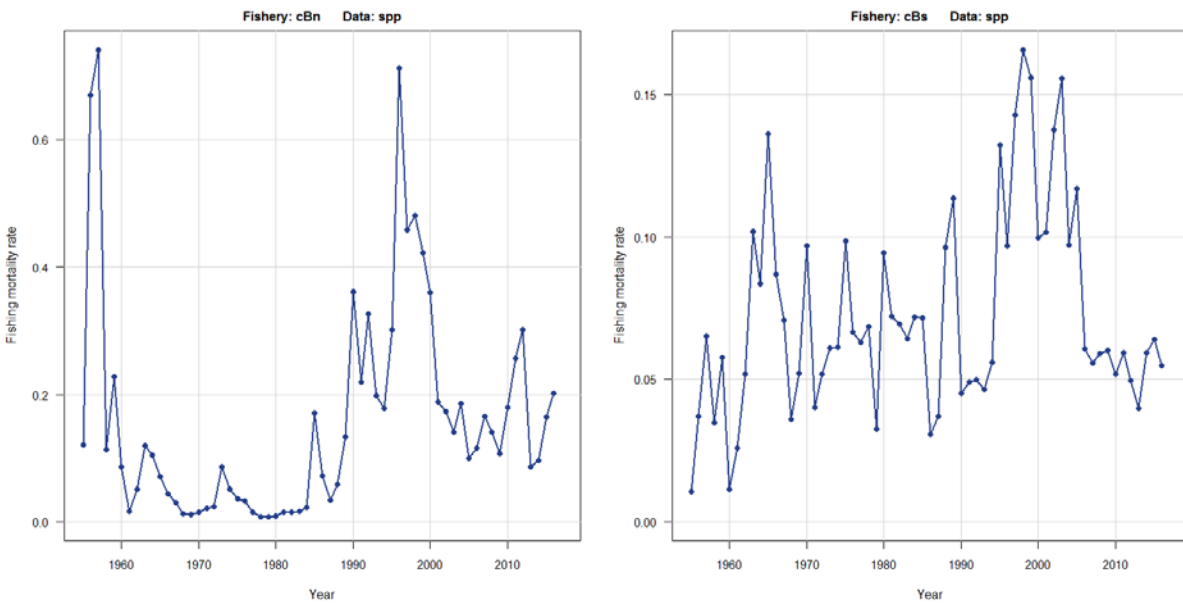


Figure 3. Fishing mortality rate for the northern commercial bait fishery (left) and the southern commercial bait fishery (right) from 1955-2016. The northern region is defined as waters north of Machipongo Inlet, VA and the southern region is comprised of waters south of Machipongo Inlet, VA. (Source: 2017 Stock Assessment)

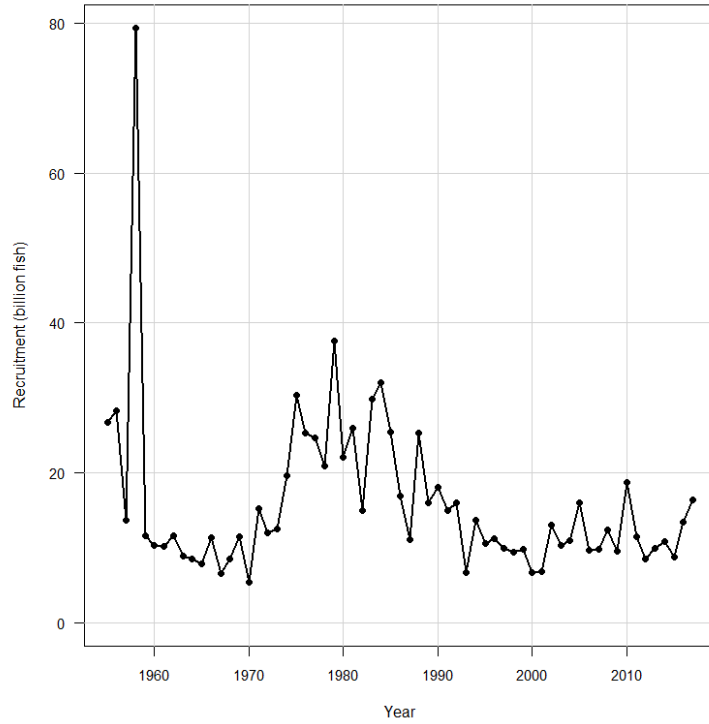


Figure 4. Number of recruits in billions of fish predicted from the base run of BAM for 1955-2016. (Source: 2017 Stock Assessment)

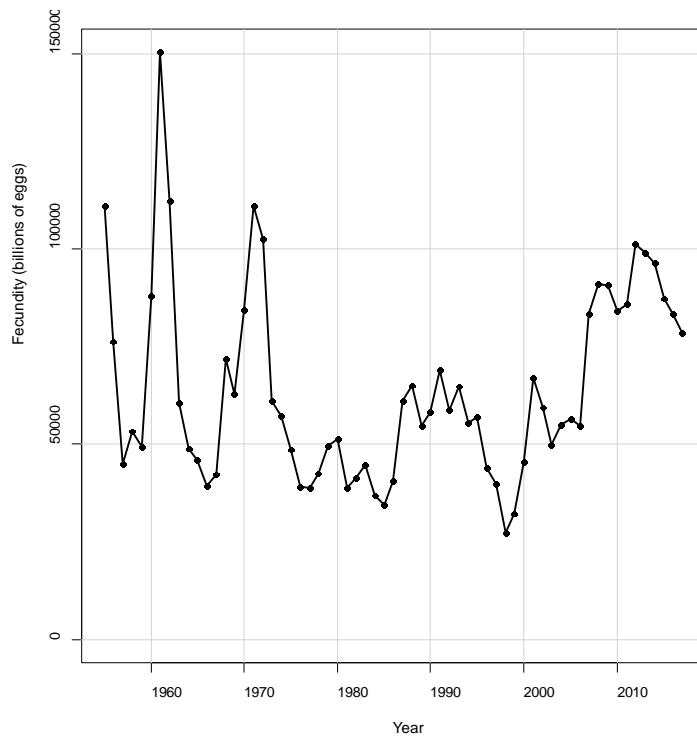


Figure 5. Fecundity in billions of eggs over time, 1955-2017, with the last year being a projection based on 2016 mortality. (Source: 2017 Stock Assessment)

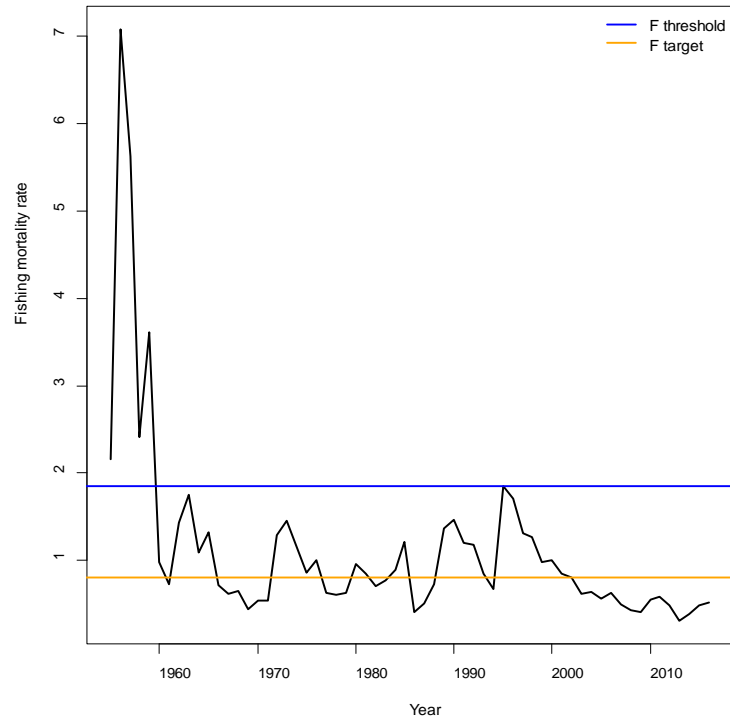


Figure 6: Atlantic menhaden fishing mortality (ages 2-4) from 1955-2016. The yellow line is the target ($F_{36\%}$) and the blue line is the threshold ($F_{21\%}$). Results of this figure show that overfishing is not occurring as fishing mortality is below the target. (Source: 2017 Stock Assessment)

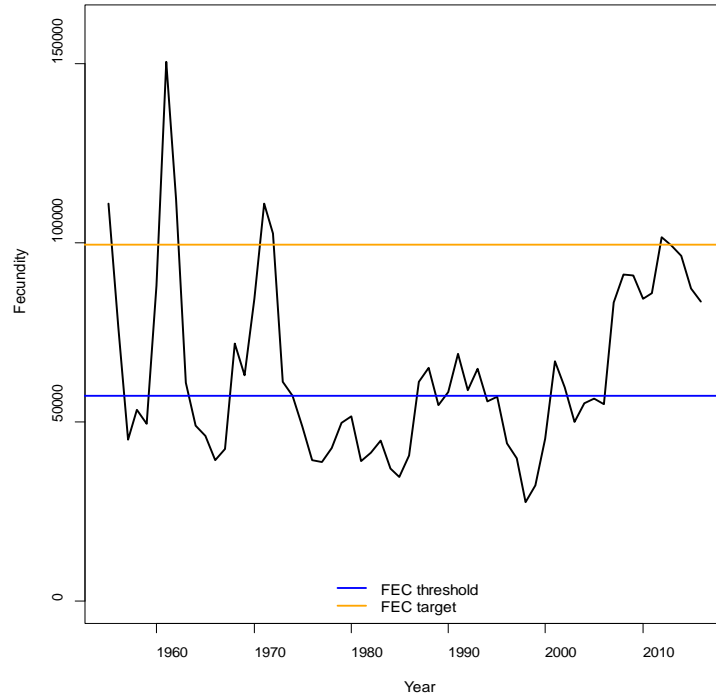


Figure 7: Atlantic menhaden fecundity (in billions of eggs) from 1955 -2016. The yellow line is the target ($FEC_{36\%}$) and the blue line is the threshold ($FEC_{21\%}$). Results of this figure show the stock is not overfished as the fecundity is well above the threshold. (Source: 2017 Stock Assessment)

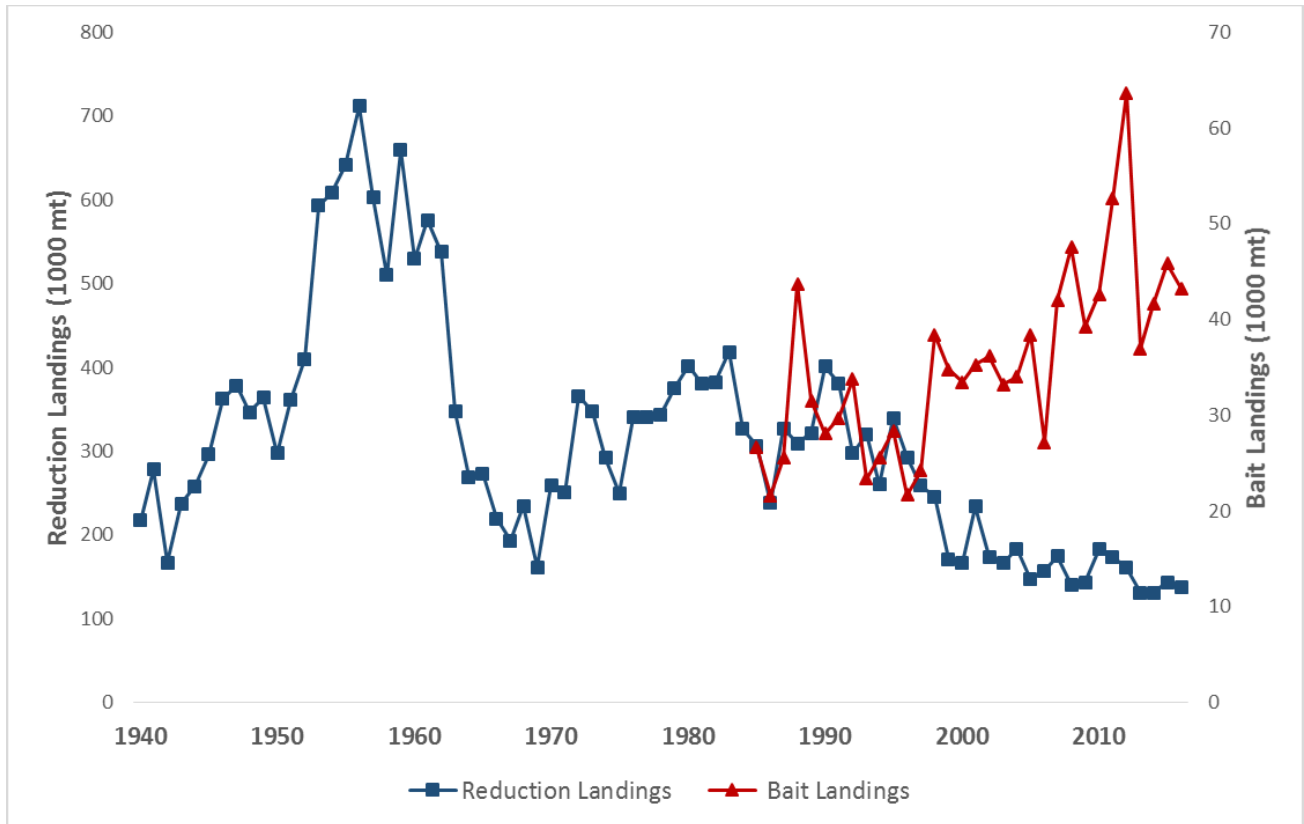


Figure 8: Landings from the reduction purse seine fishery (1940–2016) and bait fishery (1985–2016) for Atlantic menhaden. Note there are two different scales on the y-axes.

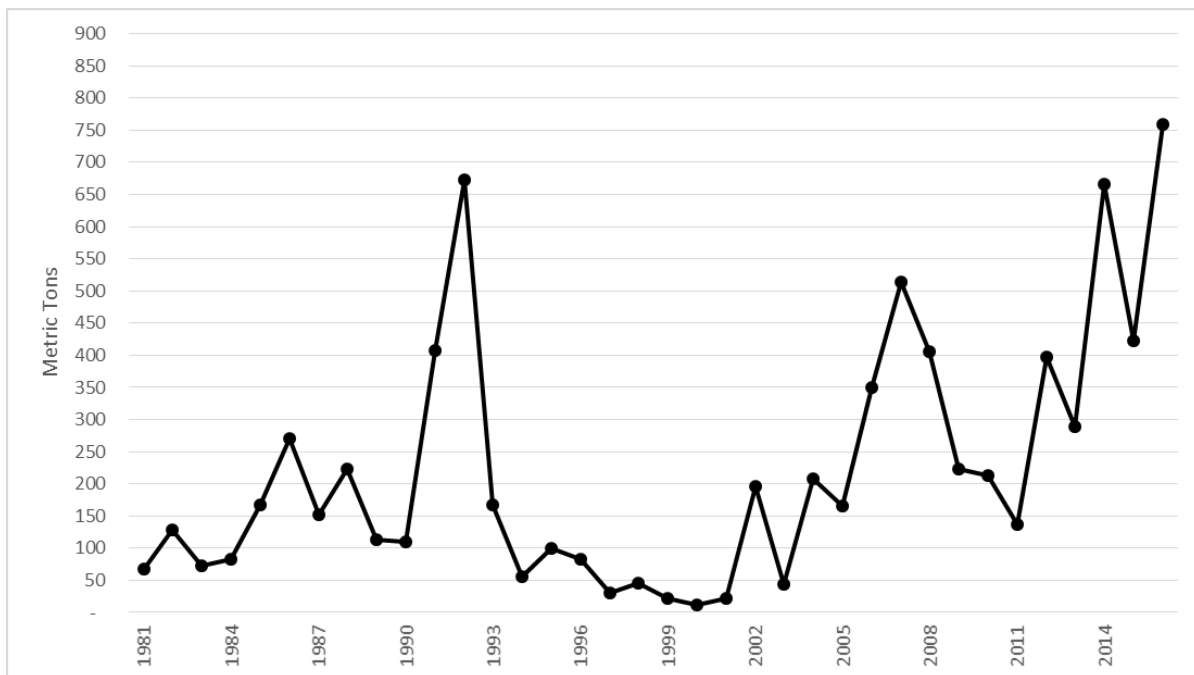


Figure 9: Recreational harvest of Atlantic menhaden from 1981–2016. (Source: MRIP).

Appendix 1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Marine Resources

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New York Menhaden Landings Recalibration

Historically, New York supported a large and active Atlantic menhaden processing fishery. The importance of this fishery diminished during the early to mid-1900s and the last processing plant ceased operations in 1969. From 1950-1969, menhaden harvest in New York averaged over 70 million pounds a year. From 1970 to present the menhaden fishery in New York has primarily been for local bait.

Many permit types in New York allow for the harvest of menhaden, although the only permit type requiring mandatory reporting of menhaden landings prior to 2009 was the menhaden purse seine license. New York implemented mandatory reporting on state trip reports for all permit holders between 2009 and 2011. However, compliance monitoring was not performed until 2013 due to staffing and funding constraints. In addition, discussions with permit holders post compliance monitoring indicated that many were unaware menhaden bait harvest needed to be reported. Thus, the validity of New York's menhaden landings history is of concern due to the significant under reporting of landings prior to 2013.

A previous effort to establish a more accurate landings history in New York occurred in 2013. Letters were sent to permit holders eligible to harvest menhaden between 2009 and 2012 requesting verifiable proof of landings during that time. Acceptable proof of landings included dated receipts, log book records, or trip reports that were not submitted to the state. Only five people were able to provide verifiable landings. While this process helped collect some of the missing information in our landings history, it still left New York with historical harvest data that does not represent the totality of our menhaden fishery during that time.

The current allocation system employed in Amendment 2 divides the TAC to each state/jurisdiction based on average landings between 2009 and 2011. This provides New York 0.055% of the TAC. The current allocation options proposed in the Public Information Document for Amendment 3 cover the time period during which New York's menhaden landings history is incomplete (1985-2012) and when our landings have been constrained by quotas and harvest limits (2013-2016) implemented in Amendment 2. The use of this information to set future quotas will continue to negatively impact New York menhaden fishers by setting quota limits well below true historical harvest levels in New York.

In order to provide a better estimate of our landings history, we compared landings and effort in the years prior to our compliance program (2009-2012) to post initiation of the program (2013-2016) (Table 1). The average annual menhaden reported landings were 315,610 lbs in 2009 - 2012, while average annual reported landings were 1,230,027 lbs in 2013 - 2016. The average yearly number of reported trips taken to harvest menhaden was 162 in 2009-2012, and 912 in 2013-2016. These values were used to determine the amount that reported landings and effort increased after compliance measures were in place.

Average Annual Landings		Average Annual Number of Trips	
2009-2012	315,610	2009-2012	162
2013-2016	1,230,027	2013-2016	912
Increase	2.90	Increase	4.62

Table 1. Average annual landings and effort pre (2009-2012) and post (2013-2016) initiation of New York's compliance program.

Appendix 1

It was then assumed that during the years in which reporting was poor, prior to the beginning of our compliance program, landings were severely underreported. The landings multiplier (2.9) is assumed to be a low estimate of how much higher New York's landings were in the past, given that our landings in 2013-2016 occurred under Amendment 2 quotas/trip limits. In the same way, during 1985-2012 when there were no restrictions on menhaden harvest, it is probable that effort was at least 462% higher than reported based upon reporting levels from 2013-2016. For this reason, the effort multiplier (4.62) serves as a higher estimate of where New York's landings may have been during this time period. We present three time series of recalibrated landings in New York from 1985-2012; a low adjusted estimate (2.9 times our current landings), a higher adjusted estimate (4.62 times our current landings), and an average of the two (3.76 times our current landings), in order to account for the unreported landings during this time period (Table 2). In all three cases, these multipliers are still confounded by the limitations imposed by Amendment 2 and may represent underestimates.

	NY Landings	Adjusted Landings (Low-2.9)	Adjusted Landings (Higher-4.62)	Adjusted Landings (Average-3.76)
1985	901,800	2,612,786	4,167,178	3,389,982
1986	399,650	1,157,906	1,846,765	1,502,335
1987	206,795	599,147	955,590	777,369
1988	504,100	1,460,529	2,329,424	1,894,976
1989	449,100	1,301,178	2,075,271	1,688,224
1990	649,710	1,882,405	3,002,281	2,442,343
1991	650,150	1,883,680	3,004,314	2,443,997
1992	1,131,701	3,278,878	5,229,540	4,254,209
1993	1,048,993	3,039,248	4,847,350	3,943,299
1994	961,474	2,785,679	4,442,928	3,614,304
1995	1,087,978	3,152,199	5,027,498	4,089,848
1996	11,135	32,261	51,454	41,858
1997	553,953	1,604,968	2,559,792	2,082,380
1998	430,084	1,246,083	1,987,399	1,616,741
1999	242,886	703,714	1,122,365	913,040
2000	565,800	1,639,293	2,614,537	2,126,915
2001	576,426	1,670,079	2,663,639	2,166,859
2002	444,739	1,288,543	2,055,119	1,671,831
2003	384,875	1,115,099	1,778,490	1,446,794
2004	543,481	1,574,628	2,511,401	2,043,015
2005	871,081	2,523,783	4,025,226	3,274,505
2006	811,934	2,352,417	3,751,911	3,052,164
2007	483,557	1,401,010	2,234,495	1,817,753
2008	410,121	1,188,244	1,895,151	1,541,697
2009	330,496	957,546	1,527,207	1,242,377
2010	394,556	1,143,147	1,823,226	1,483,186
2011	279,117	808,686	1,289,787	1,049,236
2012	258,271	748,289	1,193,459	970,874
2013	1,187,525	1,187,525	1,187,525	1,187,525
2014	825,549	825,549	825,549	825,549
2015	1,467,861	1,467,861	1,467,861	1,467,861
2016	1,439,173	1,439,173	1,439,173	1,439,173
Average	640,752	1,564,735	2,404,153	1,984,444

Table 2. Current landings in New York and the values adjusted by the low, higher, and average multipliers.

Appendix 1

In table 3, we show what our initial Amendment 2 quota would have been under each of the adjusted landings scenarios. In all cases, the quota New York would have received is more in line with our average total harvest of 1,230,027 pounds between 2013 and 2016. This is especially true for the higher and average scenarios, where our quota would have been 1,237,392 pounds, and 1,006,613 pounds respectively.

	Low Adjusted Landings	Higher Adjusted Landings	Average Adjusted Landings
2009-2011 Average Landings	969,793	1,546,740	1,258,267
20% Reduction (Amendment 2)	193,959	309,348	251,653
Quota	775,834	1,237,392	1,006,613

Table 3. New York's Initial Amendment 2 quota based on the low, higher, and average adjusted landings.

We believe that these scenarios provide a more realistic representation of the historical menhaden landings in New York, given the limitations of historical reporting.

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Answers to PDT Questions- NY Menhaden Landings Recalibration

1. The analysis notes that prior to 2009, purse seine landings were reported to the state. Were purse seine landings included in the re-calibration of NY's menhaden landings? If they were, the PDT recommends that the re-calibration only be done on non-purse seine landings.

Although there was a law in place requiring purse seine vessels to report menhaden catches to the state, there was no enforcement of this requirement prior to 2013 as was the case for all other licenses eligible to harvest menhaden. There was a single record of a purse seine catch that was reported to NOAA fisheries in 2003. This was included in the original analysis but has been removed prior to running the analysis a second time.

	Adjusted Landings (Low-2.9)	Adjusted Landings (Higher-4.62)	Adjusted Landings (Average-3.76)
1985	2,612,786	4,167,178	3,389,982
1986	1,157,906	1,846,765	1,502,335
1987	599,147	955,590	777,369
1988	1,460,529	2,329,424	1,894,976
1989	1,301,178	2,075,271	1,688,224
1990	1,882,405	3,002,281	2,442,343
1991	1,883,680	3,004,314	2,443,997
1992	3,278,878	5,229,540	4,254,209
1993	3,039,248	4,847,350	3,943,299
1994	2,785,679	4,442,928	3,614,304
1995	3,152,199	5,027,498	4,089,848
1996	32,261	51,454	41,858
1997	1,604,968	2,559,792	2,082,380
1998	1,246,083	1,987,399	1,616,741
1999	703,714	1,122,365	913,040
2000	1,639,293	2,614,537	2,126,915
2001	1,670,079	2,663,639	2,166,859
2002	1,288,543	2,055,119	1,671,831
2003	939,018	1,442,444	1,190,731
2004	1,574,628	2,511,401	2,043,015
2005	2,523,783	4,025,226	3,274,505



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2006	2,352,417	3,751,911	3,052,164
2007	1,401,010	2,234,495	1,817,753
2008	1,188,244	1,895,151	1,541,697
2009	957,546	1,527,207	1,242,377
2010	1,143,147	1,823,226	1,483,186
2011	808,686	1,289,787	1,049,236
2012	748,289	1,193,459	970,874
2013	1,187,525	1,187,525	1,187,525
2014	825,549	825,549	825,549
2015	1,467,861	1,467,861	1,467,861
2016	1,439,173	1,439,173	1,439,173
Average	1,559,233	2,393,652	1,976,442

2. What percentage of NY's landings are by purse seines?

In all years from 1985-2016, except for 2003, purse seine landings account for 0% of the menhaden landings in New York. In 2003, they accounted for 24% of the total landings.

3. For the 2009-2012 and the 2013-2016 timeframes, can you provide a breakdown of average landings by gear type and average number of participants in the fishery. The PDT is interested in seeing what other changes might of occurred in the NY menhaden fishery between the two timeframes.

The table below includes average landings by gear type in the two timeframes. Confidential landings are displayed with a "C". The total value of all confidential landings is 14,380 lbs.

Year	Cast Nets	Fixed Nets	Gill Nets	Hook and Line	Pots and Traps	Seines	Trawls	Not Coded
2009-2012	84,302	C	220,136	C		C	1,293	900
2013-2016	348,155	272,073	196,286	C	C	405,049	5,230	3

New York has a number of different permits that allow a fisher to harvest menhaden. This makes it difficult to determine the exact number of participants in the fishery over the years. It is further complicated by the fact that reporting was poor prior to 2013. In the table below we display the average number of permit holders that could have harvested menhaden and the average number in reporting compliance during the two timeframes.

Year	Average # of Permit Holders	Average % in Compliance
2009-2012	1144	39.4
2013-2016	1130	85.2

Draft White Paper: Management, Policy and Science Strategies for Adapting Fisheries Management to Changes in Species Abundance and Distribution Resulting from Climate Change

January 2018

Climate change is already having impacts on the fishery resources the Commission manages. As average temperatures rise, mobile marine species are moving towards the poles and/or deeper water to stay cool. Shifts in the distributions and productivity of stocks can cause ecological and economic disruptions, such as predators become separated from their prey impacting food webs, or fisherman no longer catching a species their livelihood relies on. In the face of climatic shifts, change is likely to be the only constant. Accordingly, managers will need to learn how to respond to and manage these changes. Managers will likely need to focus on sustaining ecological functions, rather than historical abundances. As conditions change, current conservation goals and management objectives may no longer be feasible. Successful climate adaptation will depend not only on adjusting management strategies, but also in reevaluating and revising, as necessary, the underlying conservation goals and objectives of fishery management plans.

The Climate Change Working Group was tasked with developing science, policy and management strategies to assist the Commission with adapting its management to changes in species abundance and distribution resulting from climate change impacts. Work group discussions resulted in five main outputs: A) a proposed approach for working through climate related fishery management issues; B) a list of management options for stocks at persistent low biomass; C) a list of management options for stocks with changing spatial distributions; D) a recommendation to consider inclusion of a climate change terms of reference for stock assessments; and E) a recommendation to create a list of climate change data available for inclusion in analyses. For the first two outputs, the Work Group listed options that could be considered when evidence suggests a changing environment could be impacting species' biomass levels or distributions. However, none of the options have been analyzed to clarify their pros and cons, and there are options included that may not be consistent with current federal law or the fisheries management goals identified in the Interstate Fisheries Management Charter. The lists are thus intended to provide a starting point for managers as they discuss the management options.

A. A Stepwise Approach

Carrying out effective management strategies in the face of climate change can seem complex. By clarifying a process and demonstrating how the various parts of this process fit together, implementing adaptive management can be less daunting. A generalized framework can break the process down into discrete steps designed to help managers understand how the pieces of the process fit together, and how to recognize when various methods and approaches may be appropriate. *The following stepwise approach is detailed in a resource document from the National Wildlife Federation: Climate Smart Conservation* was modified slightly for marine resource management.

Step 1. Define planning purpose and scope. This includes: articulating a purpose; clarifying existing management goals; identifying management targets; specifying a scope and time frame; engaging key stakeholders; and determining resource needs and availability.

Step 2. Assess climate impacts and vulnerabilities. Understanding climate vulnerabilities is crucial for designing effective adaptive management strategies, and the specific components of vulnerability—exposure, sensitivity, and adaptive capacity—can provide a useful framework for linking actions to impacts.

Step 3. Review/revise management goals and objectives. Because goals serve as the basis for subsequent strategies and actions, they should be climate-informed and forward looking. Reevaluation of goals and objectives may either validate their continued relevance, or indicate a need for refinement or modification.

Step 4. Identify possible adaptive management options. What are possible approaches for reducing key climate-related vulnerabilities or taking advantage of newly emerging opportunities? At this stage, a broad array of alternative strategies and actions should be identified, with particular attention to creative thinking in crafting possible management actions.

Step 5. Evaluate and select adaptive management options. The array of possible adaptation options can now be evaluated to determine which are likely to be most effective from a biological/ecological perspective, and most feasible from implementation, social and economic perspectives.

Step 6. Implement adaptive management options. Successfully implementing adaptation requires individual leadership as well as institutional commitment and resources, and often depends on engaging diverse partners early on, and emphasizing benefits to multiple sectors of society.

Step 7. Track action effectiveness and ecological responses. Monitoring helps provide context for understanding climate-related impacts and vulnerabilities and for informing adaptive management. Monitoring approaches should be carefully designed to ensure they are capable of guiding needed adjustments in management strategies.

B. Managements Options for Stocks at Persistent Low Biomass

There are two main questions that should be addressed for stocks with persistent low biomass: 1) what, if any, is an appropriate harvest level, and 2) how many resources should be committed to continue monitoring and managing the species.

Approaches

1. Status Quo: Following the current status quo addresses the first question (appropriate harvest level) but does not address questions related to continuation of monitoring and management. The current harvest strategies include allowing landings that target a rebuilding F with a biomass target based on historic assessment information with the assumption that the stock will eventually respond to a low F . If biomass continues to decline there are two harvest options:
 - a. Continue the above scenario with further reductions in F
 - b. Put a harvest moratorium in place for a period of time based on the life history of the species

2. Evidence of a Change in Productivity: As with the status quo option, the monitoring and management would be retained at historical levels. The harvest level would be adjusted as reference points are redefined based on evidence the stock will likely not recover to previous biomass targets because of a change in productivity from environmental causes. The reference points will target a sustainable yield from a biomass that is much lower than previously targeted. The actual yield will be much reduced from historic levels, leading to a very small fishery with presumably much fewer participants. This approach may also entail a rebuilding period. The rebuilding period would be reflective of the new reference points based on an expected lowered productivity level of the stock.
3. Evidence the stock has a low to no productivity; recovery to sustainable levels is highly unlikely
 - a. Management: A permanent moratorium is put in place or harvest continues until it becomes economically unfeasible. Decision between these options could be based on confidence in prediction of no recovery and consideration of genetic diversity that is often high at the tail end of a species range (Nowack et al., 2013). It may be more beneficial to protect the remaining genetically diverse stock, or it may be more beneficial to allow economic harvest of the species.
 - b. Monitoring: Determine what level of monitoring would occur: Increased, current, or reduced
4. Management and monitoring cease and harvest does not continue because it becomes economically unfeasible.

Science requirements

Each of the options places great demands on the science. Questions to be answered before choosing among the options would include:

1. What is the mechanism of decline/loss of productivity?
2. What evidence is there that the stock will likely not come back to its former productivity?
3. How is sustainable yield determined and at what level of biomass will a harvest be permitted?
4. Are there ecological/genetic considerations to be considered before taking any of these approaches to manage a stock or population?
5. What are the economic and ecological tradeoffs of continuing to harvest at lower levels vs. a moratorium?

C. Management Options for Stocks with Changing Spatial Distributions:

1. Maintain current state-by-state or regional allocations.
 - Quota Sharing by fishery or within fishery: Under state-by-state management without quota reallocation it is necessary to allow for transfer of quota between states in order to have a mechanism to respond to changing distributions of stocks. But under regional or coastwide quota management; sharing of quota becomes less important when responding to distributional changes in stocks; although sharing between two regions may still be needed.
 - Add a minimum allocation for states with low quotas or states that are on the edge of stocks that are moving north or south

- Include an episodic events approach (quota set aside) for species that are moving northward
 - A certain percentage of the coastwide quota would be set aside for use by specified states/regions. The set aside is designed to allow for harvest of fish that episodically move in and out of a region
- 2. Maintain regional or state-by-state allocations and develop a Commission policy to revisit allocation based on identified triggers (see [NMFS Allocation Policy](#)).
 - Triggers could be based on time, an indicator of change, or a threshold of public comment.
 - a) For time based triggers, triggers could be a set number of years or could be related to the life history of the species. Allocation reviews may not automatically result in a re-allocation, but they would require the Board to “revisit” the state or regional allocations periodically and decide whether to initiate management action to change allocation or vote to reaffirm current allocation. Alternatively, the board could include a provision in the FMP where the state or regional allocations would “sunset” on a prescribed date so the Board must initiate management action to either reinstitute current allocation or modify allocation.
 - Options for who makes the final decision regarding reallocation could be internal or external to the Commission:
 - a) Species management boards know the fishery the best but could be open to strong political pressure from impacted states.
 - b) Australia has used independent panels to determine allocations as they can take the pressure off managers and allow fairer compromises. For more information, see section 9.2 in [Morrison and Scott 2014](#).
 - Potential options for adjusting allocations:
 - a) Use distribution and abundance data from certain fisheries independent surveys that cover extended geographical areas to help determine the state or regional quota allocation percentages (e.g NEAMAP surveys; NEFSC bottom trawl survey, etc.)
 - b) Use a combination of historical allocations and current distribution that adjusts through time: 75% historical allocations years 1-2, 65% historical allocations years 3-4, etc.
 - c) Use Management Strategy Evaluation (MSE) to determine allocation using 4 evaluators:
 - Catch distribution
 - Recruitment
 - Productivity
 - Total yield across years
 - d) Use it or lose it provisions—revisit a state’s quota after X number of years of not utilizing quota.
- 3. Change management away from state-by-state allocations. Ideas include:

- Change management from species focus to area focus. Allow for area allocations where industry can be permitted for multiple species at once where they can move from stock to stock as they rise and fall
 - For example- an area could be GOM; species could be lobster, herring, groundfish, menhaden, black sea bass, dogfish, others?
 - Allocations would be set based on the health of the ecosystem overall. Every 1-3 years do assessments on an area to determine what level of harvest is feasible for stocks. Look at more than just species assessment to determine allocations. Also look at ocean environment to help make predictions of the direction of stock levels.
 - This would be a significant change to how we manage stocks
- Allocation by timeframe (e.g., calendar quarters)
 - Quotas could be allocated by seasons and open to all fishermen when the season opened (e.g., 4 seasons: spring, summer, fall, winter each with a specified percentage of the quota each season. All fishermen would have access to the quota each season).
 - Seasonal quota could be further broken out by area (e.g., the summer quota could be divided into a northern and southern allocation).

D. Including a Climate Change Terms of Reference

Work group discussions resulted in a recommendation that stock assessment committees consider including a Terms of Reference (TOR) to evaluate whether climate change impacts on the species of interest are evident. Climate change recommendations were reviewed by the Commission's Assessment Science Committee (ASC). The ASC supported a process where assessment committees consider including new climate TORs when starting new stock assessments. If a TC/SAS thinks there may be climate impacts on a stock and related analyses are possible, a climate TOR is to be added. If a TC/SAS does not think there are climate impacts, a TOR does not need to be added. TCs will then have the option to include a brief assessment report section describing why climate impact analyses on a stock were not conducted.

The following are options related to climate for Technical Committees to consider when devising the full set of TORs at the outset of a stock assessment.

- Describe the thermal habitat and its influence on the distribution and abundance of Species X, and attempt to integrate the results into the stock assessment.
- Consider the consequences of environmental factors on the estimates of abundance or relative indices derived from surveys.
- Characterize oceanographic and habitat data as it pertains to Species X distribution and availability. If possible, integrate the results into the stock assessment.

- Evaluate new information on life history such as growth rates, size at maturation, natural mortality rate, and migrations. Explore possible impacts of environmental change on life history characteristics.
- Present the survey data available for use in the assessment, evaluate the utility of the age-length key for use in stock assessment, and explore standardization of fishery-independent indices. Characterize the uncertainty and any bias in these sources of data, including exploring environmentally driven changes in availability and related changes in population size structure. Explore the spatial distribution of the stock over time, and whether there are consistent distributional shifts.
- Provide best estimate of population parameters (fishing mortality, biomass, and abundance) through assessment models. Evaluate model performance and stability through sensitivity analyses and retrospective analysis, including variation in life history parameters. Include consideration of environmental effects where possible. Discuss the effects of data strengths and weaknesses on model results and performance.
- Update or redefine biological reference points (BRPs; point estimates or proxies for B_{MSY} , SSB_{MSY} , F_{MSY} , MSY). Evaluate stock status based on BRPs. If possible, develop alternative MSY -based reference points or proxies that may account for changing productivity regimes.

E. Climate Change Data Availability and Gap Analysis

Climate change is affecting a number of aspects of the environment which may affect abundance, distribution, and productivity of various species. Besides warming waters, changes to other aspects of the marine environment (such as salinity, pH and currents – Table 1) may also be occurring. To assist the assessment committees in this work, the Climate Change Working Group recommended the creation of a coast wide database summarizing the types of climate related data various state, federal, and university programs collect. The database would not store the actual data, but provide metadata on the programs (i.e., the database would contain a summary of the types of environmental data collected, temporal and spatial aspects of the data, sample design, and contact information). The database would be a central repository of information for the species assessment committees to identify and request available climate data appropriate for the species and area of interest. The decision to house the metadata and contact information and not the actual environmental data was to avoid:

- Needing to annually update the data
- duplication of datasets
- adapting the data inappropriately, and
- ensuring the most recent information is used

Development of the database will be a collaborative coast wide effort to ensure all known programs that collect environmental data are included. In addition to the numerous ocean observing buoys, data

portals, and state and federal monitoring programs, the database should include power plant monitoring data and smaller-scale programs conducted by counties, towns, and universities for a variety of purposes. The ASC noted that some data sources may need to be converted to usable format.

Two levels of gap analysis will be conducted after development of the environmental metadata database:

1. Review to ensure all known programs that collect environmental data are included
 - a. Verify that all appropriate information is included
 - i. The review should be conducted by each state and federal agency to assure completeness coordinated by the ASC and reviewed by the MSC.
2. Review the types of environmental data collected and temporal and spatial scale of the information
 - a. Determine if there are temporal and/or spatial gaps in data necessary to investigate the effects of climate change on species
 - i. Task species TC and SASC for review
 - b. Determine relative importance of filling individual data gaps
 - c. Prioritize data gap filling and identify strategies to address the important gaps

Table 1. Climate Data Types

- Temperature
 - Annual, seasonal, daily
 - days above threshold (need daily data)
 - timing of ice melt
- Salinity
 - Temporal/spatial changes
 - Temporal/spatial changes of estuarine salt wedge
- pH (ocean acidity)
- Precipitation
 - River currents
 - Temporal/spatial salinity changes
- Wind
 - Changes to local wind patterns
 - Frequency of storm events – spatial and temporal patterns
- Currents
 - Strength and location of local currents
 - Location of basin wide currents (i.e. – Gulf Stream, Labrador currents)
- Global climate measures

- North Atlantic Oscillation (NAO)
- Atlantic Multidecadal Oscillation (AMO)

Resources to Assess How Species and Environments are Being Impacted by Climate

The following are potential resources managers could use to determine if a stock has reached a point that necessitates change in a fisheries management strategy to adapt to climate change impacts

- [Northeast Fish and Shellfish Climate Vulnerability](#) Assessment developed by NOAA
- [Ecosystem status reports](#)/Ecosystem indicators- large scale requires significant resources would need to partner with NOAA
- [Ocean Adapt](#)- analysis of changing distributions by NMFS and Rutgers
- [NOAA National Center for Environmental Information](#) – hosts and provides public access to archives of climate data
- Stock predictions
 - Climate predictions
 - Species distributions
 - Species abundance (climate velocity)
- Citizen Science—create venue for watermen to report changes they are seeing on the water as an advanced warning to managers.
- Triggers defined by fishermen: seek public input on triggers for when management would adapt due to changes in the resource from climate change

References:

Pauls, S., C. Nowak, M. Balint, and M. Pfenninger. 2013. The impact of global climate change on genetic diversity within populations and species. *Molecular Ecology* 22:925-946.

Background

The Atlantic States Marine Fisheries Commission's (Commission) Habitat Committee (Committee), a branch of the Interstate Fisheries Management Program, was developed to identify, enhance, and cooperatively manage vital fish habitat for conservation, restoration, and protection, as well as support the cooperative management of the Commission and jointly managed species.

In 2016 the Committee identified each state's ongoing practices that address climate change impacts, with a focus on state coastal regulatory planning (Appendix A).

This document builds upon the information gathered in 2016, adding new information since the report was produced, as well as identifying gaps in climate change initiatives among states and providing recommendations for the future. It addresses Strategy 4.6, Task 4.6.2 of the [2017 Action Plan](#):

4.6 Engage in state and federal agency efforts to ensure climate change response strategies are included in habitat conservation efforts.

4.6.2 Identify gaps in state coastal regulatory planning regarding climate change impacts and make recommendations to increase resiliency.

Summary of State Initiatives that Address Climate Change

From the information gathered in 2016, state initiatives were grouped into eight different categories:

1. Established a working group or legislation to reduce carbon output
2. Established a working group or legislation to respond to climate change threats
3. Produced reports on climate change
4. Assesses and monitors the effects of climate change
5. Has mechanisms in place for collaboration among agencies and other organizations
6. Addresses climate change in planning documents
7. Has responded to climate change on the ground
8. Includes climate change in outreach efforts.

Each state* has implemented 1 – 8 of the initiative categories listed above. New Hampshire, New York, New Jersey, and Virginia have practices in place that meet all eight categories. A table of each state's practices can be found in Appendix II (also Figure 1). All states address climate change in their planning documents (Initiative 6), at a minimum in their 2015 State Wildlife Action Plans. All but one are also assessing and monitoring the effects of climate change (Initiative 4). This includes habitat distribution and condition, sea level rise, changes in species distribution and abundance, and more. Twelve out of 14 states have produced reports on climate change (Initiative 3), some of which are regularly updated.

* Except Delaware – data not available.

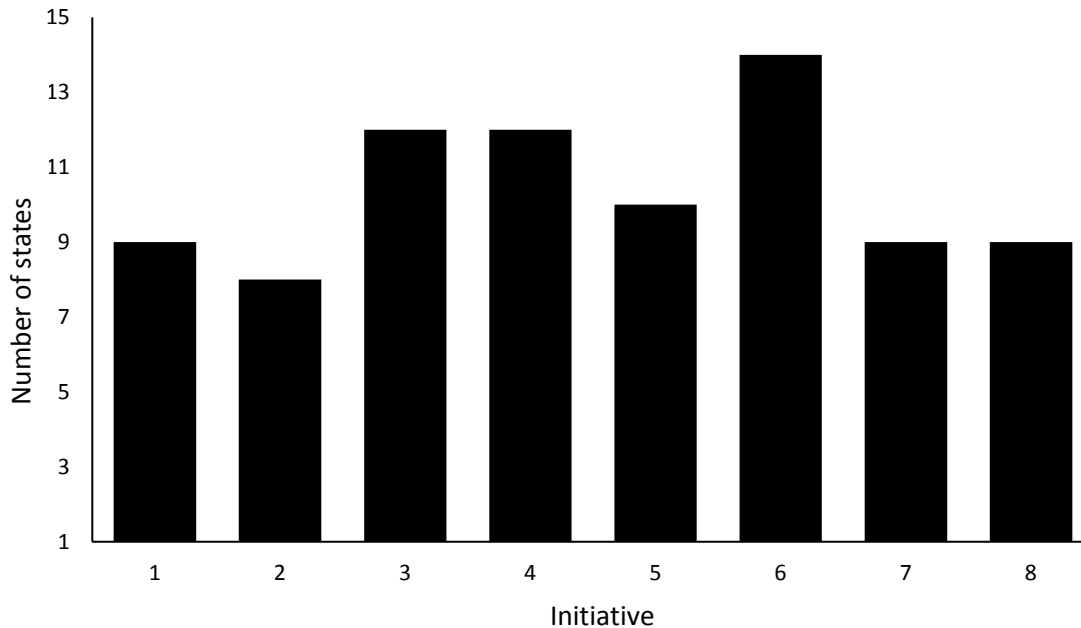


Figure 1. Number of Atlantic coast states carrying out each initiative category. List of categories can be found on page 1.

There is a lot of opportunity regarding initiatives 1, 2, 5, 7, and 8. Only nine of the states have responded to climate change on the ground. Examples of on-the-ground responses that have taken place include installing or working towards offshore wind facilities, encouraging living shorelines during the permitting process, minimizing road crossing impacts on aquatic habitats, and restoring connectivity among habitats. Restoration efforts that promote resiliency, adaptive strategies, and habitat enhancement are also underway. Working groups or legislation to reduce carbon outputs have been created in nine states, and working groups or legislation to respond to climate change threats have been created in eight states. Initiatives range from no action to Maryland’s commitment to 100% clean energy by 2050. There is also room for more collaboration and outreach – only ten states work with other agencies or organizations, and nine include climate change in their outreach efforts. Example of outreach that states are conducting include messaging in K-12 and teacher education programs, community preparedness programs, providing guidance on best management practices, and more.

Recommendations

Through collaboration, communication, and coordination among federal, state, local, tribal, and nongovernmental organizations, make progress towards the following:

1. Energy production and use
 - a. Promote renewable energy production where appropriate. Renewable energy is more compatible with healthy fish habitat if properly sited, constructed, and operated. Via comment letters or other forms of engagement:

- i. Encourage BOEM, energy developers, and others to minimize habitat impacts of projects.
 - ii. Encourage BOEM and developers to engage with the fishing industry to understand and minimize fishery impacts.
 - b. Promote energy efficient fishery harvest techniques.
 - i. For example, consider energy efficiency implications associated with setting trip limits (number of trips, time fishing).
 - ii. Encourage the use of energy efficient gears where appropriate.
- 2. Science and monitoring
 - a. Prioritize and encourage funding to be allocated for long term, ongoing environmental monitoring.
 - b. Develop indicators and metrics for decision support.
 - c. Support continued climate vulnerability assessments to monitor long term changes in fish species and their habitats.
 - d. Promote research to understand the effects of climate change on fish species and their habitats. This could include effects on individual species (e.g. ocean acidification) as well as ecosystem and community-level effects (e.g. shifting community distributions and dynamics).
- 3. Increasing resiliency
 - a. Promote consideration of climate change during planning for coastal development.
 - i. Encourage state and federal agencies to incorporate climate change analysis in NEPA or other environmental review documents.
 - b. Encourage state and federal agencies to recognize potential for sea level rise and storm surge flooding (e.g. <https://www.epa.gov/cre/risk-based-adaptation>).
 - c. Promote the use of best management practices to support coastal habitat resiliency in the face of climate change.
 - i. For example, encourage the use of living shorelines and other natural solutions.

Additional Literature and Initiatives

Beier, P., D. Behar, L. Hansen, L. Helbrecht, J. Arnold, C. Duke, M. Farooque, P. Frumhoff, L. Irwin, J. Sullivan and J. Williams (Actionable Science Workgroup of the Advisory Committee on Climate Change and Natural Resource Science). 2015. Guiding principles and recommended practices for co-producing actionable science: a How-To Guide for DOI Climate Science Centers and the National Climate Change and Wildlife Science Center. Report to the Secretary of the Interior: Advisory Committee on Climate Change and Natural Resource Science. Washington, DC.
https://nccwsc.usgs.gov/sites/default/files/files/How-to-Guide_Formatted_Aug%2013%202015.pdf

Advisory Committee on Climate Change and Natural Resource Science (ACCCNRS). 2015. Report to the Secretary of Interior. Washington, DC.
https://www.eenews.net/assets/2017/08/17/document_cw_01.pdf

Please see Appendix III for NOAA and US Fish and Wildlife Service climate change initiatives.

Appendix I 2016 Report on State Climate Change Initiatives

Please note that some states have made additional steps towards addressing climate change since the 2016 report, or highlighted existing actions that were not captured in the 2016 report. These have not been incorporated in Appendix I but were included in Appendix II.

Background

The Atlantic States Marine Fisheries Commission's (Commission) Habitat Committee (Committee), a branch of the Interstate Fisheries Management Program, was developed to identify, enhance, and cooperatively manage vital fish habitat for conservation, restoration, and protection, as well as support the cooperative management of the Commission and jointly managed species. In 2016 the Committee has been focused on Goal 4 of the current [Commission Action Plan](#): to 'Protect and enhance fish habitat and ecosystem health through partnerships and education.'

This document addresses Strategy 4.6, Task 4.6.2 of the Action Plan:

4.6 Engage in state and federal agency efforts to ensure climate change response strategies are included in habitat conservation efforts.

4.6.2 Identify ongoing practices in the state coastal regulatory planning that address climate change impacts.

It contains information on climate change initiatives, as well as links to documents and websites, as reported by each within the Commission's boundaries. This information is the first step towards identifying gaps and making recommendations for improving coastal preparedness and resiliency to climate change.

Maine

In 2013, the State of Maine established the Environmental and Energy Resources Working Group to identify administrative and strategic opportunities to improve Maine's ability to respond and adapt to changing physical conditions in the environment due to climatic influence. The Working Group was led by the Commissioner of the Department of Environmental Protection, and included the Director of the Governor's Energy Office, and the Commissioners of the Departments of Transportation; Marine Resources; Agriculture Conservation and Forestry; and Inland Fisheries and Wildlife. The report, [Monitoring, Mapping, Modeling, Mitigation and Messaging: Maine Prepares for Climate Change](#), presents current programs and activities and contains 32 recommendations. In general, the recommendations are to continue the interdepartmental cooperation; as well as current monitoring, mapping, modeling, and mitigation activities.

The [Department of Environmental Protection's Sustainability Division](#) is developing mechanisms for cross agency partnerships, information sharing, efficiencies, and streamlining. These efforts

will provide specific and identifiable tools to assist decision-makers. The [Adaptation Toolkit](#), in development, will aid climate adaptation efforts by providing a centralized source to go to for the information one might need for designing and implementing resiliency practices, as well as information on important regulations and standards to integrate into their project or planning process, and opportunities to connect with state and other engaged practitioners for technical expertise.

In 2015, The Maine Department of Inland Fisheries and Wildlife collaborated with over 150 public and non-profit Conservation Partner groups (including private landowners, conservation organizations, sporting groups, scientists, and governmental agencies) to draft [Maine's 2015 Wildlife Action Plan](#). The Action Plan addresses the full array of Maine's wildlife across all taxa groups and habitats and identifies 378 Species of Greatest Conservation Need and provides species-specific and habitat-based actions to help prevent further species declines over the next ten years. In an effort to understand which of Maine's species and habitats are most vulnerable to climate change impacts, the Department of Inland Fisheries and Wildlife collaborated with the Manomet Center for Conservation Science and other partners on a climate change vulnerability assessment. The report, [Climate Change and Biodiversity in Maine: Vulnerability of Habitats and Priority Species](#), classifies the vulnerability of the species and habitats to climate change.

The Maine Stream Connectivity Work Group and Maine's Aquatic Resources Management Strategy are working to minimize the impacts of road crossings on Maine's aquatic systems, which are becoming stressed by more frequent and severe storms.

The Department of Marine Resources continues to implement a wide range of [fisheries research monitoring](#) activities for stock assessments; however, the time series will also be useful for understanding changing environmental conditions.

The Department of Marine Resources has maintained an [Environmental Monitoring Program](#) in Boothbay Harbor for over a century. The observations began in March of 1905 and constitutes one of the longest running, continuous series of sea temperature observations for any point on the North American Atlantic Coast. Currently, observations of air temperature, barometric pressure, sea surface temperature, relative humidity, wind speed, and wind direction are recorded at daily intervals.

New Hampshire

The New Hampshire Fish and Game Department (NHFG) is addressing climate change through four different avenues: planning, science, outreach, and communication.

The NHFG's 2015 [Wildlife Action Plan](#) (WAP) Update specifically recognized climate change as a risk factor for both habitats and species. Because of this, species and habitat profiles include their sensitivity to climate change-related parameters, and the weighted risk of those species and habitats in regards to

impacts such as sea level rise (SLR), changes in precipitation, increased storm activity, changes to air and sea temperature, etc.

The Great Bay National Estuarine Research Reserve (NERR, part of NHFG) continuously monitors salt marsh distribution and condition along with information about the salinity of pore water and marsh elevation. Over time, this information will help inform if and how SLR is impacting salt marsh health at three sites around Great Bay. NHFG also has detailed habitat maps for Great Bay (and will have them for the whole coastal region by next fall). These are considered baseline maps from which to compare future changes. The NERR is also installing a tide gauge in the southern reach of Great Bay to monitor water level over time. The Sea Level Affecting Marsh Migration Model (SLAMM) was run for all of coastal New Hampshire as a part of the WAP, predicting how salt marsh distribution is likely to change under different SLR scenarios and where there is potential for migration. This information was combined with current condition information to determine where the highest quality marsh is likely to migrate, and where restoration opportunities are likely to be valuable in light of potential SLR.

The Great Bay NERR and NH Department of Environmental Services co-chair the Coastal Adaptation Workgroup – a group of outreach professionals that coordinate to bring the best climate-related science to local communities. Much of this revolves around wise planning to protect both natural and built assets. The Great Bay NERR hosts a Climate Summit each spring (topics this year include: living shorelines, presentations about the WAP, fisheries impacts in the Gulf of Maine, impacts on groundwater along the coast, culvert assessment work, dune restoration, city planning case studies, etc.). NHFG is also incorporating climate-related messages into their K-12 and teacher education programs. This summer they will host a teacher training workshop focused on how protected places can be observed to determine climate-related impacts over time; and the NHFG will be hosting an intern who will be developing a volunteer phenology program for the center.

NHFG has two representatives on the [Coastal Risks and Hazards Commission](#), a state wide legislatively-directed commission that was charged with providing guidance and consistent information to state agencies and municipalities on how to assess and prepare for coastal storms, SLR, and increased precipitation. A draft report and recommendations on “[Preparing New Hampshire for Projected Storm Surge, Sea-level Rise, and Extreme Precipitation](#)” has been prepared. Because of the recommendations from the report, each state agency is going to be asked to review its rules and regulations in light of the science and recommendations provided by the commission. The legislation is pending now (2016), and if passed would likely go into effect next year (2017).

Additional Links:

The NH Fish and Game Department’s Wildlife Action Plan:

<http://www.wildlife.state.nh.us/wildlife/wap.html>

The State of New Hampshire website: <http://www.nh.gov/climate/>

The NH Department of Environmental

Services: <http://des.nh.gov/organization/divisions/air/tsb/tps/climate/>

Massachusetts

In 2008 Massachusetts passed a global warming solutions act to reduce emissions, increase green infrastructure, and to analyze strategies for adapting to predicted changes in climate. The [Massachusetts Climate Change Adaptation Report](#) released in September 2011 by the Executive

Office of Energy and Environmental Affairs includes an overview of anticipated impacts and key adaptation strategies to increase resilience and preparedness.

Regarding fisheries, Massachusetts sits on the boundary of two biogeographic provinces, the Gulf of Maine and the Mid-Atlantic Bight. The state is already seeing shifts in species range distributions (black sea bass, American lobster, northern shrimp). The Division of Marine Fisheries collects bottom temperature data, every two hours at 60-70 sites across the state. Bottom temperature data is stored in an in-house database containing over 2 million readings dating back as far as 1986 for some sites. The Division of Marine Fisheries also has trawl data back to the 1970's.

In 2007 the mayor of Boston passed an Executive Order Relative to Climate Action, which called for a plan every three years. The first update was produced in 2014 (summary here: http://www.cityofboston.gov/images_documents/Greenovate%20Boston%202014%20CAP%20Update_Summary_tcm3-49733.pdf), and includes a variety of proposals, addressing open space, education, renewable energy, etc.

Rhode Island

In July 2014, the Rhode Island General Assembly approved the Resilient RI Act ([RIGL §42-6.2](#)), which formally established the Executive Climate Change Coordinating Council, as well as set specific greenhouse gas reduction targets, and incorporated consideration of climate change impacts into the powers and duties of all state agencies. The Coordinating Council is comprised of Directors and Commissioners from nine state agencies/offices and is supported by an Advisory Board and Science and Technical Advisory Board. It is charged with leading and coordinating state agencies in responding to the challenges posed by climate change in a timely and effective manner, focusing in particular on:

- assessing, integrating and coordinating efforts throughout state agencies to reduce greenhouse gas emissions, strengthen the resilience of communities, and prepare for the impacts of climate change;
- improving our understanding of the effects climate change will have in RI;
- working in partnerships to identify, develop and implement strategies to be better prepared, and reduce risk and losses.

There are several projects underway that will provide information to support future Coordinating Council recommendations. A few coastal related projects include the following. As first step in helping to reduce Rhode Island's greenhouse gas emissions is the completion of the 30 Megawatt Block Island Offshore Wind Project. This will be the first offshore wind project in the country. Located approximately three miles southeast of Block Island, the project which started construction in 2015, is now complete and currently undergoing operational tests. The system is expected to be commercially operational by the end of 2016. The spatial planning and fisheries-related research and monitoring used to guide this work may provide a blueprint for other states and coastal communities.

To assess the effects climate change in Rhode Island the Executive Council's Science and Technical Advisory Board prepared a brief synopsis of the state of knowledge of the following manifestations of climate change: SLR, warming air temperatures, warming water (marine and fresh) temperatures, storm frequency and intensity, biodiversity (changes in species and habitats), and precipitation and inland flooding. The information summarized in this report will assist state agencies, decision-makers, and the public understand the real impacts RI is already experiencing due to a changing climate.

The Coastal Resources Management Council continues work on the Shoreline Change Special Area Management Plan, developing scientifically-based data and tools to aid in coastal hazard adaptation planning. The Management Council has completed revised Shoreline Change Maps for the shore communities showing how Rhode Island's shoreline has changed over time due to erosion, and how we might expect it to change in the future. Additional tools and other key resources are available from the [website](#) to aid the state and municipalities in supporting sound policy decisions which address coastal erosion, SLR and storm surge inundation problems.

The Department of Environmental Management has also addressed considerations related to climate change throughout the recently updated [State Wildlife Action Plan](#). In short, Wildlife Action Plan reviewed vulnerability assessments for several species of great concern, identified threats to species and their habitats, and proposed actions to reduce these threats. In addition, the Division of Fish and Wildlife's Marine Fisheries Section continues to conduct long-term monitoring programs and collaborate on several local and regional research projects investigating the effects of climate change on managed species and the state's marine resources. State Wildlife Action Plans also have to specifically take into account climate change adaptation. Climate change is primarily in Chapters 1 (species), 2 (habitats), 3 (threats), and 4 (actions to abate threats to species and habitats).

In October 2015, the State Planning Council voted to adopt Rhode Island's new State Energy Plan "[Energy 2035](#)" as an element of the State Guide Plan, codifying the Plan as the state's formal long-term, comprehensive energy strategy. The Plan, produced by the Office of Energy Resources in collaboration with the Division of Planning, represents Rhode Island's first data-driven energy planning and policy document. Its vision is to provide energy services across all sectors—electricity, thermal, and transportation—using a secure, cost-effective, and sustainable energy system

In January 2016, the Management Council adopted amendments to Section 145 - Climate Change and Sea Level Rise of the Coastal Resources Management Program to update SLR projections for short-, mid- and long-term timelines of 2035, 2050, and 2100 respectively, as calculated using the current NOAA methodology, and based on the Newport, RI NOAA tide gauge.

In early 2016, OER launched the state's first ever electric vehicle rebate program to support adoption of electric vehicles by Ocean State drivers: [Driving RI to Vehicle Electrification \(DRIVE\)](#). The program made \$200,000 available for qualified RI residents interested in purchasing or leasing an electric vehicle to apply for a financial rebate of up to \$2,500, based upon vehicle battery capacity. Modeled closely on existing rebate programs offered in other states, DRIVE offers the potential to increase the total number of EVs on RI roadways by 20-35%.

Connecticut

The [Connecticut Climate Change Action Plan](#) was initiated in 2005 with the goal of reducing greenhouse gas emissions to achieve regional goals set by the New England Governors/Eastern Canadian Premiers. The Action Plan addresses quantification of benefits and costs of greenhouse gas reductions using existing analytical measures and a newly developed desktop modeling tool developed under the direction of the Environmental Protection Agency (EPA). As the first state to utilize this new tool, Connecticut was able to identify benefits previously not quantified. To successfully meet the requirements of the Action Plan, a Governor's Steering Committee established working committees at both the agency head and staff level to develop, implement, and track progress on recommended actions.

Additional legislation passed in following years, and complementary to the Action Plan, Connecticut adopted California emissions standards; promoted hybrid fuel cars through tax incentives; set efficiency standards for products and appliances; and promoted the purchase of "Connecticut Grown" foods. A Governor's Executive Order requires the state to purchase renewable energy in increasing amounts, leading to 100% clean energy by 2050. Legislation also simplified the permitting process in ways that encourage implementation of 'living shorelines' in place of shoreline armoring.

Additional monitoring programs include:

Long Island Sound Study Sentinel Monitoring for Climate Change: A multidisciplinary scientific approach to provide early warning of climate change impacts to Long Island Sound ecosystems. This program is conducted jointly by EPA Regions 1 & 2, Connecticut Department of Energy and Environmental Protection, New York Department of Environmental Conservation, and several academic institutions.

Connecticut Institute for Resilience and Climate Adaptation: Established in 2013 under the direction of the Department of Energy and Environmental Protection and the University of Connecticut to conduct research, outreach, and education projects as well as guide the development of technologies and regulatory provisions that increase the protection of ecosystems, coastal properties, other lands, and attributes of the state that are subject to the effects of rising sea level.

New York

New York has an [Office of Climate Change](#) within the New York Department of Environmental Conservation that coordinates efforts relating to climate change. The [New York State Energy Research and Development Authority](#) developed the [Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State](#) report that includes the impacts of climate change and recommendations.

New York developed a [Sea Level Rise Task Force Report](#) in 2009, which includes impacts and recommendations as well. The report led to the 2014 Community Risk and Resiliency Act. This Act:

- 1) Incorporates state-adopted SLR projections as regulation by Jan. 1, 2016 (Department of Environmental Conservation) and establishes a new 6 New York Community Risk and Resiliency Part 490, Projected Sea-level Rise (Part 490). Part 490 will establish projections of SLR in three specified geographic regions over various time intervals, but will not impose any requirements on any entity.
- 2) Adds mitigation of SLR, storm surge, and flooding to Smart Growth Public Infrastructure Policy Act criteria and guidance by Jan. 1, 2017 (Department of Environmental Conservation, Department of State).
- 3) Models local laws to enhance resiliency by Jan. 1, 2017 (Department of Environmental Conservation, Department of State).
- 4) Considers SLR, storm surge, and flooding in 19 programs (facility-siting regulations, permits and funding) by Jan. 1, 2017 (Department of Environmental Conservation, Department of State), including a checklist on how to consider SLR, storm surge and flooding in permitting decisions.
- 5) Requires guidance on implementation of the Community Risk and Resiliency Act and the use of natural resiliency measures to reduce risk by Jan. 1, 2017 (Department of Environmental Conservation, Department of State), considering the ability of natural resiliency measures to provide for storm-related and other benefits.

New York also has guidance on flood risk management standards, culvert sizing, living shorelines, nature-based shorelines, and wetland migration. The Office of Climate Change also has a greenhouse gas emissions initiative, which develops caps, performance standards for CO₂ emissions, Climate Smart Communities programs – certifying communities for climate-friendly actions, greenhouse gas emissions targets, and grants to assist in implementation.

The New York State Energy Research and Development Authority conducts environmental research and analysis and provides technical expertise and support to New Yorkers in order to increase renewable energy usage and efficiency. They are currently studying atmospheric deposition and impacts on natural resources. New York also has a [Climate Change Science](#)

[Clearinghouse](#), which provides New York State-related climate change data and information to inform decision making.

New York is involved in National Estuary Programs and National Estuarine Research Reserve sites, which conduct research monitoring, the results of which are integrated in all climate change management plans and state wildlife action plans, ultimately affecting how we manage resources. Vulnerability assessments are being conducted – these assess at-risk natural resources and infrastructure, develop adaptation strategies, support low impact development and green infrastructure, and include wetland migration pathway modeling to advise management decisions.

Finally, New York also has monitoring networks (climate sentinel monitoring projects, sediment elevation tables, water quality, is developing wetland rapid assessments, and conducting marsh loss trend assessments). Restoration efforts support habitat connectivity, large scale wetland restoration, and focus on managing threats to trust species.

New Jersey

There are many efforts underway in New Jersey to mitigate and respond to the impacts of climate change including: substantial investment in clean energy initiatives such as renewable energy production from solar, wind, and geothermal sources; improving energy efficiency; and reducing overall energy use and intensity. In addition, the State of New Jersey has taken significant steps in creating climate change-related community preparedness programs with a focus on resiliency and adaptation efforts at the local and state level. These programs involve strong interaction with local governments at the land use planning level as well as efforts to protect critical infrastructure and ecosystems, and new suites of regulations related to the design of buildings, roads, and bridges (www.globalchange.gov).

Following Superstorm Sandy, New Jersey State Departments and Agencies have incorporated resiliency strategy and planning into every aspect of the recovery process in an effort to rebuild better and more resilient than before. Many of these initiatives will serve to make New Jersey more resilient to the adverse effects of future climate change. Among the initiatives are: beach and dune projects, acquisition of properties in repetitive flood loss areas, energy resilience at critical facilities throughout the State, and actions to address emergency fuel – highlighted during Superstorm Sandy by building resilience in fuel supply and distribution. As part of their long-term recovery strategy, New Jersey has committed to rebuilding by focusing on implementing *resilient* infrastructure projects and mitigation opportunities to prevent future damage, and utilizing construction techniques and materials that will better withstand future weather events. The State will continue to leverage existing federal and state resources to pursue these long-term strategic priorities and empower local governments to revitalize their communities. New Jersey has also focused its efforts on future emergency response programs. For more detailed information, please visit the [Governor's Office of Recovery and Rebuilding](#) website at <http://nj.gov/gorr/>.

The continued development of a long-term comprehensive statewide adaptation plan needs to involve the input and action of many parties, including federal, state and local governments; non-governmental organizations; academia; private industry; and the citizens of New Jersey. Safeguarding New Jersey's residents, its built and natural environment, and ensuring that the State continues to grow in a manner that is both sustainable and resilient to the adverse effects of climate change will require adaptation planning. More information on New Jersey's Adapting to a Changing Environment Program is available at <http://www.nj.gov/dep/aqes/adapting.html>.

Additionally, Rutgers University formed the [New Jersey Climate Adaptation Alliance](http://njadapt.rutgers.edu) in 2011 (<http://njadapt.rutgers.edu>). The Climate Adaptation Alliance is described as *"a network of policymakers, public and private sector practitioners, academics, and NGO and business leaders designed to build climate change preparedness capacity in New Jersey...The Alliance is focused on climate change preparedness in key impacted sectors (public health; watersheds; rivers and coastal communities; built infrastructure; agriculture; and natural resources)."* The ultimate goal of this initiative is to assess climate vulnerability and preparedness needs for critical sectors in New Jersey and to develop capacity for response implementation in New Jersey. One of the important products of the Climate Adaptation Alliance was the development of the New Jersey Climate Adaptation Directory. According to the Climate Adaptation Alliance, *"the directory was created to provide resources that assist in guiding practitioners in New Jersey through the adaptation planning process. This directory brings together geographic data, tools, reports, model policies and ordinances, case studies, and current projects focused on evaluating vulnerabilities and developing and implementing climate change adaptation plans and strategies. The resources included are aimed at professionals in a range of fields, including but not limited to infrastructure, public health, emergency management, hazard mitigation, natural resources, economic development, agriculture, and land use planning."* This resource can be found here: <http://njadapt.rutgers.edu/resources/climate-adaptation-directory#>.

Pennsylvania

Pennsylvania has two separate fish and wildlife agencies: Pennsylvania Fish and Boat Commission and Pennsylvania Game Commission. The state also has the Pennsylvania Department of Environmental Protection, which is primarily regulatory, and the Department of Conservation and Natural Resources that manages the State Parks and Forests.

The Pennsylvania Climate Change Act of 2008 required the Department of Environmental Protection to produce a report on the anticipated climate change impacts in Pennsylvania and also a Climate Change Adaptation Strategy. Both are to be updated every three years. The original reports were produced in 2009 and have both been updated in 2013 and 2015 (<http://www.dep.pa.gov/Business/Air/BAQ/AdvisoryGroups/CCAC/Pages/default.aspx#.VyJQWYLD-po>). The [report](#) addresses freshwater tidal waterfront on page 197. From the report: Pennsylvania has approximately 56 miles of coastline on the Delaware Estuary that is largely freshwater and home to diverse flora and fauna. This includes approximately 1200 acres of freshwater tidal wetlands. Impacts to these habitats include decreased dissolved oxygen

concentrations, SLR, and salinity intrusion. The potential for loss of these wetlands is high if accretion rates do not keep up with SLR. There is a low potential for migration due to development. Further discussion on typical climate change impacts and strategies is extensive in these documents.

The Department of Conservation and Natural Resources has developed the [DCNR and Climate Change: Planning for the Future](#) document describing climate change's current and projected impacts on the state parks and forests, and their approach to adapt to these impacts. The [2015-2025 Pennsylvania Wildlife Action Plan](#) offers a review of threats posed by climate change. This plan includes species with declining or imperiled populations, or with secure populations, but substantial environmental threats, and their habitats. Among the primary climate change information sources in this plan include the Northeast Climate Science Center ([Staudinger et al. 2015](#)), and state documents produced by the Department of Environmental Protection. Climate change is identified as a threat to 29.5% (196 species of a total 664) of the Species of Greatest Conservation Need in the plan, which also discusses vulnerability and associated risk of those species and habitats to climate change (2015-2025 Pennsylvania Wildlife Action Plan, [Chapter 3](#), pp. 29-70 and 95-107). The Plan ([Chapter 4](#), pp 85-101) also includes conservation actions to address climate change, including regional ([Staudinger et al. 2015](#)) and national adaptation strategies ([National Fish Wildlife Plants Climate Adaptation Partnership 2012](#)).

Maryland

Maryland has developed the [Climate Change Maryland](#) website to educate citizens about climate change and the actions that the state is taking to reduce its carbon footprint. This program includes participation from over 12 state agencies. It contains information on the [Greenhouse Gas Reduction Plan](#), which was written in 2012 (and updated in 2015) to address the 2009 Greenhouse Gas Emissions Reduction Act. The Greenhouse Gas Reduction Plan's goals are to reduce greenhouse gas emissions by 25% by 2020 by reducing all sectors' (energy, transportation, agriculture, etc.) carbon footprint. It has more than 150 programs and initiatives to address carbon emissions related to energy, construction, fisheries, forestry, etc.

The state also has a two phase plan to reducing Maryland's vulnerability to climate change. [Phase I](#) was published in 2008 and addresses SLR and coastal storms. [Phase II](#) was completed in 2011 and focuses on building societal, economic, and ecological resilience.

In 2012 the [Climate Change and CoastSmart Construction Executive Order](#) was signed to ensure all new and reconstructed state structures have minimal to no flood risk based on improved planning and construction.

Virginia

The Governor's Commission on Climate Change published [A Climate Change Action Plan](#) in 2008, which includes the effects of climate change (on the built environment, insurance,

natural systems, etc.), recommendations, and commission deliberations. In December of 2014, the state published [Virginia Accomplishments Since the 2008 Climate Action Plan Release](#). According to the executive summary, Virginia has taken many mitigation and adaptation actions in regards to climate change, but these changes were not necessarily in response to particular recommendations or carried out in a coordinated manner. One year later, in December 2015, the Governor Terence R. McAuliffe's Climate Change and Resiliency Update Commission published the [Report and Final Recommendations to the Governor](#), which includes the top five recommendations to address climate change in the state. These include: i.) establishing a climate change and resilience resource center, ii.) creating a new Virginia bank for energy and resiliency, iii.) establishing a renewable energy procurement target for Commonwealth agencies, iv.) adopting a zero emission vehicle program, and v.) leveraging federal funding to make coastal communities more resilient. During the 2016 legislative session Virginia created the Commonwealth Center for Recurrent Flooding Resiliency, a joint venture of Old Dominion University, the College of William & Mary and the Virginia Institute of Marine Science. With an initial budget allocation of \$2 million in state support these institutions will work together to provide critical research, policy, and outreach resources to protect natural resources and create resilient communities across the Commonwealth.

North Carolina

In 2015, the North Carolina Coastal Resource Commission Science Panel completed their five-year [update of their 2010 Report and the 2012 Addendum](#) as mandated by the General Assembly in Session Law 2012-202. This update incorporated the most recent science and uses a 30-year projection for SLR. The report emphasized the different rates of SLR across the coast of North Carolina. These differences were attributed to subsidence and the effects of water movements within the ocean itself. The panel recommended that the report continue to be updated every five years.

The 2016 update of North Carolina's Coastal Habitat Protection Plan addresses SLR and climatic changes in several locations with recommendations specifically to the protection of wetlands and buffers to help offset the expected rise. The Source Document for the Coastal Habitat Protection Plan, and the Plan itself, can be accessed at:

<http://portal.ncdenr.org/web/mf/habitat/chpp/downloads>.

The [Albemarle-Pamlico National Estuary Partnership](#), through its [2012-2022 Comprehensive Conservation and Management Plan](#) incorporates climatic impacts throughout, but has three actions focused on climate change and SLR. Two actions address the impacts of SLR and climate change on the regional ecosystem as well as supporting research on adapting to those impacts. The third action supports engaging state, regional, and local governments and assisting them with incorporating SLR and climate change into their planning processes.

Both the North Carolina National Estuarine Research Reserve and the U.S. Fish and Wildlife Service have incorporated significant aspects of SLR and climate change research into their

strategic plans. With several extensive National Wildlife Refuge systems on North Carolina's coast and four National Estuarine Research Reserve sites in eastern North Carolina, significant research is being done in those locations. Much of the research deals with hydrologic restoration and the study of wetlands and their mitigating impacts on SLR.

South Carolina

In 2013, the South Carolina Department of Natural Resources compiled a report titled "[Climate Change Impacts to Natural Resources in South Carolina](#)." The following two sentences from the report highlight the goal the agency had in writing it: "The Department of Natural Resources is taking a lead role among South Carolina state agencies to advance the scientific understanding of the vulnerability of South Carolina's vital natural resources during an era of changing climate. This will enable the agency, its partners, constituents, and all Palmetto State citizens to avoid or minimize the anticipated impacts while protecting South Carolina's natural resources." The report identifies a number of concerns for the state's natural resources including SLR, ocean acidification, and temperature rise effects. The state has a high proportion of the coastline that is comprised of marshes, barrier islands, and hammock islands. Many of these lands are owned by state and federal entities. The document has various strategies for research and for developing and protecting land to provide for migration.

Other scientists, such as Dr. James Morris from the University of South Carolina, are conducting research evaluating the fate of marshes due to potential SLR. The recent thousand-year rain event in the state and King Tides are raising public awareness of what SLR will probably entail.

Georgia

In Georgia, most of the authority for responding to climate change rests with the local governments. There is not a statewide plan or regulatory measures in place. Their [State Wildlife Action Plan](#), however, does address climate change. With that in mind, there aren't any vulnerability assessments regarding fisheries. NOAA Fisheries Science Centers are working on assessing climate vulnerabilities for many species at the federal level.

Georgia is home to Gray's Reef National Marine Sanctuary, and NOAA is taking a three-pronged approach to address climate change: they are using Gray's Reef as a sentinel site, responding to change through adaptive management, and increasing climate change communication.

Climate change links for Gray's Reef and other National Marine Sanctuaries include:

<http://sanctuaries.noaa.gov/science/sentinel-site-program/climate-change-ocean-acidification.html>

<http://marineprotectedareas.noaa.gov/sciencestewardship/climatechangeimpacts/>

<http://sanctuaries.noaa.gov/science/sentinel-site-program/grays-reef/climate-change-ocean-acidification.html>

Florida

The Florida Fish and Wildlife Commission led a stakeholder summit on Climate Change in 2008. A report was generated in 2009 from this summit entitled “[Florida’s Wildlife: On the front line of climate change.](#)” As a result of this summit and due to the resulting recommendations, the Fish and Wildlife Commission established a Climate Change Oversight Team and developed adaptive strategies to address identified climate change threats to fish and wildlife and their habitats. Climate change considerations have been integrated into Florida’s [State Wildlife Action Plan](#), and funding has been provided to aquatic habitat projects supporting climate change adaptive strategies, such as living shoreline projects and regional climate change effects mitigation planning efforts. Funding opportunities for aquatic habitat restoration and enhancement projects supported by the Fish and Wildlife Commission ensure evaluation of climate change adaptation in all project proposals submitted. The state follows guidance in [Adapting to Climate Change: A Planning Guide for State Coastal Managers](#), a 2010 report from NOAA.

The Florida Oceans and Coastal Council published [The Effects of Climate Change on Florida’s Ocean and Coastal Resources](#) in 2009, and [updated the report](#) in December 2010. These reports were written for the Florida Energy and Climate Commission and the residents of Florida. The original report included information on the 2007 Intergovernmental Panel on Climate Change Report, the impacts of climate change on Florida’s infrastructure, human health, and economy, the effects of the ‘drivers’ of climate change, and research priorities, while the update focused on SLR effects and research priorities.

Florida has also worked with partner organizations, such as The Nature Conservancy, to implement projects addressing resiliency and plan for coastal climate change. This has been a key focus of south Florida, which is generally recognized as being one of the most vulnerable regions in the Commission management region to SLR. Partners have developed shoreline resiliency and coral reef teams including the Shoreline Resiliency Working Group and Southeast Florida Coral Reef Initiative, which are focused on assessing and addressing the effects of climate change on coastal habitats. The Governor’s South Atlantic Alliance recently sponsored (April 2016) a southeast U.S. Living Shorelines Summit in Jacksonville, Florida, which specifically addressed coastal habitat resiliency in the face of accelerated SLR. This effort has resulted in the development of a number of different regional resources, including a living shoreline training academy, which provides managers and the public with a certification in living shoreline design and implementation.

Appendix II Summary of Climate Change Initiatives by State

For a table on the current climate change initiatives in each state, visit:

<http://www.asmfc.org/uploads/file/5a5e340eClimateChangeActionsGaps.pdf>.

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Appendix III NOAA and US Fish and Wildlife Service Climate Change Initiatives

NOAA

NOAA Program	Climate Change Initiative Description
Annual NOAA/NCDC State of the Climate Reports	These began in 1991 and can be downloaded from http://www.ncdc.noaa.gov/bams-state-of-the-climate/
NOAA-wide effort	The Third National Climate Assessment (2014). It includes regional chapters, as well chapters for coastal and oceans, ecosystems, and ancillary reports with additional details for some regions and subject areas. http://nca2014.globalchange.gov/report
NOAA Restoration Center, Community-based Restoration Program and Damage Assessment, Remediation and Restoration Program	Restoration project designs consider climate change impacts to both the immediate restoration and long-term stewardship of project sites. E.g., sea level rise impacts
NOAA Restoration Center, Northeast Region	Guidance on flood frequency estimates for resilient infrastructure and stream restoration. The Restoration Center has been studying historical climatic trends in river floods in the Northeast to support the design of fish passage and river restoration projects, and findings have documented increasing flood magnitudes and frequencies in recent decades. They have also developed Planning for Sea Level Rise in the Northeast: Considerations for the Implementation of Tidal Wetland Habitat Restoration Projects (2011)
NMFS Habitat Conservation Division (HCD), Essential Fish Habitat and Hydropower License – Fish Passage Prescriptions	Consider climate change effects on habitats from the action. Includes climate effects on the proposed action that result in adverse effects to habitat
NMFS HCD (GARFO)	Developing a regional climate change guidance document to assist in integrating climate change information in consultation processes
NMFS Office of Habitat Conservation	Climate Smart Habitat Conservation webpage on climate change information with links for Coastal Blue Carbon, addressing sea level rise in salt marsh restoration projects, and other climate-related topics. http://www.habitat.noaa.gov/ourwork/climate.html
NOAA Climate Program Office	U.S. Climate Resilience Toolkit, hosted by NOAA’s National Centers for Environmental Information. https://toolkit.climate.gov/ . The U.S. Climate Resilience Toolkit includes training materials and guidance documents to assist coastal resource managers in incorporating climate change

	<p>information into new or existing conservation plans.</p> <p>https://coast.noaa.gov/digitalcoast/training/considering-climate-change</p>
NOAA Coral Reef Conservation Program	<p>Competitive grant program providing funding and coordination for external and internal NOAA activities on shallow-water coral reef conservation, including research on ocean acidification and bleaching</p>
NOAA Chesapeake Bay Office	<p>Program contributes to climate change research, monitoring, resiliency, and adaptation, e.g., research on climate change effects on oysters</p>
NOAA Sentinel Site Cooperative in North Carolina and Chesapeake Bay	<p>NOAA works with regional partners and leverages resources on issues related to climate change, including sea level rise and inundation through coordinated data sharing, monitoring, research, local community capacity building, and adaptation support, which includes habitat conservation</p>
National Fish, Wildlife, and Plants Climate Adaptation Strategy	<p>Office of Habitat Conservation contributed to the development of this broad strategy that includes coastal habitat adaptation needs</p>
NMFS Office of Habitat Conservation, Coastal Blue Carbon	<p>General information on coastal blue carbon, with a number of links for further reading on the subject including research and development and protocol standards.</p> <p>http://www.habitat.noaa.gov/coastalbluecarbon.html</p>
NOAA Living Shorelines Guidance	<p>NOAA's living shorelines webpage contains background and technical information on, as well as examples of, living shorelines:</p> <p>https://www.habitatblueprint.noaa.gov/living-shorelines/;</p> <p>NOAA Fisheries Office of Habitat Conservation's Restoration Center website contains information related to living shorelines:</p> <p>http://www.habitat.noaa.gov/restoration/techniques/livingshorelines.html;</p> <p>NOAA guidance on living shorelines can be downloaded here:</p> <p>http://www.habitat.noaa.gov/pdf/noaa_guidance_for_considering_the_use_of_living_shorelines_2015.pdf</p>
NOAA Regional Coastal Resilience Grant Program	<p>Grants program to support regional approaches that build resilience of coastal regions, communities, and economic sectors to the negative impacts from extreme weather events, climate hazards, and changing ocean conditions. https://www.coast.noaa.gov/resilience-grant/</p>
NMFS Saltonstall-Kennedy Grant Program	<p>\$10 million competitive grant program to build resilient coastal communities and sustainable marine resources.</p>
NMFS Northeast Region Fishery Science Center, Ecosystems Dynamics and Assessment Program	<p>Program website includes a comprehensive review of climate change effects on the Northeast Continental Shelf ecosystem.</p> <p>https://www.nefsc.noaa.gov/ecosys/</p>
NMFS Climate Science Strategy and Regional Climate Science Action Plans	<p>Informs NMFS science activities (monitoring, research, modeling, and assessments), including tracking current conditions, providing early warnings and forecasts, understanding the mechanisms of climate impacts, and projecting future conditions, evaluating possible options for fisheries management and protected resources conservation in a changing world</p>
NOAA's Earth Science Research Laboratory,	<p>Climate Change Portal, a web interface that users can access and display climate and earth system model output.</p> <p>https://www.esrl.noaa.gov/psd/ipcc/ocn/</p>

Physical Sciences Division (PSD)	
NOAA National Oceanographic Data Center, National Centers for Environmental Information, Ocean Climate Laboratory Team	Provides support for the Northwest Atlantic Regional Climatology webpage, providing high-resolution ocean climatology as part of the NOAA-wide Sustained Marine Ecosystem in Changing Climate Project. https://www.nodc.noaa.gov/OC5/regional_climate/nwa-climate/
NOAA's Office for Coastal Management	In collaboration with The Nature Conservancy and ESRI, NOAA developed the Climate Wizard, a web-based interactive mapping platform which provides access to U.S. and global climate change information including historical and projected temperature and precipitation data using different greenhouse gas emission scenarios for two future time periods. http://climatewizard.org/ . Digital Shoreline Analysis System is an ArcGIS-based software package jointly developed by NOAA and the U.S. Geological Survey. The software computes the rate of shoreline change using historical shoreline positions represented in a GIS. https://coast.noaa.gov/digitalcoast/tools/dsas.html . The Digital Coast is a sea level rise projection mapping tool. https://coast.noaa.gov/digitalcoast/tools/slr
The National Ocean Service (NOS) National Center for Coastal and Ocean Science	Ecosystem Effects of Sea Level Rise research program provides a suite of science products to inform coastal managers of local coastal vulnerability and solutions to mitigate flood risk.
NOAA's National Centers for Environmental Information (NCEI)	Arctic Regional Climatology Data. https://www.nodc.noaa.gov/OC5/regional_climate/arctic/

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Department of Interior

DOI Program	Climate Change Initiative Description
US Geological Survey (USGS)	Responsible for climate change science leadership within the Department of Interior
USGS Climate Science Centers and National Climate Change and Wildlife Science Center	Work with natural and cultural resource managers to gather the scientific information and build the tools needed to help fish, wildlife, and ecosystems adapt to the impacts of climate change. https://nccwsc.usgs.gov/
US Fish and Wildlife Service (FWS) The Climate of Conservation in America: 50 Stories in 50 States	State-by-state look at how accelerating climate change is impacting or may impact fish and wildlife across America. https://www.fws.gov/home/climatechange/stories505050.html
National Fish, Wildlife and Plants Climate Adaptation Strategy	National, government-wide strategy to safeguard fish, wildlife, plants, and the natural systems upon which they depend. Led by FWS, NOAA, and New York Division of Fish, Wildlife, and Marine Resources. https://www.wildlifeadaptationstrategy.gov/index.php
FWS Climate Change Strategic Plan	Rising to the Urgent Challenge, Strategic Plan for Responding to Accelerating Climate Change. https://www.fws.gov/home/climatechange/pdf/CCStrategicPlan.pdf

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Atlantic States Marine Fisheries Commission Updated Submerged Aquatic Vegetation Policy

Executive Summary

Submerged aquatic vegetation (SAV) comprise some of the most productive ecosystems in the world. SAV is significantly important to many Atlantic States Marine Fisheries Commission (Commission) managed fish species, and afforded different degrees of protection up and down the coast. In 1997, the Commission's Habitat Committee developed a policy to communicate the need for conservation of coastal SAV resources, and highlight state and Commission-based activities for implementation of a coastal SAV conservation and enhancement program. The Commission encouraged implementation of this policy by state, federal, local, and cooperative programs which influence and regulate fish habitat and activities impacting fish habitat; specifically SAV.

In 2017, 20 years after the original policy was released, the Habitat Committee re-evaluated its recommendations and importance. Upon review, it was determined that the policy is still relevant, and arguably more important now than ever.

The Habitat Committee has left the goals largely unchanged from the 1997 version. The primary goal is to preserve, conserve, and restore SAV where possible, in order to achieve a net gain in distribution and abundance along the Atlantic coast and tidal tributaries, and to prevent any further losses of SAV in individual states by encouraging the following:

1. Protect existing SAV beds from further losses due to degradation of water quality, physical destruction to the plants, or disruption to the local benthic environment;
2. Continue to promote state or regional water and habitat quality objectives that will result in restoration of SAV through natural re-vegetation;
3. Continue to promote, develop, attain, and update as needed, state SAV restoration goals in terms of acreage, abundance, and species diversity, considering historical distribution records and estimates of potential habitat.
4. Continue to promote SAV protection at local, state and federal levels and when unavoidable impacts to SAV occur from permitted coastal alterations or other unintended actions, agencies should implement compensatory mitigation for the functional and temporal impacts.

There are six key components to achieving the goal of this policy: 1) Assessment of historical, current and potential distribution and abundance of SAV; 2) Protection of existing SAV; 3) SAV Restoration and Enhancement; 4) Public Education and Involvement; 5) Research; and 6) Implementation.

The background information, policies and recommended actions have been updated based on emerging issues and new information released over the last 20 years. A summary of SAV initiatives taken by the Commission's state and federal partners is also included in this updated policy.

Preface

The Atlantic States Marine Fisheries Commission (Commission) was formed in 1942 as a means to conserve and enhance interjurisdictional fisheries of the Atlantic coast. The Commission and its 15 member states and associated jurisdictions which also serve on the Commission's Policy Board (District of Columbia, National Marine Fisheries Service, Potomac River Fisheries Commission, and U.S. Fish and Wildlife Service) recognize that marine fisheries cannot be adequately managed without due consideration for marine fish habitat; however, the Commission does not have the capability to regulate marine fish habitat or activities other than fishing that may cause adverse impacts. Under these circumstances, the Commission recognizes that it is imperative to collaborate with the state and federal agencies that hold such authority, and equip them with the recommendations and guidance necessary to help provide for the conservation of healthy marine fish habitat.

Submerged aquatic vegetation (SAV) comprise some of the most productive ecosystems in the world (Orth et al. 2006a). SAV is significantly important to many Commission managed fish species, and afforded different degrees of protection up and down the coast. In 1997, the Commission's Habitat Committee developed a policy (ASMFC 1997) to communicate the need for conservation of coastal SAV resources, and highlight state and Commission-based activities for implementation of a coastal SAV conservation and enhancement program. This policy was modeled after a similar policy prepared by the Chesapeake Bay Program (Chesapeake Executive Council 1989), and background information relied heavily on the Commission's publication *Atlantic Coastal Submerged Aquatic Vegetation: a Review of its Ecological Role, Anthropogenic Impacts, State Regulation, and Value to Atlantic Coastal Fisheries* (Stephan and Bigford 1997). The intent of the original policy was not to hold marine fisheries agencies accountable for the suggested state activities, but rather to efficiently communicate the goals of the policy to the agencies or organizations that can best carry out the prescribed activities, and encourage the participation of these agencies in achieving policy goals.

In 2017, 20 years after the original policy was released, the Habitat Committee re-evaluated its recommendations and importance. Upon review, it was determined that the policy is still relevant, and arguably more important now than ever due to new or intensifying threats that could reduce water quality or damage beds, such as aquaculture and coastal development (Short et al. 2011, Lefcheck et al. 2017). Our objective is to provide updates to the scientific research and management issues, including emerging issues over the past 20 years. The goals of the original policy are still valid, but have been revised to meet the needs of the 21st century.

Introduction

Background

Submerged aquatic vegetation or SAV systems, which include both true seagrasses in saline regions and freshwater angiosperms that have colonized lower salinity regions of estuaries, are among the most productive ecosystems in the world (Orth et al. 2006a). They perform a number of irreplaceable ecological functions, which range from chemical cycling and physical modification of the water column and sediments, to providing food and shelter for commercial, recreational, as well as ecologically important organisms, and are especially critical for juvenile development of many fish and invertebrate species (Thayer et al. 1997, Heck et al. 2003, Ralph et al. 2013). Due in part to their status as a nursery habitat, SAV is also a key linkage among not only other marine ecosystems, but terrestrial ones as well (Heck et al. 2008). All ASMFC managed species utilize SAV for refuge, attachment, spawning, food, or prey location for at least part of their life cycle, with the possible exception of Jonah crab and Northern shrimp (data from Kritzer et al. 2016).

The Commission established a policy on SAV in 1997 because of the important role SAV plays in the habitat of Commission-managed species. Both marine and freshwater SAV is covered by the policy because some managed species utilize both during their ontogenetic development. Both natural events and human activities (including climate change) can threaten local and regional SAV health and abundance, and result in impacts to fisheries. SAV loss has been reported worldwide (Orth et al. 2006a, Waycott et al. 2009) and in most Atlantic coastal states (see 'SAV Efforts by Atlantic Coast States and Federal Partners since the Policy was Released' below). Some reasons for the decline, including water quality degradation, are pervasive threats along the coast. Certain regions have a fraction of historic SAV coverage. For example, the Chesapeake Bay saw declines in all species in all areas of the bay in the early 1970s (Orth and Moore 1983, Orth et al. 2002a). In 1993, researchers identified the main influencers on SAV abundance and distribution: water clarity, suspended sediments, nitrogen, phosphorus, and chlorophyll *a* (Dennison et al. 1993). Since then, managers have been using these indicators for specific water quality targets. They also have a goal of restoring a total of 75,000 acres of SAV in the Chesapeake Bay by 2025 (Orth et al. 2017). Conservation measures have also slowed, and in some cases reversed, SAV decline in other locations, including parts of Florida (SAFMC 2014).

The Commission encouraged implementation of the original policy by state, federal, local, and cooperative programs which influence and regulate fish habitat and activities impacting fish habitat; specifically SAV. The development of the original policy was overseen by the Commission's Habitat Committee, with scientific guidance from experts in the field of SAV ecology. This version of the SAV policy was updated by distributing the 1997 policy to SAV and habitat experts and incorporating their changes. The final draft was approved by the Habitat Committee (date) and by the Policy Board (date).

Definition of Submerged Aquatic Vegetation

SAV refers to rooted, vascular, flowering plants that, except for some flowering structures, live and grow below the water surface. Because of their requirements for sufficient sunlight, seagrasses are found in shallow coastal areas of all Atlantic coastal states, with the exception of Georgia and South Carolina, where freshwater inflow, high turbidity and tidal amplitude combine to inhibit their growth. SAV growth is seasonal, and during winter months, leaf blades may not be present. Therefore SAV habitat may be characterized by the presence of rhizomes, roots, leaves, or reproductive structures. Mapping and surveying during the active growing season enhances the ability to identify SAV habitat.

There are at least 13 species of seagrasses common in US waters to which this definition of SAV and these

policies may apply. In the New England and northern Mid-Atlantic regions, eelgrass (*Zostera marina*) dominates, with two other species also occurring – widgeon grass (*Ruppia maritima*) and, from North Carolina southward, Cuban shoalgrass (*Halodule wrightii*). South towards Florida, turtlegrass (*Thalassia testudinum*) and manatee grass (*Syringodium filiforme*) become dominant along with Cuban shoalgrass and several species of *Halophila*. One species of *Halophila*, Johnson's seagrass (*H. johnsonii*), was listed as threatened in 1998. Its critical habitat was designated in 2000, and in 2002 the National Oceanic and Atmospheric Administration (NOAA) published a recovery plan for the species¹. Widgeon grass (*Ruppia maritima*) which can tolerate both fresh and saltwater, has the broadest range of all species (Orth 1997).

Approximately 20 – 30 species of freshwater macrophytes may be found in the tidal freshwater and low salinity areas of the estuaries of the eastern United States. These lower salinity communities can be quite diverse, with as many as 10 species co-occurring at a single location. Wild celery (*Vallisneria americana*), redhead grass (*Potamogeton perfoliatus*), sago pondweed (*P. pectinatus*), horned pondweed (*Zannichellia palustris*), common elodea (*Elodea canadensis*), coontail (*Ceratophyllum demersum*), and southern naiad (*Najas quadalupensis*) are a few of the native species that will dominate these areas while two non-native (invasive) species, milfoil (*Myriophyllum spicatum*) and hydrilla (*Hydrilla verticillata*), will also be found in many areas.

This update and the original policy acknowledge that there will be situations where it may be appropriate to undertake control measures for invasive species. However, where native species have been eliminated and invasive species are of functional value it may be more appropriate to protect the invasive species from development activities (e.g. see Ramus et al. 2017). These situations should be evaluated on a case-by-case basis.

SAV Efforts by Atlantic Coast States and Federal Partners since the Policy was Released

In 2017, the Habitat Program Coordinator sent out a survey asking each partner a series of questions based on the goals and components of the original policy statement (results in Figure 1).

Of the eleven states that have marine seagrass within their borders and responded to the survey, seven of the eleven have implemented a resource assessment and monitoring strategy to quantitatively evaluate SAV distribution and abundance. One state is currently in the process of developing an assessment. Ten states have put measures in place to limit permanent and irreversible direct and indirect impacts to SAV and their habitats. Evaluation of the effectiveness of these measures has been mixed along the coast. Three states have carried out an evaluation and five have not. Two states have evaluations in development, and one state has conducted an evaluation in the past, but is not currently doing so. Fifty-five percent of states have set restoration goals, whereas 45% have not. Most (81%), however, have identified the key reasons for SAV loss in their state. Seven states have identified suitable areas for protection and restoration, and two are in the process of doing so. One state has not, and one identifies areas as needed. All states either incorporate SAV education in their outreach or citizen science programs, either directly or via other entities (such as National Estuarine Research Reserves). Most states have also supported SAV research and follow specific Best Management Practices (10 and 8 states, respectively).

¹ <http://www.fisheries.noaa.gov/pr/species/plants/johnsons-seagrass.html>

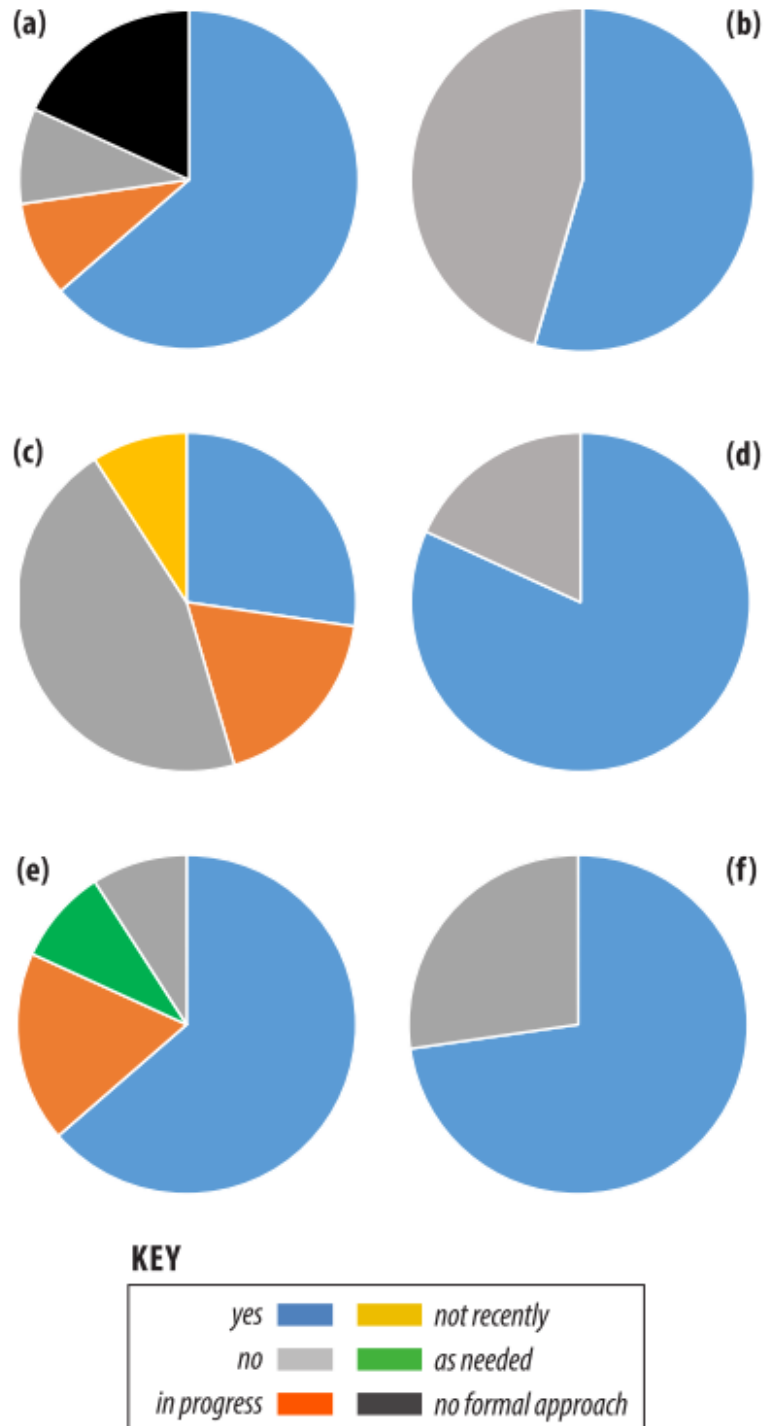


Figure 1. State responses to the following questions: (a) Has your state implemented an SAV resource management assessment and monitoring strategy? (b) Has your state set restoration goals? (c) Has your state reviewed the effectiveness of their assessment and monitoring programs? (d) Has your state identified reasons for loss and/or addressed the need for SAV improvement? (e) Has your state identified areas for protection or restoration? (f) Does your state follow specific Best Management Practices?

Most of the federal partners do not have regulatory authority pertaining to SAV, but do serve in an advisory role and can designate specific SAV areas as protected. More than half have developed technical guidance or SAV standards, and promote Best Management Practices. While they have not implemented the Commission's SAV Policy, most have implemented other, similar policies to protect SAV.

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Policy Statement

Goal

The Habitat Committee found that the original goals are still relevant today, and have left them largely unchanged from the 1997 version. The primary goal is to preserve, conserve, and restore SAV where possible, in order to achieve a net gain in distribution and abundance along the Atlantic coast and tidal tributaries, and to prevent any further losses of SAV in individual states by encouraging the following:

1. Protect existing SAV beds from further losses due to degradation of water quality, physical destruction to the plants, or disruption to the local benthic environment;
2. Continue to promote state or regional water and habitat quality objectives that will result in restoration of SAV through natural re-vegetation;
3. Continue to promote, develop, attain, and update as needed, state SAV restoration goals in terms of acreage, abundance, and species diversity, considering historical distribution records and estimates of potential habitat.
4. Continue to promote SAV protection at local, state and federal levels and when unavoidable impacts to SAV occur from permitted coastal alterations or other unintended actions, agencies should implement compensatory mitigation for the functional and temporal impacts.

There are six key components to achieving the goal of this policy: 1) Assessment of historical, current and potential distribution and abundance of SAV; 2) Protection of existing SAV; 3) SAV Restoration and Enhancement; 4) Public Education and Involvement; 5) Research; and 6) Implementation.

I. Assessing the Resource

Determining current status and identifying trends in health and abundance are key factors in management of SAV resources. In an effort to develop consistent monitoring techniques among regions, SAV mapping protocols have been identified by NOAA's Coastal Change Analysis Program (C- CAP, Dobson et.al. 1995), and updated in 2001 (NOAA 2001).

Policy:

At a minimum, each member state should ensure the implementation of an SAV resource assessment and monitoring program which will provide a continuing quantitative evaluation of SAV distribution and abundance and the supporting environmental parameters. The optimal coast-wide situation would be a monitoring system which would establish consistent monitoring techniques among regions so that the data are comparable. For example, SeagrassNet is used at several locations along the Atlantic coast and other areas worldwide to assess trends in health of discrete SAV beds using comparable techniques. In addition to evaluating distribution and abundance, monitoring should also evaluate trends in the overall health of existing SAV beds.

Action:

ASMFC: Support (financially, politically, or through the sharing of resources and information) and promote states to adopt an SAV mapping and monitoring plan. Assessment and data collection should have relevant

metrics and scales to inform specific management questions and goals (Bernstein et al. 2011, Neckles et al. 2012, Roca et al. 2016). When possible, promote universal metrics for monitoring along the coast to allow for inter-state comparisons.

States: ASMFC members should encourage their appropriate state agencies or departments to implement regular statewide or regional SAV monitoring programs which will identify changes in SAV health and abundance cumulatively on a coast-wide basis if they are not already doing so (see 'SAV Efforts by Atlantic Coast States and Federal Partners since the Policy was Released' above for more information). Surveys should minimally be on a five year basis, and preferably annually, for areas considered to be especially at risk of severe declines from anthropogenic activities, disease, or other factors. Aerial images captured from a plane allow for standard comparability across regions, if resources allow. A good map provides spatial extent and rough approximations of density. However, aerial-based assessment results can vary considerably based on image quality, SAV bed plant densities, visual signature interpretation and extent of surface level verification. Above ground biomass (e.g., shoot density and canopy height) from sentinel beds can allow for a closer look at plant health and bed dynamics.

II. Protection of Existing Submerged Aquatic Vegetation

A concerted effort should be made to protect those areas where SAV currently exists since it is problematic to successfully restore or mitigate SAV losses. Impacts which result in losses of SAV such as direct alterations to a vegetated area or indirect actions within a watershed should be minimized. Primary causes of SAV loss include navigational dredging, filling, and reduced water clarity due to runoff from development and agriculture. Shading from docks, propeller dredging from boating, and bottom disturbing fishing gear also contribute to SAV loss (e.g. Orth et al. 2002b).

While there have been numerous documented restoration successes, there have been just as many or more failures. Therefore protection and conservation are much more assured and cost effective approaches to the preservation of SAV. Because SAV requirements for growth and survival are stringent, controlling the type, extent, intensity, and duration of impacts to SAV will further other efforts to restore and protect coastal fish habitat.

Since the original policy was released SAV has been facing emerging issues including a boom in the installation of new boat mooring areas and significant increases in shellfish aquaculture in shallow coastal waters, both of which can conflict with the conservation of SAV. This is especially true for shellfish aquaculture. Aquaculture has the potential for conflicts that requires careful ocean planning, and siting should not occur in current or adjacent to seagrass beds. Climate change is also expected to have an effect on SAV distribution and abundance as water temperature, salinity, and water depth change.

Policy:

Member states and federal partners should use existing regulatory, proprietary, and resource management programs, and in addition, develop new programs, to limit permanent and irreversible, direct, and indirect impacts to SAV and their habitats.

Action:

ASMFC, States, and Federal Partners: Review and evaluate the effectiveness of existing administrative procedures, regulatory, proprietary, and resource management programs to protect existing SAV and their habitats. This includes: fishing impacts; aquaculture; dredging; water quality standards; dock placement; marina expansion and vessel impacts such as elevated wakes, suspended sediments, placement and

maintenance of moorings, direct impacts from hulls, propellers, and personal watercraft; runoff from development and agriculture; and compensatory mitigation.

ASMFC: 1) Support and promote the development of water quality standards by the Environmental Protection Agency and member states that can be implemented to protect SAV habitat (i.e. light attenuation, total suspended solids, chlorophyll *a*, dissolved inorganic nitrogen, dissolved inorganic phosphorus, critical life period).

2) In partnership with NOAA Fisheries and U.S. Fish and Wildlife Service, develop technical guidelines and standards to objectively evaluate fishing gear, propeller scarring, dredging, coastal construction, and bottom fishing impacting, and develop standard mitigation strategies.

States: 1) ASMFC members should propose improvements necessary in state regulation and management including conditions pertaining to harvesting shellfish or finfish in SAV beds by use of mechanical means and the placement and operations of aquaculture activities to protect existing SAV beds.

2) Encourage state agencies or departments with jurisdiction over construction activities to propose improvements necessary in state regulation and management of SAV habitats based on the standards developed in the above actions.

III. Restoration of Submerged Aquatic Vegetation

In addition to protecting existing SAV habitat, restoration of former habitat should improve the likelihood of achieving an overall net gain. In cases where monitoring assessments show SAV is in decline due to poor environmental quality, sufficient environmental quality standards must be attained before restoration can occur. Planning will induce maximum restoration program effectiveness. Even with adequate environmental quality, SAV restoration is challenging due to predators, human impacts, and the risk of newly planted shoots to uproot easily. Good planning and use of scientifically-based restoration protocols will help ensure success where environmental conditions warrant. Examples of tools and protocols include habitat suitability models (Vaudrey et al. 2013), site-specific planning and testing (Leschen et al. 2010), and restoration strategies (Orth et al. 2006b, van Katwijk et al. 2016). To be successful, water quality conditions that historically and currently support SAV should be compiled regionally and used to identify potential SAV restoration sites.

Policy:

Protection is preferred over restoration. Restoration programs should include establishment of habitat quality necessary for SAV prior to restoration. Restoration methods should incorporate scientifically based protocols. Restoration goals should consider potential and historical SAV spatial footprint.

Action:

ASMFC, States, and Federal Partners: ASMFC should partner with/promote/support other state and federal agencies, departments, NGOs, universities, and other entities to support SAV restoration activities. ASMFC members should contribute or take the lead on setting state restoration goals for SAV acreage, and providing literature and best management practices to state and federal agencies.

States: ASMFC members should encourage their appropriate state agency or department to set regional or state restoration goals for SAV acreage, abundance, and species diversity considering historical records of abundance and distributions and estimates of potential habitat. Identify reasons for losses, and address any need for habitat improvement prior to restoration. Based on scientific protocols, identify areas currently suitable for SAV restoration, and consider them for protection and future use, or immediate use in restoration projects. Implement scientifically-based transplanting and planting protocols, and support their use by other

organizations.

IV. Public Education and Involvement

An informed and involved public will provide a firm foundation of support for SAV protection and restoration efforts. Education and involvement is an important facet of increasing public awareness and stewardship (e.g., Figure 2).



Figure 2. Seagrass habitat conservation signage in Jamestown, Rhode Island. Photo and sign courtesy of the Atlantic Coastal Fish Habitat Partnership.

Policy:

ASMFC and member states should promote and support public education and stewardship programs that will increase the public’s knowledge of SAV, its importance as fish habitat, and commitment to SAV conservation.

Action:

ASMFC, States, and Federal Partners: ASMFC in coordination with member States, federal agencies, and non-profits will promote and support the improvement of policy maker and public understanding of the value, habitat requirements, status, significant threats, cumulative human impacts, and trends in abundance of SAV. States should include this information in their aquatic education programs.

State: ASMFC members should encourage their appropriate state agency or department to promote the involvement of citizen’s groups in activities such as groundtruthing of remotely sensed and mapped SAV locations; water quality monitoring programs; reporting of impacts, especially cumulative impacts such as dock and pier expansions; losses or perturbations; and SAV restoration and protection activities. One way to aid in increasing awareness would be to share area maps online (preferably not requiring ArcGIS user capabilities).

V. Scientific Research

Through scientific research, we will improve our knowledge and understanding of SAV to ensure that efforts to protect and restore the resource will be effective. Further information on growth, physiology, reproduction, genetics, life cycles, disease, transplanting (successes and failures), environmental requirements, and anthropogenic impacts is needed to protect and restore SAV.

Policy:

ASMFC and member states should promote and support those research projects which will improve our knowledge of SAV and its benefits as fish habitat.

Action:

ASMFC, States, and Federal Partners: On a coast wide basis, support research financially, politically, and through data and results sharing in the following areas:

- 1) The relationship between SAV and the environmental quality of fish habitat and the relative importance of SAV to other, high quality habitat types. This should include the development of specific habitat functions of SAV (e.g. spawning, feeding, growth, refuge), taking into consideration the benefits to managed fish species across their ranges.
- 2) Improving methodologies for SAV transplanting and restoration techniques, and determine the ecological functioning of transplanted vs. naturally vegetated areas.
- 3) Improving our understanding of the relationships between SAV and managed fish species, including fishery production patterns associated with different landscape or bed forms and sizes within the context of location within the system, as well as the influence of human disturbance and consequences of altering seagrass landscapes vis-à-vis fragmentation and isolation.
- 4) The specific physical requirements for SAV survival, on a regional basis, as well as the effects of eutrophication, sediment loading, indirect (pesticides) and direct (herbicides) impacts to epiphyte grazers, disease, physical disturbance, climate change (e.g., respiratory stress from increased temperatures), and natural perturbations on growth and survival of SAV. Efforts should be made to identify the primary threat(s) to SAV health in each locale. This will help identify potential sites for SAV restoration.
- 5) The effects of reduced genetic diversity and difference in physiology (e.g. annual vs. perennial, below-ground biomass) on the ability of seagrass populations to survive habitat alterations. Research should also identify regional differences in SAV requirements.
- 6) The potential effect of climate change on SAV, including range expansion and contraction, temperature tolerance, susceptibility to disease, etc.

**VI. Policy Implementation
Habitat Program**

This policy was distributed to all Commissioners and other interested persons for use in promoting local and regional protection of SAV. The Commission's federal partners, including the U.S. Fish and Wildlife Service and NOAA Fisheries, were encouraged to adopt and implement this policy. Other federal agencies, such as the U.S. Army Corps of Engineers and the Environmental Protection Agency, were briefed on the policy, and encouraged to adopt it as well.

The Commission will continue to progress in its commitment to facilitate communication among local, state, and federal fishery and habitat managers, as well as assist marine fisheries agencies in transmitting this updated policy to habitat protection agencies (Appendix I).

Fishery Management Planning

Under the Atlantic Coastal Fisheries Cooperative Management Act, the Commission may require that states implement certain facets of fishery management plans, termed “compliance criteria.” The following is a list of compliance criteria which the Commission will continue to consider for adoption in fishery management plans (FMP) for species with demonstrated reliance on SAV habitat (Laney 1997):

- 1) Preparation of an annual status report by each state and federal partner on implementation of each aspect of the policy.
- 2) Transmission of the policy by each state and federal partner to all agencies with habitat regulatory and management authority or organizations which can have a significant positive or negative impact on SAV.
- 3) Preparation of state plans to identify fishing gear and practices employed by any state regulated fishery which may negatively impact SAV; and development and implementation of strategies to eliminate negative impacts identified pursuant to Section II where appropriate to achieve SAV objectives.

In addition, the policy should continue to be incorporated by reference into FMPs for species with demonstrated reliance on SAV habitat. These FMPs should include background information on the importance of SAVs, and recommendations which parallel the prescribed activities of the policy.

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DRAFT

Appendix I Points of Contact Responsible for Regulating SAV

Maine

Saltwater SAV

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Freshwater SAV

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Freshwater SAV

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DEP Wetlands Protection Program

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DMF Eelgrass Project

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RI CRMC

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Florida

Environmental Resource Permitting

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Aquatic Preserve Program

Becky Prado, Rebecca.Prado@dep.state.fl.us

Florida State Parks

Lisa Edgar, Lisa.Edgar@dep.state.fl.us

Scientific Permits and Saltwater Products Licenses

Lisa Gregg, Lisa.Gregg@myfwc.com

ERP and Coastal Zone Management

Jennifer Goff, Jennifer.Goff@myfwc.com

Aquatic Plant Control Permitting

Rob Kipker, Rob.Kipker@myfwc.com

Commercial Importation Transportation, Non-Nursery Cultivation and Collection

Anderson Rackley, Andy.Rackley@freshfromflorida.com

Aquaculture

Call: 850-617-7600



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 20 2017

Robert E. Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Re: Reinitiating Section 7 Consultation on the Batched Fisheries, American Lobster, and Atlantic Deep-Sea Red Crab Biological Opinions and associated Fishery Management Plans

Dear Mr. Beal:

On December 16, 2013, under the Endangered Species Act, NOAA Fisheries' (NMFS) Greater Atlantic Regional Fisheries Office, Protected Resources Division (PRD) completed formal consultation and issued a biological opinion (Batched Fisheries BiOp) for the following fishery management plans (FMPs): Northeast multispecies, monkfish, spiny dogfish, Northeast skate complex, Atlantic mackerel/squid/butterfish, Atlantic bluefish, and summer flounder/scup/black sea bass. In addition to these fisheries, we completed formal consultation and issued BiOps on the Atlantic Deep-Sea Red Crab FMP on February 6, 2002 and on the Interstate Fishery Management Plan for American Lobster (ISFMP) on July 31, 2014. These BiOps determined that the continued operation of these fisheries was not likely to jeopardize the continued existence of any ESA-listed species or destroy or adversely modify designated critical habitats of such species under our jurisdiction.

On September 18, 2017, new information was made available that indicates that the North Atlantic right whale abundance has been in decline since 2010 (Pace III RM, Corkeron PJ, Kraus SD. State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales. *Ecol Evol.* 2017;00:1–12.). The information regarding the decline in abundance is different from the information on the status of right whales that was analyzed in the previous BiOps listed above and may reveal effects from the fisheries analyzed in the BiOps that may not have been previously considered.

We have determined that reinitiation of formal consultation on the fisheries covered by the ISFMP and the Batched Fisheries and Red Crab FMPs is required due to new information regarding the changed status of right whales, and we intend to conduct the analyses for the fisheries concurrently.

We plan to coordinate closely with you regarding potential consequences of the reinitiation process and to ensure you are fully informed of project progress. We look forward to providing additional information as necessary, including briefings if appropriate at the upcoming December Council meetings and the February ASMFC meeting. Should you have any questions about this



correspondence or would like to arrange a briefing, please contact Dan Marrone
(Daniel.Marrone@noaa.gov; (978) 282-8465).

Sincerely,

A handwritten signature in black ink, appearing to read 'Kimberly B. Damon-Randall', with a long horizontal flourish extending to the right.

Kimberly B. Damon-Randall
Assistant Regional Administrator
for Protected Resources

cc: NMFS-SFD – Pentony
NEFMC – Nies
MAFMC – Moore



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
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James J. Gilmore, Jr. (NY), Chair

Patrick C. Keliher (ME), Vice-Chair

Robert E. Beal, Executive Director

Vision: Sustainably Managing Atlantic Coastal Fisheries

January 18, 2018

To: ISFMP Policy Board

From: Shad and River Herring Stock Assessment Subcommittee

RE: Draft Terms of Reference for the 2019 American Shad Benchmark Stock Assessment and Assessment Schedule

The next American shad benchmark stock assessment is scheduled to be completed in the summer of 2019. The Shad and River Herring Stock Assessment Subcommittee has recommended the Board consider the following terms of reference for the assessment and peer-review panel:

Terms of Reference for Stock Assessment Process:

1. Define and justify stock structure.
2. Characterize age and repeat spawner data by stock and identify utility of data source.
 - a. Provide descriptions of methods, any changes to methods, and associated peer-reviewed literature.
 - b. Describe validation experiments, if available, and available samples.
 - c. Where possible, explore reader consistency, potential bias, and agreement statistics.
 - d. Where possible, explore use of correction factors when consistency in method or reader was not maintained.
3. Characterize precision and accuracy of other fishery-dependent and fishery-independent data used in the assessment, including nontraditional data (i.e., entrainment, impingement, passage).
Characterization should include the following but is not limited to:
 - a. Provide descriptions of each data source (e.g., time series, geographic location, sampling methodology and changes, potential explanation for outlying or anomalous data).
 - b. Describe calculation and potential standardization of abundance indices.
 - c. Discuss trends and associated estimates of uncertainty (e.g., standard errors).
 - d. Justify inclusion or elimination of available data sources.
4. Estimate bycatch where and when possible.
5. Summarize data availability and trends by stock.

6. If possible, develop models used to estimate population parameters (e.g., Z , biomass, abundance) and biological reference points, and analyze model performance.
 - a. Briefly describe history of model usage, its theory and framework, and document associated peer-reviewed literature. If using a new model, test using simulated data.
 - b. Clearly and thoroughly explain model strengths and limitations.
 - c. Discuss the effects of data strengths and weaknesses (e.g., temporal and spatial scale, gear selectivity, ageing accuracy, sample size) on model inputs and outputs.
 - d. State assumptions made for all models and explain the likely effects of assumption violations on synthesis of input data and model outputs. Examples of assumptions may include (but are not limited to):
 - Choice of stock-recruitment function.
 - Calculation of M . Choice to use (or estimate) constant or time-varying M and catchability.
 - Choice of equilibrium reference points or proxies for MSY -based reference points.
 - Choice of a plus group for age-structured species.
 - Constant ecosystem (abiotic and trophic) conditions.
 - e. Justify choice of coefficients of variation (CVs), effective sample sizes, or likelihood weighting schemes.
 - f. Describe stability of model (e.g., ability to find a stable solution, invert Hessian).
 - g. Perform sensitivity analyses for starting parameter values, priors, etc. and conduct other model diagnostics as necessary.
 - h. Characterize uncertainty of model estimates and biological or empirical reference points.
 - i. If multiple models were considered, justify the choice of preferred model and the explanation of any differences in results among models.
7. Recommend stock status as related to reference points, if available.
8. Other potential scientific issues:
 - a. Compare trends in population parameters and reference points with current and proposed modeling approaches. If outcomes differ, discuss potential causes of observed discrepancies.
 - b. Compare reference points derived in this assessment with what is known about the general life history of the exploited stock. Explain any inconsistencies.
 - c. Explore climate change impacts on the species.
 - d. Explore predation impacts on the species.
 - e. Discuss all known anthropogenic sources of mortality and productivity (i.e., stocking, passage mortality) by stock.
9. If a minority report has been filed, explain majority reasoning against adopting approach suggested in that report. The minority report should explain reasoning against adopting approach suggested by the majority.
10. Develop detailed short and long-term prioritized lists of recommendations for future research, data collection, and assessment methodology. Highlight improvements to be made by initiation of next

benchmark stock assessment. Note research recommendations from the previous assessment that have not been addressed and those that have been partially or fully addressed.

11. Recommend timing of next benchmark assessment and intermediate updates, if necessary relative to biology and current management of the species.

Terms of Reference for External Peer Review:

1. Evaluate choice of stock structure.
2. Evaluate the thoroughness of data collection and the presentation and treatment of fishery-dependent and fishery-independent data in the assessment, including the following but not limited to:
 - a. Presentation of data source variance (e.g., standard errors).
 - b. Justification for inclusion or elimination of available data sources.
 - c. Consideration of data strengths and weaknesses (e.g., temporal and spatial scale, gear selectivities, ageing accuracy, sample size).
 - d. Calculation and/or standardization of abundance indices.
 - e. Estimation of bycatch.
3. Evaluate the methods and models used to estimate population parameters (e.g., Z , biomass, abundance) and biological reference points, including but not limited to:
 - a. Evaluate the choice and justification of the preferred model(s). Was the most appropriate model (or model averaging approach) chosen given available data and life history of the species?
 - b. If multiple models were considered, evaluate the analysts' explanation of any differences in results.
 - c. Evaluate model parameterization and specification (e.g., choice of CVs, effective sample sizes, likelihood weighting schemes, calculation/specification of M , stock-recruitment relationship, choice of time-varying parameters, plus group treatment).
 - d. Evaluate the diagnostic analyses performed, including but not limited to:
 - Sensitivity analyses to determine model stability and potential consequences of major model assumptions.
 - e. Evaluate the methods used to characterize uncertainty in estimated parameters. Ensure that the implications of uncertainty in technical conclusions are clearly stated.
4. If a minority report has been filed, review minority opinion and any associated analyses. If possible, make recommendation on current or future use of alternative assessment approach presented in minority report.
5. Recommend best estimates of stock biomass, abundance, and exploitation from the assessment by stock for use in management, if possible, or specify alternative estimation methods.

6. Evaluate the choice of reference points and the methods used to determine or estimate them. Recommend stock status determination from the assessment, or, if appropriate, specify alternative methods/measures for management advice.
7. Review the research, data collection, and assessment methodology recommendations provided by the TC and make any additional recommendations warranted. Clearly prioritize the activities needed to inform and maintain the current assessment, and provide recommendations to improve the reliability of future assessments.
8. Recommend timing of the next benchmark assessment and updates, if necessary, relative to the life history and current management of the species.
9. Prepare a peer review panel terms of reference and advisory report summarizing the panel's evaluation of the stock assessment and addressing each peer review term of reference. Develop a list of tasks to be completed following the workshop. Complete and submit the report within 4 weeks of workshop conclusion.

2019 American Shad Benchmark Stock Assessment Draft Schedule

<u>Event</u>	<u>Required Participants</u> **	<u>Date/Deadline</u> †
Pre-Assessment Webinar	TC Chair and SAS Chair	October 2017
Webinar for assessment planning	TC and SAS	November 2017
Timeline and Terms of Reference presented to ISFMP Policy Board for approval	ASMFC Science Staff and ISFMP Policy Board	February 2018
Pre-Data Workshop Webinar***	TC and SAS	February 2018
Data Workshop	TC and SAS	March 5-8, 2018
All data uploaded to ASMFC file sharing sites	TC	June 1, 2018*
Post-Data Workshop Webinar***	TC and SAS	August 2018
Pre-Methods Workshop Webinar***	SAS	September 2018
Methods Workshop	SAS	October 2018
Post-Methods Workshop Webinar***	SAS	December 2018
Pre-Assessment Workshop Webinar***	SAS	January 2019
Assessment Workshop	SAS	February 2019
Post-Assessment Workshop Webinar ***	SAS	March 2019
Webinar for TC review of draft assessment report	TC and SAS	June 2019
Peer Review Planning Webinar	SAS and Peer Review Panel	August 2019
Peer Review Workshop	Lead analysts, SAS Chair, TC Chair, Peer Review Panel	August 2019
Shad and River Herring Management Board Meeting to Review Assessment	SAS Chair, Peer Review Panel Chair, and Shad and River Herring Management Board	October 2019

**Data through 2017*

***ASMFC Science and ISFMP Staff participants during all*

****Webinars may be added or cancelled depending on needs*

† Dates are tentative and subject to change without public notice