



## Atlantic States Marine Fisheries Commission

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*Douglas E. Grout (NH), Chair*

*James J. Gilmore, Jr., (NY), Vice-Chair*

*Robert E. Beal, Executive Director*

*Vision: Sustainably Managing Atlantic Coastal Fisheries*

### MEMORANDUM

January 18, 2017

**TO:** Commissioners; Proxies; American Eel Management Board; American Lobster Management Board; Atlantic Coastal Cooperative Statistics Program (ACCSP) Coordinating Council; Atlantic Herring Section; Atlantic Menhaden Management Board; Atlantic Striped Bass Management Board: Executive Committee; ISFMP Policy Board; Shad and River Herring Management Board; South Atlantic State/Federal Fisheries Management Board; Summer Flounder, Scup, and Black Sea Bass Management Board; Tautog Management Board; Winter Flounder Management Board

**FROM:** Robert E. Beal *REB*  
Executive Director

**RE:** ASMFC Winter Meeting: January 30 – February 2, 2017

The Atlantic States Marine Fisheries Commission's Winter Meeting will be January 30 – February 2, 2017 at **The Westin Alexandria** (Telephone: 703.253.8600) located at 400 Courthouse Square, Alexandria, Virginia. Meeting materials are available on the Commission website at <http://www.asmfc.org/home/2017-winter-meeting>. Supplemental materials will be posted to the website on Wednesday, January 25, 2017.

Board/Section meeting proceedings will be broadcast daily via webinar beginning at 8:00 a.m. on January 31st and continuing daily until the conclusion of the meeting (expected to be 3:00 p.m.) on Thursday February 2<sup>nd</sup>. The webinar will allow registrants to listen to board/section deliberations and view presentations and motions as they occur. No comments or questions will be accepted via the webinar. Should technical difficulties arise while streaming the broadcast, the boards/sections will continue their deliberations without interruption. We will attempt to resume the broadcast as soon as possible. Please go to <https://attendee.gotowebinar.com/register/2958062690378327044> to register.

I look forward to seeing you at the Winter Meeting. If the staff or I can provide any further assistance to you, please call us at 703.842.0740.

Enclosures: Final Agenda, Hotel Directions, TA#17-038, and Travel Reimbursement Guidelines

*Vision: Sustainably Managing Atlantic Coastal Fisheries*



## Atlantic States Marine Fisheries Commission

### Winter Meeting

January 30 – February 2, 2017

The Westin Alexandria

Alexandria, Virginia

### Public Comment Guidelines

With the intent of developing policies in the Commission's procedures for public participation that result in a fair opportunity for public input, the ISFMP Policy Board has approved the following guidelines for use at management board meetings:

**For issues that are not on the agenda**, management boards will continue to provide opportunity to the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will use a speaker sign-up list in deciding how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

**For topics that are on the agenda**, but have not gone out for public comment, board chairs will provide limited opportunity for comment, taking into account the time allotted on the agenda for the topic. Chairs will have flexibility in deciding how to allocate comment opportunities; this could include hearing one comment in favor and one in opposition until the chair is satisfied further comment will not provide additional insight to the board.

**For agenda action items that have already gone out for public comment**, it is the Policy Board's intent to end the occasional practice of allowing extensive and lengthy public comments. Currently, board chairs have the discretion to decide what public comment to allow in these circumstances.

In addition, the following timeline has been established for the **submission of written comment for issues for which the Commission has NOT established a specific public comment period** (i.e., in response to proposed management action).

1. Comments received 3 weeks prior to the start of a meeting week will be included in the briefing materials.
2. Comments received by 5:00 PM on the Tuesday immediately preceding the scheduled ASMFC Meeting (in this case, the Tuesday deadline will be **January 24, 2017**) will be distributed electronically to Commissioners/Board members prior to the meeting and a limited number of copies will be provided at the meeting.
3. Following the Tuesday, **January 24, 2017 5:00 PM deadline**, the commenter will be responsible for distributing the information to the management board prior to the board meeting or providing enough copies for the management board consideration at the meeting (a minimum of 50 copies).

The submitted comments must clearly indicate the commenter's expectation from the ASMFC staff regarding distribution. As with other public comment, it will be accepted via mail, fax, and email.

# Final Agenda

The agenda is subject to change. The agenda reflects the current estimate of time required for scheduled Board meetings. The Commission may adjust this agenda in accordance with the actual duration of Board meetings. Interested parties should anticipate Boards starting earlier or later than indicated herein.

## Monday January 30, 2017

1:00 – 5:00 p.m.

### **Climate Change Working Group**

*Members:* Abrams, Armstrong, Arnott, Brady, Clark, Gartland, Gibson, Grout, McKown, Morrison, Muffley, Nowalsky, Train, White, Woodward

*Chair:* Grout

*Staff:* Kerns, Campfield

## Tuesday, January 31, 2017

8:00 – 9:30 a.m.

### **Atlantic Herring Section**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey

*Chair:* White

*Other Participants:* Eastman, Zobel

*Staff:* Harp

1. Welcome/Call to Order (*R. White*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Consider Approval of Draft Addendum I for Public Comment **Action**
  - Plan Development Team Report (*A. Harp*)
5. Other Business/Adjourn

9:45 – 11:45 a.m.

### **Tautog Management Board**

*Member States:* Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia

*Other Members:* NMFS, USFWS

*Other Participants:* McNamee, Snellbaker

*Chair:* Nowalsky

*Staff:* Harp

1. Welcome/Call to Order (*A. Nowalsky*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Tagging Trial Report (*A. Harp*)
5. Technical Committee Harvest Reduction and Projection Analysis (*J. McNamee*)
  - Methodology

- Harvest Reduction Analysis for Massachusetts-Rhode Island, Long Island Sound and New Jersey-New York Bight
  - Projection Analysis to Achieve spawning Stock Biomass Threshold for All Regions
6. Plan Development Team (PDT) Report on Regional Working Groups (*A. Harp, A. Nowalsky*)
    - Overview of Topics and Working Group Input by Region
    - PDT/Working Group Recommendations on Harvest Reduction Options for Draft Amendment 1
    - Board Guidance to the PDT on Draft Amendment 1
  7. Other Business/Adjourn

12:45 – 1:15 p.m.

**Winter Flounder Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware

*Other Members:* NMFS, USFWS

*Chair:* Gibson

*Other Participants:* Blanchard, Nitschke

*Staff:* Harp

1. Welcome/Call to Order (*M. Gibson*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. Consider Specifications for the 2017 Fishing Year (*A. Harp*) **Final Action**
5. Other Business/Adjourn

1:30 – 4:30 p.m.

**American Lobster Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia

*Other Members:* NEFMC, NMFS

*Chair:* Borden

*Other Participants:* Moore, Gwin, Cloutier, Reardon

*Staff:* Ware

1. Welcome/Call to Order (*D. Borden*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Consider American Lobster Draft Addendum XXV for Public Comment (*M. Ware*) **Action**
  - Addendum XXV Subcommittee Report
  - Plan Development Team Report
5. Technical Committee Report **Possible Action**
  - Report on the Gulf of Maine/Georges Bank (GOM/GBK) Stock (*K. Reardon*)
  - Discuss Next Steps in Management of GOM/GBK Stock (*D. Borden*)
6. Consider Action to Address Data Deficiencies in the Lobster Fishery (*M. Ware*) **Possible Action**

7. Jonah Crab Draft Addendum II for Final Approval **Final Action**
  - Review Issues and Management Options (*M. Ware*)
  - Review Public Comment (*M. Ware*)
  - Law Enforcement Committee Report (*M. Robson*)
  - Consider Final Approval of Addendum II
8. Technical Committee Report
  - Potential Impacts to Lobster Fishery from the New England Fishery Management Council's Deep-Sea Coral Amendment (*K. Reardon*)
9. Other Business/Adjourn

4:45 – 5:30 p.m.

**American Eel Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

*Other Members:* DC, NMFS, PRFC, USFWS

*Chair:* Clark

*Other Participants:* Cloutier, Wildman

*Staff:* Rootes-Murdy

1. Welcome/Call to Order (*J. Clark*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from August 2016
3. Public Comment
4. Review 2017 Stock Assessment Update Schedule (*K. Anstead*)
5. Review Technical Committee Report (*K. Rootes-Murdy*)
  - Review Young-of-the-Year Surveys and Maine Life Cycle Survey
6. Other Business/Adjourn

**Wednesday, February 1, 2017**

8:00 – 9:30 a.m.

**Executive Committee**

*Breakfast to be served*

***(A portion of this meeting may be a closed session for Committee members and Commissioners only)***

*Members:* Abbott, Alexander, Blazer, Boyles, Jr., Bull, Chanda, Clark, Davis, Estes, Gilmore, Grout, Keliher, McNamee, Miller, Pierce, Shiels, Woodward

*Chair:* Grout

*Staff:* Leach

1. Welcome/Call to Order (*D. Grout*)
2. Committee Consent
  - Approval of Agenda
  - Approval of Meeting Summary from October 2016
3. Public Comment
4. Review and Consider Approval of FY16 Audit (*L. Leach*) **Action**

5. Finalize ASMFC Standard Meeting Practices Document (*R. Beal*) **Action**
6. Atlantic Coastal Cooperative Statistics Program Update
7. Other Business/Adjourn

9:30 – 10:30 a.m.

**Shad and River Herring Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

*Other Members:* DC, PRFC, USFWS, NMFS

*Other Participants:* Chase, Furlong

*Chair:* Clark

*Staff:* Harp

1. Welcome/Call to Order (*J. Clark*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Consider Approval of Shad and River Herring Sustainability Fishery Management Plans (SFMPs) **Final Action**
  - Review SFMPs and Technical Committee Memo (*B. Chase*)
    - New York - Updated River Herring SFMP
    - Delaware River Basin Cooperative – Updated Shad SFMP
    - Maine - Updated River Herring SFMP
5. Consider Approval of Florida’s American Shad Habitat Plan **Final Action**
  - Review Habitat Plan and Technical Committee Memo (*B. Chase*)
6. Elect Vice-Chair **Action**
7. Other Business/Adjourn

10:45 a.m. – 12:15 p.m. **Joint ASMFC Business Session and Atlantic Coastal Cooperative Statistics Program Coordinating Council**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

*Chair:* Grout

*Staff:* Beal

*Coordinating Council Members:* Alexander, Baum, Beal, Blazer, Boyles, Jr., Carmichael, Cimino, Clifford, Coit, Cyr, Detlor, Fegley, Gary, Geer, Gilmore, Grout, Keliher, King, McCawley, Michels, Moore, Nies, Perkins, Pierce, Ponwith, Risenhoover, Shiels, Stephen, White

*Chair:* Boyles, Jr.

*Staff:* Cahall

1. Welcome/Introductions (*D. Grout*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016

3. Public Comment
4. Review and Discuss the National Academies of Sciences Report *Review of the Marine Recreational Information Program*
5. Other Business/Adjourn

12:15 – 2:00 p.m.

*(Lunch to be served)*

**Interstate Fisheries Management Program (ISFMP) Policy Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

*Other Members:* DC, NMFS, PRFC, USFWS

*Chair:* Grout

*Staff:* Kerns

1. Welcome/Call to Order *(D. Grout)*
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Executive Committee Update *(D. Grout)*
5. Discuss Illegal Fishing Activities and Policies and Associated Impacts on Quotas *(J. McNamee)*
6. Discuss Possible Policy Implications of Safe Harbor Landings Guidance Document *(J. Gilmore)*
7. Climate Change Working Group Update *(D. Grout)*
8. Coastal Sharks Update *(A. Harp)*
  - Set Commercial Possession Limit for Blacknose Sharks South of 34°00' **Final Action**
  - Discuss NOAA Fisheries Proposal to List the Oceanic Whitetip Shark as Threatened
9. Review Non-Compliance Findings, If Necessary **Action**
10. Other Business/Adjourn

2:15 – 5:45 p.m.

**Atlantic Menhaden Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

*Other Members:* NMFS, PRFC, USFWS

*Other Participants:* Kaelin, McNamee, Kersey, Harrison, Whitehead

*Chair:* Ballou

*Staff:* Ware

1. Welcome/Call to Order *(R. Ballou)*
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Review Socioeconomic Study of the Atlantic Menhaden Commercial Fishery *(J. Harrison, J. Whitehead)*

5. Public Comment Summary of Draft Amendment 3 Public Information Document
  - Review Public Comment (*M. Ware*)
  - Review Advisory Panel Report (*J. Kaelin*)
6. Provide Guidance to the Plan Development Team on Draft Amendment 3 (*R. Ballou*) **Possible Action**
7. Discuss Allowance of Cast Nets under the Bycatch Provision of Amendment 2 (*M. Ware*) **Possible Action**
8. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
9. Other Business/Adjourn

**Thursday, February 2, 2017**

8:00 – 9:45 a.m.

**Summer Flounder, Scup, and Black Sea Bass Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina

*Other Members:* NMFS, PRFC, USFWS

*Other Participants:* Wojcik, Snellbaker

*Chair:* Luisi

*Staff:* Rootes-Murdy

1. Welcome/Call to Order (*M. Luisi*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Summer Flounder Draft Addendum XXVIII for Final Approval (*K. Rootes-Murdy*) **Final Action**
  - Review Options
  - Public Comment Summary
  - Technical Committee Report
  - Advisory Panel Report
  - Consider Final Approval of Addendum XXVIII
5. Update on 2015 Black Sea Bass Commercial Landings and 2017 Harvest Specifications (*K. Rootes-Murdy*)
6. Consider Scup Draft Addendum XXIX for Public Comment **Action**
7. Set 2017 Scup Recreational Fishery Specifications (*K. Rootes-Murdy*) **Final Action**
8. Other Business/Adjourn



10:00 – 11:45 a.m.

**Atlantic Striped Bass Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina

*Other Members:* DC, NMFS, PRFC, USFWS

*Chair:* Gilmore

*Other Participants:* Blanchard, Lengyel

*Staff:* Appelman

1. Welcome/Call to Order (*J. Gilmore*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Technical Committee Report (*N. Lengyel*)
  - Review Projected Fishing Mortality and Recommended Data Sets for Conservation Equivalency Proposals
5. Review and Consider Approval of 2018 Atlantic Striped Bass Benchmark Stock Assessment Terms of Reference (*K. Drew*) **Action**
6. Review and Populate the Atlantic Striped Bass Stock Assessment Subcommittee Membership (*M. Appelman*) **Action**
7. Other Business/Adjourn

12:15 – 2:45 p.m.

**South Atlantic State/Federal Fisheries Management Board**

*Member States:* New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

*Other Members:* DC, PRFC, NMFS, SAFMC, USFWS

*Other Participants:* Lynn, McDonough, Rickabaugh, Powers, Guiliano

*Chair:* Estes

*Staff:* Schmidtke, Daniel

1. Welcome/Call to Order (*J. Estes*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment
4. Public Comment Summary of the Draft Cobia Public Information Document (*L. Daniel*)
  - Review Public Comment
  - Advisory Panel Report
5. Provide Guidance to the Plan Development Team for the Draft Cobia Fishery Management Plan (*J. Estes*)
6. 2016 Red Drum Stock Assessment Reports **Final Action**
  - Stock Assessment Report (*A. Giuliano*)
  - Peer Review Panel Report (*P. Campfield*)

- Consider Approval of Benchmark Stock Assessment and Peer Review Report for Management Use
  - Consider Management Response to 2016 Red Drum Stock Assessment (*J. Estes*)
7. Progress Report on Spot and Atlantic Croaker Stock Benchmark Stock Assessments (*J. Kipp*)
  8. Consider 2016 Fishery Management Plan Review and State Compliance for Spot (*M. Schmidtke*)
- Action**
9. Other Business/Adjourn

# Atlantic States Marine Fisheries Commission

## Atlantic Herring Section

*January 31, 2017  
8:00 – 9:30 a.m.  
Alexandria, 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 ( <i>R. White</i> )                              | 8:00 a.m. |
| 2. Board Consent  | 8:00 a.m. |
| • Approval of Agenda  |           |
| • Approval of Proceedings from October 2016                               |           |
| 3. Public Comment   | 8:05 a.m. |
| 4. Consider Approval of Draft Addendum I for Public Comment <b>Action</b> | 8:15 a.m. |
| • Atlantic Herring Plan Development Team Report ( <i>A. Harp</i> )        |           |
| 5. Other Business/Adjourn   | 9:30 a.m. |

The meeting will be held at the Westin Alexandria; 400 Courthouse Square; Alexandria, VA; 703.253.8600

*Vision: Sustainably Managing Atlantic Coastal Fisheries*

# MEETING OVERVIEW

**Atlantic Herring Section Meeting**  
**January 31, 2017**  
**8:00 - 9:30 a.m.**  
**Alexandria, Virginia**

Chair: Ritchie White (NH) <i>Assumed Chairmanship 2/16</i>	Technical Committee Chair: Renee Zobel (NH)	Law Enforcement Committee Michael Eastman
Vice Chair: Mark Gibson	Advisory Panel Chair: Jeff Kaelin	Previous Section Meeting: October 27, 2016
Voting Members: ME, NH, MA, RI, CT, NY, NJ (7 votes)		

## 2. Section Consent

- Approval of Agenda
- Approval of Proceedings from October 2016

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

## 4. Consider Approval of Draft Addendum I for Public Comment (Action)

### Background

- The intent of the addendum is to better design effort controls that can slow the rate of Area 1A catch so the seasonal quota can be spread throughout the entirety of each trimester, specifically Trimester 2.
- The addendum includes 6 alternatives to modify the Days Out program.
- A regional working group met on January 5<sup>th</sup> to further discuss 3 alternatives that were reviewed by the Plan Development Team but options were not developed.
- Draft Addendum I is in **Supplemental Materials**

### Presentation

- Overview of Draft Addendum I by A. Harp

## 5. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
ATLANTIC HERRING SECTION**

**The Harborside Hotel  
Bar Harbor, Maine  
October 27, 2016**

**These minutes are draft and subject to approval by the Atlantic Herring Section  
The Section will review the minutes during its next meeting**

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**Set the 2017 Atlantic Herring Specifications For Area 1A..... 12**

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**INDEX OF MOTIONS**

1. **Motion to approve agenda** by Consent (Page 1).
2. **Motion to approve proceedings of February, 2016** by Consent (Page 1).
3. **Move to elect Mark Gibson as vice-chair of the Atlantic Herring Section.** (Page 2). Motion by Dennis Abbott; second by David Simpson. Motion carried (Page 2).
4. **Move to initiate an Addendum to improve the performance of the Area 1A Atlantic herring fishery** (Page 5). **The purpose of this addendum is to develop additional management alternatives for the landings day program. These measures will include:**
  1. **Mandatory daily reporting. Two options: Category A, B and C permits and Category A and B permits.**
  2. **Modify the day out program such that the small-mesh bottom trawl fleet (SMBT) with C or D herring permits could have a different allocation of landings days and times that are separate from the purse seine and mid-water trawl fleet landing days.**
  3. **Modify the program to restrict fishing days for purse seiners and midwater trawlers, in addition to landing days. Two options: Category A, B and C permits and Category A and B permits.**
  4. **Modify the program to create a weekly landing limit (pounds or trucks) for purse seines and midwater trawls. Two options: Category A, B and C permits and Category A and B permits.**
  5. **Modify the program to restrict harvester vessels making at-sea transfer for purse seine and midwater trawls. Two options: All carrier vessels landing herring are limited to receiving at-sea transfers from one vessel per week and no transfer at sea.**
  6. **Modify the program to implement a tiered weekly landing limit for Category A and B permits.**
  7. **Modify the program to allow for a set-aside a percentage or value of the Area 1A sub-ACL for the SMBT.**
  8. **Modify the program to restrict a vessel from using a different gear type mid-season within Area 1A.**
  9. **Clarify what it means for states to “agree” on the numbers of days out in the fishery, does this mean consensus or vote? If states, cannot agree then what is the default landing day scenario, 7 landing days?**

Motion by Terry Stockwell; second by Doug Grout. Motion carried (Page 11).

5. **Move to allocate the 2017 Area 1A sub-ACL seasonally with 72.8 percent available from June through September and 27.2 percent allocated from October through December. The fishery will close when 92 percent of the seasonal period quota has been harvested; and underages from June through September may be rolled into the October through December period (Page 12). Motion by Doug Grout; second by Terry Stockwell. Motion passes unanimously (Page 12).**
6. **Motion to adjourn by Consent (Page 13).**



**ATTENDANCE**

**Section Members**

Terry Stockwell, ME, proxy for P. Keliher (AA)	David Borden, RI (GA)
Steve Train, ME (GA)	Mark Gibson, RI, proxy for J. Coit (AA)
Doug Grout, NH (AA)	Dave Simpson, CT (AA)
G. Ritchie White, NH (GA)	Dr. Lance Stewart, CT (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Melissa Ziobron, CT, proxy for Rep. Miner (LA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Emerson Hasbrouck, NY (GA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Jim Gilmore, NY (AA)
Bill Adler, MA (GA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Tom Baum, NJ, proxy for D. Chanda (AA)

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

**Ex-Officio Members**

Renee Zobel, Technical Committee Chair

Rene Cloutier, Law Enforcement Representative

**Staff**

Robert Beal  
Toni Kerns

Ashton Harp  
Amy Hirrlinger

**Guests**

The Atlantic Herring Section of the Atlantic States Marine Fisheries Commission convened in the Statesbury Grand Ballroom of the Bar Harbor Club, Harborside Hotel, Bar Harbor, Maine, October 27, 2016, and was called to order at 11:12 o'clock a.m. by Chairman G. Ritchie White.

#### **CALL TO ORDER**

CHAIRMAN G. RITCHIE WHITE: Okay we're going to get started with the Atlantic Herring Section. We still have a presentation being downloaded, but I think we can start and hopefully that will be downloaded by the time we get to it.

#### **APPROVAL OF AGENDA**

CHAIRMAN WHITE: We'll start with the agenda, approval of the agenda. Are there any additions or changes to the agenda? Seeing none; the agenda is adopted by consent.

#### **APPROVAL OF PROCEEDINGS**

CHAIRMAN WHITE: Next approval of proceedings from February, 2016, is there any changes or additions to the February, 2016 proceedings? Seeing none; those are adopted by consent.

#### **PUBLIC COMMENT**

CHAIRMAN WHITE: Next public comment and this would be comment on issues not on the agenda. That is important. We have a full agenda.

We don't have much time, and we don't make good decisions when we're hungry; so I want to try to get through this. Is there anybody? Oh, I'm sorry, we have a list. Okay Shawn, you're first, and again something that is not on the agenda. If you could identify yourself and what vessel or industry you represent.

MR. SHAWN ROCKET: Shawn Rocket for the Western Sea. Glenn Robbins wasn't able to make it. There were six boats in the fishery this year, and for herring for next year there are more boats that are saying they're going to

come. We were trying to look at possibly doing historical participation or doing ITQs in the future for quota, and trying to slow this down with the boats that have been participating for the last eight years, and saying only for 1A.

CHAIRMAN WHITE: Thank you, Shawn and that opportunity to speak on that later in the meeting you will have that opportunity. Next is Jennie. You want to pass at this time, Jennie? Okay John Connelly. You're going to pass; thank you. Boy, I can't read the next one, Coffin, pass; thank you. Daniel Phil.

MR. DANIEL FILL: I'm Daniel Fill; I'm a Maine native. I've been in herring fisheries since 1982, 34 or 35 years. We need to address drastically the 1A area anyway, and a control date. If we add more boats to the mix things could get worse, as far as the assessments. There should be a limit on new entrants into it. If the boats haven't had to utilize this fishery they shouldn't be able to just jump into it, because it would hurt people like me and the other boats that have weathered out a low quota every year for all these years. We need to address when we can do stock assessments; that is quite vital. This year there – I've been doing this since '82, and I've never seen so many fish.

It has gotten more and more every year in the last eight years, but this is a very important issue. We ended up low quota and more boats got into it, and we self-regulated at a Maine state level with a certain amount of poundage per week landed. We needed to do that because normally there are four boats that fish that area during June 1st to October 1st, the same fish seine only zone.

But two more boats got into the fishery, and that cut what I make back by 30 percent and my crew; and my crew are all state of Maine natives as well as the other seiners. But we need to address, and probably in all areas; 1B, 2, 3, 4, 5, 6 whatever, of all these latent permits that are not being used.

Because they can theoretically just throw a net on and jump into any zone and go. I just feel bad about historical participants that will be hurt, and have weathered out the low quotas. Once and if the assessments ever get done, analyzed, and we do go up on the quota, this is going to make a lot of other boats just jump right into it.

There are 38 category A, all access permits federal out there; and God knows how many B permits. This is going to have to be addressed, and it is going to have to be addressed very soon or we're going to have a big mess coming up. I would rather think ahead and get things done, or started, because politics is a slow thing from the way I see it. If we can get this on the agenda, maybe we can save a headache later on in the next year or two. Thanks.

CHAIRMAN WHITE: Thank you, Glenn. Last one, boy I can't read the writing, Biggen, Robbie. Pass; thank you.

#### ELECTION OF VICE CHAIR

CHAIRMAN WHITE: Okay, next on the agenda is election of a Vice Chair. Dennis Abbott.

MR. DENNIS ABBOTT: **I would like to nominate the gentleman from Rhode Island, Mr. Mark Gibson to be the next Vice Chair.**

CHAIRMAN WHITE: Is there a second to the motion? David Simpson. **Any objection to the motion, seeing none; you are onboard.** Next on the agenda is the review and discussion of the white paper on the fishery performance and alternative management tools that are possible going forward.

#### REVIEW AND DISCUSS WHITE PAPER ON FISHERY PERFORMANCE AND ALTERNATIVE MANAGEMENT TOOLS

MS. ASHTON HARP: I am going to walk through the Atlantic Herring Area 1A Fishery Performance and Alternative Management Measures for the Section to consider today. The white paper that was included in briefing

materials and this presentation, focus on effort in the inshore Gulf of Maine; known as Area 1A, from June through September in the 2015 and 2016 fishing season.

For reference the coastwide Atlantic herring annual catch limit is divided amongst four management regions. The quota for each management region is called a sub-ACL. ASMFCs Atlantic Herring Section manages Area 1A; it is the focus of this presentation. However, I will also touch on Area 3 as well. The Section can distribute the Area 1A sub-ACL to best meet the needs of the fishery. The actual splits are set as part of the annual specifications process. Since 2009, the Section has split the Area 1A sub-ACL to trimesters as shown, where zero percent of sub-ACL is allocated to January through May, 72.8 percent is allocated from June through September, and 27.2 percent is allocated from October through December.

The Section also utilizes days out of the fishery to slow the rate of Area 1A harvest so the seasonal quota can be spread throughout the entirety of each trimester. The phrase "day out" originally meant one could not fish or land on that particular day, rendering it a day out of the fishery. At present it refers to a no landing day.

Prior to each trimester, Section members from states that are adjacent to Area 1A, which includes Maine, New Hampshire and Massachusetts, with input from stakeholders, set the number of Area 1A landing days per week via days out meeting. At each day's out meeting the Atlantic Herring Technical Committee provides projective landing day scenarios; based on the catch rate from the previous three years.

The states adjacent to Area 1A agree to the start date, the number of days out of the fishery per week, as well as the consecutive days of the week a vessel can land Atlantic herring. For example, four days out would be interpreted on a weekly basis; meaning four consecutive days out of each week will be no landing days.

If states cannot agree to the specific days then the decision will go before the full section at the next ASMFC meeting, or a special meeting of the Section called by the Chair. Adjustments to the days out can only be made if the state's hold another meeting or a conference call. The majority of the Area 1A sub-ACL has been allocated during the months of June through September, also known as Trimester 2.

This time period largely overlaps with the peak months for lobster landings, as shown in this figure. Herring is the most widely used bait type for lobster traps. This table shows the landing days during Trimester 2 of the Area 1A fishery from 2011 to 2016. At the start of the season managers make planned landing day adjustments based on fishery performance from previous years.

At times managers have to make reactionary changes in season to increase or decrease the landing days based on the amount of seasonal quota that is available. I have noted when reactionary changes were made; in 2011, 2012, and 2014 managers gradually increased the amount of landing days such that the Trimester 2 ended with 7 landing days to ensure the seasonal quota was harvested.

In 2013 the season opened with 7 landing days and was restricted to 0 landing days at the beginning of September. In 2015 managers planned to gradually increase the amount of landing days, but instead the fishery was restricted to 0 landing days at the end of August. In 2016 the Section planned to gradually increase the number of landing days in June and July.

However, higher than expected landings in the latter half of June resulted in landing day restrictions in mid-July and mid-September. In 2015 the rate of landings accelerated in August, such that the seasonal quota was exceeded on August 28, triggering a 0 landing day scenario for all of September; a peak month during the lobster fishing season. This figure illustrates the

2015 monthly Atlantic herring landings by management area. Area 1A is in blue, Area 3 is the purple line, and you can see Area 2 in the earlier part of the year is in orange. The Atlantic herring landings from June through September came from Areas 1A and 3. In 2015 herring landings in Area 1A sharply increased during the month of August.

During the same time period landings in Area 3 dropped to 0. The Area 3 landings likely dropped due to concerns related to the haddock catch cap; 63 percent of the haddock catch cap had been harvested by midwater trawl vessels directing on herring in July. The lack of Area 3 landings in August disrupted the flow of herring to markets, and put more pressure on Area 1A.

On August 26, the Commission scheduled an emergency days out call to discuss the increase in Area 1A landings. Ultimately the sudden increase in effort in August could not be diminished by decreasing the number of landing dates; rather the Area 1A fishery moved to 0 landing days on August 28.

For context I have compared the 2014 and 2015 landings by month and management area. As one can see, the 2014 herring landings in Area 1A and 3 increased simultaneously to meet the needs of the bait market, whereas the 2015 landings in Area 1A and 3 are inverse of each other. If Area 1A is the sole supplier of herring for the bait market at any one given time, as it was in 2015, then there will likely be supply issues. The Area 1A quota alone cannot provide enough supply for the bait market.

The 2016 fishing season started with limited herring in the freezers. The above average landings at the start of 2016 and thereafter, led to emergency restrictions for vessels landing in Maine; on behalf of Maine DMR. These measures were more restrictive than those of the Commission. This figure illustrates the 2016 monthly Atlantic herring landings by management area.

Area 1A is the blue line, and Area 3 is the purple line. The 2016 Area 1A Atlantic herring fishing season opened in June and the landings quickly rose to double the expected value. For example, three weeks into June the fishery was projected to have harvested 1,300 metric tons. However 2,800 metric tons had been harvested.

During June through August, the peak lobster season, the primary source of Atlantic herring landings was from Area 1A. Similar to 2015, but earlier in the season, Area 3 landings became stagnant; which put more pressure on Area 1A, therefore landings in Area 1A increased to address the bait shortage. Area 3 herring fishermen reported finding some Atlantic herring schools, but they were intermixed with haddock schools.

This was likely a deterrent to fishing in the area, because a Georges Bank catch cap was exceeded so early in the 2015 fishing year. The increase in the number of carrier vessels has rendered the days out program less effective in controlling effort, because vessels can transfer a large amount of harvest to carrier vessels at sea; allowing harvesters additional days of fishing beyond the days that are opened to landings.

Acknowledging this practice in an attempt to extend the Trimester 2 quota into September, Maine DMR implemented a series of emergency rules that were more restrictive than those of the ASMFC regulations. They included a weekly landing limit, restricted landing, and fishing days; as well as at-sea transfer restrictions. DMRs measures only apply to vessels landing in Maine. New Hampshire and Massachusetts only implemented one of these management measures, the three consecutive landing days. The Area 1A fishery moved to 0 landing days on September 18th of 2016. The following two slides provide alternative management measures, given the recent concerns during the 2015 and 2016 fishing season that have been reviewed in this presentation.

I'll briefly review each bullet, and we can have more discussion later on. This first slide is alternatives that would apply more to effort controls. The Section can modify the Area 1A in-season allocation, modify the days-out program such that landing days are no longer consecutive, and modify the days-out program to restrict fishing days in addition to landing days, modify the days-out program to create a weekly landing limit.

In addition, harvester vessels are limited to making at-sea transfers to only one carrier per week. All carrier vessels landing herring are limited to receiving at-sea transfers from one vessel per week. These are exactly the same as the Maine DMR regulations from this year. The Section could restrict a vessel from operating the vessel using a different gear mid-season in Area 1A.

The Section could choose to clarify what it means for states to agree on a number of days out in a fishery. Does this mean a consensus or a vote? If states cannot agree, what is a default landing day scenario, seven landing days? I will also say that these are just the suggestions that were brought forth by Commission members to me prior to this meeting; that is where this list originated.

The management measures on here apply specifically to small mesh bottom trawl vessels. The Section could choose to modify the days-out program such that the small mesh bottom trawl fleet could have a different allocation of landing days and times that are separate from the purse seine and midwater trawl fleet landing days. The Section could set aside a percentage or a value of the Area 1A sub-ACL for the small mesh bottom trawl fleet. Those are the alternative measures that were brought forth at this time, and now I will accept questions.

CHAIRMAN WHITE: That was an excellent presentation of a very complicated fishery, for those that have not been involved in it on a regular basis. I would like to start out first with

questions just on the history of the fishery. That part of the presentation before we get into the management options going forward.

Are there any questions on the history of the fishery and what's happened in the last few years? Okay great, going forward, questions on the management options that we could look forward to going forward; prior to commenting on them. Are there any questions of clarification? Okay now I'll take comments or ideas or motions going forward on these management options. Terry.

MR. TERRY STOCKWELL: Thank you Ashton for a bucket load of work, I really appreciate you providing us with that concise and clear report. Certainly there has been a changing trend, and it has provided a lot of challenges for us in the subsection of the Herring Section to balance out our days out.

For whatever reason, the trawl fleet out in Area 3 has not been able to access fish out there. We are at the tipping point of addressing some capacity issues in the inside part of area Area 1A. I have a motion to initiate an addendum, and it is going to be very close to approaching a violation of the David Pierce Rule; if you can get it up on the board.

MR. PATRICK KELIHER: I don't think it is approaching a violation, I think you exceeded it.

MR. STOCKWELL: Pat informed me I exceeded it. **But what I'm going to move is I am going to move to initiate an addendum to improve the performance of the Area 1A Atlantic herring fishery. The purpose of this addendum is to develop additional management alternatives for the landings day program. Number 1 and much of the proposed measures here are built off of Maine's emergency rules in the attempt to work with our goal to spread the landings out throughout the season and to provide an equal playing field.**

**First alternative is mandatory daily reporting with two options: Category A, B and C permits and Category A and B permits. Number 2, modify the days-out program such that the small-mesh bottom trawl fleet with C and D permits could have a different allocation landing days and times that are separate from the purse seine and midwater trawl fleet landing days.**

**Number 3, modify the program to restrict fishing days in addition to landings days for purse seine and midwater trawlers. Two options: Category A, B, and C permits and Category A and B permits. Number 4; modify the program to create a weekly landing limit (pounds or trucks) for purse seine and midwater trawlers. Two options: Category A, B and C permits and Category A and B permits.**

**Number 5; modify the program to restrict harvester vessels making at-sea transfer for purse seine and midwater trawlers. Two options: All carrier vessels landing herring are limited to receiving at-sea transfers from one vessel per week and the second is no transfers at sea. Number 6; modify the program to implement a tiered weekly landing limit for Category A and B permits.**

**Number 7; modify the program to allow for a set-aside a percentage or value of the Area 1A sub-ACL for the small mesh bottom trawlers. Number 8 is to modify the program to restrict a vessel from using different gear types during midseason within Area 1A; and Number 9 is to clarify what it means for states to "agree" on the number of days out in the fishery. Does this mean a consensus or vote? If states cannot agree, what is the default day landing scenario?**

CHAIRMAN WHITE: I think David would have been proud at that motion. Is there a second to the motion; Doug Grout. Discussion on the motion, Terry do you want to start out?

MR. STOCKWELL: This is a suite of alternatives that have been discussed by industry. I

understand very clearly that some may or may not be able to be done within an addendum. But the absolute intent is to have something definitive in place for the 2017 fishing year. As our collective staffs work together to put the meat on the bones of these measures, some will fall out, some will be perfected, and some will be amended. But we need something in place, different; we need additional tools in the toolbox than we have right now for this coming year.

CHAIRMAN WHITE: Anybody else, Doug.

MR. DOUGLAS E. GROUT: Clearly this particular year we've just been through has been a great challenge. We should definitely give the state of Maine great credit for the rapid and quick responses they made to be more conservative than what was provided for in the plan. I think it is important that we start at least considering trying to codify some of these in our ASMFC process, so that we can try and make sure that there is a supply of bait coming out of 1A, the supply of herring coming out of 1A is spread out over the major lobster fishing season.

Another issue that's been near and dear to the state of New Hampshire, but also applies to some vessels in the states of Maine and Massachusetts, is the small-mesh-bottom trawls; which account for roughly about 1 percent of the total harvest out of 1A. They've had to abide by these days-out rules, which were really designed to try and constrain the directed fishery; which is responsible for 99 percent.

It has been to the detriment of the small-mesh-bottom trawls, which are essentially day-boat fishermen that go out and catch a small amount of herring every day. Having the ability to only go out a couple days a week is just not making them viable. When most of them are already constrained by small-mesh-bottom trawl restrictions in the ground fish fishery, which means they can't even start fishing until July 15th of the year, and they are restricted to the very specific areas where they can fish where they have low bycatch of groundfish species.

They are already constrained much more than the directed fishery. I am hoping that as part of this that we can kind of move them off to the side, and let them fish and catch their 1 percent while we try and direct our efforts at constraining the major source of herring coming out of 1A, so that we will have a consistent supply coming throughout the entire Period 2 quota.

MR. WILLIAM A. ADLER: Terry, Number 8, could you go back to that Number 8 and explain what that means?

CHAIRMAN WHITE: Go ahead, Terry.

MR. STOCKWELL: Thank you for the question, Bill. This Number 8 is resultant of some conversations I've had with industry that are concerned about a vessel changing their gear type in the middle of a season and moving into Area 1A. You know as we work within the Section we make our projections at the beginning of the year.

We try to determine the number of landings days and if any of these other alternatives are available for use. It might be the number of pounds landed. It would allow the Section to be able to better plan how to be able to parse out the available quota, if we have some information in hand at the beginning of the season.

MR. ADLER: If I may.

CHAIRMAN WHITE: Go ahead, Bill, follow up.

MR. ADLER: Yes in other words, they basically if they're midwater trawlers, they can't half way through the year change to a purse seine to come in? Is that where you're getting? You want them to sort of declare, you are going to go in here as a purse seiner or not.

MR. STOCKWELL: Well, I'm not going to express my opinion upon whether or not about the trawlers or not, but this would be an alternative for the Section to decide if they wanted to know

what the population of vessels was going to be that were going to fish within a year. They would know that there would be X number of purse seiners. Should the trawlers declare that they want to fish in there, as they are more than legally allowed to do with purse seine fishing gear, it would be nice to know, from my perspective, how many we're counting on at the beginning of the season.

MR. ADLER: Actually I agree with that.

MR. DANIEL McKIERNAN: As you know, I'm sitting here on behalf of David Pierce, so I have a lot to say on this. I support this motion.

CHAIRMAN WHITE: David would have been disappointed at that response; any other questions? Before I go to the public, I just want Aston to quickly go over the timing of this process to make sure the public understands their opportunity to give input to this going forward, as well as today.

MS. HARP: I did want to hear back. I am going to present a proposed timeline, and I did want to hear back from the Section on the feasibility of it. If the Section does move to approve Addendum I to Amendment 3 today, then the PDT could develop this addendum and then present it to the Section at the February meeting.

I would then solicit public comment during the spring, so from like February, March and April I would come out to the states and solicit public comments on these management options. Then in May the addendum would be presented back to the Section again, as well as the public comments.

Then comes in the time period where I need the Section to provide input, because then the season starts June 1. That is a little less than a month after the Section might possibly approve this addendum, and is it possible for these management measures to be implemented that quickly, and should we rush it or should we give

a little bit more time and bring the addendum before the Section in May, instead of February.

CHAIRMAN WHITE: Now, open up for public comment. Mary Beth, did you have your hand up?

MS. MARY BETH TOOLEY: I did sort of have a question relative to the wording of the motion, and the gear type declaration sort of raised it to me; in that I think there needs to be clarity about what time period we're talking about. If you make a gear declaration for the year, are you doing it for a specific trimester, for the entire year? What is meant by that particular measure?

Perhaps some of the other measures as well. Is it for if we have differential landings days for small mesh bottom trawl, would that be for the year versus for the trimester; perhaps on the gear type. The motion is unclear on that particular point. I think that would be all I had at the moment.

CHAIRMAN WHITE: Terry, do you want to respond?

MR. STOCKWELL: I'm sorry Mr. Chairman, I was having a sidebar. Could you rephrase the question?

CHAIRMAN WHITE: Go ahead Mary Beth, if you want to.

MS. TOOLEY: Sure. Terry, I was just commenting that this issue of declaring a gear type for the year, with the trimesters that creates some specific issues. Was it really the intent of the motion for a gear type, which I'm not sure I support, but I'm not going to comment on that at the moment, for just the second trimester versus small fish bottom trawl? Differential days out could perhaps be an annual consideration. I think on those particular points the motion is unclear.



MR. STOCKWELL: Good question, Mary Beth, thank you for that. My intent, at least for a trawl vessel coming in would be for a declaration for the Trimester 2 period only. I certainly understand Trimester 3 and 1 there is going to be fishing effort elsewhere. You're going to go where you need to go.

CHAIRMAN WHITE: Anybody else from the public? Go ahead, sir. Okay, Jeff.

MR. JEFF KAELIN: Good morning, or good afternoon members of the Section. I'm Jeff Kaelin with Lund's Fisheries. We have two midwater trawlers that we carry fish with in the second trimester, and try to harvest fish in the third trimester in the Gulf of Maine, and try to get to Georges when we can.

As everybody knows, we're trying to get some flexibility around the haddock catch cap at the council so that we can avoid the seven month shut down that we had last year, and the kind of timid activity this fall; where we were staying away from the herring on Georges, because there was so much haddock that couldn't be distinguished on the machines.

We're investigating different techniques; we're talking about an SK project that would have cameras on the boats so we could actually see whether the fish was a haddock or a herring and so forth. It is a very complex problem that we're trying to resolve. I don't want to comment right now, but there were a couple of questions I had about the data in the document, to help analyze some of these options.

I'm supporting the motion, obviously the broad motion, and we'll have a lot of time to pick it apart. But specifically, Ashton, on Table 5 on Page 10, I don't really understand why the years used are 2000 to 2007, because it doesn't really tell us what is going on today, and as you pointed out 2009 was when the trimesters system was developed.

It is my recommendation; it just seems to me that you would want to analyze this with the more current years, 2009 to 2016 to see what is really going on, including reports of catches by state and catches by gear type. It could be that providing information by state may be confidential, possibly, but I just don't think that the 2007 analysis does much for us in trying to parse this apart. I guess that is a question to you. Why did you choose that time period to do the analysis of the harvest levels during the period of concern?

MS. HARP: Thank you, Jeff for the question. I did not choose those dates for this. These tables were actually included in Amendment 2, the previous amendment, and this is what the Section put in there as how they would like to look at setting the annual specification process. We could do the trimesters, which was what we've always done since 2009 or there are these bimonthly quotas that we could do as well, which the TC has some strong concerns as to how we would manage it using bimonthly quotas, but regardless. This was carried forward from Amendment 2. There was not a specific request from the Section to change the allocations in these for Amendment 3, so therefore it was just carried forward.

MR. KAELIN: I guess in my view they're the wrong years to analyze, and similarly we're sympathetic to the small mesh bottom trawl issues that are embraced in this motion. But here again, it is extremely difficult to analyze the situation as a member of the public. We don't have any information on small mesh bottom trawl catch by permit, are the D permits are they C permits?

Are they landed in Massachusetts? Are they landed in Maine? How much latent effort is there in that category? To what extent are we encouraging a directed fishery, moving away from an incidental fishery? I just think before it goes out to the public, Mr. Chairman, I'm making a recommendation that that whole issue be analyzed in a lot more detail.

I'm sympathetic, as I said, but it is difficult to understand exactly what's going on Mr. Chairman. I think I'll stop there. I appreciate the opportunity to make comments. The other thing I'll say is I hope that there is an opportunity for an AP meeting or a call in the timeline that was described by Ashton. Finally I'll just say, it is a nice piece of work, Ashton, and I appreciate it. Thank you.

CHAIRMAN WHITE: There is the plan to flush out more of the details on the small mesh bottom trawl, so that certainly will be part of the addendum. There will be more information coming on that. I would believe that we will have an AP meeting in this process.

MR. KAELIN: Good, I understand it's early and I appreciate the opportunity to make some comments, thanks.

CHAIRMAN WHITE: Anybody else from the public? Go ahead, sir. Oh, I'm sorry, Jennie. I saw a hand back there. All I could see was a hand sticking up, sorry.

MS. JENNIE BICHREST: Thank you kindly, Mr. Chairman. I assume that we will have time once this goes forward. I think the only thing I want to pick on right now or hope we possibly will have some input in is the carrier situation, and only being allowed to have vessels choosing their carrier. I still think it's really not a good idea to be encouraging that situation.

We've always done a really good job in Maine of sharing fish so that we're not dumping, sorry people cannot guess exactly how many they have in their seine, and I still think that between the fact that you're already limiting, carriers are going to be a thing of the past pretty quickly here, because you're asking the vessels to choose; making less money by giving fish to their carrier that they've loaded for years and years.

Then now only saying, Danny might have extra fish that he'd be willing to give away, so that the fish live instead of dumping them; but he can't

because that is not his designated carrier. I hope we'll have an opportunity to discuss that more and maybe be a little wiser about it.

CHAIRMAN WHITE: Anybody else? Go ahead, sir.

MR. DANIEL FILL: Yes, Daniel Fill, herring seiner Western Wave. Yes, I would like to confirm what Jennie is asking about the transfer at sea to a carrier or a seiner. As a seining captain and the way the schools of fish have been, and there have been a lot of big schools. Much of the time season this year and the last prior years, we try not to get big sets of fish.

I've been doing this for 34 years. I do a lot of different things that are not even by the books to try not to get extra fish. But sometimes it is just in the cards, you can't help it. I'm not getting any monetary gain from transferring fish to Jennie's carrier or another seiner. It is a good way to keep the fisheries going, because I know another seiner will sit for a couple trucks, and they'll end up with getting as many fish again as what I just dumped to the bottom.

We all basically know what we are doing. We're not doing it for monetary gain; maybe it's more glory than anything. But we always try to figure that at some point throughout the summer, we gave fish away to this boat it will come back. At daylight we don't have our full trip and another boat has extra fish in their pocket they can't use. Instead of dumping it to the bottom, they'll give it to us. It has worked this way since I started in '82. If we can really address this and try to keep me and a lot of people honest. Thanks.

CHAIRMAN WHITE: Thank you for your comment, Terry would you like to respond?

MR. STOCKWELL: To that point to both Danny and Jennie's comments about carriers. It is certainly not the intent to eliminate carriers. What is being proposed is a full range of alternatives. As you guys know, we had a pretty extensive conversation that involved reporting

and enforcement on how to move ahead during this past summer's fishery.

We're going to be looking between now and February for other alternatives to get in this document that is going to work for the fishery. I'm hoping that should this move ahead that we'll have that discussion and put out operationally viable alternatives that will help us manage the fishery, but we've got to be crystal clear.

If we have additional seiners coming into Area 1 next year, there is going to be less fish to divvy up. How we do it is critically important to all of you. That is what I'm trying to get, is something that evens the playing field and keeps you guys working.

CHAIRMAN WHITE: Anybody else from the public? Go ahead, sir.

MR. GLENN LAWRENCE: Yes, I'm Glenn Lawrence; herring carrier Double Eagle. I've been carrying herring in the Gulf of Maine since 1929; and we're talking a little bit about carriers here, and I'm not really sure where I am going to fit in here anymore. Probably it's on the way out it sounds like. The way things are going with the pie.

We talk about a pie in the Area 1A, which isn't really a slice of the overall pie for the overall TAC. I'm not sure what the percentage is, maybe roughly 20 percent. The more boats that are coming into this fishery, in the Area 1A, this past year I was pretty much, I'm out of it. I don't get anything unless the seiner that I work with and have been working with for a long time allowed me to take some of the fish that he could have carried himself. I can only see it getting worse, the more pressure that is put on Area 1A, more boats coming in, quotas being cut down per boat. That is about it. I just figure I have to say something; because I guess I'm the oldest carrier in the fleet. Hopefully we can do something to make a future for us all. Thank you.

CHAIRMAN WHITE: Thank you for your input. There will be additional times for your input going forward in this process, so thank you. Anybody else from the public, seeing none; back to the Section. Any more discussion, questions?

MR. ADLER: What is the possibility that we could move along with the timeline that was just described? In other words, I guess drawing up an addendum, if it's approved to be drawn up. Come back in February, hash out stuff, and then go out to public hearing in the spring, back in May for perhaps final approval? Is that a realistic thing?

CHAIRMAN WHITE: I guess there are a couple of parts to the answer to that, Bill. A few of these may require federal participation. Then the other part would be how fast the states can implement some of these. At this point I guess it is unclear whether we can, if we pass it in May, whether all the regulations that we pass could be in place for June 1st.

MR. ADLER: I do suggest that we don't make this too complicated. I mean the white paper is very good, but it had a couple of things in it, I go, are we going to get into this stuff? It is going to get buried. The idea of the simplicity to make it move a little faster, I think would be productive.

CHAIRMAN WHITE: I agree, and to the degree that you can make this complicated situation that we can explain it to the public in a simple manner. I mean Ashton worked very hard in her presentation, but as you know it is very complicated in how this fishery has been prosecuted this last year. But we certainly will try to keep it as simple as possible; anybody else? Doug.

MR. GROUT: Well, just to respond at least from the state of New Hampshire's standpoint of how quickly we could implement some rules to be in compliance with whatever we decide here. I will tell you first of all, we could probably get most of the rules in place in less than a month. Not much less, but less than a month.

But some of the things in here that are being contemplated, for example having differential days for small mesh bottom trawls, we really don't have to implement to have it in place until July 15th, because they're not allowed to fish until July 15th in the small mesh bottom trawl area off of Ipswich Bay. But some of them, it may be a challenge to get it in for New Hampshire by June 1st, but pretty close. I don't know about Massachusetts or Maine on this.

MR. STOCKWELL: Good question, Maine actually has a number of these measures already in place. Once the Section finally comes up with a decision, we need a decision in May, and Maine will implement through the commissioner's emergency rule making authority; whatever measures the Section approves.

It is our intent that we have an even playing field and with most of the boats landing in Maine for the primary market, we don't want to see our boats leaving, going down to another port and playing by a different set of rules. We are trying to provide bait for the lobster fishery; I've been here advocating for all week long.

MR. ADLER: We can do most of this either by permit restrictions or emergency action if we have to, with the approval probably of our Marine Fisheries Advisory Commission; which pretty much meets monthly anyway. Massachusetts would probably be able to get on the ball.

MR. EMERSON C. HASBROUK: A question I guess perhaps for Ashton or maybe our representatives or commissioners from Maine. I'm just wondering why there isn't much of a catch from Area 1B or 3. Is it that the herring aren't there? Is it the haddock bycatch issue? Is it that the vessels aren't set up to fish out on Georges? I'm just wondering if there is so much effort in 1A, why some of that doesn't spill out into 1B or 3.

CHAIRMAN WHITE: Terry, do you want to take that?

MR. STOCKWELL: Sure, thanks Emerson. You've been lucky enough to have been well removed from the Atlantic herring politics. But the body of water in the Gulf of Maine is Area 1A, and it's the states of Maine, New Hampshire and Massachusetts that share the landings responsibilities for that second trimester fishery; 1B and all the other areas are not regulated through the Section. This Section specifically regulates the landing days for Area 1A.

CHAIRMAN WHITE: Emerson, I would add to that the Area 3 situation as was discussed by Ashton that the haddock bycatch has in the last two years has created a situation where the landings from Area 3 have been drastically reduced. That is part of what caused this problem in 1A, so there wasn't the bait flow from Area 3 that in past years had been coming in. We're not sure that that is going to change, even though the haddock cap is going to be raised. We're still not sure what the landings from Area 3 will be.

MR. ADLER: Just to continue what you just said. Apparently the way it works out there is if they can find the herring out there it is good. But if they catch too much haddock and they exceed the cap, the area is closed by the federal government to herring fishing; even if the herring quota in Area 3 has not been taken. If the haddock catch is capped then they're out.

As far as 1B goes, it looks very nice, nice big area with I forget now what exactly the quota is, 2,000 pounds or something; some small thing. If they find the herring in 1B, which is outside of 1A, then it can close; and I think it was a year or two ago it closed real quickly. They found some herring out there and that was the end of it. That's the problem with Area 1B and 3.

CHAIRMAN WHITE: Anybody else, or are we ready to vote on this? We need a caucus, 30 second caucus? Okay if we're ready to vote. Does the motion need to be read? Okay, we will send you a David Pierce e-mail. Is there any objection to this motion? **Seeing none; it passes**

**unanimously.** Go ahead, Bob. I would add the understanding is that we're going to proceed with all due speed with the intention of a May approval.

EXECUTIVE DIRECTOR ROBERT E. BEAL: This is just a follow up on that idea, a plea to have the PDT members that are on your staffs make some time available. The notion of keeping it simple may have already gone by the wayside, given all the wording on the board. Any help we can get and Ashton can get would be great. There is that coordination factor with the council. We have to figure out what areas overlap. We're going to have to deal with those folks. It's a lot of work to do between now and February, but we'll push as hard as we can.

CHAIRMAN WHITE: Great, thank you, Bob. Okay next agenda item and last is setting the 2017 specifications for 1A. Ashton.

#### **SET THE 2017 ATLANTIC HERRING SPECIFICATIONS FOR AREA 1A**

MS. HARP: Okay, so I'm going to briefly talk about the Area 1A specifications. In previous years or at the 2015 annual meeting the Section approved the Area 1A sub-ACL as part of the 2016 through 2018 Specs Package. There is a three-year-specs package. Just for knowledge, the Area 1A sub-ACL of 30,300 metric tons represents 28.9 percent of the stock wide ACL.

Since 2009 the Section has split the Area 1 ACL into trimesters, where 72.8 percent is allocated from June through September, and 27.2 percent is allocated from October through December. For the 2016 fishing season 95 percent of the Trimester 2 seasonal quota was harvested. The fishery then went into Trimester 3, where the Area 1A fishery closed on October 18th of 2016. With that I'll take questions.

CHAIRMAN WHITE: Any questions? Do we have a motion? Doug.

MR. GROUT: I believe Ashton has this or Amy has it. **I move to allocate the 2017 Area 1A TAC seasonally with 72.8 percent available from June through September, and 27.2 percent allocated from October through December. The fishery will close when 92 percent of the seasonal period quota has been harvested, and underages from June through September may be rolled into the October through December period.**

CHAIRMAN WHITE: Is there a second to the motion? Terry. **Any questions or comments on the motion? Seeing none; is there any objection to the motion? Seeing none; the motion passes unanimously.** Is there any other business to come before this Section? Bill.

MR. ADLER: Are we planning to do the usual meeting of the Section to determine starting June 1 what happens? I mean we're still on target for that stuff, right?

CHAIRMAN WHITE: That's correct. We'll pick out a date when that gets closer. Thanks for that, Bill though, for reminding us. Any other business to come before the Section? Go ahead, Mary Beth.

MS. TOOLEY: Mary Beth Tooley; O Hara Corporation. This motion just brought to mind a couple of things relative to specifications, and the Commission meets jointly with the New England Council in setting the three-year-annual specifications. That has been a good process that has worked well.

However, we have rollovers on an area basis from year-to-year and deductions for any overages for any sub-ACL, and so the numbers actually change. They don't stay the same during the three year period. I was just wondering, does the Commission make those adjustments as the federal plan makes adjustments, or not?

MS. HARP: Yes, every year there are underages or overages; as well as the 3 percent RCA, and

295 fixed gear-set-asides are deducted with the federal government.

MS. TOOLEY: That's good to hear. That doesn't take any action by the Commission, it is just an automatic, and you update your numbers based on that?

MS. HARP: Yes.

MS. TOOLEY: Thank you.

**ADJOURNMENT**

MR. WHITE: Thank you, any other business? Seeing none; it's time for lunch. We are adjourned.

(Whereupon the meeting adjourned at 12:12 p.m. on October 27, 2016.)

# Atlantic States Marine Fisheries Commission

## Tautog Management Board

*January 31, 2017  
9:45 – 11:45 a.m.  
Alexandria, 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 (*A. Nowalsky*) 9:45 a.m.
2. Board Consent 9:45 a.m.
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment 9:50 a.m.
4. Tagging Trial Report (*A. Harp*) 10:00 a.m.
5. Technical Committee Harvest Reduction and Projection Analysis (*J. McNamee*) 10:15 a.m.
  - Methodology
  - Harvest Reduction Analysis for Massachusetts-Rhode Island, Long Island Sound and New Jersey-New York Bight
  - Projection Analysis to Achieve Spawning Stock Biomass Threshold for All Regions
6. Plan Development Team (PDT) Report on Regional Working Groups 10:45 a.m.  
(*A. Harp & A. Nowalsky*)
  - Overview of Topics and Working Group Input by Region
  - PDT/Working Group Recommendations on Harvest Reduction Options for Draft Amendment 1
  - Board Guidance to the PDT on Draft Amendment 1
7. Other Business/Adjourn 11:45 a.m.

The meeting will be held at the Westin Alexandria; 400 Courthouse Square; Alexandria, VA; 703.253.8600

# MEETING OVERVIEW

**Tautog Management Board Meeting**  
**January 31, 2017**  
**9:45 – 11:45 a.m.**  
**Alexandria, Virginia**

Chair: Adam Nowalsky (NJ) <i>Assumed Chairmanship:</i> 05/15	Technical Committee Chair: Jason McNamee (RI)	Law Enforcement Committee Representative: Jason Snellbaker
Vice Chair: David Simpson (11/15)	Advisory Panel Chair: VACANT	Previous Board Meeting: October 25, 2016
Voting Members: MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, USFWS (10 votes)		

**2. Board Consent**

- Approval of Agenda
- Approval of Proceedings from October 2016

**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.

<p><b>4. Tagging Trial Report</b></p> <p><b>Background</b></p> <ul style="list-style-type: none"> <li>• The Law Enforcement Sub-Committee developed objectives for a commercial harvest tagging program, selected tags to test and reviewed the design of a tautog tank trial to test the feasibility of applying tags to live tautog.</li> <li>• The tank trial, led by New York Division of Marine Resources and Stony Brook University, began on September 28, 2016 and lasted 30 days. In total, 15 tautog received tags and 6 were untagged for controls.</li> <li>• The Final Tagging Trial Report is in <b>Briefing Materials</b></li> </ul> <p><b>Presentations</b></p> <ul style="list-style-type: none"> <li>• Presentation of the tagging trial by A. Harp</li> </ul>
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## 5. Technical Committee Harvest Reduction and Projection Analysis

### Background

- The TC analyzed multiple harvest reduction options related to minimum size, bag size and seasonal closures. In addition, the TC estimated the year at which a regional stock would reach the SSB threshold if harvest reductions are implemented.
- PDT memo on the harvest reduction and projection analyses in **Supplemental Materials**

### Presentations

- Overview of TC analysis by J. McNamee

### Board Guidance

- Based on the TC analysis, the Board can provide input on the harvest reduction management options related bag size, minimum size and seasonal closures that should be included in Draft Amendment 1.

## 6. Plan Development Team Report on Regional Working Groups

### Background

- Regional working groups (WGs) were created to discuss 1) differential sector reductions, 2) commercial harvest tagging program / commercial quota, 3) regional management (consistent within a region or state-by-state). The WGs met via phone twice to discuss the topics and suggest options to be included in Draft Amendment 1.
- The three WGs include: 1) Massachusetts-Rhode Island, 2) Long Island Sound and New Jersey-New York Bight, 3) Delaware-Maryland-Virginia.

### Presentations

- Regional working group feedback by A. Harp

### Board Guidance

- The PDT is seeking guidance on the options that should be included under the following issues within Draft Amendment 1: 1) differential sector reductions, 2) commercial harvest tagging program / commercial quota, 3) regional management (consistent within a region or state-by-state). The Board can continue to work regionally when suggesting management options.

## 7. Other Business/Adjourn

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

**The Harborside Hotel  
Bar Harbor, Maine  
October 25, 2016**

These minutes are draft and subject to approval by the Tautog Management 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, 2016 by Consent** (Page 1).
3. **Motion to adjourn by Consent** (Page 29).

**ATTENDANCE**

**Board Members**

Dan McKiernan, MA, proxy for D. Pierce (AA)  
William Adler, MA (GA)  
Sarah Ferrara, MA, proxy for Rep. Peake (LA)  
David Borden, RI (GA)  
Mark Gibson, RI, proxy for J. Coit (AA)  
Eric Reid, RI, proxy for Sen. Sosnowski (LA)  
Rep. Melissa Ziobron, CT, proxy for Rep. Miner  
(LA)  
Lance Stewart, CT (GA)  
Dave Simpson, CT (AA)  
John McMurray, NY, proxy for Sen. Boyle (LA)

Steve Heins, NY, proxy for J. Gilmore (AA)  
Emerson Hasbrouck, NY (GA)  
Russ Allen, NJ, proxy for D. Chanda (AA)  
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)  
John Clark, DE, proxy for D. Saveikis (AA)  
Craig Pugh, DE, proxy for Rep. Carson (LA)  
Michael Luisi, MD, proxy for D. Blazer (AA)  
Joe Cimino, VA, proxy for J. Bull (AA)  
Peter Burns, NMFS  
Wilson Laney, USFWS

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

**Ex-Officio Members**

Jason McNamee, Technical Committee Chair

Jason Snellbaker, Law Enforcement Representative

**Staff**

Bob Beal  
Toni Kerns

Ashton Harp  
Katie Drew

**Guests**

The Tautog Management Board of the Atlantic States Marine Fisheries Commission convened in the Statesbury Grand Ballroom of the Bar Harbor Club, Harborside Hotel, Bar Harbor, Maine, October 25, 2016, and was called to order at 1:40 o'clock p.m. by Chairman Adam Nowalsky.

#### **CALL TO ORDER**

CHAIRMAN ADAM NOWALSKY: I am Adam Nowalsky; I'll be chairing the meeting, Ashton Harp from staff next to me. This is the Tautog Board.

#### **APPROVAL OF AGENDA**

CHAIRMAN NOWALSKY: We'll start out with the approval of the agenda as provided. Are there any changes to the agenda as it's been provided? Is there any objection to approval of the agenda? Seeing none; the agenda is approved.

#### **APPROVAL OF PROCEEDINGS**

CHAIRMAN NOWALSKY: The proceedings from the August, 2016 board meeting were provided in the meeting materials. Is there any objection to approval of those proceedings as provided? Seeing none; those proceedings are approved.

#### **PUBLIC COMMENT**

CHAIRMAN NOWALSKY: Next agenda item is public comment. Is there any public comment for items not on the agenda? Seeing none; we'll move along. Next order of business will be to review the 2016 stock assessment update. For that we'll turn to Jay, thank you.

#### **2016 STOCK ASSESSMENT UPDATE REVIEW**

MR. JASON McNAMEE: My name is Jason McNamee. I work for the Rhode Island Department of Environmental Management. I will be going through the regional and coastwide update assessment results for tautog. There is a lot here; so I tried to keep it pretty formulaic for each region.

I've got the same set of slides, so when we go through the first time I'll take my time on the

graphs and kind of explain what you're looking at; but then I'll speed up or else we'll be here all afternoon. Just before I get going I just wanted to make a quick comment. This got turned around really quick, and I just was really impressed.

The assessment team, there were a whole group of us that worked to get all this stuff done in time for you to take a look at; so very impressive to get a full update assessment done in a couple of months. Just a quick overview of the presentation, we'll go through region by region with the assessment results.

I'll go south to north just to shake it up a little bit, probably confuse everyone; sorry. Then we'll end up with the coastwide, and we're just showing that. I actually kept that section really brief and we did it for continuity and for context. That is in there as well. For each region I am going to hit data, the time series that we're working with.

We'll look at harvest and fishery independent and dependent index information results, and then the biological reference points and stock status. That is kind of the formula that we'll go through for each region. A couple more general comments, once the regional structure was determined, which you all did I think at the last meeting. We basically followed the format and the structural elements that were approved through the benchmark; so not a lot of surprises here. You've seen all the stuff, it was an update so we didn't veer too far from the benchmark assessment that we had put together a few months back. These approved elements were all applied to the appropriate regions and we were consistent with a couple of the metrics; specifically natural mortality, the plus group that we used, the selectivity functional form, and the discard mortality rate that was consistent across regions.

All right, just a look at the regional structure. You can see the different regions are colored here. The blue is Mass and Rhode Island; that is the M-

A-R-I or the MARI region. The green is the Long Island Sound Region, so that is New York, the Long Island Sound inside section of New York, and Connecticut.

The orange is now the New York/New Jersey; I guess what are we calling it, the New Jersey/New York Bight Region that is the orange color and then DelMarVa is in maroon down below; just to give you kind of a look at where the regions break out. Okay jumping right in, DelMarVa.

This had the shortest time series. It went from 1990 through 2015. Recreational discards was also 1990 through 2015; and this is the same for all of the regions. The recreational discards are based on the B2s from MRIP, and then only 2.5 percent of those are assumed to die. Just so you know it is not the entire released portion it is only 2.5 percent of those that end up being a removal.

Commercial harvest from 1990 through 2015, again consistent across the regions, commercial discards is not included in the assessment. We did some sensitivities with that during the benchmark and it was found to not have a significant effect, so we stayed with that for the updates.

For the DelMarVa Region there was no fishery independent survey data, so what we are relying on to tune the model in this region is an MRIP CPUE, and it is not a simple calculation of taking the harvest divided by recreational trips. There are other forms of this; Jacquard Index is another form of this. But you basically try and look at all of the species that are caught on a tautog trip kind of consistently. You look at it not just directed tautog trips, but any trips that caught your suite of species that routinely get harvested with tautog.

The idea there is to get some zero trips in your calculation. That is what the MRIP CPUE is. Each region has an MRIP CPUE specific to that region, but DelMarVa that was the sole source of kind of tuning information for the model. Then there is

also FI is fishery independent, FD is fishery dependent biological samples that are used in the stock assessment.

The first chart here that you're looking at is just some harvest information. I am going to laser beam the screen over on my left so, sorry folks on that side of the table. What you're looking at here, this is total removals up on the top; metric tons along the Y axis, year along the X axis. The big kind of lighter blue color is recreational harvest.

Up above that you can kind of make out a darker blue; that is recreational discards, and stacked on top of that that you can barely see is the commercial harvest. Down below is just a proportional representation of the same information. What you can see is as the harvest declines the proportional contribution of these different fishery elements becomes more significant, more important. Here is the MRIP CPUE that we were talking about just a moment ago. This is kind of your abundance index through time. Again, fish per angler trip along the Y axis, year along the X axis, the dark line with the open circles is the actual point estimate year to year, and then it is bounded by the dotted lines; which are the 95 percent confidence intervals.

You can see kind of a period of high abundance, but also high variability, and then in the most recent years kind of declining. Here are model results, so top left is information on fishing mortality. The gray line is the actual point estimate as determined by the model and then superimposed on top of that is what we use to actually determine stock status; and that is the three year running average.

We do that. We have a high component recreational fishery with tautog. There is high variability in the harvest estimates from year to year, and so we get wild swings in F because of that. In an effort to kind of dampen that a little bit, what we've done is superimposed a three

year average; and we talked about that during the benchmark process.

But that is what the black line is; it is just a running three year average of fishing mortality. You can see fishing mortality in that 2010 period of time was pretty high, but has declined dramatically since then. Just to the right but still on the top – sorry Ashton, I just laser beamed your head – is information on spawning stock biomass.

Spawning stock biomass in metric tons along the Y axis, year along the X axis; again same set up, the line with the open circles on it is the actual estimate bounded by the 95 percent confidence intervals, and this is kind of a consistent signal. But you've got a period early in the time series of higher abundance and a period of lower abundance; and you can see for DelMarVa it is actually declining in the most recent years.

Then this very bottom graph here is recruitment, and so this is millions of Age 1 fish along the Y axis, year along the X axis; same setup as above, the point estimate with 95 percent confidence intervals. You have a really big recruitment event here early in the time series, dropped off, then you've got a period of decent recruitment in the middle of the time series, dropped off again and some recovery in the most recent years.

Just another important note is, you can see for recruitment as you get into that terminal year estimate, there is less information for the model to work with when it is estimating that recruitment estimate. The confidence intervals get wider, sort of common amongst statistical models.

Biological reference points, so for the DelMarVa Region MSY based reference points were deemed unreliable. There was steepness estimated at for all intents and purposes 1. There was a poor fit to that spawner recruit relationship. For this region we defaulted to SPR based reference points.

We set the target and the threshold, the target at 40 percent SPR, for F or SSB threshold at 30 percent. These are all consistent with the benchmark determinations as well. What you see in the table here is your F value at the threshold is 0.24; there is your threshold spawning stock biomass level and the same information for the target down below. Here are a couple of charts that show you stock status on the next slide. The red on both graphs, so up above you have fishing mortality, down below you would have spawning stock biomass. Your threshold in both graphs is the solid red line, target is the dotted line, and then here is your F estimate. We saw that already.

You can see it is right on top of that F target for the DelMarVa Region. That is F on the Y axis year, down below SSB on the Y axis, year along the X axis; and you can see the trajectory of SSB. There is your threshold there is your target. SSB is well below that on the bottom, and so the result of that the terminal year estimates for F is 0.16.

Again that is right at that target level. SSB however in the terminal year, is about 621 metric tons. Stock status in DelMarVa is overfished, but overfishing is not occurring. That is the same setup for each of these. I'll do less pointing on this one so we can move through this in a timely fashion.

For the New Jersey/New York Bight Region, recreational harvest we've got a little bit longer of a time series here; not much. But this one goes from 1989 to 2015 for the harvest, the discards, and the commercial harvest. Here we have a couple of fishery independent sources of information. We have a Western Long Island Sound Seine Survey and the New Jersey Ocean Trawl. Those are our two indices.

The seine survey is an index of recruitment and the New Jersey Ocean Trawl represents adults, so it is sort of a full population set of information for that one. Western Long Island Sound, you're going to see that twice here and you might



wonder why. We are able to kind of break Western Long Island Sound Survey into two of the regions, and so I'll talk more about that when we get to the next area.

But this is the portion of the Western Long Island Sound Seine Survey that is outside of Long Island Sound. Again we have fishery dependent information here, MRIP CPUE, and we have fishery independent and fishery dependent biological samples. Harvest information again, pretty variable year to year. But again I think the take-home points for these graphs are by way of removals the recreational fishery is the vast majority of all the removals; and you've got this trend across the regions of higher removals early in the time series and lower removals later on.

Here is a look at the Western Long Island Sound Seine Survey. Again this is a recruitment index. You can see there are these periods of good recruitment, kind of followed by periods of lower recruitment. Good news is in the later part of the time series you've got a couple of good years of recruitment in there. Here is the New Jersey Ocean Trawl, pretty variable relative to some of the other trawl survey datasets we have in here.

It starts off kind of high, drops down then jumps back up in the early 2000s, and then I don't know, it is variable but trending down slightly since then. Then here is the MRIP CPUE; same sort of thing, it is kind of high in the very earliest part of the time series it is low, and then it jumps up there in the late 80s, and then it has been kind of on a downward trajectory but pretty shallow trend there.

Okay result information. Again, fishing mortality top left, your left if you're facing the screen. You can see that fishing mortality was kind of low in the middle of the time series there and has risen in the most recent years. The past two years it was kind of lower, and then went up a little bit; a decent signal there at the end of the time series, some lowering of fishing mortality. SSB starts off high and then drops down to this kind of stable low; maybe a little bit of recovery there

at the tail end of the time series. Then recruitment, you can see that good recruitment event at the end of the time series.

Biological reference points, again this region there was no good fit for the spawner recruit relationship, so we defaulted to SPR based reference points; same target and threshold levels here. Here the F at the threshold is 0.34. SSB at the threshold is 2,351 metric tons and the target is 0.2 and 3,154 metric tons.

Stock status, the terminal year estimate, this is the three-year-smooth average is 0.54 for the New Jersey/New York Bight Region; well above both the threshold and the target for fishing mortality. Overfishing is occurring, and then the bottom graph there is the SSB information. That is below both the threshold and the target, so overfished and overfishing is occurring for New Jersey/New York Bight.

Long Island Sound, so as we kind of go up the coast here the time series of information that we were able to use gets a little longer. This one goes from '84 to 2015, and I think the constraint here was the length of the Connecticut Trawl Survey. The '84 through 2015 was what we used for all of the fishery dependent information; recreational and commercial.

Now we've got a few more fishery independent sources of information, so this is the portion of the Western Long Island Sound Seine Survey that is inside the Sound, and they broke that out by stations and where the stations kind of fall. Their trawl survey in this region is the Connecticut and Long Island Sound Trawl Survey; that is a full age spectrum.

Then the New York Peconic Bay Trawl is also used for this region. That is not a full age spectrum though, it is only Age 1s, and we kind of peeled out the Age 1s from that survey. This also has an MRIP CPUE index in it. Harvest information, again looks pretty similar to what you've been looking at.

Higher harvest early in the time series drops down. Here in the Long Island Sound Region it has jumped back up; highly variable year to year, but it has jumped back up starting in the 2000s. But again, I mean it oscillates pretty dramatically from year to year. Here is the Western Long Island Sound Seine Survey.

The gaps are years when survey stations inside Long Island Sound weren't conducted, so those drop out of the index. But you can see that information. You had some good recruitment events early in the time series and then maybe a good recruitment event there in 2015. It looks a little bit above average there. The Connecticut Long Island Sound Trawl Survey starts high, kind of drops down.

You get a little recovery in the early 2000s, but then it is dropped down to a low stable level at the tail end. Then Peconic Bay again, remember this is an Age 1 only, and you can see that series of good recruitment events there at the end of the time series. MRIP CPUE, high early on and then declines to a pretty stable and low level in the most recent years. Model results, so fishing mortality, from '84 to about the mid '90s, fishing mortality kind of increased and then it dropped back down in the early 2000s, and it has risen again starting in about 2008. It got pretty high. It has been variable year to year, but it is kind of in this stable-high area. SSB, high in the beginning, drops down. There is a period of recovery there in the middle, but since it has dropped back down and is sort of stable; slowly increasing in the most recent years.

Then recruitment, again there were some high recruitment events early and then some decent recruitment events at the end of the time series. Long Island Sound, we had a decent fit to the spawner recruit information. What the Technical Committee chose to do with this region was to use the MSY based reference points.

The estimated steepness I think for Long Island Sound was around 0.5, maybe a little lower than

that. But the fit seemed reasonable and the estimated steepness also seemed reasonable, so we used the MSY metrics as our preferred. But we're also presenting, because this question came up the last time we talked about this, we're also presenting the SPR based reference points; just for context, and so that you all can discuss that later.

The MSY threshold is 0.49. The SSB threshold, these are the MSY reference points, the SSB threshold is 2,148. The MSY target for F is 0.28, for SSB it is 2,865. Then down below is the SPR calculations, so the threshold 30 percent SPR threshold; F at 0.46, SSB at 2,238, and the target at 0.27 SSB at 2,980. For the Long Island Sound Region there is not a big disparity, certainly some differences between the MSY calculations and the SPR calculations, but not that big of a disparity.

Here is a look at stock status. Our terminal year estimates F, the three-year-average F is 0.51. SSB is 1,603 metric tons. If you look at the top graph there for fishing mortality, you're just up above the threshold and well above the target. SSB down at the bottom, and so important note on these graphs, I'm only showing again, I was trying to be efficient with the presentation.

This is the MSY calculations. In your documents that you all have, you can look at we created these charts for the SPR as well. You can look at those if you're interested, but I'm just presenting the MSY reference points in this slide. Sorry, I'll jump back. Fishing mortality is above the threshold. SSB is below the threshold, so this region is overfished and overfishing is occurring. Okay last of the regions. Here we have the longest time series, 1982 through 2015 for recreational and commercial fishing information. We also have a couple of fishery independent sources of information. We have the Narragansett Bay Seine Survey, which is an index of recruitment. We have the Rhode Island Trawl, we use the fall Rhode Island Trawl information.

Then we have the Massachusetts Trawl, and for the Massachusetts Trawl we use the spring information. These are both seasonal surveys. Again we have an MRIP CPUE, and fishery independent and fishery dependent biological samples. Harvest, so you can see some really high spikes, which kind of skews the graph on the top of total removals.

That really high spike kind of skews your eye a little bit away from the fact that harvest is pretty high early in the time series, and has been lower since then with variability year to year; and again, proportionally you can see. One kind of interesting note here is the recreational discards have increased beginning in the '90s more or less through time. You can see that in the proportional chart. Here is the Narragansett Bay Seine Survey. You had some, I'll call them above average recruitment events, early in the time series and then in the early 2000s we had a decent set of recruitment events. They since have tailed off with perhaps an average recruitment event in the very last year.

Here is the Rhode Island Trawl Survey, again some large spikes in the beginning kind of doesn't allow you to see this trend very well, but it is high early in the time series and kind of declines; probably not shockingly. The Massachusetts Trawl Survey same thing, some high very variable years in the beginning and then drops down kind of low and stable; and then the MRIP CPUE, same sort of thing, so three sources of fishery independent information all kind of indicating the same thing.

Model results, so you've got a period of increasing fishing mortality early in the time series, kind of peaks in the '90s, and then has been declining since then. Spawning stock biomass starts off high, declines pretty quickly and has been low and stable since about 2000, and then recruitment. Again you can see there were some decent, good recruitment events early in the time series. A couple of potentially average recruitment events, but the model is not estimating that big spike of recruitment that

you'd see in that Rhode Island Index in that last year.

The Mass/Rhode Island Region, again we preferred the MSY based reference points; but I'm again showing the SPR reference points for a reference. Here if you look at the threshold and the target,  $F$  is 0.28 for the threshold, 0.14 for the target; a pretty big spread between the target and the threshold based on the MSY calculations.

The SPR calculations just below that the target is 0.28, so the target is where the threshold is for the MSY calculations. Then 0.49 is the threshold for fishing mortality, and then the SSB metrics to go along with those. For MSY you've got 2.7 thousand metric tons, for the threshold 3,631 metric tons for the target.

If you look down below that the SPR, the threshold is at 2,000 metric tons more or less and 2,684 for the target. Here is a look at stock status. The three-year-average  $F$  for the Mass/Rhode Island Region is at 0.23, tucked right in the middle there between the target and the threshold. Then the SSB is down below.

You can see we are and have been below the SSB threshold since 1996. Stock status in this region, overfishing is not occurring but it is overfished. An important note, I should have said this when I was talking about Long Island Sound. The stock status for Long Island Sound does not change if you switch from MSY to SPR calculations, but it does change for the Mass/Rhode Island Region. Again, I wanted to hit a couple of slides here on the coastwide model results. If you remember back years ago, it wasn't that long ago. We were assessing the stock on a coastwide basis, despite all of the biology and the things that we knew about it but we didn't have much of a choice. We wanted to just show you for context and give you some continuity with what we used to do in the past, but not a lot of shocking information here.

Top left, fishing mortality, you can see fishing mortality kind of rose early in the time series;

dropped down to kind of a median level in the middle there and then rose back up later in the time series with potentially some lowering of fishing mortality in the most recent years. Spawning stock biomass declines down to a low stable level, and recruitment seemed to be good early in the time series and less so later in the time series. Here we were able to calculate both MSY and SPR based reference points. For Fmsy, the target is at 0.17, the threshold is at 0.24.

SSB targets at 14,900, SSB threshold is at about 11 thousand metric tons, and then the SPR calculations are below that. The threshold is at 0.43, the target is at 0.25 for fishing mortality. It is at 9,448 for the target, 7,000 more or less for the SSB threshold. The graph will go look at stock status.

Where we were looking at this along the entire coast again, F in the terminal year is 0.38, SSB is about 6,000 metric tons; so on the graph you can see F is well above both the target and the threshold, and is well below on the bottom there the target and the threshold for SSB. Overfished and overfishing is occurring if we looked at it as a coastwide stock unit.

Overfishing status changes the way that the SPR calculates for this coastwide view of this as well. Here is a table of the overall conclusions. I think what I'll do is I won't dwell on this for long, but I can come back to it. Maybe I'll hover on this as you begin your deliberations. In any case, we can always come back to it. But it just gives you the overall view for the four regions.

All of the regions are overfished. That is with regard to spawning stock biomass. Then for the fishing mortality information, DelMarVa and Mass/Rhode Island is not overfished, New Jersey/New York Bight and Long Island Sound are overfished. One thing I didn't put in any. We did some sensitivity testing. I did not put any retrospective charts or anything in here.

They are in your document, but just kind of two high level thoughts. The smaller regional scale

continues to hold up with the updates, so it worked for the benchmark. We all cheered, and it held up for the update, so we cheer again. It seems to be working. We have enough information to run these regional models, which is good news; and the models are robust to input data and model configuration, based on some of the sensitivity analyses that we did.

I'm going to conclude here with some projections. The Assessment Team performed some short term projections. We projected into 2016 through 2020. We wanted to do this to provide the board with some additional information for your deliberations. We ran three scenarios, we didn't go crazy here.

We wanted to just give you some ones that we had heard you talk about in the past, and then for context we did status quo. We did a 50 percent and a 70 percent probability of achieving the F target in 2020. Then we ran what would happen at status quo if we ran that out to 2020. The biological parameter assumptions that we made was for maturity, natural mortality, weights at age; those are all the same as were used in the model.

The one difference is for the weights at age that goes in as a time-varying matrix, so we used the average of the latest selectivity block for the weights at age. That is how that went into the projection model. A couple more things, a couple other assumptions, empirical recruitment drawn from the model estimated observed recruitment was used for the SPR calculations. Then for the MSY calculations we used a Beverton Holt Model, and the parameters were those as predicted by the model. That is how we kind of informed the projection model. Those parameter estimates came right from the model and we used a log normal error distribution for the projections. Fishery selectivity was input, as that estimated by the model in the most recent selectivity period, so that last selectivity block was carried forward. The harvest for 2016 and 2017 was assumed equal to the most recent

three-year-average harvest, so that's an important point.

I'll get into more of that when I jump into the tables, but the tables will make more sense to you if you keep that in the back of your head, so 2016 we don't have that number yet. We assumed that we wouldn't be able to get management in place for 2017 either, and so what we did was we used a three-year-average harvest for those two years; based on the previous three years where we had information.

Then we used an iterative process to determine what the constant harvest rate in 2018 to 2020 would need to be that would result in a 50 and then a 70 percent probability of achieving the F target. Here are the projection results. This is the DelMarVa Region, so that again I'll explain this table a little bit.

You've got your scenarios here on the left hand side. Probability of being at or below the F target in three years, so that 2020 year that is this middle column. Then we also put in the probability of being at or above the SSB threshold in three years as well, so you've got all of that information for context.

Again, status quo is 77 metric tons for the DelMarVa Region. That has 100 percent probability of being at the F target in three years and an 18 percent probability of being at or above the SSB threshold. This is where it gets weird and why I wanted to make that point on the last slide; so 139 metric tons would give you a 50 percent probability of the F being at or below the F target.

The way that works is this 77; there is a lot of variability in the harvest in the DelMarVa Region. The average is 77, so that harvest can actually go up from that average amount. Hopefully that makes some sense. We can talk about it more if not. Then here 125 metric tons has that 70 percent probability of being at the F target, and 12 percent probability of being at or above the SSB threshold.

Same table for the New Jersey/New York Bight, here status quo is 461 metric tons. That status quo has a 45 percent probability of being at or below the F target by 2020, and then 85 percent probability of being at or above the SSB threshold in three years. Those terminal year estimates were pretty close to the reference points. That is why that information is that way.

The 50 percent probability would allow for a 450 metric ton constant harvest, and then 410 to be at a 70 percent. You can kind of judge there from status quo you would need some level of decrease to meet those 50 and 70 percent probabilities of being at your F target. Here is Long Island Sound. There are now two tables, I'm showing you both MSY and SPR here.

The status quo harvest for the Long Island Sound Region is 500 metric tons, here you get now some pretty severe decreases needed to be at the F target; 264 metric tons. Roughly a little more than half of the harvest that you had from that status quo calculation to get to your F target with a 50 percent probability, more than half to get to a 70 percent chance. It is not much different for the SPR reference points. The Mass/Rhode Island Region, again even more severe. You have your status quo amount of 390 metric tons. To get to a 50 percent probability of being at or below the F target in three years, you would need to have 151 metric tons, to be at 70 percent, 148 metric tons. If you drop down to the SPR reference points those decreases are less severe than the MSY calculations. That's it from me. I'm happy to take any questions. I can flip back to any of the information, but that is all the information from the update assessments for the regional assessments for tautog.

CHAIRMAN NOWALSKY: Those last couple slides were almost as rosy as Shanna's South Atlantic update on funding, so thank you for that. Let me frame the conversation for where we go from here; as Jay gave the presentation on the update. What we need to get through as a board

today is provide the PDT with guidance on how to use the information contained herein.

Some of the items we need to discuss, for example include choosing potentially between the MSY and SPR reference points for Long Island Sound and Mass/Rhode Island. The next presentation we go through we'll have those issues. I believe there are seven issues that we'll go through that we need to get comment on.

That is the bulk of what we need to get through today. If we have technical questions for Jay about the information that he just presented, we'll go ahead and take those. But I think the sooner that we go ahead and get into the decision points the better. Questions, I had Bill Adler and then Dave Simpson and Mark Gibson, Emerson and we'll start there. All right so go to Bill first.

MR. WILLIAM A. ADLER: Just a quick question. Climate change and the tautog, I know they basically stay put; that is one of the things about this fishery. But do you see or does anybody think that with all the other fish moving north that these things might migrate that way too?

MR. McNAMEE: It is a good question. We haven't talked about that much as far as some kind of movement of the population center northward. What we talk about with regard to climate change and effects on this species is that it is a period of lower productivity. I think you saw that in some of the recruitment indices further north. There has been a period of lower recruitment in the most recent time period. We haven't talked about a shift like we talk about with black sea bass or something like that.

But we do think there are affects here and potentially – I hesitate to even use the word, but I'm going to use it anyways – a regime of lower productivity in the most recent years. That is kind of what we talk about with tautog. I'm trying to search in the memory banks here if there is information like we have from Maine picking up black sea bass up in the Gulf of Maine.

We don't hear too much of that about tautog, so I don't have much to offer there.

CHAIRMAN NOWALSKY: I'll just add that I can't comment on the productivity element, but unlike a lot of species we deal with, this species is known to be active across a very wide range of temperatures, up to 30 degrees in any area up and down the coast between 40 and 70 degrees they are known to be active. I can't speak about the productivity element that Jay just spoke to; next on my list, Dave Simpson.

MR. DAVID G. SIMPSON: Great summary, it was very helpful. I resolved my first question while Bill was talking; it is 0.6 percent probability of being above the threshold, not 60 percent. I was having trouble with that but I resolved it. In the report I could not find for Long Island Sound the stock recruitment plot. If you could just add that that would be great, Eric provided it for me via e-mail, but I think those are really helpful. He went to the extra step of labeling each point by year, which helps me with how variable recruitment might be at a given biomass. That would just be a really helpful addition, thanks.

MR. MARK GIBSON: I also noticed that the Long Island Sound information was missing, so I support Dave Simpson's request to include that; given that there was some determination of reliability. My question is about the multiple methods of calculating reference points, the SPR based ones and the MSY based ones.

I don't know if you have the stock recruit plot for Mass/Rhode Island, but it is a pretty unusual one. I am intrigued by what Mr. Adler said, because it looks like a stock that could be undergoing a change in productivity. There is a period of time in high recruitment and then a fairly smooth change trajectory downward to a cluster of a shot gun scatter at the end of the trajectory downward.

But it looks to me like there would be strong time residuals in this stock recruit pattern. I am interested in how the determination is made as

to what is reliable or not within the catch-at-age model, but I may have more to say after Jason answers. I may have more to say about it when you get into the issues for the PDT development of the document. I guess the question is, what's the basis at the Technical Committee for determining what's a reliable stock recruit component in this model or not?

MR. McNAMEE: I'll offer that this was a topic of pretty intense discussion, as you can imagine. For the MSY calculations it was kind of an accumulation of a couple of things. First, just the statistical look at it from the model was able to estimate a reasonable steepness, and we judged reasonable based on the value that came out of the steepness estimation along with what that value is for other similar species, and it seemed again reasonable in that regard.

The other thing that we noted was the MSY information seemed to get more statistically reliable for the areas that had a longer time series. When you had that fishery independent information back early in the time series that was the other, kind of indicator. You had that for Long Island Sound and Rhode Island/Massachusetts, and you didn't have it further south that time series truncated.

I guess it was an accumulation weight of evidence kind of approach that we use, but again I think you haven't actually said anything. The implication is this was not a no-brainer for us. We talked about it a lot, and so that's where we ended up was relying on those kinds of pieces of information and saying it looks like a reasonable curve. I will acknowledge though that we did not talk about that temporal aspect of it and didn't review that in our deliberations.

DR. KATIE DREW: Just to add to Jay's answer, we also did some sensitivity runs with the model and a lot of times what you'll see is that steepness estimates will jump around a lot, and the model won't have a good ability to fit the steepness. But we didn't see that with the Massachusetts/Rhode Island that the estimates

of steepness were coming out in roughly the same spot for different sensitivity runs. We had more confidence in the model's ability to actually pick up some kind of relationship there.

MR. EMERSON C. HASBROUCK: My question was similar to the one that Mark had, but kind of to follow on that. When you were able to have confidence in the stock recruit relationship, the TC is recommending an MSY approach. Is that correct? Then when there is low confidence in a stock recruitment relationship, the TC is recommending the SPR relationship. That's part one of the question.

MR. McNAMEE: That's exactly right. There is a parameter that estimates called steepness, and so it was kind of able to give reasonable, it was I think in the vicinity of 0.4 for the Mass/Rhode Island, 0.5 for Long Island Sound. But then when you went south that steepness parameter ends up being 1, so basically saying there is no relationship that the model is able to determine. That's exactly it. Because there is no stock recruit relationship, you're not able to calculate MSY for those other regions.

CHAIRMAN NOWALSKY: Emerson, you had a second question or a follow up to that?

MR. HASBROUCK: Yes, follow up, thank you. Then if I understood your response to Mark as well then, the TC speculates that the reason that you don't have confidence in a stock recruitment relationship for those two areas that don't have it is because of the time series of the data. Is that correct?

CHAIRMAN NOWALSKY: That was a nod of the head, Jay for a yes answer?

MR. McNAMEE: No, I was just waiting for the okay to answer. That is not the entire reason. That is, in fact I will say that is conjecture from me personally. We didn't actually talk about – we did, okay.

DR. DREW: Yes, I think that is. One of the things that we noticed about the time series is that the two more southern models with the shorter time series don't really cover that early part in the early eighties where we think that exploitation really started to peak. It covers what we think is maybe a more lightly exploited part of the population, and thus you have better contrast between the high SSB and the low SSB, and therefore the high recruitment and the low recruitment.

That gives the model a better ability to fit a relationship, if a relationship is there. With the short time series you're not really seeing what we think would have been the peak of biomass in that region if it had been available for us to model. We think that is why the relationship isn't coming across as strongly in those two southern regions as it is in the regions with the longer time series that cover more of the contrast in the population.

CHAIRMAN NOWALSKY: Okay, so we've got about 45 minutes. Are there any other questions on the presentation, or are we ready to delve into the issues we need to get some feedback from the board on? Okay seeing non hands on questions, we'll turn to Ashton to begin the presentation.

Again, we've got seven items here. After each item we'll stop, get feedback from the board; with the exception of one item with regards to the tagging program where we've got a few extra slides. We'll just bring that up but we'll hold off on feedback until the end of the other items, when we've got some more information for the board.

**PROVIDE PLAN DEVELOPMENT TEAM  
GUIDANCE ON DRAFT AMENDMENT 1**

MS. ASHTON HARP: The PDT has been working hard over the last year in developing the background sections in Draft Amendment 1. We have those together and now we want to move forward with developing the regional

management options based on the stock status in the stock assessment update.

I am going to walk through seven issues today, and as Adam mentioned, I am hoping we can stop after each issue, and have a discussion; and hopefully come to a decision point at the end of each one. The first three, the reference points, projections to reduce F, and the rebuilding plan; you can refer to your guidance document for more information. I've given background information and you can already see the pointed question that I'm going to ask.

For the latter four, the commercial and recreational split, the commercial harvest tagging program, commercial harvest quota, and management within a region. These were brought up at the February meeting earlier this year, but I know it will sound like new information today, so I'm just going to ask some pretty pointed questions related to these topics.

The first topic is reference point, as show in this busy table. It shows the four regions as well as the coast, and it shows the MSY and the SPR reference point's right next to each other; so you can see them as a guide. The TC is recommending as we just discussed in detail, MSY reference points for Massachusetts/Rhode Island, Long Island Sound, and the the coast.

SPR reference points are shown for New Jersey/New York Bight, and the DMV. I've tried to simplify this table a little bit, just to show what it would look like and how it would look to the public if we went out with just the TC recommended reference points. This is what they would see. They would see simply the reference points that the TC has recommended, in turn this is a cleaner way to present reference points to the public.

The PDT would prefer not to go out showing MSY plus SPR reference points, because it is quite confusing. In addition it poses challenges because the PDT would have to develop sub-options for each alternative. That gets to the



question. Does the board approve the reference points as recommended by the TC, meaning the MSY reference points for Massachusetts/Rhode Island, Long Island Sound and the coast, as well as SPR reference points for New Jersey/New York Bight and the DelMarVa regions?

CHAIRMAN NOWALSKY: Okay, well I think we've jumped to the big one pretty quick. Let's get right down to it. Questions, discussion, we need to provide some guidance to the PDT on what they would like in the draft amendment. Dave Simpson.

MR. SIMPSON: Yes it is a tough question. Fortunately for Long Island Sound there isn't really much difference at all, in terms of what it means. But there is a significant one for Rhode Island and Mass, and I think it will be up to them to find a comfort point. It is basically how much you believe that there is a stock recruitment relationship, and it looks like this; versus periods of high and low productivity.

I personally think there were signals in all of those assessments that recent recruitment is improving. I think there is an environmental element to this that may be more important. I'm also looking ahead to, I think it is a shared concern but it is the last point that Jim Gilmore made, which is when we start to put these pieces together we want to try to look as seamless as we can between regions, have as similar rules as we can between regions. That's again where we may want to try to smooth some of this stuff out. I guess I would want to hear more from Rhode Island and Mass what they think about the differences, because the biggest difference is there. Is that just because – well why is that? I'm just very skeptical of stock recruitment relationships.

I think well, it sort of goes back to Mike Sissenwine's work on yellowtail flounder. He published his thesis just in time to have the stock recruitment relationship hold, and then the next year it fell apart. They are elusive. My inclination coming into the meeting was I did

want to defer that decision until after the public had had a chance to see it. We've had a chance to look at what it would mean for management, so there is a little bit of a practical element rather than a pure objective process that I'm looking for.

CHAIRMAN NOWALSKY: Before I go to Mark, who I had next on my list, the goal for each of these would be to try to develop some consensus around the table for how to proceed. In the event that we can't develop a consensus, the default would be to include them both; at least on this topic and that might change as we go through each other topic.

It might be some different outcome by no consensus. But that is essentially what that would mean, unless some board member had some specific motion on one of these matters that they wanted to bring forward. But that is the course that we would be going here as we go through these speakers. Mark, I had you next.

MR. GIBSON: I guess in answer to the question, I would answer no. I hate to do it, but I don't approve either reference point at this point for – I'll stick to the Mass/Rhode Island Region, although my concerns may apply to the other regions as well. It looks to me that there is evidence of non-stationarity in the population dynamics; that is we have a period of time with relatively low recruitment going on.

That challenges both MSY reference points, because as a stock recruit calculation it is not stable with respect to time; but also the SPR since you're drawing randomly from the recruitment distribution, you're giving equal likelihood for the big ones occurring if the small one's occurring. That may not be the case.

I'm concerned that we have estimated biomass targets and thresholds that are unattainable in either calculation; the differences in stock perception in Mass/Rhode Island notwithstanding between the two methods. I don't know where to go with that from here, because putting them both out there for public

comment under those criticisms. I just have a concern about that. But I don't know what the alternative is at this point. The horse seems to be out of the barn relative to the technical merits of either one of them.

CHAIRMAN NOWALSKY: Where we go is we hopefully provide guidance today, then the PDT comes back with a draft amendment at February, or would it not be until May? February, most likely, at which point we would then decide whether or not to keep the horse out of the barn; or some other action at that point, next up, Dan McKiernan.

MR. DANIEL MCKIERNAN: I agree in large part with Mark. My question is, how negotiable is the rebuilding timeframe, because we may find that there are real benefits to creating some common measures among the areas, if it meant extending the rebuilding timeframe for one of the areas a little longer than another? If we're all in the same timeframe and it drives us to have different management measures, it could be problematic, especially I'm thinking – and I talked to David Simpson earlier.

A Montauk based boat coming to Block Island is going to have to comply with the Mass/Rhode Island rules, so it would be really beneficial to the extent that we can make these rules as common as possible; if it means the negotiable part is the rebuilding timeframe.

CHAIRMAN NOWALSKY: To date I believe what we've looked at is just the date selected arbitrarily. I'll turn to Toni though for specifics on what we might need to do with this stock.

MS. TONI KERNS: This is an amendment document, so the board has the ability to change the rebuilding timeframe from what was in the original document to the degree that you want. I don't even know if the original document had a rebuilding timeframe; off the top of my head. It is the pleasure of the board to develop a rebuilding timeframe.

MS. HARP: The rebuilding plan is Issue Number 3, and so I was going to get to that one. The reason why I brought up the reference points first is because everything builds upon that. I have two presentations that divert based on the Boards initial decision for reference points.

There is no rebuilding plan in the original FMP from 1996. There is nothing that says if the stock was overfished that you must do X. It is not in there. The PDT would like to propose something like that; and I am going to ask some pointed questions under Issue 3 regarding that.

CHAIRMAN NOWALSKY: One option right now would be to leave all of these options in here, MSY and SPR for the coast; or take one out for the coast if you wanted to, as opposed to leaving it in Long Island Sound; Mass/Rhode Island obviously creates more work for the PDT. But when we see those options come back in the draft amendment, we would then have the ability to decide if we wanted to take them out. We would have a second chance to potentially take options out before they go out to public.

Obviously in deference to the workload of the PDT, they would provide we take out anything that we can here. Let me phrase it at that point. Is there anyone who supports not having the PDT move forward with working with all of the options that are here, which would be MSY and SPR for Mass/Rhode Island, Long Island Sound and the coast, and SPR for DelMarVa and New York/New Jersey. Okay, I'm not seeing anyone who supports taking any of those out, so that would be the current direction to the PDT; leaving them all in. Ashton, follow up to that?

MS. HARP: Just to clarify, if one region, lets say Long Island Sounds wants to include the SPR and MSY reference points, it does not mean that the other regions have to do that. They could choose one or the other at this meeting. Every region doesn't have to have multiple sub-options. I just want to bring that to their attention.

CHAIRMAN NOWALSKY: Yes I'm not seeing anybody jumping at trimming that workload, unfortunately.

MR. JOE CIMINO: Just to put this out there for the discussion. As Jay mentioned, the coastal was there to show continuity runs. Going back further than reference points, do the coastal options have to be there at all? That's my question. We did a lot of work to move past that. Does that have to be part of the public document? I'm just going to put the question out there.

CHAIRMAN NOWALSKY: Well, I certainly think it is a good question given this board did vote to move forward with the regions. Jay, do you have any other thoughts about the merits of including those options?

MR. McNAMEE: Yes, I do. We did the work for the coastwide again to provide that continuity, but I would suggest that all of the reason why we did this whole exercise with the regions is because none of us are very comfortable. The assessment for this species should not be smeared across the entire coast.

It should be as regionalized as possible; I think we've done that and so I would suggest that going with the regionals and not the coastwide would be the preferred way to go. We've got the information there we could carry forward to coastwide; but I don't see a lot of value in it from a technical standpoint.

CHAIRMAN NOWALSKY: Ashton, do you have anything else to add? Okay, is there any objection to not having the PDT develop management options based on coastwide reference points?

MR. SIMPSON: I don't have an objection, because I don't think that's where we'll go. But don't we need a status quo option for the amendment, and whether we could satisfy that with one of the two reference points for the coast? I'm not sure, well that is my question.

Could we get away without having that default coastwide?

EXECUTIVE DIRECTOR ROBERT E. BEAL: There doesn't necessarily have to be an explicit status quo option in there, because essentially don't approve the amendment and you revert back to the current management program, and that's your status quo. It just depends how you want to illustrate the effects of not moving forward with the amendment; but it doesn't have to be in there.

CHAIRMAN NOWALSKY: All right so again I'll ask, is there any objection to not having the PDT move forward with management options for the coast? Okay so we can remove a couple options from the PDT workload.

MR. McNAMEE: I'm sorry; I thought I was tracking this. I just wanted to clarify for DelMarVa and New Jersey/New York Bight. Was there a request to add back in MSY calculations for those regions or are we comfortable with the SPRs; given that we can't estimate a stock recruit relationship for those two regions? I just wanted to clarify, because I thought I heard both things.

CHAIRMAN NOWALSKY: I haven't heard that specific request. Where I believe we are right now is SPR for all four regions and MSY for Mass/Rhode Island and Long Island Sound, and seeing no objection to that from the board. All right let's move on to the next set of options.

MS. HARP: Now we're moving on to Issue 2, which are the projections to reduce F. As Jay presented in the stock assessment update, the TC did perform two analyses, the 50 percent probability of achieving F in 2020, and a 70 percent probability of achieving F in 2020. I have two slides on this.

The first slide shows just the MSY reference points and the second slide will show the SPR reference points. The two columns on the right are the maximum removals if the 50 or 70 percent probability is chosen. The two columns

on the left show just for comparison what were the landings using the three year average, and what were the 2015 landings.

We can just move to the next slide to show just the SPR reference points as well. There is not too much of a difference between them. There is actually not too much of a difference between a 50 and a 70 percent in most cases. Does the board have a specific opinion on choosing either a 50 percent probability of achieving F in 2020 or would they be more comfortable using a 70 percent probability of achieving F in 2020?

CHAIRMAN NOWALSKY: That's the question. Do we want to include 50, 70 or both or potentially something else that we haven't been presented with; which I don't think the PDT is looking for. Those are the options; 50, 70 or both in the document, discussion, Emerson.

MR. HASBROUCK: In order for me to have a response to this, I think we need to have some discussion about timeline; because if the timeline changes to something different than 2020, then a response to a 50 percent or 70 percent probability, at least in my mind may be different.

MR. McKIERNAN: I would prefer the more liberal value, and the reason is there are other sources of mortality that I don't think we're going to be able to measure very well that we want to resolve in this fishery. As you know there is a tagging program being talked about for the commercial fishery.

When our law enforcement finds instances of poaching tautog they are spectacular numbers of fish. The fear is that there really is an unknown amount of landings that a lot of people are very interested in resolving and are willing to put a lot of work into it. I really don't want this to be measured by legitimate landings as to whether we're going to succeed or not, because success in conserving tautog is going to come not only in the measured catch, but the unmeasured catch.

I would also like to point out that in an experiment that we ran in Buzzards Bay with ghost lobster traps, tautog was the Number 1 fish that was captured and were probably killed in abandoned lobster gear. We need to resolve those. Granted there is less lobster traps going on in southern New England than there was in the past, but that is another source of mortality that hasn't been measured.

We need to work on better ghost panels. We need to find ways for a lobsterman to be losing less gear. We have a regulation, actually an obscure statute in Massachusetts that in some areas around the Elizabeth Islands lobstermen have to fish single traps; which probably results in more lost gear. Those are two sources of mortality that I want to resolve going forward that aren't going to be necessarily measured if the metric is documented landings. I want the more liberal target.

CHAIRMAN NOWALSKY: You're saying tautog needs to be considered in other boards as well. All right so when you say you want the more liberal, you're looking for the more liberal landings number; which would be the smaller percentage of F target. The 50 percent is what you would be looking at. Okay, got thumbs up for that one. Okay so we've got one comment in favor of including the 50 percent only; any other comments? Joe, I'm sorry I had Russ first, Joe. Go ahead Russ.

MR. CIMINO: Well I don't know it may help us all, because I just had a question for Jay, actually. On the projections, is this where that assumption that 2016 and 2017 are playing into this? Is that correct, Jay?

MR. McNAMEE: Joe, I didn't catch the very end, but I am going to assume you were asking about; so 2016 and 2017 we put in assumed harvest that is equal to that average that three-year-average harvest from the last three years of known information.

MR. CIMINO: Then I guess my question would be, since the MRIP estimates are so variable. If 2016 turns out to be very different, by the time this document hits the public is it possible that these projections would be off? Would it impact the projections greatly; we're assuming 2016 is going to be like 2015 if I'm correct. If we realize by the time this document hits the public that that is not the case. Am I following that and is that going to have an impact?

CHAIRMAN NOWALSKY: Well I think it is going to be at the discretion of the board how quickly they want to move with the draft amendment itself. We'd have the timeline that allowed for this last round of an assessment update, to give us these numbers. If we wanted to wait for further landings and request this type of update again, I think it's just going to further push back the timeline. Good? Okay. Russ.

MR. RUSS ALLEN: I understand Dan's concerns and I agree that that is something that should go out for public comment. But I believe since the work's already been done for both of these, they should both be considered in the document. As we talk about the timeline and how everything is going, and as the landings come in for 2016 we'll have a better idea of where that fit into all this. I'm comfortable with both of those, since the work is already done, going out for public comment. I don't think we should have any more options than that.

CHAIRMAN NOWALSKY: Okay so we've got one comment for 50 only, one for both. Dave Simpson.

MR. SIMPSON: I think I would still like to see both and extend that projection out to see when we get to the place we want to be with SSB. You have it out to 2020, but if you strung that out to 2025, are we there in ten years or that sort of thing? Is that much more difficult to do?

DR. DREW: I think we would just want some guidance in terms of, do you want to see a set timeline; like where would we be in 2025, and do

you want like a 10 year rebuilding, a 15 year rebuilding. Do you want to get to 50 percent probability of being above the SSB threshold? These are all different options that we could show you, so I think having some guidance in terms of what exactly are you looking for, would reduce the workload on us a lot.

CHAIRMAN NOWALSKY: What we're looking at with these numbers here, in terms of removals, is based on achieving the target by 2020 right now. That was the projections that have been worked on so far. The PDT can work with a different date if we give that to them here today.

MR. SIMPSON: Right thanks. For the Mass/Rhode Island area, holding landings constant at 257,000 257 metric tons; different fishery, gives you a 50 percent probability by 2020 of reaching your target F. I guess what I'm looking for is, and given that if we held those landings constant. I guess I would just like to see it out to where SSB stabilizes.

The population has adapted to that lower level of F and what is the timeline to get there? The public would have this sense of, if we fished at this level of removals for the next 10 or 15 years, this is where we'll end up; 2020 is kind of an interim look, but where will it take us long term I think is what people would want to know.

CHAIRMAN NOWALSKY: I think if I recall the presentations correctly, for most all of the regions we're at a stable or in some cases slightly increasing SSB at our current level of removals. But that is far below our target SSB. Correct. I'm not sure; we're pretty much there now at stability, so the next level would be?

DR. DREW: The target and the threshold have been set up so that if you fish at the target over the long term with our assumptions about recruitment, you would get to the SSB target eventually. I think your question then would be, when do you get to that target? We can figure that out.

Again assuming you would want maybe a 50 percent chance of being at your SSB, the SSB threshold, you'd probably hit the threshold obviously before you'd hit the target. If that is what you're interested in, we could provide those projections. It's obviously a different set of projections to say, in 10 years where will we be versus going through kind of the iterative process of where would we end up with a 50 percent probability.

CHIARMAN NOWALSKY: I think Dave's request is, whatever we wind up choosing here for projections, you would like it projected far enough out to show it when it would reach the SSB target.

MR. SIMPSON: I think so, but I don't want to ask for more work than is necessary. I'm not sure how much work I'm asking for. Sort of that re-stabilized, as you say, you might be able to just answer it. It will be 15 years before you re-stabilize at a new number given the age structure and so forth; and that might be the answer the public needs.

DR. DREW: We can't tell you that now, because we stopped the projections in three years and you saw where you ended up. But that is something that we could do. It is not a ton more work for us, I just want to be careful that as we go down these lists and start adding things on top of that can you prioritize some of these tasks for us, and give us really clear guidance in terms of you want to see.

Obviously if you fish at the 50 percent probability of reaching F target that may give you a different timeline than the 70 percent target. You're going to also have different timelines if you're fishing at the SPR and MSY reference points, and we'll have to do those. If you give us a firm timeline of, we want a 50 percent chance of being above SSB threshold in 10 years. Then that is additional work to go through the iterative process to figure out this is the amount of landings you need to maintain to get to your

threshold in a set time, which is different than the projections to do.

If we keep at this level of landings with the F target value, then where do we end up in the long term? It is not to say that we can't do these, it is just that the more specific we can be that will really cut us down on the amount of work that we have to do.

MR. MICHAEL LUISI: Forgive me, I'm trying to process what was just said there, it was a lot. Let me ask my question then maybe I'll think that through. This is to either, I guess Katie or Jay. Am I understanding the connectivity between timeline and percent probability in such a way that – I'll just refer to the DelMarVa 50 percent probability of achieving F at 139 metric tons. If we were to harvest at 139 metric tons we have a 50 percent probability of achieving the target by 2020.

But if we were to change that timeline and make it 2025, would that same catch level because of the downward trend that catching 139 metric tons has on F target. Does that ultimately turn into more like a 70 percent probability, if you extend the period of time for which you're fishing at that level? Are they connected in such a way that that is how it would go? Are you increasing your probability at fishing at a constant level that is an attempt to achieve the target if you extend the period of time for which you're doing so?

MR. McNAMEE: I think the most direct answer, Mike is, we would have to run it and see. In particular for DelMarVa when we're using an SPR calculation it is just kind of after a certain amount of time you kind of hit this equilibrium, because it is just sampling out of that recruitment vector that is in there.

Eventually everything just kind of stabilizes. But I am trying to think back to these plots. I think the 139 does increase, so if you then took and stretched the time period out, I think it would in fact create a more optimistic probability. But

how optimistic, we would have to do it to tell, but I think in general you can make that statement.

It is a little less clear with the MSY regions, because now there is a relationship in there that is at play. I think as a general statement I think keeping things with these numbers that you're looking at up on the screen. If you then stretched it out, it would probably increase the probability that you reach your goals.

MR. ADLER: I was watching that myself; as far as everybody else is reducing and DelMarVa is going up. I was just curious as to why they go up, everybody else goes down. That is fine if it works, but I was just thinking in terms of even if it just stayed status quo. Wouldn't it be without any increase at all down there, wouldn't that improve the probability higher than 50 or 70? What I got stuck on here was that they had 77, they caught 41, and they get to go up to 139; which is fine, I'm not against that. But that just caught me right there; and I don't know why.

CHAIRMAN NOWALSKY: One of the things we talked a little bit about status quo earlier. The first two columns in this table would likely be included in the draft amendment, or one of them, or that would be – I think you want to at least include that information for public consumption.

MS. HARP: There is no reason why you can't include the two left columns in there; it is just historical information for comparison purposes.

CHAIRMAN NOWALSKY: Then it would come back to the board whether or not the DelMarVa Region actually wanted to pursue an increase in landings, and it would be up to the board how to address that request. We're still at the question of 50, 70 or both. Dan, let me ask you at this point. I've got two in favor of both. Do you remain opposed to both?

MR. McKIERNAN: Okay I have a no. Where that would leave us is including the 50 and the 70

percent, and again we would have the four regions but not the coastwide projections, and that would include SPR for DelMarVa and New York/New Jersey, and both MSY and SPR for Mass/Rhode Island and Long Island Sound. Okay moving on to the next topic.

MS. HARP: Okay so Issue Number 3 is a rebuilding plan, and we've already kind of touched on this a little bit. How long will it take for SSB to reach the threshold? Right now as you can see, and for actually quite some time, all the regions, except the SPR reference points for Massachusetts/Rhode Island are overfished; as you shown in the red numbers.

Then the question is does the board want to establish a spawning stock biomass rebuilding plan? It is not currently in the FMP. As Katie said, if you do want to task the TC with this work, we have some pointed questions for you; specifically should we build to SSB target or SSB threshold?

What would the rebuilding timeframe be, should it be 10 years, should it be 15 years? What should the probability of achieving SSB threshold or target be? Would it be 50 percent, 80 percent 100 percent? These basic questions will need to be asked before the TC can begin work on a rebuilding plan; if that is the will of the board.

CHAIRMAN NOWALSKY: Ashton, if the answer to the first question of establishing SSB rebuilding plan is yes, you need answers on all of these today before you could complete a draft amendment to bring back to the board. Okay. You know what's before us now. Thoughts on a rebuilding plan, at present there is none specified in the Tautog Management Plan; which gives the board quite frankly a lot of flexibility on how to proceed. Mark Gibson.

MR. GIBSON: I would argue against establishing a rebuilding plan at this time, given the remarks I made earlier about my concerns about the stability of productivity. I think we could get trapped into a place where we can't get to.

We've had a lot of experience with rebuilding plans at the New England Council, many of them we can't get to; we can't get there from here. I would argue against that at this time. Perhaps in another action following a benchmark we might want to reconsider, but I would argue against it now.

CHAIRMAN NOWALSKY: In terms of actions moving forward, a rebuilding plan would require another amendment, or could that be done through some other type of shorter timeline management action? Toni? In the event that the board does not move forward with initiating a rebuilding plan in this amendment, can a rebuilding plan only be initiated through an amendment or is there some other management process the board could pursue; an addendum or something, to initiate one in the future?

MS. KERNS: If you include a rebuilding timeframes in the items that are frame workable or adaptive management in this document, then you could do a rebuilding timeframe through an addendum. But currently I do not believe that that is an addend-able issue, so we would need to make sure we included it in the amendment.

CHAIRMAN NOWALSKY: Okay so that actually adds a third option here, in addition to yes or no to the rebuilding plan the include the ability to initiate a rebuilding plan through adaptive management; if I heard you correctly.

MR. SIMPSON: Yes I think that's a good idea, it would make it easier to do if we decide down the road we want to do that. But I'm kind of with Mark that we're better off focusing on getting F to the target and keeping it there, and then nature gives you what it gives you rather than the speculation that goes into where we can go with SSB with changing productivity of stocks.

CHAIRMAN NOWALSKY: The two options then that would be in the amendment would be status quo, no rebuilding plan and the other option would be a rebuilding plan could be an option under adaptive management. Any

objection to that; okay great, we'll appoint Number 4.

MS. HARP: We're making some progress here. Item Number 4 is commercial and recreational split. The recreational sector contributes a large portion of the harvest when looking at the data over the entire time period.

However, if you were to slim that down and only show data from 2010 through 2015, you would have pretty much the exact same numbers. It has been this way for quite some time. The board could consider having one sector take a greater harvest reduction than the other, and if they want the TC to look at this and include it as a management option, then you can let us know.

CHAIRMAN NOWALSKY: Okay do we want to differentiate in reductions between the recreational and commercial sector, or would the reductions come equally?

MR. SIMPSON: You know or potentially alternatively leave it to the jurisdictions how they want to achieve their target F in their package of management actions.

CHAIRMAN NOWALSKY: Where would that fall as an option here? If we didn't specify in the amendment, would that not be the default way for the states to proceed?

MS. HARP: That's the last item that I was going to address with the board. Does it want to be state-by-state or does it want to treat it like one region where all states within a region take the same cuts. So we could fold this discussion into more of a regional management discussion, if you want to take it out by region.

CHAIRMAN NOWALSKY: You're suggesting holding off on completion of the discussion of this item until we get to Number 7?

MS. HARP: Right.



CHAIRMAN NOWALSKY: Any objection to that? We are going to temporarily skip 4 and move on to 5, which we're going to temporarily skip also after Ashton just gives a brief overview of it.

MS. HARP: Item Number 5 is the commercial harvest tagging program. I just want to go through the options with you. I also want to say the tagging program is underway. That took a little bit of time, because we are working with Stony Brook University, which is very nice of them to work with us on this project, as well as New York DEC.

The team had to establish ethical handling protocols for dealing with live animals which delayed the project, but it is underway now. The fish are tagged. I am going to present a separate presentation that will show the tags on the fish. I know everyone kind of wants to see what that looks like and how they're doing.

Just note that the full project report will be presented at the February meeting, so I know it is a little preemptive for me to be asking you these next questions, given that you haven't seen the full project report; but I'm just going to give them to you anyways, and then we can kind of have a discussion about it.

For Draft Amendment 1, the Board can request the PDT to include text in adaptive management that allows a commercial harvest tagging program to be developed at a future date via an addendum. Or the board can ask the PDT to develop management options for a comprehensive harvest tagging program.

Even though we're not sure if we want to move forward with that the board can just say, let's just develop management options for it or the board can say that they don't want to include the commercial harvest tagging program. We've had second thoughts and we don't want it to be in our adaptive management, we no longer want to consider it. With that we're not going to have a discussion now, I'll have the presentation at

the end of this presentation and then we'll come back to it.

CHAIRMAN NOWALSKY: Okay let's move on to 6.

MS. HARP: This is the reason why I put the tagging program kind of in the middle of the document is because it relates to a commercial harvest quota. One could say that this might be a regional decision as well. The question is should each region and/or state have a commercial quota.

A commercial quota may be useful if the tagging program is implemented; then we would know how many tags are needed. The options to consider if a quota is considered regionally are you could have a regional quota, which is common pool. If you have three states and all three states are going after the quota, and whenever the quota is hit the fishery would shut down.

You could divide the quota equally between the states in a region or the regional quota could be allocated to states based on state shares. How we do that if it's historically, if it's politically, if it is all the ways that were discussed yesterday. There are many ways to allocate the quota. That would need to be discussed by the board as well.

CHAIRMAN NOWALSKY: Thoughts about a commercial quota.

MR. MCKIERNAN: I can't imagine this plan finishing up and not having a commercial quota. What is the vision of this fishery at the end of the day, especially with the very involved and possibly expensive tagging program? It seems to be that you only need a tagging program if you're trying to constrain catch to a level and make it accountable. We have to have a quota.

MR. STEPHEN HEINS: I agree we need a quota, and we're probably going to end up with state specific quotas. But I also think that that has been a little bit problematic for us in the past. In

order to get at the quota, it is almost like a Catch-22. I think if we implemented a tagging program without a quota, you would wonder how many tags you're really going to need. But if you implement a tagging program I think you're going to eliminate a lot of the illegal commercialization. I don't know. I do believe we need a quota overall on the coast, but it is just going to be problematic for us I think.

CHAIRMAN NOWALSKY: Any other hands? All right I've got a bunch here, so let me see a bunch of hands that want to speak. Okay, we'll start with Eric.

MR. ERIC REID: As far as tagging goes, I think we absolutely have to have tagging. But as far as the methodology there, I'm uncertain whether or not it should be dealers who are tagging the fish or if fishermen are tagging the fish. I have some reservation about that. As far as quotas go, if it is a regional basis, New York will get two quotas. Is that correct? Because you've got the Sound and you've got the coast.

MS. HARP: That's a good question.

MR. REID: I have some concern with that; because it is not very far from the south side of Long Island to the north side of Long Island.

CHAIRMAN NOWALSKY: All right I know your question is not answered. We'll go to Dan and then John Clark.

MR. MCKIERNAN: Yes just for the record, Rhode Island and we have quotas already.

MR. JOHN CLARK: We just have standard regulations for commercial or recreational, and I believe that's similar to Maryland. If we do go to a quota system, if that was kept as an option to just maintain recreational, well universal regulations for recreational and commercial catch.

MR. DAVID V. BORDEN: Don't we have a fourth option that states within a region could by

mutual agreement share the quota, in other words come up with whatever the sharing formula is? Isn't that another option?

CHAIRMAN NOWALSKY: We have the regional quota there. How is that different than the sharing?

MR. BORDEN: Well, the second part of this, the way I understand it, it is how you share, right?

CHAIRMAN NOWALSKY: The first option would say the region has a quota. When the region's quota is hit all states stop fishing. The second option would say, give a region a quota but then divide that quota amongst the individual states to then fish as they so desire.

MR. BORDEN: The second one, maybe I'm reading this or not understanding it properly. The second one says equally.

CHAIRMAN NOWALSKY: Correct so if there were three states in a region.

MR. BORDEN: They all get one-third.

CHAIRMAN NOWALSKY: Correct.

MR. BORDEN: Okay.

CHAIRMAN NOWALSKY: Which is different than the last bullet point, which would be some other allocation formula.

MR. BORDEN: Okay so Number 3 covers my point then.

MR. LUISI: Well I understand why there would be certain states and certain regions; I feel that there is a need for a tagging program. In DelMarVa as Mr. Clark just mentioned, our commercial limit is the recreational limit. We don't have a commercial fishery. It is just one more thing.

A tagging program would just be one more thing, another permit, another coordination to try to

get tags to folks who are going to bring two fish home during the summer months, and four during the winter months. I just wonder if moving forward there could be some form of an exemption to the tagging program.

If a state has the same bag and size limits for its commercial fishery that it does for its recreational fishery; almost like a de minimis as it relates to the tagging program. I feel like it's going to be more effort on the states part to implement that program then it will be to benefit the resource.

CHAIRMAN NOWALSKY: Let me pose this question to staff, input from the PDT. I believe that as with most of these issues, the board is going to want to see what each of these bullet points potentially mean for my state. If we just gave you an answer today of, we the board wants to institute a commercial quota. What additional guidance would be needed to start developing some of these options; to bring something back to the board in February? Is that enough information, or do we need to delve deeper into these today?

MS. HARP: Well it would need to go back to the commercial and recreational split, to see if there needs to be a greater reduction from recreational versus commercial. That question would definitely need to be answered, and then just the third bullet item. If we're going to allocate a regional quota, which could be an option in the management document, it would be helpful to have some kind of thinking on how you would like to allocate that. Do you just want to use historical landings and the PDT can come up with different years to show historical landings or is it some other way that would like to allocate a regional quota?

CHAIRMAN NOWALSKY: Okay so I'm trying to keep us on track here. We've kind of taken two items, 4 and 6, and there is certainly an understandable need to consider them both together. But it is making it a bit difficult to

answer either question, so let me go to Joe; who had his hand up.

MR. CIMINIO: I also want to remind everybody that through Addendum IV and V, we had to come back with Addendum V because certain states were saying their commercial fisheries were also – excuse me, going back further – Addendum IV was saying that we were going to reduce F in this fishery by only taking cuts in the recreational sectors coastwide.

Then coming back and saying some states needed to do something with their commercial fisheries. I have a concern, I guess, and it may not even be part of our region. But with allocations being based on years where certain states knew that their commercial fishery was part of a problem, and maybe that wasn't the case for other states.

CHAIRMAN NOWALSKY: Pretty much every speaker I've heard, I've heard no one speak against a commercial quota. I think we'll direct – all right so we'll hold up on that – Roy, you had your hand up.

MR. ROY W. MILLER: I think the DelMarVa Region is kind of in unanimity that a commercial quota is not needed for our region.

CHAIRMAN NOWALSKY: An option to move forward with would be a commercial quota in only certain regions, which is part of Item 7, which we would discuss next; correct?

MS. HARP: We can include the commercial quota option. I can take it out to public comment in that region; and then if it overwhelmingly comes back that you do not want one then it can just be stricken from the record and then that region would not have a commercial quota.

DR. WILSON LANEY: Just a question. This relates to the tagging program and to, if I'm remembering correctly, law enforcement concerns that prompted consideration of that in the first place; even if you do have a situation

where you don't have commercial fisheries in place within a given region.

If you don't put a tagging program into place coastwide, does that leave you open to the possibility that then you've created a loophole in your enforcement program? I would defer to law enforcement to answer that question, but it does seem like that would then create a potential outlet for continuing some of the illegal harvest issues that we're trying to address in the first place.

CHAIRMAN NOWALSKY: Dan, I had your hand again.

MR. McKIERNAN: I agree with Wilson's comments. I want to recall the discussion of that Law Enforcement Subcommittee we had about the need for tagging, and I believe there were some Delaware enforcement officers who did express concern that fish were being harvested and sold, and they weren't being accounted for. It seems to me another option should be, and to satisfy Mike's concern, if a state has the same commercial limit as their recreational limit, then maybe they are talking about no commercial sale.

Because if you're going to condone commercial sale that are going to be untagged fish, it completely undermines our concerns that there are a lot of fish leaving our states and going over state lines into these markets; especially in New York. We just have this fear that is a big sink hole of mortality. If you're really going to manage this thing with a common limit, then you essentially have game fish, which maybe ought to be an option up here; to have no commercial fishery.

CHAIRMAN NOWALSKY: Let me turn to law enforcement for a moment regarding the discussion about a commercial quota in one region, but not others; or in all but one region. Let me get their comments first.

MR. JASON SNELLBAKER: The way I see it, if you don't have a quota that's fine, but every fish that goes to a commercial market, if you're going to

have a tagging program needs to be tagged for consistency. The tagging program is going to flesh out the black market fish. With there being a potential for fish to get to market that don't have to have a tag, because they're from one of the states that doesn't participate in the tagging program.

That defeats the whole purpose. The idea is you have people who are not commercial fishermen who are selling large quantities of fish. The idea is they will not have access to the tags, so the fish that are in the market are all going to come from a commercial source; and that is going to protect our commercial fishermen.

CHAIRMAN NOWALSKY: The comment from law enforcement is that a quota would not need to necessarily be instituted in all regions, but there would need to be a uniform tagging program.

MR. SNELLBAKER: That's correct.

MR. CLARK: Yes, the problem we've had in the past with the tautog mostly has been from recreational fishermen. I think if markets can only sell tagged fish, obviously fish that a commercial fisherman in Delaware catches, for example, wouldn't be able to go out of state without the tag. But we could also institute something perhaps dealer tagging in the state; where we could track the tags that way. I think there are options we could do, where we still don't go to a quota and just have our recreational possession limit for our commercial fishermen.

MR. LUISI: I appreciate the comments. I was thinking a little selfishly just about the administration of a program that would require more resources than the benefit, but not thinking outside of our region. I certainly understand the need and we would be committed if a tagging program is ultimately determined to be something that this board wants to put in place. We'll figure something out in order to make sure that we're doing our part to help with the problems that exist.

MR. THOMAS P. FOTE: I couldn't let the comment go by. It is not recreational fishermen, it is poachers. We keep saying that it is not recreational. Anybody that is hook and line selling fish illegally is a poacher, not a recreational angler.

MR. CLARK: I'm sorry Tom, I misspoke. I meant poacher.

CHAIRMAN NOWALSKY: Let me do this right now. Let me ask Ashton to give us some guidance on what answer she specifically needs from us on this today. The goal was to bring back a draft amendment for the February meeting. The timeline for 2018 implementation could have that draft amendment back in May, and still meet 2018 implementation; but we would need to find some way to get through these issues.

One way would potentially be to take them all back, think about them and just bring them back up for discussion again at a February board meeting. I'm not sure we would make tangible progress. Another option would be some type of working group to address it. But let me ask Ashton what answers she would need to go back to the timeline here.

MS. HARP: Just thinking about the next issue, which is management within regions, and really starting to manage this fishery within regions. It seems like maybe three regional working groups might be helpful. I'm saying three, not four, because I'm thinking of Massachusetts/Rhode Island as one working group and then the Long Island Sound and New Jersey/New York Bight as one working group working together; at least in the beginning on how we manage that fishery and the DelMarVa working group kind of working together as well.

I realize we don't want to have the same management coastwide. That's not really the goal; there is different stock status coastwide. Maybe working together in small groups might help us get to where we want the regional

management measures to be within each region, and they can be different across regions; and that's fine.

CHAIRMAN NOWALSKY: I mean clearly the New York/Long Island Sound commercial issue is a large one in how they would deal with a commercial quota that would potentially pull from two regional quotas. Let me hear thoughts about regional working groups. I saw some heads nodding that I think were in an up and down yes direction.

I'm getting some thumbs up. I think we're getting consensus. What those regional working groups would specifically work on would be Items 4, 6, and the one we haven't seen yet, which was 7. If you could just pull 7 up for a moment so we could take a look at that. That would be the management within regions.

I'm still seeing heads nodding. Now if we pulled that together we would then get input from that; discuss it in February here at the board, and then give that to the PDT for further development. In the meantime the PDT could, if they so choose, work on the items we've passed on so far for development. I saw Joe's hand up, and then I'll come to Bill Adler.

MR. CIMINIO: I just had one question; well I guess a two-part question. One has the AP weighed in on any of this, and are we envisioning them as part of these working groups?

CHAIRMAN NOWALSKY: Who we put on the working group would be at our discretion. Typically I think the AP would get the draft amendment when we send it out for public comment, and we would get their formal report at that point.

MS. KERNS: We actually do engage the AP before the draft goes out for public comment. But we would need at least a substantial draft to engage with them on, and I don't think we're there yet. You could either include them in the working group, or wait until we have a little bit

more meat on the bones; and then we can engage the AP as a whole.

CHAIRMAN NOWALSKY: What I will offer, Joe is with some of the tagging work we did reach out to them at that time to get some feedback as we were going through that process. They have been engaged on parts as we've moved forward and that would be a good suggestion.

MR. ADLER: First of all, in the process, the development of a draft if it's an amendment, would it not be development of a PID first as amendments usually go that way? A PID that goes out and then comes back and then we do the draft amendment and proceed from there. I think that is the process.

The second thing is I just wanted it noted that I don't know if quotas are adopted. If there is a provision in or there would be a provision in an amendment for a transfer of quota; if we go that route, if there is a quota. Because I know some of the plans have transferability others don't; and I just would think that if something in the document would allow for transfer of quota if there are quotas. Then at least it is in the document and we wouldn't have to come back and say whoa, we can't do that if quotas. Those are my two comments.

CHAIRMAN NOWALSKY: Yes and you're 100 percent, and the PID that had gone out for tautog helped get us to this point so far to keep us focused on these issues as the ones that we need to develop in the draft amendment. We're good with going ahead with some regional working groups. Do we want to get members here today, or do we want to form those afterwards? What's the thought of staff?

Okay so what will happen is staff will follow up with the individual states, and we would focus on the three regions; Mass and Rhode Island, Connecticut, New York and New Jersey, because we've got to deal with the Long Island Sound issue, and then DelMarVa; and we would discuss those three issues with regards to the

commercial quota, how to deal with potentially splitting it recreational and commercially within each region. All right we've got consensus there.

EXECUTIVE DIRECTOR BEAL: Yes I just think controlling expectations a little bit; I think it is going to be hard to get a final draft for February, given the working group structure. I think where we'll carry it as far as we can at the staff level, the working groups will take some more time, MSY and SPR still being in there is additional options.

I think we'll work with you if that is okay with you, Mr. Chairman, and decide what the best use of the board's time will be in February. Is there enough meat on the bones to come back in February and talk about that and refine it some more or should we skip a February board meeting altogether and just wait until May? We'll just have to see where we are as the early winter progresses and we get toward February, if that works for you.

CHAIRMAN NOWALSKY: The goal I think at this point would be to have the draft amendment in May, not February. I think the question becomes, can the regional working groups provide enough information that the board wants that information to go right into the document or does the board want that regional information to come back to the board.

That would be the meat on the bones potentially in February; to meet a May draft? Do we have any thought about whether we want that regional working group information to go right into the draft amendment, or do we want to hear it back and discuss it at the board level potentially in February? Dan?

MR. McKIERNAN: I suggest it come back to this board; just so the regions can look over their shoulder and see what the other region is doing and see if we can mesh things up. Otherwise, it sounds reminiscent of the Lobster Conservation Management Teams, which has created some pretty wicked chaos in lobster management.

CHAIRMAN NOWALSKY: Okay so assuming that we can get those working groups to meet, get the information back; that would be the goal to discuss that in February. Let's go back to 5 with the tagging trial, and the question that we want to answer is, do we want to in the amendment similar to the previous discussion we had.

Do we want to have the amendment clearly specify and have the PDT develop what the tagging program looks like or do we just want to initiate a tagging program, and then have it further developed in a future addendum? I'll turn to Ashton for the presentation on the update of the tagging trial. Then we can try to answer that question as our last item of business today.

#### **UPDATE ON TAUTOG TAGGING TRIAL**

MS. HARP: I've brought pictures and videos, so it will be fairly quick. I just kind of want to put some pictures to this. The tagging trial began on September 28th. There were three tags we were looking at. I mean originally we started with like 20 tags. LEC looked at them, we narrowed it down to three tags, and now as with any project it has been narrowed down further to one tag.

That is the tag; it is the national band strap tag. This is actually the one that the LEC preferred as well. When you put it on the fish it seems to be relatively easily put on with the use of an applicator. We'll have a full project report at the February meeting that will go over that.

You cannot take it off the fish and salvage that tag; it is 100 percent not possible. That is the main thing that we wanted, and it also allows us to put a numbering schematic on it; as well as the year and the state. We'd have to give these out every year and they would be specific to that state and that year.

Now you can see the fish actually being tagged in its opercula. There you see now the tag is on. The last slide is these are the tanks that the

tautog are in, so there are 15 tautog that have tags on them, and there are six that are untagged for control purposes. Now I just wanted to show a quick video of the tautog with tags on them. I just want to thank New York DEC and Stony Brook University for putting this together. You know they've been great to work with and to get this underway. We can replay it like two times, because it is kind of a quick video.

MR. ADLER: Just a question as to where are you planning to put the tag, in the gills that you said or somewhere and is there any mortality of that fish that you've seen so far?

MS. HARP: The tag was placed on the opercula, you know right here in the bony part. That's the whole entire purpose of the study is to gauge mortality. I have not heard of any mortality, but I'm not going to say that there is not; because the full project report will be presented in February. But from what I've heard, they are taking the tags relatively well. There are no issues to report.

CHAIRMAN NOWALSKY: Eric, I'll come to you in just a moment. I think what we'll do is we'll just send that video around to anybody who wants it if we can't get it up. If we can get it up before we get done here, otherwise we'll just send it around.

MR. REID: Are the tags FDA approved?

MS. HARP: I'll have to check if they're FDA approved. I was not aware that tags had to be FDA approved; but I will look into it.

CHAIRMAN NOWALSKY: It looks like we've got the video going there a bit. That brings us to the question of, what do we want to put in the amendment. No tagging, tagging and we want the PDT to develop all of the specifications for the tagging program, or do we want to have tagging but just allow for future development of that?

We did hear from law enforcement that they would want that tagging program to be consistent up and down the coast. I don't think that would be a topic that we would want to allow the individual regions to come up with the individual ways to go about doing so. I don't really want to push that off to the individual working groups; thoughts on those three options, no tagging, tagging fully developed by the PDT as options or to be developed down the road.

MR. BORDEN: I support Option 2. There has been a lot of discussion for a long period of time about the need to solve the poaching problem. We've got to be proactive about it and take steps to resolve this, I think.

CHAIRMAN NOWALSKY: That would be fully developing the options as part of the amendment. One of the things that we have, what we've talked about now is putting that off to May. Let me turn to Mike first, and then I'm going to come back to the PDT to ask what guidance they would need to start developing what that tagging program might look like.

MR. LUISI: I'll simply just say I think Option 2, which would be, have the PDT develop the program would be the way to go. I think we need to kind of learn from our experiences with striped bass; where states kind of took their own direction on how they were going to apply tags, only to find that years later we were doing Addendum III, which made everything consistent throughout the coast. I would be supportive of Option 2.

CHAIRMAN NOWALSKY: Okay, so I'll turn to the PDT for what additional advice would they need from the board today to work on those management options.

MS. HARP: I don't think we need additional advice from the board today. I need to circle back with the research team and just kind of see how the tagging process went, before we could

come up with the options; so no other questions today.

CHAIRMAN NOWALSKY: Yes, I think it would be contingent on the tagging team deeming the trial program a success. We won't have that report until February.

MS. HARP: I will also share this with the LEC Working Group that we've already created, so that will be shared within the coming months with them. That will be prior to the board meeting, so they'll have feedback on it as well.

CHAIRMAN NOWALSKY: Okay so we've got tasks for the PDT, not all of their questions answered, but I think we've at least given them some. Katie would like to add something.

DR. DREW: Can I ask for some clarification for a couple of the TC related tasks, or issues that were brought up?

CHAIRMAN NOWALSKY: Please do.

DR. DREW: I think Dave had requested the long term projections of the SSB, so I think what the TC then would go back and do is for those projections that currently end at three years, we would take that metric tonnage that achieves the F target in the specified time and run that out; and then report. It would say like DelMarVa can fish at 139 metric tons to have a 50 percent chance of achieving the target, and that would achieve the SSB threshold in X years for all of those options. Is that what you're looking for?

MR. SIMPSON: Yes, I think that does it. It's a constant harvest strategy basically projecting that out. I think it will be helpful for DelMarVa, because I look at the prospect of tripling your current landings. You can get away with that in three years, but can you in ten? I think the public is going to want to know about that.

That is what I'm asking for, and if that's the simplest thing. The other thing is that I would be happy with just an SPR projection for Long Island



Sound if that's okay with New York. I was concerned about eliminating MSY out of a sense that that would put more pressure on Rhode Island and Massachusetts, sort of being the odd ones out.

But I think it is easy enough for us to explain for Long Island Sound, they look the same. They are so close to the same numbers you could expect the same result with MSY if we ultimately adopted that. I would be okay with taking that one little task away from the TC.

DR. DREW: Just one other, I guess related back then to Massachusetts and Rhode Island had expressed some reservations about all of the options, reference points, and options on the table. I was wondering are you looking to have the TC develop additional options to address those concerns. I mean you need to pick something and what would you like us to do about that?

CHAIRMAN NOWALSKY: Where we were before was we had the 50 and the 70 percent options, SPR for all four regions, MSY for Long Island Sound and Mass/Rhode Island. What I'm hearing now is a request to remove the MSY calculations for Long Island Sound. Where is the board on that? Is there any objection to removing the MSY calculations as reference points for Long Island Sound? Okay, I see no objection to that.

DR. DREW: To clarify, just for the projections or all across the board SPR only for Long Island Sound?

MR. SIMPSON: I think at this point just the projections, and we can say I think fairly that the outcome is similar at least in the short term. Again, my only basis for saying I don't like MSY is I just don't believe we're getting greatly informed by the stock recruitment relationship. I am just skeptical of that. I would just as soon keep it simple and use an SPR. God knows we've moved our reference points around enough on tautog over the last 15 years.

CHAIRMAN NOWALSKY: Does that answer your question, Katie?

DR. DREW: Yes, for that specific question and then back to, I guess Massachusetts/Rhode Island.

CHAIRMAN NOWALSKY: Then we have the second question of additional projections for Mass/Rhode Island. We're dealing with the 50 and 70 percent by 2020; is the two that we have right now.

DR. DREW: Prior to that to the reference points specific. Which reference points do you want at all? It sounded like Massachusetts and Rhode Island didn't want either of the ones as they have been calculated or presented today. I was wondering if there was anything the TC could do to help them make this decision, in terms of what reference point they want to see.

MR. GIBSON: Well, if I could have my wish list, but I'm concerned about the workload. I would like to see reference points on the SPR side computations that perhaps only drew from the most recent 10 years, 12 years of recruitment strength; what that would do and some thought about the stability.

The MSY side more analysis of the stability of that SR relationship and what productivity might be now, as opposed to averaged across the entire stock assessment data stream. But that is my wish list. I'm concerned about the workload that that would require, and the timeline impacts on the action. But that is what I'm concerned about right now is the attainability of those reference points with either calculation.

CHAIRMAN NOWALSKY: Well I'll take it one step further in suggesting that if we open it up to Mass/Rhode Island, where do we stop opening it up at that point? Do we start recalculating reference points based on other timelines? I think we have an assessment. I think the TC has already done the work with what we have.

I think we, after a lot of debate earlier today, chose to keep the MSY and SPR reference points in as calculated; as the two options that would go in the draft amendment. I'm inclined, unless the board feels strongly otherwise, to stay the course at this point. Seeing no objection that's what we'll do. But thank you for that. Is there any comment from the public on anything that we've discussed here today regarding development of the draft amendment? Okay seeing none; is there any other business to come before the Tautog Management Board this afternoon?

**ADJOURNMENT**

CHAIRMAN NOWALSKY: Seeing none and having completed the business on the agenda; we stand adjourned. Thank you all very much.

(Whereupon the meeting adjourned at 2:06 p.m. on October 25, 2016.)



Department of  
Environmental  
Conservation

## 30 Day Commercial Tagging Trial for Tautog



Sandra Dumais (NYSDEC)  
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## **Background and Purpose**

Tautog (*Tautoga onitis*) is an important and valuable commercial and recreational fish species throughout its range from Massachusetts to North Carolina. Since 1996, the Atlantic States Marine Fisheries Commission has coordinated interstate management of tautog. Despite increasingly restrictive management measures, the stock continues to be overfished and overfishing is occurring throughout most of its range (2016 Stock Assessment Update).

Law enforcement officials have evidence that indicates there is a significant illegal harvest of tautog, primarily in the live market. Reports of illegally harvested fish have been documented in cases against fishermen, fish houses and at retail markets and restaurants. In Massachusetts there have been a number of large cases made against licensed commercial fishermen, whereas in Delaware, New Jersey and New York illegal harvest seems mostly concentrated in the recreational fishery. Regardless of source, most undersized, out-of-season or illegal quantities of live tautog are associated with the demand for tautog at ethnic food markets or restaurants. These markets are often found in large cities such as New York City and Philadelphia. To a lesser degree illegal activity does occur among individuals and small groups harvesting fish for personal consumption or subsistence. This latter group may not even be aware they are violating specific regulations.

A commercial harvest tagging program has been recommended to increase accountability in the fishery and curb illegal harvest. The tagging program would accommodate both the live and dead commercial markets. To evaluate the merits of such a program a Law Enforcement Subcommittee (Subcommittee), comprised of Tautog Board members and law enforcement officials, was developed in 2015. As agreed upon by the Subcommittee, the tag should be easy to attach, secure and have minimal to no impact on the appearance or condition of live fish for the amount of time that live, tagged fish are maintained until consumption. The Subcommittee evaluated multiple tag types and fishermen were interviewed to describe the handling process from catch to market. The purpose of the tautog tag trial is to investigate the efficacy of a commercial tag that serves as a tool for law enforcement, while minimizing impact to the resource.

## **Methods**

### *Fish Collection and Holding Facilities*

Fish were collected using 41 ventless fish traps placed along the south shore of Long Island Sound from Mattituck Inlet, New York to Rocky Point, East Marion, New York. The traps were made of one inch square 14 gauge black mesh and were 40.5 inches long x 21 inches wide X 12 inches high and were ballasted with concrete runners (Figure 1). Each trap has a side entrance and is divided into two compartments with a twine mesh funnel between each compartment. Opposite the trap entrance is a 5" x 5" escape panel fastened with biodegradable hog rings on

top and stainless steel hog rings on bottom—if the trap was lost, the bio-rings would degrade and the panel would open. The unbaited traps were checked weekly, as weather permitted.

Twenty-one tautog were collected on September 23 and 26, 2016 and placed in one of two live wells on board the vessel with flow through ambient sea water (Figure 2). The fish were transported back to Mattituck Inlet and placed in a live cart hung off the dock of the NYSDEC Mattituck Creek Waterway Access Site. The cart was placed where sufficient depth and tidal flow existed to maintain oxygen levels to support the tautog. The live cart was constructed of PVC pipe approximately 5 feet long by 3 feet wide and 30 inches high and covered with 1 inch by 1/2 inch plastic mesh (Figure 3).

The fish were held in the live cart until September 28 when they were transported to the holding facility at Stony Brook University, Flax Pond Marine Laboratory in Old Field, NY (Figure 4). The fish were split into one of three tanks for the trial period. Each tank was a 6 foot diameter cylindrical tank equipped with a viewing window, a standpipe in the center for drainage and 2 airstones to aid with oxygenation of the water. Each tank held 2 feet of flow-through seawater from a salt water well at approximately 55°F (12.8°C).

#### *Tagging and Transport*

The research team was sent four different types of tags by the Law Enforcement Subcommittee for consideration. Upon examination, the National Band strap tag was selected for the tag trial because of its low profile and compact size (Figure 5). Compared to the other tags, the National Band strap tag was small enough that we felt it would not severely interfere with the fish's gills and would be easiest to apply due to the small size of the hole required to place the tag through the operculum.

Prior to handling and transport on September 28, each fish was randomly assigned to be either a tagged or a control fish. Tagged fish and control fish were separately assigned a tank number (1-3) so that each tank would contain 5 tagged fish and 2 control fish resulting in a total of 15 tagged fish and 6 control fish.

Seven fish at a time were netted out of the live cart and placed in a common fish tote filled with ambient sea water (Figure 6). Each tag was loaded into the applicator (Figure 7) prior to removing the fish from the tote. Fish were randomly removed from the common fish tote one at a time and tagged if it was not a control fish. The tag was placed on the left operculum bone (Figure 8) and then placed into another one of three ambient water filled fish totes according to its tank assignment (Figure 9). A stopwatch was used to measure the handling time of each tagged fish from removal from the common tote, tagging and placement into its assigned tote. After fish were removed from the live cart and tagged or assigned as control, each group of fish was separately placed in a plastic mesh bushel basket and transferred to a pickup truck equipped with coolers filled with ambient water (Figure 10). Each tote of fish was placed into one of three water filled coolers corresponding to its tank assignment (Figure 11). Once the fish were placed in the coolers (Figure 12), the temperature, salinity and dissolved oxygen of each

tote was measured. A two-liter bottle of salt water ice was placed into each cooler to start the process of cooling the fish prior to departure.

The Flax Pond Marine Laboratory is 35 miles away from the Mattituck Creek Waterway Access site. The estimated transport time was approximately 1 hour and 15 minutes depending on traffic to drive to Flax Pond from Mattituck. After 45 minutes of driving time, we stopped to measure the temperature, and oxygen of each cooler and to replace the two-liter bottle of salt water ice in each cooler with a second bottle of ice kept in a separate cooler. The fish arrived at the lab approximately 1 hour and 9 minutes later. The total time from departure from Mattituck to arrival at Flax Pond was 1 hour and 55 minutes.

#### *Acclimation and Monitoring*

Upon arrival at the lab, the temperature, salinity and dissolved oxygen of each cooler was measured again and compared to the levels in each holding tank. Each cooler was adjusted to tank water by using small diameter flow lines over the course of 1.5 hours. Once each cooler was adjusted to its corresponding tank water, the entire fish contents of each cooler was transferred to its assigned holding tank.

The tanks were monitored daily to ensure adequate water flow and air were maintained and the water temperature of each tank was measured. The condition of the fish was noted and the tanks inspected for lost tags.

At least once a week, the fish were offered either live Asian shore crabs or previously frozen clam, squid, or crab. Any uneaten dead food was removed after 30 minutes to prevent fouling the tanks. The fish were monitored for 30 days. At the end of the trial, the fish were netted out of each tank, measured, weighed and the tags were removed with a pair of cutters. The gill tissue was examined to determine if there was any abrasion or scarring resulting from the placement of the tags. The fish were then placed in coolers with water from the holding tanks, transported back to the Mattituck area and released into Long Island Sound.

## **Results**

#### *Tagging and Transport*

The average handling time of each fish was around 15 seconds with the exception of the second fish tagged. The initial tag applied to the second fish did not engage properly and fell out of the fish. We discovered the orientation of the tag in the applicator was important to ensure the tag properly engaged the locking mechanism. Upon application of the second tag, the fish began thrashing around during removal of the tag applicator. This thrashing caused the applied tag to be torn out of the operculum bone. This was due to the tag remaining in contact with the retaining tab on the lower jaw of applicator designed to hold the tag in place and ensure that the locking mechanism was properly closed. The fish was placed back into the common fish tote and the applicator reloaded. The third tag applied to the opposite operculum bone engaged and held firm. This increased the overall handling time of that fish to around 3.8 minutes, the majority of which, the fish spent in the common tote between tag applications.

All 21 fish arrived at the holding facility in good condition (Figure 13). The fish were observed to have a slightly labored breathing rate indicating lower oxygen conditions in the coolers compared to when leaving Mattituck. All fish were acclimated and transferred to their assigned holding tank in good condition, with evidence of some stress from handling and transport (Figure 14).

### *Monitoring*

Water flow and air delivery were constant throughout the 30 day trial and temperatures remained between 13 and 14°C (55.4-57.2°F). Water testing revealed slightly elevated ammonia (< 0.25 mg/L) and iron levels in the water as evidenced by orange precipitate in the tanks.

During the first week of the trial, the fish didn't swim around much and generally laid along the side of the tanks and around the standpipe, sometimes in groups (Figure 15). Observations of operculum movements suggested that the fish were not overly stressed and were not having difficulty breathing. On day 3 and 6, the fish were offered previously frozen clam and squid, but none ate. On day 7, the fish were offered live Asian shore crabs. A few of the tautog immediately took interest and began feeding on them. After 30 minutes, we left any live crabs remaining in the tank. By the next day, all of the Asian shore crabs had been consumed. The second week of the trial, the fish appeared more adjusted to being in the tanks, evidenced by increased movement around the tanks. Live Asian shore crabs were again offered on day 13 and were accepted by the fish. During the third week, the fish were moving around the tank even more, particularly when food was offered. They continued to be in good condition with relaxed breathing rates. The fish were offered chopped pieces of previously frozen rock crabs and lady crabs on day 20 which was readily accepted. On days 26 to 29, the fish were fed chopped, previously frozen clam and squid. Most fish ate every day that food was offered.

All of the fish survived the 30 day trial and appeared to be in good condition (Figure 16). There was one tag loss noticed on October 4, 2016, day 7 of the trial. Tag number 008 fell out of the fish and was found at the bottom of the tank. Upon inspection, it was found that the tag had not engaged properly upon application.

The control fish ranged from 349 mm (13.7 inches) to 406 mm (16 inches) and the tagged fish ranged from 358 mm (14.1 inches) to 427 mm (16.8 inches) (Table 1). There appeared to be no significant difference between the length and weight of the control fish versus the tagged fish (Figure 17). Besides tag number 008 that fell out of the fish on October 4, we found that tag 007, which had been applied to a fish immediately prior to 008 had also not engaged the locking mechanism of the tag. However, the tag remained in the fish for the entire 30 day trial. All other tags were properly engaged and remained in the fish.

Properly applied tags caused some damage to the operculum from the tag being inserted through the bone (Figures 18 and 19). All tagged fish showed some degree of abrasion of the gill tissue, ranging from some minor discoloration and abrasion of the lamella to partial erosion of the gill filaments compared to those of the control fish (Figures 20-22). In all cases, the damage to the gill was localized and isolated to the area of the gill directly interior to the tag.

Based upon the fish behavior, feeding and rate of respiration, the presence of the tag did not significantly hinder or harm the condition of the fish.

## **Discussion**

After completion of the tag trial, the research team believes the National Band strap tag would be an appropriate tag for a commercial harvest tagging program. The tags are low profile, easy to apply, relatively inexpensive, do not injure or degrade the meat quality of the fish, did not corrode after 30 days in sea water and would be very difficult or impossible to re-use.

The majority of the fish remained calm and did not react when the tag was applied. The exception to this was if the tag did not properly disengage from the tag applicator. This resulted in the fish feeling pressure or pulling of the operculum bone when the handler tried to remove the applicator. When this occurred, the fish tended to thrash and rip the tag out of the bone. This scenario was easily avoided by pushing the applicator slightly in and down to disengage the tag from the applicator.

When applying a tag, the following measures should be considered:

- The tag number should be facing out when applied to the fish.
- The applicator should be loaded with a tag prior to removing a fish from a holding pen/tank.
- The orientation of the tag in the applicator is important to ensure that the tag properly engages with the locking mechanism.
- Once in the applicator, the tag is very sensitive to pressure on the applicator to close so care must be taken to not prematurely squeeze the applicator and tag shut.
- Placing the fish on a wet towel tends to keep them calmer than a hard surface.
- It helps to hold open the operculum bone when applying the tag to the fish.
- Once the tag is engaged, to disengage the tag from the applicator requires the handler to slightly push in and downwards. If the tag does not disengage from the applicator, pressure on the operculum is very likely to cause the fish to thrash and rip out the tag.
- Overall, careful, deliberate application of the tag should result in a properly engaged tag and non-injury of the fish.

The tags were applied into the left opercular bone of the fish because the person applying the tags is right-handed and it is more natural and efficient to apply the tags with the right hand. Also, we typically measure fish with the fish oriented to the left because measuring boards and devices are read from left to right. This resulted in the tag numbers being upside down. Given that the majority of people are right-handed, the research team believes that most would also apply the tags in the left opercular bone with the applicator in the right hand. If possible, the tags should be made to read left to right when applied to the left opercular bone of the fish.

The fish remained in good condition and appeared to experience minimal stress throughout the trial. By week 3, all of the fish were exhibiting normal behavior, no signs of disease, low



respiration rates and readily and eagerly accepting food when fed. Given the good condition of the fish, all were released back into Long Island Sound near the areas of initial capture.

### Acknowledgement

NYSDEC would like to thank Steve Abrams from the SUNY Stonybrook Flax Pond Marine Laboratory for his assistance with setting up the holding tanks and helping to make sure everything was running throughout the trial.

### Tables

Table 1. Lengths (mm) and Weights (g) of tagged and control fish

Tag	Length	Weight
001	427	1431
004	380	934
005	367	994
006	432	1450
007	400	1214
008*	405	1259
009	432	1452
010	395	1126
011	374	903
012	375	945
013	384	996
014	391	1191
015	367	909
016	360	918
017	358	915

Control	Length	Weight
control	360	819
control	360	821
control	359	793
control	406	1271
control	385	1147
control	349	909

\* Tag 008 was lost on October 4, 2016

Figures



Figure 1. Ventless fish frap used to catch tautog for the fish tagging trial.



Figure 2. Tautog being transported in a live well on board the vessel.



Figure 3. Top: Fish holding cart used to hold tautog at the dock in Mattituck. Bottom: Holding cart hanging in the water at the dock in Mattituck Creek.



Figure 4. Holding tanks at Flax Pond Marine Laboratory.

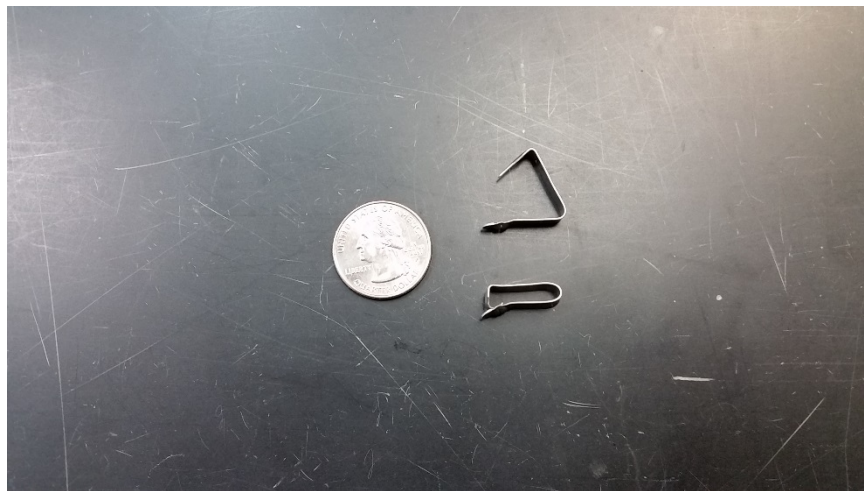


Figure 5. National Band Strap Tag used in the tagging trial.  
Top: Open tag, prior to application on a fish.  
Bottom: Tag after compressing and engaging the locking mechanism.



Figure 6. Tagging area set up with common fish tote to hold fish into after being netted out of the holding cart and milk crate with wet towel to place the fish on for tagging.



Figure 7. Applicator with tag loaded prior to tagging tautog.



Figure 8. Tags being applied to tautog operculum.  
Top: Tag just prior to application.  
Bottom: Tag as it is being compressed, pushing through the operculum and engaging locking mechanism.



Figure 9. Control and tagged tautog in their assigned fish totes.



Figure 10. Tautog being transferred from their assigned fish tote to a pickup truck for transport to the laboratory.



Figure 11. Tautog being transferred to their assigned cooler for transport to the laboratory.





Figure 12. Tautog in their assigned cooler prior to transport to the laboratory.



Figure 13. Tautog after arrival at the laboratory and prior to acclimation.



Figure 14. Tautog being transferred to its assigned holding tank at the laboratory.



Figure 15. A control and tagged tautog laying along the side of their holding tank at the laboratory during the tagging trial.



Figure 16. Picture of tagged tautog at the end of the 30 day trial showing overall condition of the fish.

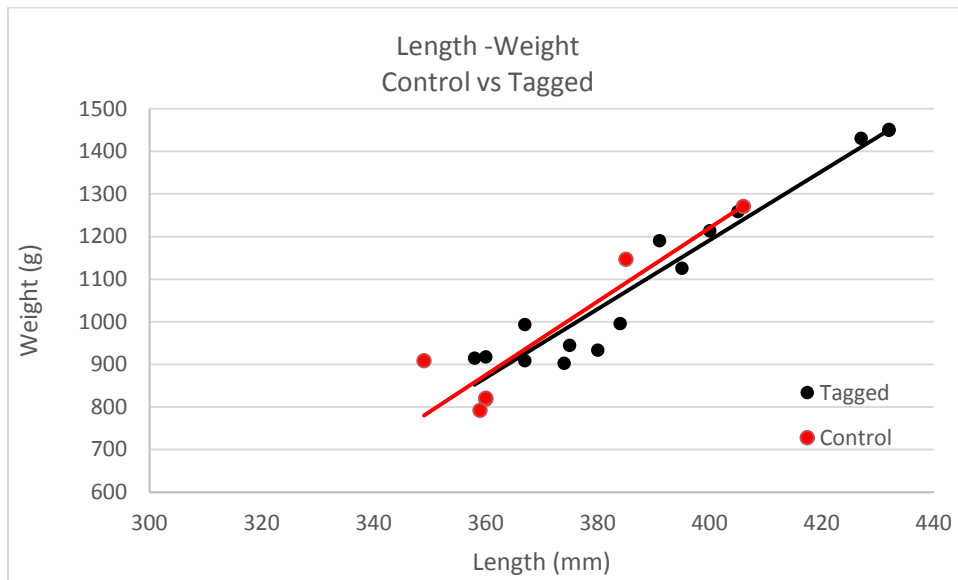


Figure 17. Length-Weights of tagged vs control fish at the end of the trial.



Figure 18. Tagged fish at the end of the 30 day trial showing tag placement and condition.



Figure 19. Operculum damage and scarring from tag placement.



Figure 20. Top: Control fish showing condition after the 30 trial.  
Bottom: Condition of the gill of the control fish after the 30 day trial.



Figure 21. Examples of minor abrasion of the gill filaments of two different tautog at the end of the 30 day trial.



Figure 22. Examples of gill filament erosion resulting from tag placement.



# Atlantic States Marine Fisheries Commission

## Winter Flounder Management Board

*January 31, 2017  
12:45 – 1:15 p.m.  
Alexandria, 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 ( <i>M. Gibson</i> )   | 12:45 p.m. |
| 2. Board Consent  | 12:45 p.m. |
| • Approval of Agenda  |            |
| • Approval of Proceedings from February 2016  |            |
| 3. Public Comment   | 12:50 p.m. |
| 4. Consider Specifications for the 2017 Fishing Year ( <i>A. Harp</i> ) <b>Final Action</b> | 1:00 p.m.  |
| 5. Other Business/Adjourn   | 1:15 p.m.  |

The meeting will be held at the Westin Alexandria; 400 Courthouse Square; Alexandria, VA; 703.253.8600

*Vision: Sustainably Managing Atlantic Coastal Fisheries*

# MEETING OVERVIEW

## Winter Flounder Management Board

January 31, 2017

12:45 – 1:15 p.m.

Alexandria, Virginia

Chair: Mark Gibson (RI) <i>Assumed Chairmanship:</i> 05/15	Technical Committee Chair: Paul Nitschke (NEFSC)	Law Enforcement Committee Representative: Kurt Blanchard
Vice Chair: David Pierce	Advisory Panel Chair: Bud Brown	Previous Board Meeting: February 4, 2016
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, NMFS, USFWS (10 votes)		

### 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February 2016

**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. Consider Specifications for the 2017 Fishing Year (Final Action)

- The state sub-component remains unchanged from those established as of May 1, 2016 for fishing years 2016-2018.
- The Board can adjust the following management measures:
  - Recreational (size limit, bag limit, season)
  - Commercial (size limit, season, trip limit, trigger trip limit, and area closures)
- Briefing document on current specifications is in **Briefing Materials**

#### Presentation

- Winter Flounder Specification Overview by A. Harp.

### 5. Other Business/Adjourn

**DRAFT PROCEEDINGS OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
WINTER FLOUNDER MANAGEMENT BOARD**

The Westin Alexandria  
**Alexandria, Virginia**  
February 4, 2016

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

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1. **Approval of agenda** by consent (Page 1).
2. **Motion to adjourn** by consent (Page 15).

**ATTENDANCE**

**Board Members**

Terry Stockwell, ME, proxy for P. Keliher (AA)	Rep. Craig Miner, CT (LA)
Steve Train, ME (GA)	Lance Stewart, CT (GA)
Doug Grout, NH (AA)	Steve Heins, NY, proxy for J. Gilmore (AA)
G. Ritchie White, NH (GA)	Pat Augustine, NY, proxy for Sen. Boyle (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Emerson Hasbrouck, NY (GA)
Bill Adler, MA (GA)	Russ Allen, NJ, proxy for D. Chanda (AA)
Jocelyn Cary, MA, proxy for Rep. Peake (LA)	Tom Fote, NJ (GA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Mark Gibson, RI, proxy for J. Coit (AA)	Roy Miller, DE (GA)
David Borden, RI (GA)	John Clark, DE, proxy for D. Saveikis (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Kelly Denit, NMFS
David Simpson, CT (AA)	Sherry White, USFWS

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

**Ex-Officio Members**

Paul Nitschke, Technical Committee Chair	Harold Brown, Advisory Panel Chair
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**Staff**

Robert Beal	Megan Ware
Toni Kerns	Ashton Harp

**Guests**

Bill Goldsborough, MD (GA)	David Bush, NCFCA
Derek Orner, NMFS	Jamie Courname, NEFMC
Wilson Laney, USFWS	Greg Murphy, PFBC
Dave Hoskins, USFWS	Raymond Kane, CHOIR
Mike Millard, USFWS	Arnold Leo, E. Hampton, NY
Jack Travelstead, CCA	
Jason McNamee, RI DEM	

The Winter Flounder Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, February 4, 2016, and was called to order at 9:00 o'clock a.m. by Chairman Mark Gibson.

### CALL TO ORDER

CHAIRMAN MARK GIBSON: I am going to call the Winter Flounder Board to order, just to keep on track with a little bit of an early start, but other business to take care of today. We're only going to have one hour today for this board so let's roll through this agenda. The first thing I would like to introduce, recognize Sherry White from the U.S. Fish and Wildlife Service. I think she wants to introduce somebody to us.

MS. SHERRY WHITE: I would like to introduce Mr. David Hoskins to the board. Mr. Hoskins is a member of our Fish and Wildlife Service Directorate and he is the Assistant Director for Fish and Aquatic Conservation. I'll turn it over to David for a few remarks.

MR. DAVID HOSKINS: Good morning everyone. As Sherry mentioned, I am David Hoskins; I am the Assistant Director for Fish and Aquatic Conservation at the U.S. Fish and Wildlife Service. I've held that position for nearly three years, after spending decades working on Fish and Wildlife policy issues in the NGO Committee and on Capitol Hill, and as a trial lawyer at the Department of Justice in the Environment Section.

I have extensive background, but this is my first meeting with all of you; happy to be here. As you know the Fish and Aquatic Conservation Program within the Service has about 700 staff nationwide spread out across a total of eight regions, as well as staff here in headquarters at Main Interior and in our new office in Falls Church.

We have a budget of about \$150 million in total and focus, as you know on species conservation

through propagation at our 70 hatcheries through the technical support we provide through our fish health and technology centers, as well as the work that we do on species and habitat conservation through important programs like our Fish Passage Program and NFHP

I am delighted to be here, and certainly a significant emphasis in my tenure in this position has been working closely with the states. We just last year released a strategic plan, a five-year strategic plan for the fish and aquatic conservation program. We work closely with our partners in the states through AFLA as well as Tribes and many others to develop that strategic plan.

It has seven core goals that really focus on working collaboratively to move forward our shared objectives for fish and other aquatic species conservation. I look forward to talking with you over the break and again, I appreciate the opportunity to be here. The Service is as you know been engaged in the work of the Atlantic States Marine Fisheries Commission for many years, through the leadership of Region 5 and Sherry White. We look forward to continuing to work with you here to advance the work of the commission. Thanks again for having me here.

CHAIRMAN GIBSON: Thank you for that and welcome. Tom Fote.

MR. THOMAS P. FOTE: I think it is important to point out to a lot of the newcomers that haven't been on the commission that long that when we first started doing striped bass in the eighties, it was the Fish and Wildlife Service that put up a lot of the money that basically did all the research, and put a lot of valuable data together.

When I came here as a commissioner in 1990 I asked well, where do we get our money from? We were getting most of our funds

out of funds that came out of the U.S. Fish and Wildlife Service. We were actually operating at that point on the budget. The biggest part of our budget was the money you were giving. Rich Christenson, who works for you now, was actually helping secure some of that money.

It wasn't until we passed the Atlantic Coastal Conservation Act that we stopped depending that much for the money. I hope to see the Service back into the fisheries. Some years it has not been as supportive in the last ten years, I can understand because of budget constraints and things like that. But we look forward because you have been a faithful partner for years, and guys like Wilson Laney, Bill Cowen, and people that have been here at the table; so thanks for coming.

#### **APPROVAL OF AGENDA**

CHAIRMAN GIBSON: The first order of business is the agenda itself. Is there anyone wishing to offer modifications or edits, additional items for the agenda? Seeing none; is there any opposition to approving the agenda as presented? Seeing none; okay the agenda stands approved.

#### **APPROVAL OF PROCEEDINGS**

CHAIRMAN GIBSON: The second item we need for approval is proceedings from the November, 2015 annual meeting.

Are there any requests for edits or changes to the proceedings? Seeing none; is there any objection to approving those? Seeing none; the proceedings stand approved from our annual meeting in November.

#### **PUBLIC COMMENT**

CHAIRMAN GIBSON: Third item is public comment, and this would be for comment on issues that are not on the agenda.

I am not aware that anyone has signed in to comment, but I'll offer the opportunity for

anyone wishing to address this board on winter flounder; and that would be again on items that are not on the agenda. Seeing none; we'll move on.

#### **TECHNICAL COMMITTEE REPORT ON THE SOUTHERN NEW ENGLAND AND GULF OF MAINE FISHERY MANAGEMENT PROGRAM UNDER ZERO POSSESSION LIMITS**

CHAIRMAN GIBSON: You will recall we started this discussion at the annual meeting with a view towards potentially taking action on specifications, with a 2016 fishing year that starts May 1st.

We didn't have all the information at hand at that time relative to council actions, and we also tasked the Technical Committee with some evaluations of what had happened in the interim during years of no possession and reallocation to the sectors in the general categories. Paul is going to report to us on that.

MR. PAUL NITSCHKE: My name is Paul Nitschke; I am Chair of the Winter Flounder TC. I will be going over the summary of the TC memo from the task that we were assigned at the last meeting in November. Just to remind the board, these are the tasks that we were assigned. Number one, basically to review the stock assessments for both Southern New England and Gulf of Maine winter flounder to the TC. Review the current management measures. Suggest alternatives if necessary. The second task was to take a look at the effects of the zero possession limits in the federal fishery to see if this had any positive impact on the stock. The zero possession in the federal fishery occurred from May 1, 2009 to April 30, 2013.

It is also important to note that during this time the stock wasn't allocated. It was no possession, but not allocated; so there was no incentive actually to avoid the stock at that time. We had two conference calls, one



on December 9, to review the assessments and figure out what we need to do in terms of data analysis.

We did the work, had another call on January 8, to interpret the analysis and come to some conclusions. We reviewed the assessments; we investigated input data sources for the zero possession limits in the federal fishery. We also took a look at some fishery dependent data for what affects the management measures are having on the stock right now.

The TC approached this by doing this trend examination. Basically we tried to break up the period into three different periods, and use an average for each period so that we could easily see the trends and the data. As you know there are many different survey indices going into this assessment and it can be difficult to look at them all at once.

This was a way of simplifying that. We had a period before the moratorium from 2005 to 2008, during the moratorium from '09 to '12 and then after the moratorium from '13 to '15. We also examined some of the age structure in some of the surveys to see if there was any indication of rebuilding in the age structure.

We took a look at the New Jersey Oceans Trawl Survey, the Connecticut Trawl Survey, and the Rhode Island Trawl Survey. The last thing we did was did a commercial trip composition analysis to see what effect management measures are having presently. On the federal side we used ASM and NEFOP data, and from the state side we used the Mass state vessels landings data.

Just to remind everyone, this assessment was updated in September during the operational update for all the groundfish stocks. On the left here is the spawning stock biomass trend coming out of the model. As you can see, the spawning stock biomass has been low and has been low for over three decades below the overfished threshold.

We don't see much evidence of rebuilding in the stock. At the end of the time series you see a little bit of an increase in the spawning stock biomass. I believe this is where that question came up on perhaps there were some improvements in the stock from the zero possession in the federal fishery. On the right is the fishing mortality rate.

Over the last six or seven years of the time series we are not overfishing the stock. At this point it doesn't seem to be that it is overfishing that is causing the issues. The real concern this assessment is the trend in the recruitment coming out of the model. We just see this long decline in recruitment. We haven't seen any positive signs over the entire time series.

It seems like every time we update the assessment, recruitment just continues on its downward trajectory. It appears production in this stock has declined. It is no longer fishing; it doesn't appear to be fishing since we're not overfishing this stock. We are uncertain exactly why production is low. That is a big question. One of the first things that TC did was look at using this trend analysis to look at the actual catch data, and then some of the outputs from the model. The top plot here is the catch trend.

You can see there was a large decline from the first period to the no possession years, and then a slight increase since then when the stock became allocated. I want to point out; that no possession doesn't mean there is no fishing mortality. There is still on average over 500 metric tons of removals during the no possession years.

The second plot is the spawning stock biomass. When you look at that there is a slight increasing trend in the SSB. However, when you compare that to the abundance coming out of the model, we actually have a declining trend in the January 1, total

numbers. This raises a question on what is occurring within the model.

In the model we assumed dome shaped selectivity in both the surveys and in the commercial fishery. This results in some cryptic biomass in the model, which can be seen when you look at the spawning stock biomass trends. This is spawning stock biomass by age. You can see that the seven plus category in brown is actually increasing over time.

A proportion of this age class now is in that cryptic category, so it is fish that are not seen by the surveys or the fishery. That increase at the end of the time series is mostly due to this increasing trend in the cryptic component. When you look at the numbers at age stock bar graph, you get quite a different picture.

This is a real concern to the stock. You can see here that it is the recruitment coming in that is declining. Eventually this will work its way into the population if recruitment doesn't increase. If recruitment doesn't increase there really isn't much hope for the stock. If the recruitment continues on the trend it is going, there is not going to be anything left.

Eventually spawning stock biomass will follow. Here is the trend analysis looking at the surveys. We looked at the New Jersey Trawl Survey, the Connecticut; the two Connecticut surveys the Rhode Island survey, the Mass Spring Survey, and the Center Survey indices. All these lines basically show a declining trend over the three time periods.

There wasn't really much evidence of improvements in the stock from the moratorium, when you look at these trends. We also took a look at young of the year indices. Of course with young of the year indices they are more variable. They also tend to capture more local conditions.

In some of the areas you do see some increases, but most of the indices are showing a decline.

In the Mass Seine Young of the Year Survey, you do see a slight increase now; also in the Little Neck Bay, New York Survey there is a little bit of an increase. We also saw an increase in New Jersey Oceans Trawl Survey for recruitment.

However, from the model itself the overall recruitment in this stock is declining. This is an examination of the age structure in three of the surveys. ON the left are New Jersey, then Connecticut and then Rhode Island. The blue bars here represent the moratorium years. Overall there are some mixed signals when you look at these plots. There perhaps is an indication of rebuilding when you look at the New Jersey Trawl Survey. If you look at the blue bars it could make an argument that there is some rebuilding occurring over that time period. You can kind of see that also in the Rhode Island Trawl Survey. However, there is less evidence of that in the Connecticut Trawl Survey.

The other interesting note is in the New Jersey Trawl Survey during the moratorium, recruitment was very low. There appears to be some improvements in recruitment in the last two years, in 2014 and '15, after the moratorium was lifted. This increase in recruitment can't really be contributed to the moratorium, since those fish have reproduced from SSB after the moratorium happened.

Another way to look at it is just simply look at these indices at age graphs. You still see a little bit of evidence in the Rhode Island and New Jersey. It is a little more difficult to see improvements directly related to the moratorium, but there appears to be some improvement during that time period, and then a drop off at the end.

You can also see that Age 1 increase in the New Jersey Trawl Survey. I just quickly want to go through the management measures on

the ASMFC side. As you know the management in state waters is based on the input control system; based on these effort controls. The main controls presently are a 50 pound trip limit in the commercial side for Southern New England, and a two fish bag limit.

Keep in mind in 2014 there were more restrictive seasonal limits in the recreational fishery. That has been opened up to most of the year being open now. This table is also in the TC report. This is on the federal side. I am not going to go into the gory details on the federal numbers. Jamie has come down to go through that.

I just wanted to mention that on the federal side it is a different management system. It is now an output control system. It is not really using effort controls, although there still are some effort controls in place, like the closed areas. Even in the common pool fishery, it is still an output control system.

There are trip limits that get implemented over the course of the year, but those are more used to control or prevent derby fisheries occurring over the course of a year. This plot here just summarizes the recent catches and the ABCs that were in place since 2010. In 2006 the catch was around 2,000 tons.

It dropped to around 500 tons during the no possession years when the ABCs were reduced at that time from the GARM III Assessment. Another assessment occurred at SARC 52, which produced higher ABCs. That is that flat line increase. Those were held constant for three years. Now with the new assessment in September, the ABCs had over a 50 percent cut from those levels. There has been a pretty dramatic decline in the ABCs.

That is the '16, '17, and '18 ABCs. The ABCs now are in line with recent catches, but also in line with the ABCs during the no possession days. Catches coming out of these ABCs should be below that black line at this point. This is the

Mass State Vessel data from Division of Marine Fisheries. I had a little dilemma this morning. Last night I got an e-mail that there might be an error in this data source, so I guess I need some guidance on whether to present this information. I think it is valuable to go through it, because some of the TC recommendations are directly coming off this analysis. It may not change. I'm not sure exactly what the error is, but I don't really like showing information when I'm not totally sure. I don't know.

CHAIRMAN GIBSON: First of all it is news to me, other than our sidebar before the meeting started. I guess it would be my sense that since we don't know what the magnitude of the error is and I haven't heard from the state of Massachusetts, which I guess I will do now and then we will proceed from there.

MR. DANIEL McKIERNAN: Some of this data was brought to my attention on Sunday, and I looked at it and I had a lot of questions, because I think what Paul is about to show is some implications of noncompliance with the trip limit. But what we discovered is that a lot of these trips that appeared to be noncompliant were actually landed on the cusp of the two stocks.

Forty-two degrees east of Cape Cod, north is considered the Gulf of Maine stock, and south is considered the Southern New England stock. A lot of these trips that appear to be in excess of the Southern New England trip limit were landed by Provincetown and Plymouth based boats that were coming around the corner of Provincetown.

Stat areas don't line up exactly with the delineation of the stock. We believe that is most of the apparent noncompliance. The vessels were actually in compliance with the Gulf of Maine limits, and so it is really a parsing problem of where do you attribute

the landings. But clearly they were not in Southern New England as we think of it, they were up off Provincetown.

CHAIRMAN GIBSON: Thanks for that, Dan. I guess I would suggest that we move on from this one. I don't think our decisions today are going to be pivotal relative to this information. Paul, do you want to respond?

MR. NITSCHKE: If we ignore the compliance issues, I think the overall trends in this data make sense and are valuable for interpretation of the trip limits or the effects of the trip limit. Is that okay?

CHAIRMAN GIBSON: Given that explanation, Dan, are you comfortable with him going through this?

MR. McKIERNAN: It all depends on what recommendations come out of the analysis, so sure. Again, I didn't see this until Sunday. Go ahead let's hear it out.

MR. NITSCHKE: Yes, you shouldn't check your e-mails late at night before you do a presentation. Anyway this plot here basically the landings are proportionate winter flounder on state vessels in Massachusetts. The first three plots on the left are in the beginning of the time series from '06, '07, and '08. Early on in the time series most of the landings on trips were winter flounder.

It appears it was a lot of directed trips on winter flounder early on. The trip limit came in and distribution changes fairly dramatically. Winter flounder is more of a minor component of the landings on these trips. Most of the trips it is around less than 10 percent. This suggests that these trips are targeting on other species. Lowering the trip limit from the present level would likely just result in converting landed fish into discards, increased uncertainty. It may not actually lower mortality on the stock. This is some additional analysis that was done using the same data, except here on the X axis is just

poundage of winter flounder; 1 to 10, 11 to 30, 31 to 50, and then over 50 pounds.

Early on of course, most of the trips had landings above the 50 pound mark. Later on in the time series you can see that most of the trips now are on that limit of the 50 pounds. This is another reason to not lower the trip limit, since it would probably cause discarding problems; if you don't already have discarding problems at the level we have now, because most of the trips seem to be hitting that limit.

This is now the NEFOP and ASM Observer Data. What we looked at here was total catch, so total catch of winter flounder kept and discarded to (K) all ratios. We had to do this because we had zero possession in '09, '11 and '12. The first four plots here there was no possession. Then the stock became allocated in 2013, so you can see there is a slight shift in that distribution from no possession above where the blue arrows are.

There is a slight increase, and that is basically the tagging behavior in the federal fishery. It is a very subtle thing, but there is some targeting occurring and it is not obvious on the federal side, because it is such a mixed stock fishery. Getting into the conclusions, the TC is concerned about the declining trends in recruitment and the lower production in the stock.

If recruitment doesn't improve or continues on its declining trend there is not much hope really for the stock. The TC concluded from that analysis that we have some questions about, these last two bullets come from that. Basically that the ASMFC trip limit should not be reduced, if it is reduced it will likely result in increase in discarding, since these trips seem to be targeting other species.

This would increase the uncertainty in the assessment and fishing mortality rates. It may not actually lower fishing mortality in

reality. The TC felt the trip limits are near their effective controls at the present level. However, if further conservation measures are needed to increase the probability of improvements in recruitment, the feeling here just being the more SSB the higher the probability of improvements in recruitment.

If that is what the goal is then other management controls should be considered. We're talking about controls like closed areas, seasonal closures, days at sea or quotas. Of course the TC acknowledges these controls are now going to start reducing catch and revenue from other fisheries. As a caveat, these additional controls are no guarantee for improvements in recruitment, since we don't really know what is controlling recruitment at this point.

On the federal side the TC acknowledges a large reduction in the ABC. Further reductions in the actual catch could also occur through a reduction in the Southern New England yellowtail ABC. There was a very large reduction also in that stock, will have implications for winter flounder. On the federal side it is likely that further reductions in the ABC from the levels that were implemented, will also reduce catch and revenue from other fisheries; since it is going to start limiting landings of other stocks.

The TC encourages the board to strive to reduce fishing mortality rate, keep this as a bycatch fishery as much as possible, to increase the probability of improvements in recruitment. Similar action on the federal side could also have a positive effect on the resource, however once again that caveat, we're not really sure. It is no guarantee that recruitment will increase if additional measures are taken.

The TC also acknowledge this divergent management approaches between the state and federal fisheries, basically on one side you have input controls and on the other side we are using output controls. This last bullet here

is perhaps a little bit of an apple pie statement. Complementary management between state and federal fisheries moving forward could achieve a better outcome for the resource and ultimately to the fishery. I can take questions.

CHAIRMAN GIBSON: Are there questions for Paul? Dave Simpson.

MR. DAVID G. SIMPSON: Why is winter flounder modeled with a dome-shaped recruitment curve, which of course is leading to this so-called cryptic biomass? You know I think of dome-shape, we use it for Tautog, they become harder to catch. There is something different about them. Winter flounder I never would have imagined would become more difficult to catch, either in the fishery or in surveys; just because they are five or six or seven years old.

MR. NITSCHKE: It is a good question. We will spend many hours arguing that at the working group meetings. I usually want to have some reasoning for modeling it with a dome-shaped selectivity. In the case now with winter flounder the assessment diagnostics are getting so bad that perhaps modeling it with a dome relieves some of those issues. But it is a big assumption in the model.

CHAIRMAN GIBSON: Follow up, Dave?

MR. SIMPSON: The implication of that being that if dome shaped isn't correct, if it is actually more flat topped, we're probably overestimating the picture, stock biomass; so things are even worse than they appear.

MR. NITSCHKE: Yes, or you can't even really look at the assessment. The assessment is rejected.

MR. RITCHIE WHITE: Since this stock is not responding to lowering fishing mortality and the Technical Committee feels that it is

possible that it may not be able to recover. If the board tasks the Technical Committee to give advice back to the board as to, at what point would the Technical Committee say that it is not able to recover? How would the Technical Committee come to that decision? How many years of very little or no recruitment would it take to say, environmental is not allowing this fish to recover to historic levels and in all likelihood would never?

MR. NITSCHKE: That is a tough question to answer. We don't know what is causing the production problems. We can have the big long list of potential items, but we don't know what it really is. The only thing we could potentially say is if we have more SSB in the water, the likelihood of the stock overcoming those problems increases. Whether it actually does, I am not sure. I'm not sure we're going to know that.

CHAIRMAN GIBSON: Follow up, Ritchie.

MR. WHITE: But if we're not seeing any response now, why is it logical that more SSB would create more reproduction? I think at some point that that doesn't seem to follow if we're seeing no response to the extremely low fishing mortality now.

MR. NITSCHKE: Many species evolved to put lots of eggs out to overcome the uncertainty. When the population is low and stressed it can't overcome some of those environmental stressors and we'll never get out of it.

CHAIRMAN GIBSON: What might be helpful is to know when the next benchmark assessment is going to be and there has been some work in looking at environmental factors, principally winter water temperatures driving recruitment or keeping it at low levels. I don't know what the tour will be for the next benchmark, but to the extent that that evaluates directly, incorporating environmental factors into the assessment might shed some light on that question. I don't know if Paul knows or Jamie knows when that will happen.

MR. NITSCHKE: I have no idea.

MR. DAVID B. BORDEN: Thank you for the presentation, Paul. I asked you this question the last time. I'm going to ask it again, because I'm still a little bit uncomfortable with this. We spend enormous volumes of money doing the NEMAP Survey, which ideally fits. It takes up where the federal survey ends, and the state surveys are not surveying.

I just don't understand when we ask for an update why the NEMAP data doesn't get incorporated into the report. Maybe if you can't answer it, I would love to have somebody else answer that. If there is someone in the room that can answer it, and if not then I think we ought to get a written explanation of why that data just doesn't get used.

MR. NITSCHKE: I apologize; we probably should have looked at that for this round. We had a lot going on. We probably should have looked at that. Looking at the numbers on the website that index is also declining. It is similar to the other indices. Whether it got into the model itself I am not sure. It might be in there, I would have to look that up.

MR. BORDEN: Then Mr. Chairman if I might follow up. I would like to go back to Ritchie White's point. I wrote down what Paul said, and he was very careful about what he said about the SSB. He said the more SSB the higher the probability of enhanced recruitment, but no guarantee; is what you said. I think that is important.

I'll get into more details when we get into Doug Grout's Policy Board discussion of these types of situations. A parallel between what you are seeing with winter flounder here and Southern New England lobster is just stunning. You get this decoupling between SSB and recruitment. We don't know what is causing it.

We're almost like in a death spiral, in terms of the stock. The last question, Mr. Chairman, is my understanding, and Paul correct this if this is not correct; that we basically have an inshore stock of winter flounder but we also have an offshore stock of winter flounder, like a shoals stock, there is evidence of spawning in deeper water. Is that correct? Is that understanding correct?

MR. NITSCHKE: In terms of the assessment itself there is no break up between inshore and offshore for Southern New England. It is treated as one single unit, even though we know there are stock components in that complex.

MR. BORDEN: I guess the thing that leads me to the question of, if that is the case and we have rapid warming of the inshore areas and kind of an evacuation of those historic sites. Is there any evidence at all that the offshore stocks or that portion of the population that is in the offshore areas is improving?

MR. NITSCHKE: In the Gulf of Maine I saw some evidence that the fish seem to be deeper. I'm not sure in Southern New England if that is true.

MR. BORDEN: Okay thank you very much.

MR. PATRICK AUGUSTINE: Good presentation, Paul. It clarified a lot of things in my mind. Along with what Mr. Borden said, we have spent a tremendous amount of money on NEMAP, and from my point of view I think they've done an awesome job. The real question is, if we're spending a couple million dollars a year on that and their survey is either embedded in or a part of the offshore survey, the feds, or is not being used.

Would it not be appropriate to take what they do in the inshore, because I think they only go out to what; 60 foot of water. It is not real deep, I guess, but it has been consistent for the last four to five years. Take a look at that survey to see what the trend is in stock that way. The other part of it is, and I've been

concerned about winter flounder like everybody else.

We see a decline in the environment. We're talking about a decline in biomass, primarily based on, we think we know, but we don't know. But we do know anecdotally that we are seeing a very large increase in cormorants up and down the coast. We can't blame it all on them. We've seen a shift as I understand it, and I'm not sure that to the Technical Committee you're charged with looking at the implication of environmental change, water quality conditions and that sort of thing.

But it just seems that if we are going to go forward and try to save this specie from whatever is going to happen to it, there should be a meeting of three groups of people; which would be our Technical Committee and the environmental people and the migratory bird people. Somewhere in time we went through this with horseshoe crabs, wherein we blamed it on the fishermen overfishing and then it was the red knots and the shorebirds.

At the end of the day when you went and dug into it, the three groups that were assessing the various locations and the fly way, you found out that each one of those surveys showed there were other implications as to why the red knot population was failing. Here we're pointing to overfishing, and yet when you look at the trend that you presented to us, there is no increase in biomass; it's a blip.

Sooner or later I think we've got to take the bull by the horns and bring these three groups together, compare notes, and see if it is as simple as the environmental conditions; quality of the water and the environment. Then look at the migratory part of it. Birds have been controlled since 1975, protected of some sort. I thought it was through Fish and Wildlife, it turns out it is through a

Migratory Act. But we are just skirting the issue if we continue, and I'll only take one more minute, Mr. Chairman. We're skirting the issue and the solution to face into it. Either we're going to do something with it or just hands off. We're going to stay hands off. Fishermen will stop fishing when they can't catch any more fish. The commercial fishery will die of a natural death, and then we'll get on with our life.

Paul, I'm not sure you can respond to any of that. But in my humble opinion that is where it is at. As an old guy I can say all this stuff and not be ashamed of saying it. I speak from the heart, because I believe we are skirting the solutions to this specie and also lobster. Want to try, Paul? I'll let you have some cookies if you respond.

CHAIRMAN GIBSON: Paul, I just want to remind the board that we have a half hour left in the session and we haven't heard from the New England Council representative yet, nor discussed possible changes for specifications. With that I am going to go to Dan McKiernan.

MR. MCKIERNAN: I actually have a question, Paul. The Massachusetts Seine Survey has been going on, I think since the sixties. It is kind of the analogy or the analogous survey to the Section sampling in the cobble for lobsters in that we're really working on what we thought were the traditional nursery areas.

I think that index has tanked. We would be picking up young winter flounder, probably smaller than the cormorants would be consuming them, so I think there is a break in the productivity. But can you comment on how useful some of that young of the year index is within Massachusetts to sort of reveal the reason for the decline?

MR. NITSCHKE: The young of the year seine survey from Mass was actually the most positive one we had out of all of them. All those indices go into the model to predict what

incoming recruitment is. All that gets incorporated to determine the model trades off between indices that are on the positive side versus indices on the low side. But overall the model suggests that the recruitment is going down dramatically.

MR. FOTE: I was wondering, have you ever looked at, I'm trying to think of a name and Emerson probably could tell me, at Cornell University, which is looking at indicia disruptors and looked at winter flounder in Jamaica Bay, and when they were doing that the amount of females to male was like 16 to 1, 15 to 1, 14 to 1.

If you look at when we started putting a lot of chlorine, when the implementation of the clean water act and we started actually doing those sewer plants, and changed the way we dumped sewer into the ocean; butting a lot of ore in the bays and estuaries, started putting a lot of chlorine and also the increase of estrogen in the sewer outflows. I mean if you look at the history. I am wondering if there are any other studies but the Cornell studies that look specifically at winter flounder and estrogen and the effects on male to female.

MR. NITSCHKE: Has the TC looked at that? I am not aware of any of that work, really. We haven't really looked at that.

MR. FOTE: I just would find it interesting, because like small mouth bass in the Potomac River and other species that we're seeing like this. Since winter flounder unlike summer flounder actually spawn in the bays and estuaries at the real small size, when we can have the most effect of drugs on a species; whether it is human or fish that they basically will suffer the most consequences, so we should take a look at them probably.

MR. TERRY STOCKWELL: I will be very brief. There was some mention about the need for a benchmark, and I'm just looking at the



NRCCs schedule of stock assessments through 2018, and it is jam full.

CHAIRMAN GIBSON: Thank you for that. It doesn't surprise me; any other questions for Paul?

MR. FOTE: Yes, I just found the study and it was Dr. Anne McElroy from Cornell, so I will forward it to you later.

### **OVERVIEW OF FEDERAL MANAGEMENT MEASURES**

CHAIRMAN GIBSON: Okay next we are going to go to Jamie Cournane, who has come down here from the New England Council to give us advice on or summary of federal management measures, recall last time this was an incomplete piece of information as Framework 55 was in development. I guess, has it been submitted?

DR. JAMIE COURNANE: It will be.

CHAIRMAN GIBSON: It will be it's close to being submitted. She's going to tell us what is in it.

DR. COURNANE: Good morning, my name is Jamie Cournane; I am the groundfish plan coordinator for the New England Fishery Management Council. This is my first time presenting in front of the board, so thank you for inviting us today. We'll be providing you with an update on just the winter flounder relevant sections in the action.

Just briefly, I just wanted to acknowledge that there is significant overlap between the council and the board, and that includes members or their alternates listed here on the screen. In addition, Paul Nitschke as the TC Chair is also a key member on our Groundfish Plan Development Team, so Paul and I work very closely on all the groundfish stocks, including the assessments and management recommendations.

Briefly, there are three stocks of winter flounder. As you know the two that are of most interest to the board are the Gulf of Maine stock and the Southern New England/Mid-Atlantic stock. In federal waters this is really a mixed fishery for other species. It is not principally for the winter flounder.

Management in federal waters has really two aims; one is optimum yield while staying within the biological limits. As you're fully aware, there are really two components to our federal program, there is the sector program and the common pool program. Generally the sectors are allocated a quota and they can leave some of that quota throughout the year on an annual basis.

The common pool is managed by limits on the number of days, or the number of landings; so a trip level limitation. Both are actually constrained by accountability measures, and these include potential fishery closures in-season, and this could include a part of the stock area or a subset for the full stock area; depending on the amount of quota that has been caught, and also year round and seasonal closures for groundfish species broadly. There are a number of different kinds of controls. It is not just a quota managed system. As Paul referred to in both his last presentation to, at your previous meeting and this meeting, there were assessments for all the groundfish stocks in 2015.

The resulting overall status of Gulf of Maine winter and Southern New England winter flounder remains unchanged. For winter flounder, not overfishing and overfished status continues to be unknown. For Southern New England/Mid-Atlantic, it is not overfishing but it continues to be overfished.

When the SSC deliberated last year to provide advice to our council on ABCs for the next three years, they looked at a number of

factors. Our technical team brought them a lot of the information that Paul presented to you at your last meeting. The SSC noted a number of things. For the Gulf of Maine winter flounder stock they did note that the stock does not appear to be responding to catches.

The ABC is generally much higher than catches have been. For Southern New England/Mid-Atlantic winter flounder, they discussed this recruitment issue and how if they applied their 75 percent Fmsy Control Rule in the second year, they would have actually reduced catches; so that the SSC used this information to provide some advice for ABCs for the next two years.

For the Gulf of Maine winter flounder stock they used the straight approach from the assessment, and suggested a constant approach as had been done previously. For the winter flounder stock they actually recommended a constant as well, but something that would have been lower than the 75 percent Fmsy.

It actually increases the buffer in both '17 and '18, instead of applying their default rule on how they apply catch advice. Here are the proposed ABCs and OFLs. The council has moved forward with these as well, and as was mentioned they would be submitted in Framework 55 to the agency for review.

In '16, '17, and '18 you will see the ABCs for winter flounder would be 810, and for the Southern New England stock they would be 780. You can see those OFLs in '17 and '18 are projected to increase, and that gap between the ABC and OFL that buffer also gets larger. That was something the SSC discussed about potentially allowing the stock some additional room.

Looking back at where we've been. Most recently looking at the 2015 ABCs you can see this increase for winter flounder and a substantial decrease for the Southern New England stock, more than half of that ABC would be reduced from previous years ABC. In

the next section I want to walk you through, I think something that you have in the past discussed it as a board.

Maybe it has been kind of a mystery, so what we do to figure out what we expect the states and the other subcomponents to catch. What we do is we start with the SSCs recommendation. We start with their ABC. In order to get down to what the federal fisheries or commercial sub-ACL is, there are a number of steps that occur. I am going to use just the example of winter flounder for the Gulf of Maine and Southern New England stocks. It is slightly different for some of the other stocks, depending on other catches. For both of these stocks what we first do is as a technical team we estimate expected catch from state waters and other subcomponents. These are not allocations, this is what we think the catch might be in the next year, based on the best information that we have in front of us. We look at recent catch information, we look at whether we think there is going to be management changes, we look at the history as best we can; to come up with an educated estimate of what we think those catches are going to be.

That ABC is then reduced by that expected catch from state waters and other components, and that remaining amount is what is distributed to the commercial fishery. It is not just that amount; it is then reduced by an additional buffer. Whatever amount is left, there is an additional 5 percent that is taken off, and that is distributed based on how the fishery aligns itself in either the common pool or sectors.

If there is 95 percent of the fishery in the sectors and 5 percent in the common pool, then it would be distributed as such. There are a number of steps to get to that commercial. But the first thing we do is try to determine what we think might be caught in the next year. To do that we as a technical

team, as the Plan Development Team, we look at your recent information.

In this example for Gulf of Maine winter flounder, we looked at state waters catches from 2010 to 2014. We have a history of trying to figure out what we think the state waters might catch and assigning a value to that; assigning a percentage. Back in 2010 when the ABC for Gulf of Maine winter flounder was 238, our first experience with this is 25 percent of the ABC was a guess at what we thought would be caught in 2010; and that was a value of 60 metric tons.

When we had the final information put in, it was slightly over that it was 64. Looking across all of that information, looking at the averages, looking at where we've been. We then decided to make a recommendation as a technical team to, because the ABC would be going up, to reduce that percentage of the ABC slightly by 2 percent; to get a value of 122, 122 is very close to the recent catch in 2014, which was 113.

It is above the average and it seems to be in line with some of the catches we had seen in recent years. That is the approach that was done by the technical team. Then the council then reviews that approach and they recommended adopting it for the species. A similar approach is taken for Southern New England/Mid-Atlantic winter flounder.

In this case the ABC is declining. It is declining by 50 percent. We looked at the history of catches for this stock. We looked at the history of how we had estimated some of these values. Looking at the most recent catch we see that it was about 71 metric tons. There is no reason that we thought that that value would increase, and there is no indications that we would expect that the states would necessarily liberalize their measures on winter flounder.

In this case we actually increased the percentage of the ABC, because the ABC is actually going down to more align with a value

that we expected the state water component to be catching. That value is 70 metric tons. This is something that is done on an annual basis, and so due to time constraints in some years we haven't been able to do it.

But we anticipate also evaluating this going forward for 2017, and there might be an additional adjustment when we have additional information in front of us for '15s final year catch information. In state waters the proposed changes would be an increase in what we expect the states to catch from 87 to 122 metric tons, and in Southern New England/Mid-Atlantic a decrease from 117 to 70. Again that is the expected catch, not the actual catch. Likewise when we start from that ABC, reduce expected catch, reduce for that management uncertainty buffer. What the commercial fishery is left to access is what is shown here.

This is the difference between the values in '15 and moving forward for '16. In '15 for Gulf of Maine winter flounder, the commercial fishery could access up to 392 metric tons, and that would increase to 639. For Southern New England/Mid-Atlantic winter it would go from roughly 1,300 to less than 600 metric tons; and Mr. Chairman, that concludes my presentation. I'll take any questions.

CHAIRMAN GIBSON: Thank you, questions for Jamie. Bud.

MR. HAROLD BROWN: Thanks for that Jamie. I hadn't seen your report, but I looked at Paul's report, and the one thing that jumped out at me is in Table 1 of his report the ACL, and I scratched out my own assessments here and combined the federal and state waters. The Gulf of Maine ACL increased by 57 percent, but the Southern New England ACL decreased by 50 percent.

In this Table 2, I did the same thing and only 24 percent of the Gulf of Maine ACL was caught while 43 percent of the southern New England ACL was caught. There is a 50 pound trip limit in Southern New England and a 500 pound trip limit in the Gulf of Maine. That makes me think it is upside down. Why, if people are not catching fish in the Gulf of Maine, is the ACL going to go up? Well, they are catching fish in Southern New England and the ACL goes down.

DR. COURNANE: I'll try to answer this and I may have to turn it over to Paul, so thank you for your question. One of the reasons why the Gulf of Maine winter flounder ABC is increasing is because of the way the assessment is conducted. It is tied to the fall surveys, and it is an index-based assessment.

If the fall surveys show an increase in recent years, then that increase is actually, you proportionally increase that ABC as well. The only other component in that index that is really meaningful is the catchability coefficient. If you know a little bit more information about the ability of the survey to catch winter flounder, maybe you could fine tune that.

But because it is based on that fall index, and the fall index increased, we were tracking that information to show that uptick. Most recently we also looked at Gulf of Maine winter flounder; in the previous year we had a round of assessments that were independent of the full groundfish assessments. That showed a drop in the ABC, and now we've kind of returned up.

We're kind of tracking that survey index in that one, where when we look at the Southern New England/Mid-Atlantic winter flounder stock we're tracking multiple sources of information in a single assessment model to show that decline. When that catch advice is being based off of that it is less sensitive to wide swings in one specific index or something like that; because of the way the index is developed.

Now the SSC did look at this information. They didn't have any reason at the time to deviate from their previous approach to setting catch advice, and so they did not recommend a decrease in the ABC; instead they actually recommended going with their default approach to applying catch advice for the Gulf of Maine winter flounder stock.

#### **REVIEW AND SET 2016-2018 SPECIFICATIONS**

CHAIRMAN GIBSON: Any other questions for Jamie? Seeing none; we'll move on to the final agenda item of the meeting; Review and Set 2016-2018 Specifications. It is my understanding that if there is no action by this board that the existing measures would remain in place. Thank you, Ashton.

MS. ASHTON HARP: Good morning. I am just going to review the current regulations that are in place. The board can adjust via Addendum 3 to the fisheries management plan for recreational measures. They can adjust the size limit, the bag limit and the season. For commercial measures the size limit, season, trip limit, trigger trip limit and area closures can be adjusted for the winter flounder fishery.

Just as a review, I know that we've seen this in Paul's presentation, but I want to review it one more time. The 2015 recreational measures are a possession limit of eight fish for the Gulf of Maine, and for Southern New England recreational possession limit is two fish, the size limit in the recreational and commercial fishery is 12 inches.

The Southern New England and Mid-Atlantic season is from March 1st, to December 31st. For the commercial measures, in the Gulf of Maine the maximum trip limit is 500 pounds per trip per day, in Southern New England/Mid-Atlantic trip limit is a maximum of 50 pounds per trip per day, and this was intended to be a bycatch trip limit. That

pretty much summarizes the 2015 regulations. Last year we went with status quo, so we just kind of kept the 2014 regulations for 2015. That can be done this year or any kind of changes can be made.

CHAIRMAN GIBSON: Are there questions for Ashton? Dave Simpson.

MR. SIMPSON: I didn't really see any need for us to make any change, but I'm looking at the gear and 6.5 inch mesh that is only required when you catch more than what our trip limit is. I guess I'm just wondering what other states have in place. Do we need to address cut and mesh size for winter flounder?

I guess I'm just looking for a sense of what other states would allow in the fishery that would take winter flounder. For example, in Connecticut probably a summer flounder mesh would kick in but otherwise we would have a 5 inch minimum size. In other words, I am trying to get a sense of what states in the Southern New England area would be fishing on two inch mesh for winter flounder, or are there other backstops?

CHAIRMAN GIBSON: I can't answer that because I don't know what the other state's regulations were; but if anyone wants to volunteer in response to Dave, Dan.

MR. McKIERNAN: Yes David, we just have two mesh seasons. We have a squid season, which is late April through mid-June with small mesh, and then after that it is 6.5 inches throughout the net throughout the rest of the year.

CHAIRMAN GIBSON: Does anyone else want to provide feedback to Dan? Seeing none; were there any other questions for Ashton or anyone wishing to make a motion that would start discussion on changing specification? Seeing none; that concludes our agenda.

## OTHER BUSINESS

CHAIRMAN GIBSON: Is there any other business to come before the Winter Flounder Board? Bud.

MR. BROWN: One thing. We still don't have AP people, and when I looked at Paul's report, the Ground Fish Committee, if the council is looking to integrate the advisory panels into the assessment process. I guess maybe I'll address it to Bob Beal. Maybe Bob can tweak people to try to get some people on the Advisory Panel. I've been making this plea for years, I swear and we're getting nowhere.

CHAIRMAN GIBSON: Toni, do you have any thoughts on how to populate the AP?

MS. TONI KERNS: We will send requests out to the states and make those requests for you guys to look at folks to populate the AP with. It is dependent on the states to nominate folks to the advisory panel, so we need those recommendations.

## ADJOURNMENT

CHAIRMAN GIBSON: Any other business to come before this board? Seeing none; is there a motion to adjourn? Seconded by everyone. Thank you we stand adjourned.

**(Whereupon the meeting was adjourned on February 4, 2016 at 10:07 o'clock a.m.)**

## Briefing Document—Winter Flounder Specifications for the 2017 Fishing Year

### I. Winter Flounder State Sub-Component

*The state sub-component remains unchanged from those established as of May 1, 2016 for FY 2016-FY2018.*

The NEFMC Groundfish PDT developed recommended changes to the 2017 state water components based on recent catch information (FY 2010-2015), expected ACL changes and management measures for 2016, stock abundance and availability, and other information. The Council reviewed the adjustments and approved a motion for the sub-components to remain status quo.

Motion at the NEFMC Groundfish Meeting, November 2016

Mr. Terry Alexander moved to and Mr. Kendall seconded:

Modify Section 4.1.2.2 Option 2: Revised Annual Catch Limit Specifications to utilize Framework 55 percentages (i.e. status quo, as reflected in Table 4 of the PDT memo dated 11/10/2016 Document #3c) for the state water and other subcomponent for all stocks except for witch and northern windowpane flounder.

The motion **carried** on a show of hands (15/0/1/1).

**Table 1. Summary of Winter Flounder ABC Distribution to State Sub-Component (as percent of ABC)**

Stock	ABC	State sub-Component				
		FW 47 (FY 12)	FW 50 (FY13-14)	FW51 (FY14)	FW53 (FY15-17)	FW55 (FY16-18)
GOM Winter Flounder	810 mt	0.25	0.25	0.25	0.17	0.15 (122 mt)
SNE/MA Winter Flounder	780 mt	0.28	0.14	0.14	0.07	0.09 (70 mt)

Note: Highlighted cells indicate changes from the previous specifications (RED = increase to sub-component percentage; GREEN = decrease to sub-component percentage).

## II. Current Regulations

The current GOM and SNE/MA regulations have been in effect since 2014 (Table 2).

**Table 2. ASMFC Management Measures for Winter Flounder**

Stock	Sector	Trip Limit/ Possession Limit	Size Limit	Season	Gear
GOM	Commerical	500 lbs per trip per day	12"	Maintain closures	Minimum 6.5" square or diamond mesh in cod-end
	Recreational	8 fish	12"	NA	
SNE/MA	Commerical	50 lbs/ 38 fish per trip per day	12"	Maintain closures	Minimum 6.5" square or diamond mesh in cod-end. 100-lb mesh trigger.
	Recreational	2 fish	12"	March 1 – December 31	

	Implemented in Amendment 1 in 2005
	Implemented in Addendum I in 2009
	Implemented in Addendum II in 2012; GOM trip limit increased from 250 lbs (via Addendum I) to 500 lbs.
	Varying closure dates were in place via Amendment 1, the new dates became effective through Board Action on February 2014

# Atlantic States Marine Fisheries Commission

## American Lobster Management Board

January 31, 2017  
1:30 – 4:30 p.m.  
Alexandria, 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 (*D. Borden*) 1:30 p.m.
2. Board Consent 1:30 p.m.
  - Approval of Agenda
  - Approval of Proceedings from October 2016
3. Public Comment 1:35 p.m.
4. Consider American Lobster Draft Addendum XXV for Public Comment 1:45 p.m.  
(*M. Ware*) **Action**
  - Addendum XXV Subcommittee Report
  - Plan Development Team Report
5. Technical Committee Report **Possible Action** 2:30 p.m.
  - Report on the Gulf of Maine/Georges Bank (GOM/GBK) Stock (*K. Reardon*)
  - Discuss Next Steps in Management of GOM/GBK Stock (*D. Borden*)
6. Consider Action to Address Data Deficiencies in the American Lobster Fishery 3:15 p.m.  
(*M. Ware*) **Possible Action**
7. Jonah Crab Draft Addendum II for Final Approval **Final Action** 3:35 p.m.
  - Review Issues and Management Option (*M. Ware*)
  - Review Public Comment (*M. Ware*)
  - Law Enforcement Committee Report (*M. Robson*)
  - Consider Final Approval of Addendum II
8. Technical Committee Report 4:10 p.m.
  - Potential Impacts to Lobster Fishery from the New England Fishery Management Council's Deep-Sea Coral Amendment (*K. Reardon*)
9. Other Business/Adjourn 4:30 p.m.

The meeting will be held at the Westin Alexandria, 400 Courthouse Square, Alexandria, Virginia; 703.253.8600



# MEETING OVERVIEW

**American Lobster Management Board Meeting**  
**Tuesday, January 31, 2017**  
**1:30 – 4:30 p.m.**  
**Alexandria, Virginia**

Chair: David Borden (RI) Assumed Chairmanship: 02/16	Technical Committee Chair: Kathleen Reardon (ME)	Law Enforcement Committee Representative: John Cornish (ME)
Vice Chair: Stephen Train (ME)	Advisory Panel Chair: Grant Moore (MA)	Previous Board Meeting: October 27, 2016
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, NEFMC (12 votes)		

## 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2016

**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. American Lobster Draft Addendum XXV (1:45-2:30 p.m.) Action

### Background

- In response the 2015 Stock Assessment, the Board initiated Addendum XXV to increase egg production and decrease fishing pressure in the SNE stock.
- At the October 2016 meeting, the Board delayed approving draft Addendum XXV for public comment to allow state agencies and industry members an opportunity to provide comments on the management measures considered.
- Comments were submitted by MA, RI, CT, NY, and NOAA Fisheries and a subcommittee met via conference call on December 8<sup>th</sup> to provide recommendations to the Board and PDT.

### Presentations

- Addendum XXV Subcommittee Report by M. Ware (**Briefing Materials**)
- Plan Development Team Report by M. Ware (**Briefing Materials**)

### Board actions for consideration at this meeting

- Approve draft Addendum XXV for public comment (**Briefing Materials**)

**5. Technical Committee Report (2:30-3:15 p.m.) Possible Action****Background**

- In May 2016, the Board charged the TC with several tasks to better understand changing stock conditions in the GOM/GBK stock. This was prompted by the low settlement values recently seen in YOY surveys.
- The TC met in-person in September 2016 and held several conference calls throughout the fall and winter to compile a report on the GOM/GBK stock.

**Presentations**

- Technical Committee Report by K. Reardon (**Briefing Materials**)

**Board actions for consideration at this meeting**

- Discuss future management of the GOM/GBK stock.

**6. Discussion on Reporting in the Lobster Fishery (3:15-3:35 p.m.) Possible Action****Background**

- There is concern that the current reporting requirements do not provide enough information to accurately characterize the lobster fishery.
- In September 2016, the Lobster Reporting Work Group met and provided recommendations to the Board on ways to improve reporting in the lobster fishery.
- The TC has begun work to analyze a statistically valid sample of harvester reporting. The TC is working to expand the analysis to consider both harvest levels and trap hauls.

**Board actions for consideration at this meeting**

- Initiate addendum to improve reporting in the lobster fishery.

**7. Jonah Crab Draft Addendum II (3:35-4:10 p.m.) Final Action****Background**

- Draft Addendum II was initiated to consider a coastwide standard for claw harvest and a potential definition of bycatch in the Jonah crab fishery. The Board approved draft Addendum II for public comment in October 2016. (**Briefing Materials**)
- Public comments were gathered through January 6<sup>th</sup>.
- The Advisory Panel met to review draft Addendum II on January 6<sup>th</sup>.

**Presentations**

- Overview of options and public comment summary by M. Ware (**Briefing Materials**)
- Law Enforcement Report by M. Robson (**Briefing Materials**)

**Board actions for consideration at this meeting**

- Select management options and implementation dates.
- Approve final document.

**8. Technical Committee Report (4:10-4:30 p.m.)****Background**

- The NEFMC is currently drafting an Omnibus Deep-Sea Coral Amendment that may consider restrictions to lobster gear.
- The TC has completed analysis on potential impacts to the lobster fishery in the Gulf of Maine and offshore canyons.

**Presentations**

- Technical Committee Report by K. Reardon (**Supplemental Materials**)

**9. Other Business/Adjourn**

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

**The Harborside Hotel  
Bar Harbor, Maine  
October 27, 2016**

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

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

**INDEX OF MOTIONS**

1. **Approval of Agenda by Consent** (Page 1).
2. **Approval of Proceedings of August, 2016 by Consent** (Page 1).
3. Postponed motion from August, 2016 meeting: **Move to include in Option C a range of small volumetric claw harvest from 5 gallons to the bycatch limit of 2,000 claws.** Motion by Mike Luisi; second by John Clark. Motion postponed until October meeting.
4. **Move to postpone indefinitely** (Page 28). Motion by Mark Gibson; second by Jim Gilmore. Motion passes by unanimous consent (Page 28).
5. **Move to add option D (Claw Harvest Permitted Coastwide) under Section 3.0 Management Measures. Under this option, there shall be no minimum size for claws. Claws may be detached and harvested, but may not exceed a volumetric limit of 5 gallons. If a fisherman chooses to participate in the claw fishery, possession of whole crabs is prohibited** (Page 28). Motion by Patrick Keliher; second by Jim Gilmore.
6. **Move to postpone indefinitely** (Page 30). Motion by Doug Grout; second by Mark Gibson. Motion passes (Page 30).
7. **Move to add under option C, if a volumetric measure greater than 5 gallons is retained, the claws must meet a minimum size of 2.75 inches** (Page 31). Motion by Patrick Keliher; second by Doug Grout. Motion passes by unanimous consent (Page 31).
8. **Move to modify original motion to approve; move to approve Draft Addendum II to the Jonah Crab FMP for public comment as modified by the comments today** (Page 32). Motion by Steve Heins; second by Patrick Keliher. Motion passes by unanimous consent (Page 32).
9. **Move to approve the 2016 Lobster FMP Review, state compliance reports, and *de minimis* status for Maryland, Delaware, and Virginia** (Page 33). Motion by Dan McKiernan; second by Brandon Muffley. Motion passes by unanimous consent (Page 34).
10. **Move to adjourn by Consent** (Page 37).

**ATTENDANCE**

**Board Members**

Pat Keliher, ME (AA)	Jim Gilmore, NY (AA)
Terry Stockwell, ME Administrative proxy	Lance Stewart, CT (GA)
Stephen Train, ME (GA)	Emerson Hasbrouck, NY (GA)
Douglas Grout, NH (AA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Brandon Muffley, NJ, proxy for D. Chanda (AA)
G. Ritchie White, NH (GA)	Roy Miller, DE (GA)
William Adler, MA (GA)	John Clark, DE, proxy for D. Saveikis (AA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Rachel Dean, MD (GA)
Mark Gibson, RI, proxy for J. Coit (AA)	Mike Luisi, MD, proxy for D. Blazer (AA)
David Borden, RI (GA)	Joe Cimino, VA, proxy for J. Bull (AA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Cathy Davenport, VA (GA)
Rep. Melissa Ziobron, CT, proxy for Rep. Miner (LA)	Allison Murphy, NMFS
David Simpson, CT (AA)	Peter Burns, NMFS

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

**Ex-Officio Members**

Kathleen Reardon, Technical Committee Chair	Rene Cloutier, Law Enforcement Committee Representative
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**Staff**

Megan Ware	Robert Beal
Toni Kerns	

**Guests**

Brian Benedict, USFWS	Jason McNamee, RI DEM
Glenn Chamberlain, NOAA	Stew Michels, DE DFW
Patrice McCann, Maine Lobstermen's Assn.	Dick Allen, Little Bay Lobster Co.
Carl Wilson, ME DMR	Jocelyn Runnebaum, U Maine
Meredith Mendelson, ME DMR	Arnold Leo, E. Hampton, NY
Scott Olszewski, RI DEM	Togue Brown, Downeast Dayboat

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

The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened in the Statesbury Grand Ballroom of the Bar Harbor Club, Harborside Hotel, Bar Harbor, Maine, October 27, 2016, and was called to order at 12:43 o'clock p.m. by Chairman David V. Borden.

#### **CALL TO ORDER**

CHAIRMAN DAVID V. BORDEN: My name is David Borden and I am the Chairman of the Lobster Board. We've got a number of items here that we're going to have to work through on the agenda.

#### **APPROVAL OF AGENDA**

CHAIRMAN BORDEN: In terms of the agenda, we have distributed that and I guess I have a question. Does anyone have a preference for moving an item so that they can catch a plane?

If no then we'll take the items in which they appear. No hands up, so any objection to taking the items in the order that they were published. No objections. The agenda is approved.

#### **APPROVAL OF PROCEEDINGS**

CHAIRMAN BORDEN: Proceedings from the August meeting have been distributed. Are there any comments, additions, deletions to those? No hands up. Any objections to approving them, no objections; the proceedings are approved with unanimous consent.

#### **PUBLIC COMMENT**

CHAIRMAN BORDEN: We afford the public an opportunity to address the board for issues that are not on the agenda. Are there any members of the public? No one signed up on the signup sheet; but are there any members of the public that would like that opportunity? If so, raise your hand. There are no hands up, thank you.

#### **CONSIDER AMERICAN LOBSTER DRAFT ADDENDUM XXV FOR PUBLIC COMMENT**

CHAIRMAN BORDEN: I would like to just remind everyone that we've gone through a whole series of meetings here. We have adopted goals and objectives for this. At the last meeting we tasked the PDT with putting together a series of alternatives. That information became available on the website on Thursday night, October 20th, and I would imagine that most of you didn't read it until either Friday or over the weekend or in the last few days.

I am sorry that we couldn't get it out earlier, but that is just the way things were. What I would like to do is I would like to have Megan work through; give a presentation on the addendum. Then what I would like to do is to talk about the timing of any action, in terms of regulatory action, and get some feedback from the states on what they think is a realistic timeline in order to implement the measures; that range of measures, not specific measures.

Because I think that if we have that timing issue it will make some of the discussion on the addendum go smoother. In other words, if states can't implement this for this season, then in fact we have a little bit more time to refine the addendum. With that as a little bit of background, Megan, would you like to work through the draft addendum, please?

MS. MEGAN WARE: I'll be going through Draft Addendum XXV, which we are considering for public comment today. I will note that there are two issues in the document; the first is the targeted increase in egg production for southern New England, and then the second issue is where those management measures should apply. I'll go through each of those issues to hopefully set us up for a good discussion.

This is the timeline of the addendum. As David indicated, the board initiated this addendum in May to increase egg production and reduce fishing mortality in the southern New England

stock. In August the board defined the goals and the management options for this addendum. Since that time the PDT has been working on Addendum XXV.

If it is approved for public comment today, our public comment period would be from November, 2016 through January, 2017. Then in February we would review those public comments and consider final action. The reason the board is taking management action is because the 2015 stock assessment found the southern New England stock is depleted; with a reference abundance of 10 million lobsters, which is well below the threshold of 24 million lobsters.

Abundance, spawning stock biomass, and recruitment were all at historic lows, and modestly indicators corroborated these findings for spawning stock biomass. Six out of the eight surveys were below the 25th percentile. Furthermore, the survey encounter rate shows that the inshore population has contracted between 2008 and 2013.

One of the largest indicators of the poor stock condition in southern New England has been the marked decline in recruitment. I know we've shown this figure a couple of times, but I think it is really important to the document today. On the X axis we have spawning stock biomass, and on the Y axis we have recruitment.

What this shows is that overall there is a positive trend between spawning stock biomass and recruitment. However, in the most recent years we can see that it is more of a vertical trend with recruitment dropping steadily and spawning stock biomass remaining steady. This suggests that spawning stock biomass and recruitment are decoupled.

There are several contributors to the poor condition in southern New England; the first is an increase in natural mortality. Climate change has had a significant impact on the stock as lobster physiology is intricately tied to water

temperature; this includes when eggs hatch and larval survivorship.

What you see here on the bottom of the screen, it is a figure of bottom water temperatures from eastern Long Island Sound Connecticut, and it is the number of days above 20 degrees Celsius. This was included in the stock assessment, but I'm showing it here just to show that real change that we've seen in the bottom temperatures and the stress that is being put on these lobsters.

Another contributor to natural mortality is predation. Juvenile lobsters are an important source of food for many finfish species, and when those populations increase, pressure on the lobster stock also increases. In conjunction with an increase in natural mortality, continued fishing pressure has furthered the decline in southern New England. The graph you've seen here, it was also included in a TC memo; but what it shows is that we have natural mortality in the dark black line there, and then we have catch in the green line. This suggests that fishing mortality is still removing roughly twice as much spawning stock biomass from the population annually than natural mortality. If there is kind of a silver lining here, it is that this suggests management action can still have a real effect on the status of the stock. Given the poor condition of the stock, the board has initiated this addendum, and the goal for this addendum is recognizing the impact of climate change on the stock.

The goal of Addendum XXV is to respond to the decline of the southern New England stock, and its decline in recruitment; while preserving a functional portion of the lobster fishery in this area. Just as a reminder, the board is pursuing an increase in egg production; so that if environmental conditions become favorable we'll have enough eggs in the water to produce a successful and impactful recruitment event.

Also in setting the goal for this addendum, the board agreed that this is an initial management response to the stock assessment, and that the



board will continue to monitor the stock and the fishery to determine the next appropriate course of action. This year is a list of management tools that the board provided to the PDT at the August meeting.

What I'm going to do is go through each one of these. I'll give a bit of background on the discussion had by both the PDT and the TC, and then the final recommendation of whether to consider this in the document or not. I'm going to start with gauge size changes. Overall the PDT had the greatest confidence in gauge size changes to create impactful changes to the southern New England stock.

The PDT felt that changes to the minimum and maximum size are enforceable, and provide a direct benefit of keeping lobsters in the water longer. Gauge size changes are also intricately tied to the biology of lobsters, with clear benefits in terms of egg production and fitness; and as a result it is recommended for use in this management document.

Analysis by the TC suggests that gauge size changes can achieve up to a 60 percent increase in egg production, with increases in the minimum size resulting in larger increases in egg production. The PDT did note that decreases in the maximum size do provide permanent protection for those larger lobsters.

One of the things that the PDT discussed was the potential impact of gauge size changes or really any of the action taken in this addendum on interstate commerce. As a result of this addendum we might expect increased demand of lobsters from other LCMAs; especially those in the Gulf of Maine and Georges Bank.

Currently the minimum and the maximum size are possession limits, and while this is very helpful for enforcement, it can also complicate interstate commerce; as lobsters legally caught in LCMA 1 have a smaller gauge size than those in southern New England. Some states such as Connecticut and Rhode Island have language

that allows dealers to possess these lobsters caught in LCMA 1, as long as they are not sold to consumers in their state.

The PDT does recommend that other states think about adopting similar language to try and get at this interstate commerce issue. Next I'll move on to trap reductions. The PDT definitely had a lot of discussion on trap reductions, and I think the biggest challenge here is that the relationship between traps fished and fishing mortality is unclear and a bit tenuous. Currently we are going through a series of allocation reductions in LCMAs 2 and 3. The intent of that is to scale the size of the fishery to the size of the resource. I think an important part of that reduction is that it is trap allocation reductions. That can reduce a fisherman's total trap allocation, including fish traps and latent effort.

The TC did attempt to try and model the relationship between actively fished traps and exploitation rate to kind of try and get at what trap reductions might result in. What they found is that a 25 percent reduction in the number of actively fished traps may result in at most a 13.1 percent increase in egg production.

There are a lot of important caveats to this analysis that I want to highlight; that suggest the actual increase in egg production might be a lot lower. The first is that the analysis assumes fishermen maintain a constant soak time. We don't believe that this is true. As fishermen reduce the number of traps they have, they tend to increase the number of hauls they take to maintain that constant harvest level.

Another important caveat here is that the analysis is based on active traps fished. Just as a reminder, those historic and current trap reductions we're taking include both actively fished traps and latent effort. Again, this is another way why this might not achieve that 13.1 percent increase.

Finally, we have trap transferability in LCMAs 2 and 3, and this provides a mechanism for those

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fishermen to try and maintain their number of currently active fished traps. As a result of these many caveats, the PDT is recommending that trap reductions be used for management use in conjunction with gauge size changes. Trap reductions cannot be the sole management tool used in this addendum.

We also looked at accelerated trap reductions, and so that would be looking at the effect of speeding up the current trap reductions in LCMA 2 and 3. Given the TC's concerns that fishermen can reduce soak time, that current trap reductions can remove latent effort, and that fishermen have the ability to maintain the number of actively fished traps through transferability.

The PDT is not recommending this tool for management use, as they don't believe it will create a meaningful increase in egg production. They also felt that this places a greater burden on LCMA 2 and 3 fishermen; and again we're trying to address the entire southern New England stock here, not just a portion of it. Next we'll discuss season closures.

The intent of this management tool is to reduce pressure on the stock at vulnerable times. The biological benefit here is that it removes stress on lobsters as they are caught, handled, and hauled to the surface. Analysis by the TC, which is new and it was done for this addendum, suggest that quarterly season closures can achieve up to a 21.6 percent increase in egg production, with the largest increases in egg production from summer closures; which is not surprising given that is when fishing mortality is highest.

An important assumption here is that fishermen don't increase their effort during the open seasons to recoup their losses. Given this important caveat, the PDT is again recommending that season closures be used in this document in conjunction with gauge size changes. Season closures cannot be the sole management measure used to achieve the

targeted increase in egg production. One of the important things to consider here is the impact on the Jonah crab fishery. Especially in southern New England we're seeing the lobster fishery is more of a mixed crustacean fishery, where our fishermen can catch Jonah crab and lobsters using the same gear at different times of the year.

I think an important thing to consider here is the potential impact of a closure on the Jonah crab fishery. Next is trip limits. A trip limit is a management tool that is used in many other fisheries to maintain catch over a harvestable period of time, and to potentially reduce exploitation. Some of the positives here are that trip limits are enforceable, and they allow for the execution of both the lobster and the Jonah crab fishery.

The PDT asked the TC for their comments and potential analysis on trip limits, and the TC came back with several concerns. The first was that given the difference in the size of vessels and capacity between the inshore and offshore fleet, the TC was concerned that trip limits may disproportionately impact the offshore fleet.

There was also concern that fishermen might respond by increasing the number of trips they take to try and maintain their current harvest level. Kind of an unintended consequence of trip limits is that it may encourage those who currently harvest below that limit to increase their harvest. It is basically a goal that we've now set for them; and that they might try and attain.

Finally, trip limits may increase discards and stress. If you're limited to a certain number of lobsters, you may try and pick out the ones that you really want to bring in to sell. With that the TC recommended that trip limits be considered in conjunction with quotas. Quotas are a pretty large discussion here.

The PDT discussed quotas a bit, and overall it can be an effective management tool if properly enforced. However, it is a pretty complicated

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discussion. It includes questions of how do you set the total allowable catch. How is that allocated, either to individuals, jurisdictions, or LCMAs? There are also particular problems in the lobster fishery, where we have some states that are landing lobsters from both southern New England and the Gulf of Maine stock, and so we would have to deal with that.

Given these complications the TC is not recommending trip limits and quotas for inclusion in this addendum; due to their complexity. The board has stated that this is an initial management response that is intended to be quick and decisive. I think if the Board is interested in pursuing quotas that should be a separate tasking for a separate document.

Next we'll move on to v-notching. V-notches are used to protect the reproductive females in the population, and currently some portions of the southern New England stock are doing mandatory v-notching. The value of the tool is predicated on high encounter and harvest rates. Given the significant reductions in landings in southern New England, v-notching is not expected to produce a large benefit to the stock.

V-notching in southern New England has also been hindered by some of the compliance issues. As a result it is not recommended for use in this document. Next we have culls. A cull lobster is one that only has one claw. Currently culls can be legally landed in the fishery. The PDT considered a prohibition on culls as a way to potentially reduce fishing mortality. One of the issues though is if we prohibit culls it may encourage better handling practices, which really reduces the effectiveness of this management tool. Furthermore, if prohibited there would have to be tolerances put in place in case a claw was lost during the steam back to port. We would also have to come up with a definition, since lobsters can regenerate their claws and we would need to deal with that issue.

As a result culls are not recommended for management use in this document. Our final

management tool we considered was standardizing regulations. I think the TC has done a pretty good job of outlining the costs and benefits of this in a previous memo to the board. But just to sum that up, the benefits include improved enforcement and ease in the stock assessment process; where costs across the fishery could create real winners and losers.

During the PDTs discussion they discussed that LCMAs were established to reflect the fact that there are different conditions in different portions of the fishery; and that the industry has really supported the use of different management tools through LCMTs. As a result the PDT will support standard regulations in the inshore fishery; meaning LCMAs 2, 4, 5 and 6, but not between the inshore and offshore fishery; so not between those inshore LCMAs and LCMA 3.

I just want to clarify that standardized regulations are not required in this addendum; it is just that the PDT would support it if LCMAs and states were interested in that. Now we move on to our second issue in this addendum, and that is where should these management tools apply? One of the great challenges in the lobster fishery is that our biological stock units do not match up with our management areas.

This is particularly a problem for LCMA 3. As you can see there in the light blue, it spans both the southern New England and the Gulf of Maine/Georges Bank stock. That dividing line there is the 70 west longitude line. Historically actions we've taken in LCMA 3 or to address southern New England, have occurred throughout Area 3.

But given the potential severity of this addendum, the PDT thought it might be best to consider ways to just have that apply to the southern New England portion of Area 3; given that the Gulf of Maine and Georges Bank stock is at record high abundance, and is not considered overfished, and overfishing is not occurring.

I just want to kind of orient people to this figure here, because it is what I'll be discussing in a second issue. But again we have that 70 west longitude line. The western portion there would be the southern New England portion, and the eastern portion will be the Gulf of Maine/Georges Bank portion.

I am going to go into the management options now. First we'll start with the targeted increases in the egg production. Option 1 is status quo, so there would be no management changes in southern New England. Option 2 is a 20 percent increase in egg production, and this can be achieved through gauge size changes, trap reductions, and season closures.

Given the TC and the PDTs confidence in gauge size changes, those can be used on their own as a sole management tool in this addendum. However, given some of the caveats with trap reductions and season closures, those must be used in conjunction with gauge size changes. Furthermore, season closures and trap reductions cannot account for more than a 10 percent increase in egg production. The idea here is that we want to use the management tools we are most confident in, but we can be a little risky in that other percent of egg production we try and achieve. You'll see for these management options, they all follow the same pattern; so that 10 percent increase in egg production is 50 percent of the target.

That is going to increase with each of the management targets. I'll try and point that out as we move along here. Option 3 is a 40 percent increase in egg production; same story here. You can use gauge size changes, trap reductions and season closures. Gauge size changes can be used on their own.

However, trap reductions and season closures must be used in conjunction with gauge size changes; and together season closures and trap reductions cannot account for more than 20 percent increase in egg production. Again that would be 50 percent of the 40 target. Then

Option 4 is a 60 percent increase in egg production.

I am not going to go through the specifics there. It is the same pattern, but hopefully everyone gets the general idea. This is Table 9. I don't expect people to be able to read this, but if you want to look at the specific increases in egg production from gauge size changes, this is where to look.

The intent here is that an LCMT or a state could look at these tables and say, all right how do we want to achieve that 40 percent increase in egg production, for example? You could go to these tables and pick out the various tools you might want to use. This is Table 10 for the closed seasons. This is some of the new analysis for this addendum. Again, if you want to look at the specific increases in egg production for each season closure, please look there.

All right this is our second issue here, and again we're trying to answer the question, where should these management tools apply? Option 1 is to maintain LCMA 3 as a single area. The current boundaries of LCMA 3 would stay the same, and management measures in this addendum would apply to all LCMA 3 permit holders.

Option 2 is to split LCMA 3 along the 70 west longitude line. This is the line that I pointed out before that divides the southern New England portion of LCMA 3 from the Gulf of Maine/Georges Bank portion. Annually LCMA 3 fishermen can elect to fish exclusively in that eastern or Georges Bank portion of the stock.

Other LCMA 3 fishermen can fish throughout that area, but they are held to the stricter management measures of the two sections per the most restrictive rule. Trap tags would be amended to include 3E for 3 eastern, and they can only be fished in the eastern section or the Georges Bank Section. LCMA 3 permits can still be transferred, but the recipient at the beginning of the fishing year would be able to either specify

whether they want to fish throughout LCMA 3, or just exclusively in that eastern Gulf of Maine/Georges Bank portion.

Most importantly, the management measures in this addendum would only apply to the western portion of LCMA 3, which again is that southern New England portion. I'm going to pop this picture back up here just to clarify. We have that 70 west line. In this option the management measures would only apply in the area that says southern New England. The Gulf of Maine/Georges Bank area would have the same regulations. Fishermen could choose to exclusively fish in that Gulf of Maine/Georges Bank Section, and their regulations wouldn't change. However, if a fisherman wants to fish in southern New England or southern New England and Georges Bank, then they're going to be held to the stricter of the two management measures.

Finally here, we have some monitoring recommendations. Monitoring will be necessary to determine if the addendum meets its goals, as well as the need and extent of future management action. Our two recommendations are to monitor the exploitation rate and associated egg production of the southern New England stock, and a recommendation that model free abundance indicators are updated each year as a part of the FMP review. With that I will take questions.

CHAIRMAN BORDEN: Okay, as I indicated before we're going to take questions on what the PDT has fashioned. I would prefer members of the board to not be advocating additional alternatives. This is just questions on what has been presented. Then what I want to do is talk briefly about the timing issue and what the Board feels comfortable with.

Depending upon, I think there were a couple of alternatives there, depending upon the alternatives we pick, we'll either get into a very detailed discussion of the alternatives and any other potential alternatives, or there will be

another process; so we'll follow, questions, Mark Gibson, Dan, Emerson.

MR. MARK GIBSON: Thanks for the presentation. Could you go back to the slide, I think on accelerated trap. If I remember, it was not recommended for a number of caveats, and I am not understanding the logic of that. If there is a recommendation that trap reductions can be combined with gauge increases.

Why wouldn't accelerated trap reductions be able to be combined with that? Seemingly you would get to your percent reduction, exploitation and increase in egg production faster. I am not understanding why this one is being ruled out and couldn't be used in combination.

MS. WARE: Just to clarify, the trap reductions in this addendum are separate and in addition to the trap reductions that are currently taking place. For example, if LCMA 2 wanted to use trap reductions here, they would be in addition to the trap reductions that are currently happening.

MR. DANIEL McKIERNAN: I just had a question, Megan; on a comment you made about the states have possession laws governing lobster. I don't believe the possession laws are actually a requirement of the Plan. In other words, in Massachusetts we have laws pertaining to possession by the harvesters, but our minimum size in commerce is the smallest of the three minimum sizes I have in the state.

We have very punitive laws governing the possession of short lobsters. It is \$150.00 per lobster criminally, and so I'm not sure that we want to repeat what you said. In other words, I just want, I think want it on the record that states have the discretion to make it a possession law in their state or not.

MS. WARE: There is a sentence in the addendum that addresses Massachusetts regulations, so I can add that when I give the presentation.

MR. EMERSON C. HASBROUCK: Thank you, Megan, for your excellent presentation. I've got a question, Megan. It was your last slide or your next-to-last slide, it mentioned monitoring egg production. I'm just wondering, who was going to be monitoring egg production and how are they going to be doing that?

MS. WARE: That's a great question; it is really tricky to monitor egg production. The current model that we use to get the analysis that are in this addendum, it relies on reductions in fishing mortality and then translates that to egg production. That is why the recommendation is to monitor both the exploitation rate and then through that model or simulation, we can try and get at egg production.

CHAIRMAN BORDEN: Emerson, follow up.

MR. HASBROUCK: Okay so that is just a number generated out of the model then. It is a calculated number based on some assumptions that are in the model, but based on reduction in fishing mortality; is that right?

MS. WARE: Yes. I don't run the model, but that is my understanding as well.

MR. DAVID G. SIMPSON: Megan, very helpful. My question relates to Table 10 and the season closures. It seems to be where in Addendum, was it XVII, each LMA had a season closure table. This one is for use throughout southern New England, so I'm wondering how this might incorporate the three-month-closed season that we have in LMA 6 now.

We're closed from September 6th to the end of November. Do we get 13.6 percent credit for closing December? How do we handle that? The other curiosity is if we closed all four seasons we wouldn't get 100 percent reduction in exploitation; so maybe you could help me with that?

MS. WARE: Yes so I'll try and tackle both of those. The way that they got to this egg

production number is through fishing mortality by quarter, and that comes out of I believe the stock assessment model. That is why it is to all of southern New England, because that is as specific as that value gets in the stock assessment. It is from the 2015 stock assessment, so I would have to check and see how your season closures influence that.

But if that data or that change was incorporated into the 2015 assessment, I would think it might be reflected in this. But I would want to check with the TC. As to the other question, I also had that similar question. I think it has more to do with compounding effects, and the longer you get the greater the increase will be. But I can try and provide a more robust answer for you if I talk with the TC.

CHAIRMAN BORDEN: David, follow up.

MR. SIMPSON: Yes I think that would be really helpful, because I look at it now and think, we're already closed for basically the entire fall; and if we were to close July and August, my sense is for Long Island Sound that would represent a lot more than a 26 percent reduction in exploitation. I want to make sure when we go out to public hearing on this we've got numbers that are realistic for our LMA.

MR. DOUGLAS E. GROUT: My question is actually for our federal partners. I just wanted to confirm with them that this 70 degree line that would impact federal permit holders fishing in Area 3, they don't see any conflict with any of the National Standards in Magnuson in implementing this; you don't see any problem with that?

CHAIRMAN BORDEN: Peter, do you want to respond or Chip?

MR. PETER BURNS: With respect to the National Standards, I'm not really quite sure but we've certainly been able to administratively determine who is fishing where by them declaring that on their permit. I see this as

something similar to that where somebody who is already qualified to fish their trap allocation in Area 3, to be able to voluntarily decide whether or not they want to be in either the eastern or the western part of it. But that is certainly something we'll have to look at in the context of this draft addendum.

CHAIRMAN BORDEN: Peter, can I follow up on that? Assuming that the board wants to consider that how long will it take NOAA to put that into a rule? What's a timeframe for that?

MR. BURNS: I'm assuming you mean all the measures that would be proposed in this addendum? Right, well our preference really would be to have something come out sooner rather than later; and if we could have a draft addendum that came forward today, I think that would help us.

The more time we have to do our analysis and do our rulemaking process, the better. I would say that if we could get something out today that would be good, get the process started earlier. We would be able to engage with the industry during this winter when they're more available to be able to focus their attention to it.

It might be difficult to get something in place, certainly for the 2017 fishing year, but potentially for the 2018 fishing year; if we could look at these measures and depending on the timing try to get that through. We also have a new administration that is coming in this fall as well, so have to take that into consideration.

CHAIRMAN BORDEN: If I could just respond, so 2018 then you think is realistic.

MR. BURNS: We could try.

CHAIRMAN BORDEN: Michael.

MR. MICHAEL LUISI: I think I've answered my own question by reading more thoroughly a couple paragraphs in the document, but maybe Megan, you can just confirm for me. Under

standardized regulations the PDT is supporting standardizing the inshore regulations. But I'm assuming that we would still be able to maintain differences between the LCMAs, and it is not just one complete standardized rule for all the inshore LCMAs.

MS. WARE: Yes that is correct. Right now those LCMAs have the same gauge size, but they have different season closures. If that is something that as a region, I'll say, you wanted to maintain that is allowed under this document. It's just a recommendation not a requirement.

CHAIRMAN BORDEN: Other questions on the part of the board? If not, I'll take a few questions from the audience. Anyone in the audience have questions on any of the provisions? If not, I'm going to ask a couple questions. Megan, in terms of the closed season, did the PDT describe exactly what will take place during a closed season? I mean this issue has come up before. Is it gear out of the water? What exactly takes place during a closed season?

MS. WARE: I believe we discussed that a closed season is lobster traps out of the water.

CHAIRMAN BORDEN: I would just point out to you, and you know this but I'm just saying so it's on the record; 50 percent of the income, almost \$20 million worth of income is generated by the crab fishery which takes place at the same time the lobster fishery takes place. I think we have to be, it is almost equal if not a greater portion of the income for the fishery.

We have to be pretty clear in any public hearing exactly what is going to take place and what the impacts are. I think where we are at this stage; we've gone through the issue of questions. Let's focus just for a short period of time on the issue of timing. Peter already responded to the question of timing and basically told us what the federal agency could do.

Given this array of management measures, none of us know exactly what would be implemented,

but given the array of management measures are all the states able to implement this under rulemaking, or do any of the states require legislative action? Any states require legislative action to implement any of these?

No, okay so my question to the board is what is a realistic timeframe for implementing this? Do you think it's realistic to try to implement this January 1st, 2017 or sometime before that or sometime after that? I would like to get some comments. What did I say?

MR. G. RITCHIE WHITE: Megan thought she might be able to do it a little quicker.

CHAIRMAN BORDEN: Well, the way Megan described it I think she was planning on adopting the final rule next week. Bill Adler.

MR. WILLIAM A. ADLER: I've got two things. First of all, I wanted to get this in earlier. On Page 32 where it says under the first scenario an 80/90 reduction in harvest is projected to stabilize the stock at current levels. Then it says assuming natural mortality also stabilizes at current levels.

That particular statement there I don't see as realistic, because I don't think natural mortality is going to stabilize. That was my point on that one on Page 32. As far as timelines go, you have a system here where you've got fishermen fishing in Area 2, which includes state and federal waters, I believe.

Now if the state were to close state waters for a closed season, how do you keep, unless the feds come right along and do the same thing instantly, how do you keep those fishermen from moving and using their federal waters part for the traps that were in state waters of that area? You closed the season there so they all run out with the traps into another area, where the feds would have to be control. I don't know how you would do that. This is part of the confusion and complications that this plan has.

MS. WARE: I'll try my best on this one. My understanding is that during the last addendum with the 10 percent, most restrictive rule wins. The states rule, the area closure was implemented in state waters ergo it was implemented in federal waters for those fishermen. I don't know if Pete wants to add to that or anyone else.

MR. BURNS: My understanding is that someone who has a dual permit, a state or federal permit would be subject to the more restrictive of the state or federal regulations in the meantime.

CHAIRMAN BORDEN: Any other comments, questions? Excuse me, Mark.

MR. GIBSON: On regards to the timeline. I think 2018 is fine from my standpoint. I don't know whether it's January 1st '18, or the start of the trap tag year. Perhaps that needs some discussion. The only concern I have about that timeline would be we have requests as you know from industry in different lobster management areas, for LCMT input into this document before it goes out for public hearing. I just wanted to make the Board aware of that that we will be looking to do that and that might change the schedule that has been presented.

CHAIRMAN BORDEN: Thanks for bringing that up, Mark. To me, I think that there is kind of a fundamental decision that the Board has to make today. There are kind of two paths I think for the Board to move forward. One of the paths would be to sit here, talk through all these different alternatives, and basically pass a motion to take alternatives out to public hearing as soon as possible.

That would mean that there would probably be some revisions to the document, and then Megan, we would basically follow the schedule that Megan outlined. The second path, I think, because I've had a number of requests from industry similar to what Mark just pointed out, is to have a variation of that that slows down the process very slightly.



Under that scenario what I would envision doing is taking comments, for let's say the month of November, and then forming a small subcommittee to review those comments with the staff, and then basically develop a memo which we would circulate to the entire Board on the suggestions that have been brought forth; and then do a conference call on it subsequent to that.

Then if the Board agrees with the suggestions that are outlined in the memo, then we would refer that to the PDT; and let them flesh out the rest of the management actions. If we did that the timeline we would be on is to approve a public hearing document in February. I think you've got a basic decision. Which one of those two paths does the Board prefer to be on?

I've spoken to a number of individuals around the table, not all, but quite a few of you have said to me that you have not had adequate time to not only review the document, but to talk to members of your industry on it. Can I get some comments on which one of those two procedures you would like to follow?

MR. BRANDON MUFFLEY: I mean I appreciate that we want to get industry's input on how we move forward, and I think we have the opportunity to do that. But the Board started discussing moving forward with an addendum in May. In August the Board talked about all the different options that the PDT should consider, and I think the PDT has considered all of the options that are available for us to evaluate.

I don't know what additional options industry is going to give us that are different. Gauge sizes, seasons, trap reductions, those are the options available to us; and we've considered all of those. I don't know what we're trying to get out of industry. I understand we want them to evaluate what we're proposing here and how that fits into what they want to do.

But these are the options that are there. I don't see what going back at this point gains us in

terms of additional things that we can consider. The TC has considered everything that we have available. The PDT has considered everything that we have available, so I think we have what we need to be able to move forward. Not that there aren't nuances that we need to figure out, but I think we have the tools here to make some decisions.

CHAIRMAN BORDEN: Other comments on it? Mike.

MR. LUISI: It is not as much about, for me, for Maryland, it is not as much about the industry; because I could pick up my cell phone right now and call the industry in about five minutes. I could call him. That is where we stand. For me, for us, it is more about when we implement the measures.

Do we implement them in the middle of the summer, which is probably the timeline that we would be on? We have to wait for our legislative session to carry itself through to April. We wouldn't be able to put forth new rules until probably the middle of the summer, July or August; and if that were to be the case we can certainly do it.

I would prefer beginning new management measures at the beginning of a year, if at all possible. But I don't know how other states would feel about having an implementation date somewhere in the middle of the year. For me it would be better to start at the beginning of a year rather than the middle of a year.

CHAIRMAN BORDEN: Other comments on this, Mark Gibson.

MR. GIBSON: To Brandon's points, I appreciate those points. I guess what I would say in return is that I don't think industry, as you point out, is going to come up with some new unforeseen strategy. But they are challenging some of the assumptions that the Technical Committee and PDT have made relative to industry behavior in

response to the different management measures.

I think we should afford them the opportunity to advance those arguments, as to why they can't adjust their soak time to the extent that perhaps others have surmised they can, or switched their gears to other locations or times of season. That is what we're hearing. I would advocate the later timeline that you laid out.

MR. GROUT: Mr. Chairman, with the second scenario you laid out, you were talking about getting input that would be provided to a work group. Are you talking about soliciting input from industry, or is it something that commissioners would solicit and then bring back and provide that input?

CHAIRMAN BORDEN: My response to that is I don't see a big difference between just allowing anyone to comment and just allowing the commissioners to comment.

MR. GROUT: Would you send this unapproved document out to the industry for consideration, is that what you're proposing?

CHAIRMAN BORDEN: The document is already out. It is on the website, they have access to it. I think the point that Mark is making is the industry wants to comment on some aspects of the document before we authorize public hearings on it.

MR. GROUT: Okay.

CHAIRMAN BORDEN: I hit the wrong button, Doug.

MR. GROUT: I do that all the time. The final comment I'll make is to Mike's comment. No matter when we approve this document, whatever meeting, we still have to set an implementation date. You can approve it in May and have an implementation date of January 1. We could conceivably move forward

expeditiously; but then decide to wait until January 1, 2018 to implement.

MR. ADAM NOWALSKY: The only question for me really in building on Doug's comment about the implementation date. The only question for me is whether this board believes the range of options in this document are within the realm of range of options that we're realistically going to consider; whenever we do.

If there are other options or something outside of this range, quite frankly that's the only reason I see to delay getting this out into the hands of the public; and officially getting their comment. If this is the range of all we're realistically going to consider, then I see no reason not to send this out. Again, when we actually implement it is at our discretion.

I would argue the sooner we come up with regulations gives individual states more time to actually get those into final rules within the states themselves. But I think that is the question here today. Is this everything we're going to consider? If it is we do it today. If it is not then that would be reason for delaying the process.

CHAIRMEN BORDEN: I have David Simpson and Dan McKiernan.

MR. SIMPSON: I think what some of us are feeling is a need to get more comfortable with this, and the time that's required to do that. Whether we take a two-step process, which might be informational meetings as opposed to formal public hearings or whether we go to formal public comment on this. I still have questions to resolve myself, and not the smallest of which is using that one table for season reductions; that just doesn't make sense to me yet. I would need to be more comfortable with that before going to public hearing. I am also wondering if we end up going down the road of considering trap reductions as a means of reducing exploitation, I would like to know more about these tables and how much of an equal

comparison, how comparable each state's individual trap numbers are to one another, especially traps reported fished. Everyone has different collection statistics, and I don't want to be held at a disadvantage by that.

Looking at Table 5, it appears to me our number is off by 100,000 in terms of the number of traps that we have, based on prior commission action. I'm a little bit concerned there. Then I guess what we have is a Technical Committee recommendation that would require certain management actions to be paired with other ones.

In other words, the Technical Committee is recommending that a closed season be paired with gauge changes that trap reductions be paired with gauge adjustments. While I feel like we've had some pretty good success in Long Island Sound with our achieving 10 percent reduction in exploitation with the fall closure.

I think that it is pretty clear that all the work the Technical Committee has done on trap reductions and its relationship to exploitation. They are taking pains to politely say it won't work. They are taking pains to say every analysis we've done says this won't work, and everything we know about fishing behavior says this won't work.

But reading between the lines you can see they're saying, but we know you want to do this anyway; so at least pair it with a gauge so we get something out of it. I continue to be concerned about that. I mean it's just crystal clear to me that if you consolidate traps into the hands of the most efficient operators, which is what would happen, who fish the most.

The remaining concentrations of lobsters, you're not going to achieve a reduction in exploitation. You're going to make a few people comparatively wealthy at the expense of everyone else, and you won't achieve a reduction in exploitation. But I think that needs to get vetted out and talked about. I'm hearing

things from Mark saying just the opposite, and from you that oh no, they won't change their soak time, they won't change where the remaining traps are fished.

Well of course they will. I remain to have that concern, and as I said I'm concerned about the numbers of traps and I need more help with that table, given that Long Island Sound already has a three month closed season. It simply can't be that if we close the rest of the year we'd only get another 50 percent reduction.

MR. MCKIERNAN: Yes I would be in favor of spending some time with the industry over the next month or two, and then come back and approve this for hearing in February. One of the concerns that I have is we just got the document so recently. But it doesn't really describe the impact on the Jonah fishery. We created a Jonah crab management plan over the last two years, under the argument that the fishery has become a mixed crustacean fishery using traps; and yet this document doesn't really describe the impacts of a seasonal closure on Jonah landings.

I think that has value, because we're going to have to figure that out. A closure versus a possession limit of zero is two different things. We might want to figure out a way to allow Jonah crab fishing. But it is really not captured in this document. I would be in favor of your latter proposal.

CHAIRMAN BORDEN: I've got Jim Gilmore and then Peter.

MR. JAMES J. GILMORE: Being on the other side of Area 6, I'll echo some of Dave's concerns, and in addition to that for lobster, it is one of the rare fisheries I manage where I do not have regulatory authority for everything. Things like gauge changes or some of the things of listings of our tools, I have to go through legislation to do this. If I don't submit it today then forget about next year. I just wanted to let everyone know that.

When we get to the end of this I have to hit the legislative process, which is typically September/October of each year, and have to go through that before I can even implement any of these. That's going to be another complication in getting this thing done. Bottom line is, so the timing, the whole thing isn't as important to me right now, because right now if we concluded this today it would be probably a year before I could even implement it.

CHAIRMAN BORDEN: Thank you very much for that point. That was exactly the reason I asked that question. I mean what I'm sensing here is that there are interests that want to proceed as soon as possible, and I think it's important to do that. But I also share Mark Gibson's perspective that providing an opportunity for the board members in particular to write their questions like David Simpson.

Write questions down, put those into some kind of format, have the PDT look at some of those types of questions and answer those questions; and then vote on the actions, I think is a probably a more sensible way to proceed. Let me go down through the rest of my list. I've got Peter, Ritchie and then Bill.

Anyone else, Emerson, anyone else wants to speak, John. Then what I think I'll do is just ask to see a show of hands on the part of the delegations as to which path we want to proceed on. If we have a majority of individuals then we'll proceed with the discussions accordingly. Is that agreeable to everyone? Okay so next I've got Peter and then Ritchie.

MR. BURNS: I certainly appreciate the comments from the various board members. NOAA Fisheries would certainly like to see this document go out today for public comment. To Adam's point, what other management measures could there possibly be? We had really an exhaustive list back in our August meeting, trying to ask the board what types of measures we thought should be evaluated in this.

I think we gave a real comprehensive list of that. I think the PDT took the information that they got from the Technical Committee and was able to really show which measures really were going to get to the goals of this addendum, which are really to increase egg production by decreasing fishing mortality.

Keep in mind that I think the intent of the board was really to take a definitive quick strike here to really get something out there that is going to have some teeth. Everything here is going to be tied in with a gauge increase, which is something that we can be able to monitor over time; which I think is very important for this fishery, since we're almost two years out now from the stock assessment; which showed that things aren't getting any better. I would like to see it go out for public comment.

I know that later on in the meeting we're also going to be talking about developing another addendum for improved reporting requirements and things like that. That is another action potentially that is going to require the staff time here for the commission, and also for the states and for NOAA Fisheries to analyze these options. I would like to be able to put this out for public comment. Let the industry look at it in that context and any of these other issues that come up can certainly be vetted during that period.

MR. WHITE: I have to agree with Peter and Adam. We've been fooling with this for ten years. It's time we've got to take some substantial action here. I don't believe we'll ever answer all the questions prior to starting the process. Always going to be that we go back to the industry, they'll raise more things, we'll come back. You've got to start it, and I think we'll get a lot of the input from industry and a lot of those questions answered during the process. That's why we have that process, so let's get on with it.

MR. ADLER: I know we will hear this basic statement that we've got a trap reduction going on now. I don't believe it's over, so there is still

more reductions coming on traps. I didn't know when the technical group had looked at all these alternatives for trap reductions et cetera. Whether they already took into consideration what the current trap reduction program will achieve when it's over.

I don't know if they did that or whether they just said, right now this is where we are and you have to go down this much in traps alone in order to achieve X amount. I didn't know if they already anticipated that the trap reductions, which are still ongoing, are doing something. Because what you'll hear at public hearing is let what we've already done work. That is what you'll hear. There needs to be some response to that whenever we go out to public hearing. I'll stop there for now.

CHAIRMAN BORDEN: Bill, to answer your question. When the Center analyzed the impacts of the trap reduction they only analyzed the first 25 percent cut, which we implemented last May 1st. They have not analyzed the second 25 percent cut.

MR. ADLER: Okay so in other words there is another trap reduction coming already, and they haven't analyzed whether that cut into perhaps what they wanted to do with the trap reduction. They haven't analyzed that apparently; that part. In other words they may already have achieved something I guess. When they're finished with the existing trap reductions they may have already achieved some of what we're looking for. I know it's not all.

CHAIRMAN BORDEN: Yes I would just note I've got an e-mail someplace from Burton that basically says that. Let's see, I've got Emerson, John, and then David Simpson.

MR. HASBROUCK: Two things. One is I'm unclear what the role is of the LCMTs in this process, or what their role is anymore. It seems to me like they haven't interacted in the development at all. They haven't provided any input to the development of this addendum. Are

the LCMTs still in existence? Have they been dissolved? Do they need to be reconstituted? I'm wondering what the role is again of the LCMTs, and how they are going to interact with this process.

I think that if they are still in existence there should be a more formal process with them, rather than just saying to them come to the public hearing when it comes to your state. For that reason I think that we might want to delay this so that we could codify their input; and the other is, and it may be a little bit late for this.

I guess I could put this together in a response to whatever committee might be formed if this delayed. What is the benefit, in terms of egg production, at removing ghost gear? We've already removed 16,000, a band of lobster pots out of Long Island Sound. There are three or four times that amount still, just in Long Island Sound; and there is gear elsewhere.

Dan, I think you mentioned the other day about a ghost lobster pot program or an analysis or something. I don't know if we can get at some level of increased egg production by removing ghost gear, and how that might factor into this. Those are my two issues.

CHAIRMAN BORDEN: I've got John and then David Simpson then Pat Keliher and Rene.

MR. JOHN CLARK: First Roy pointed out to me that we are another state that would have to go through legislation to change to meet most of the possible options in the plan here. In terms of whether to delay or go right out to public comment, I think there is not much of a problem for Delaware either way.

If the TC projections are correct, this addendum will likely just delay the date of commercial extinction of the stock; so I don't see that spending a few more months to get a little more input is really going to harm things here. I think if we would like to get some input from, like Mike we have very few lobstermen, so very simple to

get their input on some of these before we bring this back up in the winter. We wouldn't have a problem with that.

MR. SIMPSON: I guess this should have been a question for Megan earlier. The gauge size tables that memo refers to just inshore and offshore. Historically we've done it by LMA, but I also recognize that unless New York's been doing a lot of sea sampling, we don't have LMA 6 size composition any more. The fishery reached a point and lack of funding. It basically caused us to end our sea sampling program. What is inshore and what is offshore for these tables, because we know there would be differential impact; but I'm not clear what inshore means here.

MS. WARE: The heading for Table 9, it says that inshore is LCMA 2, 4, 5 and 6 and offshore is LCMA 3. If it is clear I can add that to the actual boxer; but that's what the heading says. I just thought I might address some of the points that have come up, because I think there is a bit of confusion on LCMTs and trap reduction analysis, so I just kind of wanted to address that.

For the LCMTs, Emerson, so how traditionally they've been engaged is from my understanding the 10 percent reduction, they were involved in creating proposals on how they wanted to achieve that; and also kind of during that public comment period, I will say. The LCMTs are separate from the Commission.

We don't run those, those are industry run and they are run by the states. The Commission is not involved in their running, but we do receive their comments and their proposals. For the trap reduction analysis, Bill, just to answer your question on like what percentage of current trap reductions are being included in this. I think the really tricky part of that question, and it's a great question, is that to understand the tipping point between reductions and latent effort, and that tipping into reductions in actively fished traps is different for each fisherman; and it's really hard to predict. The big difference between the

historical trap reductions and the analysis by the TC is that those historical trap reductions are based on total trap allocations; which includes latent effort. The analysis by the TC just looks at active trap reductions; and so I think that is the big difference there.

MR. SIMPSON: Related, we're talking about reasons for delaying, and I'm not trying to delay. But one of the things we don't have was actually Peter's suggestion, which I think was the last one added to the list, which were trip limits and quotas. I'm looking down the road fully believing that we're going to have to end up there if we're going to make substantial progress in reducing F.

I don't want to in this addendum create irreversible harm to the industry without accomplishing much on the way to trap limits. That is the one piece that I would like to know more about, and certainly if there is not agreement that we should wait for that information then I just want to make sure we're flexible enough in this addendum; in terms of must pair this with that that we do no harm in this addendum.

In other words, I think having already started on a season closure track, and seeing fishermen adjust to finding other things to do during those times. I'm thinking that's what we would pursue, but a gauge increase will be counterproductive. It will make them more inefficient, it will be disproportionately burdensome on Long Island Sound; which has smaller lobsters than Area 2, 4, and 5. Just keeping those things in mind, and there was something you said at the end that prompted me. I'll think of it and I'll have to come back to it.

CHIARMAN BOARDEN: Okay, Pat Keliher and then Rene.

MR. PATRICK C. KELIHER: Whether there is a delay or not, I mean I personally think input from industry on a lot of this is always beneficial. The one thing that continues to nag at me, in looking at the report, is the fact that we still have this

potential commerce issue if gauge size is going to be utilized. I'm wondering while we're gathering additional input from industry that we shouldn't also get some input from legal to ensure that we're not going to go down the road of a problem with commerce and interstate commerce.

MR. RENE CLOUTIER: I can only speak to Maine's ability to enforce a trap limit in Area 3. Right now with the equipment that we have, we wouldn't be effective in enforcing a trap limit in Area 3. We just don't have the equipment to do that. If it is not enforceable, if you have any trap reduction at this point would just be a suggestion, because it is not an enforceable thing, realistically.

MR. SIMPSON: I'm trying very hard not to be a pest. It was actively fished traps. You mentioned actively fished traps. Could you explain how that was defined for each state? Again, I think that's a key, an extremely important point, and I think it varies by state. I would like to understand it.

MS. WARE: The number of actively fished traps was from the 2015 stock assessment. I don't have that table number in front of me, but I could look it up and e-mail it to you really quick. But what the heading reads is that it is the number of traps reported fished by state in the southern New England stock unit.

MR. SIMPSON: Could I follow up? What does that mean? Who reported them and how? Is it the number of tags that were purchased? What is that?

MS. WARE: I would have to ask the TC.

MR. SIMPSON: I think it is an important detail, because I suspect it varies widely by state; based on the type of information they collect. I know that we have a mechanism for calculating how many traps a fisherman must have been fishing to explain his number of traps hauled and has set over days.

It is a complicated thing that requires us to follow a fisherman day after day after day. I suspect not everyone did that and if we're comparing that against how many tags were sold, there are fishermen who for years have bought their tags and not used them for this day; for this very purpose right here.

CHAIRMAN BORDEN: Just a couple of comments. One of the things that is a big tricky about talking about active and latent traps is we've had qualifying timelines and qualifying criteria that have differed in the different LMAs. In Area 2 they use the qualifying timeline of 2001 to 2003. Then basically the traps that the individuals were allocated were based on their landings during that period of time.

In terms of Area 4 and 5 and 3, NOAA, and Peter, you can correct this if I misstate it, but NOAA used very different criteria. In Area 3 they used the criteria was you had to prove that you had 25,000 pounds of landings in one year and fished 200 traps. Then I think in Area 4 and 5 it was the same criteria minus the 25,000 pound landing limit. There has been a variety of criteria used to actually qualify the trap allocations, but it was all based on performance in those areas. Okay so any other comments, statements, questions? Mike, and then Peter, and then Dan.

MR. LUISI: I'll just make a quick comment. It sounds to me like you're still looking for some input on whether or not we put this forth to the public today or perhaps delay it until the winter meeting to finalize it. Like John, I really could go either way. I don't have much of a stake in it, given the nature of the fishery in Maryland.

It sounds to me like implementation, given some of the legislative and other issues that we're going to be facing as states, will likely not have implementation until 2018 for these actions. It's just the way, from what I've heard. If I had a bigger stake and I had concerns in the draft as it stands right now; as some of my colleagues from the north do, and I were asking for a delay so that

I could fold in more comment from my stakeholders.

I would hope the board would go forward with that request. I'm willing to support a delay of a few months. I'm also thinking about Megan too, because we just finished up the PID from hell yesterday with menhaden, and so she's going to have quite a winter. This may give her a little time so Christmas isn't ruined. Just my thoughts, so I can go either way, but likely leaning towards whatever colleagues from the northern states are asking for.

CHAIRMAN BORDEN: All right I'm going to recognize Peter, and then I just want to make a brief comment. Then I'm going to take like a one minute break so you can talk among your delegation. Then I would like to see a show of hands so we get a sense of what the preference of the committee is. What I'm trying to do is avoid a motion, and then the whole range of motions to amend and so forth; Peter and then Brandon.

MR. BURNS: Just to put a final point on what you said, David. I think that in the document the Technical Committee did provide an analysis on active traps the best way that they could characterize that; given the disparity in how that information is collected. We talked about that at the PDT meeting and we said we've already gone through this.

The Commission has already qualified and allocated in the various areas and we don't want to get into a situation where we have to do that again; based on what we think now is active, as opposed to what the historical allocations are. We really worked hard, along with the states, to try to pair up dual permit holders who had state and federal allocations.

We already crossed that point, and I don't think we want to go back there again. I think the Board can look at this draft addendum and realize that some level of active and latent effort is going to be taken out with any kind of trap reductions.

What that amount is it is going to be difficult to say. In the meantime we also have the trap transfer program that can allow people to buy more traps and activate those traps.

As we move forward it is kind of a dynamic process and difficult to pinpoint that. But I think what we came away with from that at the PDT meetings was that the TCs analysis was really just kind of a guideline of what's in there, and not necessarily the real time number, but just something to give the Board some kind of a baseline as a reference.

The other thing I want to point out is that this document does a good job of giving – it does constrain the choices to specific management measures – but it also gives the flexibility to each LCMT to decide how they want to break that up and use that; depending on how their fishery works. I think that's to David Simpson's point that there will be some flexibility there. It's not going to be a one-size-fits-all once the board decides what percentage reduction would come from this.

CHAIRMAN BORDEN: Brandon, you get the last comment.

MR. MUFFLEY: Yes, just I certainly appreciate that board members want to get additional input from their industry. I wholly get that. But I think the purpose is to try to gain some clarity in terms of how active trap numbers are calculated how these seasonal changes are going to impact things. But I don't think we're going to get any additional clarity on any of those things.

The TC has spent years doing a lot of analysis, and they've provided the best information. The data isn't clear, and we're not going to get it any clearer by trying to evaluate it anymore, because there is no consistency among states in terms of how they determine what an active trap is, or determining what latent effort is. The seasonal changes here, there isn't enough data to break it down spatially to evaluate what the true reductions are going to be at a smaller scale than



across the entire southern New England stock. I understand the need and the one to get additional information from industry on it, but again I think it is to see clarity; but I think it is going to be clarity that we're not going to get.

MR. TERRY STOCKWELL: Just a point of order for the record. I'm sitting at the table on behalf of the New England Fishery Management Councils, so I will be abstaining on issues that are not council business.

CHAIRMAN BORDEN: Okay, what I would like to do is get some clarity on the timing of this. You get two options. One option is we basically proceed today to agree today to make a motion, and basically put forth a motion to take this document or a variation of the document out to public hearing.

Under the second option, we would take some comments, and then at the February meeting the Board would authorize public hearings. We'd have public hearings in early spring and then adopt a final document, plan addendum excuse me, at the May meeting for implementation as soon as possible.

A personal comment is I don't see a tremendous amount of difference between these two timelines. From the discussion and comments that different board members have made, the document is not going to get implemented in 2017 or at least 2016. It might get implemented early in 2017, it may even be delayed on the part of some states if they require legislative action to a date past that.

I'm not trying to sway votes one way or another, but I think the second option still gets the job done with sufficient time to implement it. I am going to let you have a one minute caucus, and then I'm going to ask for hands on which jurisdictions favor Option 1, and which favor Option 2; one minute.

MR. WHITE: I just have a question as to the process. There is nothing in our procedure that

would not allow us to have two public hearings on an addendum. We could start the process now, and have a public hearing and then have input come back from that. If we felt that that was substantial enough to change the document up and go back out to public hearing a second time.

CHAIRMAN BORDEN: Yes that's true.

MR. WHITE: We could basically do what you're asking to do, but do it in the formal process of the Commission, and having the public participate fully, and it would also send a message that we're starting something; we're starting something today. That would just be a suggestion of something we could do.

MR. MUFFLEY: I don't want to hold up the vote or however we're proceeding here, but in talking with Adam I think we may be missing a step that we need to consider in the timeline, because say we agree for this to go out. We take input on the document, and at February the Board will agree to a 0 to 60 percent increase in egg production.

But then you're going to have to go back to the LCMTs to craft measures that are going to achieve that reduction. That is going to have to come back to the Board at another meeting to evaluate whether or not those different – that is my assumption – you're going to create seasons and gauge changes and all those things combined for the different LCMTs. That will have to come back to the Board for their evaluation, to see if it meets the required whatever increase in egg production the Board decides to do. Then the states will then have to go back and implement those measures to ensure that once they're approved that they meet those required reductions.

I think there is another meeting where those final actions are going to have to take place for states to get those things in place; unless I'm wrong about that. But I think that's something else we need to consider.

CHAIRMAN BORDEN: All right I think we've had enough discussion on this. Let me see a show of hands. All those that favor proceeding under the timeline in Option 1 raise your hand. I had three votes. All those that favor operating under Timeline 2, raise your hand; eight, we're going to proceed under Option 2.

Let me just ask, we've had a good long discussion. I think we originally set aside about an hour for this agenda item. Is there any other point that individuals want to make at this time? If so I will allow a few comments. If not, I will outline again the process so everyone is clear on what the process is; any other comments? Anyone in the audience want to make a comment? Peter.

MR. BURNS: I certainly respect the vote, but I think Brandon brought up a very important point that this is not just choosing the measures and then moving forward, and everyone goes back to their office and implements these regulations. It's going to have to require some engagement with the industry and maybe some complicated meetings about how we're going to implement this. I hope that we can stay on our timeline.

CHAIRMAN BORDEN: Bill Adler, and please let's not reargue the points. I don't mean that in a prejudicial manner, Bill.

MR. ADLER: I think that since we basically thought Option 2 was good. I think it is imperative that the states take this time to say to their industry and any of the come up with the questions or clearing some of the question marks they have; not to just sit there. But you could almost have a meeting with industry and say, this isn't an approved for public hearing yet, but this is what we're looking at. Any suggestions, because we're going to approve it probably for official public hearing; let's say in February.

This way, don't wait until February to start something. Start it now, I know that the Massachusetts Lobstermen's Association will be

having their winter meeting in January in Falmouth, and it would be a perfect opportunity for instance to have an open session there and get some ideas; at least from the Massachusetts and probably Rhode Island area on this stuff, so it's not that you sit quietly until February.

CHAIRMAN BORDEN: We can issue flak vests to the individuals that go to the meeting. Adam.

MR. NOWALSKY: Well building on that comment, I'll go one step further and ask that staff provide a date today when they need feedback on. If the intent here is that this document is not sufficient, staff needs feedback to take to the PDT to craft a revised document, let's get a date when they need that feedback by.

CHAIRMAN BORDEN: What I suggested when I outlined what I thought the steps would be under that venue. What I would say is any comments would have to be in prior to the end of the month of November. That would give the individuals around the table basically 30 days to consult with anyone you want to consult with, talk to your staff, talk to members of the industry or whatever.

But the letters have to be into Megan prior to the end of November. Is there anybody disagree with that? Okay so Adam's point is spot on. You have a deadline. Then once we get those, what I intend to do is to have a very small subcommittee, like one representative from the Mid-Atlantic and one from New England; work with myself and Megan. We'll craft a memo that kind of summarizes any of the suggestions and try to group them.

Then we'll send all of the suggestions and a memo from the small subcommittee out to everyone as soon as we can do that. Then following that we'll probably have a conference call; to see whether or not there is a consensus to move some of those items to the PDT, is that agreeable that timeline? Okay if it is then I think that concludes the discussion on this.

We've got a plan of attack, we've got deadlines. We've got tasks. Let's move on to the next agenda item. I've got to find my agenda. We're on discussion of trap cap, and just as a reminder NOAA previously notified us that they had suspended their rulemaking on Addendum XXI and XXII until there was greater clarity on the issue. Megan is going to provide a report on the meeting that took place on this, and then I'm going to make a couple of suggestions.

**DISCUSSION ON TRAP CAPS INCLUDED IN  
ADDENDA XXI AND XXII**

MS. WARE: I'm going to be reviewing a conference call that we had to discuss the trap caps included in Addenda XXI and XXII. Just for a little bit of reminder and background on what was proposed and established in Addenda XXI and XXII. It proposed and established a series of trap caps. We have active trap caps, which is the number of traps you can fish, and individual ownership caps; which is the number of traps you can own.

What you'll see from the table up here is that the number of traps you can own is always greater than the number of traps you can fish. This results in something that we typically call trap banking. Something else that was established in Addenda XXI and XXII is the series of reductions for both the active trap cap and the individual ownership cap in LCMA 3.

As David mentioned, NOAA sent a letter to the Board saying that it has suspended their rule making process for federal trap caps and banking. This is due to the poor condition of the southern New England stock, and our current work on Addendum XXV. It appears that significant management action in the area may take place.

With so much uncertainty NOAA felt it was imprudent to continue the rule making process for these addenda, given that they may encourage fishermen to invest significant funds in a fishery that could be severely restricted in the future. On September 7th we had a call to

discuss trap caps and banking in the lobster fishery. Participants on this call included commissioners, NOAA representatives, PDT members and fishermen. I'll go over some of the highlights of that call. Industry members supported federal implementation of trap caps and banking. Some members stated that the conservation benefit of having traps which can't be fished tied to a permit. Others noted that the implementation delay has affected industries ability to make future business decisions. NOAA reiterated its concern that trap banking encourages fishermen to invest in a fishery in poor condition, and they did express greater concern with implementing the individual ownership caps rather than the annual reductions in the LCMA 3 active trap cap.

Overall I think one of the themes of this call was the growing disconnect between state and federal regulations. In the Commissions addenda we're proposing a series of reductions for the active and individual ownership cap in Area 3, and that is currently not in the federal regulations. As time goes on that difference gets larger and larger. I think moving forward there are a couple of options for the board. One option is that the Board could recommend NOAA implement the active trap cap for LCMA 3.

This would help to align state and federal regulations for the active trap cap in LCMA 3, and this action reduces fishing effort commensurate with the annual trap reductions currently in place. On the other hand the Board could revisit the issue in spring of 2017, after we have a better idea of what might happen with Addends XXV; and take a more holistic view to this issue. With that I'll turn it back over to you.

CHAIRMAN BORDEN: I'll try to cut through this. From an industry perspective there is a lot of concern about this disconnect between the federal plan and the ASMFC plan, basically because of the suspension of the rules in Area 3, we end up leaving somewhere between 5 and 7,000 traps more per year get fished out there because of this disconnect.

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

I think it is important to straighten it out. Having said that I also think it's important, the point that the NOAA staff has made is important. They want some certainty that these programs match up and complement each other. My suggestion is that we not take any action on this today. Basically put it on the agenda for the spring meeting, when we will be finalizing the southern New England plan.

At that point NOAA will know exactly what the restrictions are going to be in southern New England, and after we adopt the southern New England plan, then we would revisit this issue at that same meeting and decide whether or not we want to continue to ask them to implement these measures. I mean to me that's a logical way to proceed; comments on that suggestion, if I don't see hands up I'm going to ask whether there are any objections, comments; Peter.

MR. BURNS: Just so I'm understanding it correctly. Would that be that in the spring you would look at whether you would be requesting NOAA Fisheries to implement the active trap cap, or all of the banking and other aggregate trap cap elements of those two addenda?

CHAIRMAN BORDEN: There are a number of different provisions as you know that the Commission has already adopted and implemented, and I think all of those would be on the table for that discussion. Then if we want all of them to be implemented, we would recommend that. If we only want a few of them implemented, to my way of thinking.

That way NOAA will know exactly what the restrictions are, and what we're recommending at that time. Those two link up. Any objections to doing that; if not that item will be schedule for the spring meeting, okay so we're going to move on. Next item on the agenda is the work group report, Megan.

## **REPORT FROM THE LOBSTER REPORTING WORK GROUP**

MS. WARE: I will be going over a report from the Lobster Reporting Work Group. Just a reminder as to how we started this discussion on reporting. In February of 2016, as a part of a TC memo, the TC highlighted data deficiencies in the lobster fishery; and particularly they were referencing some data deficiencies in federal waters.

As a result the board requested NOAA implement 100 percent trip level reporting for all federally licensed fishermen, and in response NOAA recommended that the Board follow the addendum process to address these data concerns, and allow for public participation in that process.

Since then there have been several issues which have really highlighted the data deficiencies in the lobster fishery; not just only in federal waters, but really throughout the entire coast. These include the designation of the Marine Monument, ongoing coral protection, offshore winds; all of these management issues are asking for information on where the fishery is occurring and its value.

It is highlighting that we need improved harvester data with greater spatial resolution to respond to these management issues. At the August meeting the Board convenes a Lobster Reporting Work Group, and we had our meeting September 26 in Gloucester, Massachusetts. It was attended by commissioners, TC members, GARFO representatives, state data specialists, industry members and ACCSP.

We discussed a couple of things. We discussed temporal and spatial deficiencies in the lobster fishery, the prevalence or lack thereof of electronic reporting, the percentage of harvester reporting, and the collection of biological data as it pertains to the stock assessment. From that discussion the group came up with a series of five goals.

The first is to improve spatial resolution of harvester reporting, the second is utilize the latest technology to improve and increase reporting, the third is collect greater effort data in harvester reports. The fourth is, define an inshore versus offshore area, and the fifth was proactively address the data concerns of the Atlantic large whale take reduction team.

To achieve these goals the workgroup came up with a series of recommendations, and they are split up into short term, intermediate, and long term recommendations. We have two short term recommendations. The first is that Maine's 10 percent harvester reporting only includes commercial license holders who have actively fished in the past two years.

Currently recreational license holders are included in that 10 percent of fishermen who are selected to report. Removing noncommercial fishermen from the sampling pool will insure the greatest amount of harvester data is collected through that current program. Another short term recommendation is to define inshore as 0 to 3 miles offshore, nearshore as 3 to 12 miles and offshore is greater than 12 miles.

Currently there is no definition of inshore versus offshore in this fishery, and it poses some problems; especially when the board tasks the TC to analyze differences in the inshore versus offshore areas. Currently what the TC does is they assign a statistical area to either inshore or offshore. It is an imperfect system, as some statistical areas are quite large and they include both inshore and offshore areas.

For intermediate recommendations, we're recommending that there be 100 percent active harvester reporting for all state and federally permitted fishermen. Resource limited states should at a minimum require reporting from a statistically valid sample of fishermen. In 2007 the TC did some analysis on this, and they concluded that is 30 percent of active harvesters.

We have asked the TC to revisit this to make sure that percentage still holds. But that was the recommendation in 2007. There is also a recommendation to add data components to harvester reporting, including number of trap hauls, soak time, catch disposition, gear configuration, number of vertical lines, LCMA and depth. States are collecting a variety of this information, but it is not uniform across all states.

A lot of this information would be really useful to collect. A number of trap hauls and soak time is important effort data, gear configuration and number of vertical lines is important for large whale take reduction teams and LCMA and depth is important to tell us where the fishery is occurring.

Our final intermediate recommendation is to further delineate NMFS stat areas over harvester reports. Statistical areas are a really important basis of the stock assessment, but they are too broad to provide the spatial resolution needed to answer a lot of the management questions we have. A recommendation from this work group is to; at a minimum delineate inshore, nearshore and offshore areas in a statistical area.

However, it could be taken a step further by breaking down a statistical area into smaller boxes, and having a harvester check off which boxes he is fishing in. Finally we have our long term recommendations. The first one is to establish electronic swipe card system for harvester and dealer reports.

Currently swipe cards are used in the Maine elver and urchin fisheries, and the Massachusetts shellfish fishery. Dealer's swipe harvester cards during a transaction, and they are unable to complete that transaction if reporting or permits are not current. Some of the benefits of this swipe card system are ease of dealer reporting, quick linking of harvester and dealer reports, preprogrammed fishermen information to reduce data entry mistakes, and insuring compliance during reporting.

Another recommendation is to incorporate VMS or other locator beacon to all lobster vessels. Again, this is trying to allow for greater spatial resolution in the fishery. This includes not only where traps are being set, but also important transit routes to the fishery. Finally, there is a recommendation to establish an electronic fixed-gear VTR for all federal permit holders.

One of the challenges right now with the VTR is that is for all gear types, so it is really hard to ask specific questions in regards to fixed gear or trap fisheries. There is a recommendation to create a VTR form that would just be for fixed gears. This would be electronic in nature, so it could only be filled out online. But the idea here is that this would allow for more data collection that is pertinent to the lobster fishery. The LEC also discussed some of this, so I'll pass it over to Rene to discuss this.

MR. CLOUTIER: As far as the VMS requirement, the LE is recommending that this happens sooner rather than later for all Area 3 vessels. Like I talked earlier, we really don't have the equipment or the technology right now to enforce a trap limit offshore, which is where everything is going, is to trap limits to increase egg production or wherever else you want to go with it. That is where the LE Committee was with VMS.

CHAIRMAN BORDEN: Thanks, Rene. Megan, questions?

MS. WARE: That's it, we can take questions.

CHAIRMAN BORDEN: All right so questions for Megan, any questions on this? Anyone in the audience, questions? Pat.

MR. KELIHER: This is actually for Rene, just for clarification. You mentioned Area 3, but wasn't the VMS for offshore areas within Area 1 as well?

MR. CLOUTIER: Yes. I guess I misspoke. Most of our issues right now, the enforcement issues that we've had in Maine anyway, have been in

Area 1. A VMS component for Area 1 federal lobster permits would be a good thing for us.

CHAIRMAN BORDEN: Pat, as a follow up, as I indicated early on it would be my intent, and I think we should do this as a routine matter, to have the Enforcement Committee look at the proposals that are going to be incorporated into the public hearing document; and give us advice specifically on that issue.

Again, I mean this has come up at two LEC meetings, at least three LEC meetings that I've attended. But it has changed a little bit since the first time they discussed it. But I think the point is, they're going to get another bite at it and they can flush out exactly what they think should be incorporated into the public hearing document.

MR. KELIHER: That sounds really good, Mr. Chairman. I think what is critical here is that we're meshing both the LE Committee and the Reporting Committee's advice, because I think we've got an opportunity to have technology that will help us both on the reporting side for regulatory compliance; as well as the enforcement side. I think these two things potentially can have the ability to talk to each other.

CHAIRMAN BORDEN: Yes, and just a follow up. On these suggestions, I don't think that the board needs to take any action on them today. But just factor these recommendations in as you look at the plan. If you think, for instance, I think the first suggestion there was a Maine suggestion. If the state of Maine wants that option included in the public hearing document, it is a very simple thing to add that in and take it out to public hearing. Then at least we'll start the process of solving some of these problems. Doug, did you have your hand up?

MR. GROUT: Yes I did, Mr. Chairman. One thing that I want the Board to consider, or at least to take into consideration with this with the VMS, is one when we were talking about Area 3 boats I would fully support that. I think that is a great

idea. As we bring it into the inshore fishery in Area 1, there are a number of people that fish in very, very small boats that a VMS may not be something that is feasible right now; given the power requirements for it. I think we're going to have to think about this from a functionality to feasibility of being able to apply this to every boat in the inshore area; before we start moving down this road.

MR. KELIHER: Yes I agree with Doug's concerns. I think from my perspective I think we would be looking at any boat or any vessel that is fishing in Area 3, not any small vessels fishing in near coastal, nearshore environments.

CHAIRMAN BORDEN: Anyone else on this point? Okay everyone be clear that this is something we want you to consider, and if New Hampshire and Maine want to trade e-mails on how it would be placed in effect in nearshore Maine, I think that would be helpful. Yes.

REPRESENTATIVE MELISSA ZIOBRON: I'm just trying catch up and do a little homework on VMS, and according to the NOAA website it is saying that typically a vessel gets reported once an hour for their location. For me, I'm always wary of "Big Brother" and my constituents being tracked. I'm just curious, is it going to be in real time, this proposal or is it using the NOAA standard, which is once an hour?

CHAIRMAN BORDEN: Rene, do you want to comment? Has the Enforcement Committee discussed that?

MR. CLOUTIER: We did discuss that. VMS is not the answer for the enforcement problems. It's a step in the right direction. It is once an hour that they report. A scallop boat, any boat that has a federal scallop permit, they are once every half hour. In an hour you can haul a lot of trawls. What the fishery is becoming, just to give you a little example.

What we're running into now is trawls that are set offshore with no buoys. That eliminates any

need for lobster trap tags or anything like that. These are impossible for enforcement to find without some sort of tracking capabilities. Once an hour isn't going to do it for us, but it is a step in the right direction.

How they retrieve this, I'm sure a lot of people in the room are saying why would anybody set them without the buoys; that must be a nightmare? But you can haul gear quicker with no buoys on it than you can with the buoys on it, because you don't have end lines. How they set these is they set a head trap, and then 100 fathom of float line with a toggle in the middle of the float line.

They can cross that hump in the water going 10 knots, throw the grapple over with 20 fathom on it and get that every time. They can haul that up really quick. We have one in the process right now we're prosecuting a person right now that is doing that. The information that we get from a lot of people is that this is becoming more and more prevalent out there; just to circumvent trap limits.

CHAIRMAN BORDEN: I would offer the thought that the next time the LEC discusses this issue, it would be very useful to have the appropriate personnel from NOAA there; not only their enforcement people, but the VMS staff to attend and provide guidance. Any other business on this issue, okay so factor this into your recommendations that you're going to bring forth. We're going to move along to Jonah crab. I'm going to let Megan do the introduction. We have a couple of motions that were postponed from the prior meeting. We'll put those up. I'm going to give you a suggestion on how to handle them in a fairly expedient manner, and then we'll proceed.

#### **CONSIDER JONAH CRAB DRAFT ADDENDUM II FOR PUBLIC COMMENT**

MS. WARE: We're going over Jonah Crab Draft Addendum II for consideration for public comment today. Just a reminder, the Board did see this document in August, but we delayed

public comment for a couple of reasons. There was a request for additional management options in the document, particularly in regards to claw harvest.

There was also an issue raised over the lack of definition of bycatch in the fishery. As a result the Board established a Jonah Crab Working Group to try and get at some of these issues. This is our timeline for this addendum. Today we're reviewing the addendum for public comment, and if it is approved our public comment period will be from November, 2016 through January, 2017. Then we would consider final action in February.

Just a reminder as to the current claw provision, the Jonah crab FMP establishes a whole crab fishery, with the exception of individuals from New Jersey through Virginia; who can prove a history of claw landings before June 2, 2015. This was to account for the historic DelMarVa claw fishery, which is typically executed by small boat fishermen who either have small capacity boats or don't have refrigeration onboard.

After final action on the Jonah crab FMP there were two problems that came up. The first was that claw fishermen from New York and Maine were identified, and currently these fishermen are limited to whole crabs; so there are concerns about equity in this fishery. Another potential problem is that NOAA has stated there are potential challenges implementing the regulation in federal waters.

Specifically National Standard 4 requires management measures not discriminate between residents of different states. I am going to jump right into the data that the workgroup discussed, because I think that this is really the key for the changes that were made. This was a graph that was included in the original version of the addendum.

It looks at male morphometric data with carapace width on the X axis and claw length on the Y axis. This is from claws that were measured

by Mass DMF both in southern New England and Georges Bank. What we can see here is that a male crab whose carapace width meets the minimum size of 4.75 inches, we would expect to have a claw length of 2.47 inches.

We can look at the same data for female crabs. Again, we have carapace width on the X axis, and claw length on the Y axis. What we can see here is with that same relationship, if we look at the minimum size of 4.75 inches, we would expect a female crab to have a claw length of 2.06 inches. Clearly a little bit smaller than the male crabs.

But I think more importantly what this shows is that of the hundreds of female crabs that has been sampled, 100 percent have had a claw length less than 2.75 inches. There hasn't been a single female crab sampled that have claw length greater than 2.75 inches, and that is going to be an important fact for the changes made. Going back to the Jonah Crab Workgroup discussion, on that call there were several concerns with a claw fishery in general. These included that it might undermine the current minimum size, and also it allows for the potential harvest from egg bearing females. Currently we have a prohibition on the harvest of egg bearing females, but there could be a way in the claw fishery to try and undermine that.

But kind of the solution we came to here is that by increasing the minimum claw size to 2.75 inches, this protects the female population, so the berried crabs; and provides a bit more cushion to that minimum size. Really this is a higher standard for claws that are harvested or detached at sea. I'm going to jump right into the management options.

Option A is status quo, this has not changed. Again, this would be a whole crab fishery with the exception of individuals who can prove a history before the control date in the states of New Jersey through Virginia. Option B also has not changed, this is for a coastwide whole crab fishery. Only whole crabs may be retained and



sold coastwide, and once landed claws may be detached from the whole crab and sold.

This is Option C, and this has been the modified option in this document. This allows for claw harvest coastwide. Claws may be detached and harvested at sea if they meet the minimum claw length of 2.75 inches. Again, this is a larger claw length size than originally proposed, and this is to protect those egg bearing females; and also to provide a bit more cushion to the minimum size.

Two claws may be harvested from the same crab, and the bycatch limits would still remain in Addendum 1. If an individual is limited to their thousand crab bycatch limit, they would be limited to a 2,000 claw limit. Fishermen can also harvest whole crabs; which meet the minimum size of 4.75 inches, and once landed claws can be detached from these whole crabs and sold.

I am going to roll right into the second issue here and then we can just discuss this all at the end. There was also an issue brought up about bycatch in the fishery. Originally the FMP established a 200 crab per day, 500 crabs per trip bycatch limit for non-trap gear, but this was increased in Addendum I to 1,000 crabs, and it was also expanded to include non-lobster trap gear.

These limits were intended to account for incidental catch, but no definition of bycatch was provided. What this means is it allows for a small scale fishery to develop, where a fisherman could go out, harvest 1,000 crabs, and nothing else for the day. This really does not reflect the intention of the bycatch limit, which is to account for Jonah crab caught while targeting other species.

The Jonah Crab Workgroup is proposing that a second issue be added to this addendum. It would be to consider a definition of bycatch in the fishery. Option A would be status quo, so there would be no definition of bycatch in the Jonah crab fishery. Fishermen, who use non trap gear or non-lobster trap gear, could land Jonah

crab up to the bycatch limit without having any other species onboard.

Option B is to have bycatch defined as a percent composition. Under this option Jonah crab caught under the incidental bycatch limit must comprise at all times during a fishing trip, an amount lower in pounds than the species the deployed gear is targeting. The LEC also discussed this Jonah Crab Addendum in their meeting, so I'll pass it over to Rene to sum up their report.

MR. CLOUTIER: When the LEC met they realized we agreed that there was a fishery that was occurring that it was just a claw fishery. We thought that a five gallon pail of crab claws would be allowed, and I guess everybody on the Committee agreed to that.

MS. WARE: That is the end of my report, I'll take questions.

CHAIRMAN BORDEN: Okay questions for Megan or Rene on either one of those issues, anyone, any questions? In terms of the motions, could you put up the postponed motion, please? This was Motion 5, is that what it was, Megan?

MS. WARE: I don't remember the specific number, to be honest. But it was postponed to this meeting so it is on the table for today's meeting.

CHAIRMAN BORDEN: Okay so comments on the table, anyone would care to comment on this? Mike.

MR. LUISI: I think there was something in the water in Alexandria in August. This is like the second or third motion I've had to consider just pulling off this week. I think we've addressed this motion through the working group, which I think was a great thing for this Board to suggest. We've dealt with the claw fishery; we've dealt with some of this volumetric concern that we had. I'll look to you for some advice on what to do here, whether we can withdraw the motion

and just move forward with the addendum as it's currently written. I would be happy to do that.

CHAIRMAN BORDEN: My preference, Mike, would be for someone to make a motion to postpone indefinitely; that will kill it. Mark Gibson, Dan.

MR. GIBSON: **So moved, move to postpone indefinitely.**

CHAIRMAN BORDEN: Jim, do you want to second that? Seconded by Jim Gilmore, any discussion on it? No hands up, anyone in the audience care to comment. No hands up. Are there any objections to approving this by unanimous consent? **It stands approved.**

MR. GROUT: Before we get to potentially approving this for public comment, there was one issue that I saw in this that I thought maybe we should try and consider adding a sentence in. This is just to make sure we're on the same page is to have a definition of how states would measure a claw length in the document, so that we're all on that same page.

CHAIRMAN BORDEN: Pat Keliher to that point. Okay Doug has made a suggestion. Does anyone disagree with that? Remember this is just a public hearing document, so the staff would craft a definition and basically include it in the document. No objections? There are no objections so we'll do it with unanimous consent. Pat Keliher.

MR. KELIHER: The motion to postpone. I couldn't even quickly figure out what that meant, but I had drafted a motion under 3.0 to get to a volumetric measure for retaining claws. We don't want to be in the business of measuring crab claws. I have a motion if Amy could put it up on the board. **I move to add Option D under 3.0 management measures. Claw harvest permitted coastwide under this option, claws may be detached and harvested, but may not exceed a volumetric limit of five**

**gallons.** If I get a second I'll give some additional information.

CHAIRMAN BORDEN: We have a motion, is there a second; anyone? Jim Gilmore, second. Discussion, Pat.

MR. KELIHER: Rene Cloutier, the Major and I took a very scientific approach to this. Rene went down, picked up a tote of crabs, it's 120 in a level packed tote. That tote equated to a five gallon bucket of crabs. We're talking about a five gallon bucket of claws. Harvesters are not retaining small crabs, because that equates to a small claw.

We're looking for what I believe is a very simple fix to allowing a very small amount of claws to be retained. If somebody wants to, the way I would envision this rolling out, at least in Maine, would be that we would have a rule that says if you're going to retain claws, you would not be able to retain a whole crab. You would have to detach and just keep the claws. Again, we're talking 120 crabs a day when you could harvest unlimited.

CHAIRMAN BORDEN: All right so we have a motion second for the discussion on this.

MS. WARE: Just a clarifying question, Pat. Is there a minimum size with this claw limit or it is claws of all lengths?

CHAIRMAN KELIHER: There would be no minimum size. We don't want to be measuring claws. But again, people aren't taking off small claws, because there is no meat, no sense.

MR. McKIERNAN: With all due respect, I'm not sure that this language captures just what I heard Pat say. I think it needs to say, may be detached, and if there are detached claws on the vessel whole crabs may not be retained. You just said something that is not captured in that motion. I think you need to rework the motion.

CHAIRMAN BORDEN: Pat, do you want to perfect your motion?

CHAIRMAN KELIHER: Yes.

CHAIRMAN BORDEN: How about this. We'll take a five minute break, how's that? Anyone that needs to use a restroom please do so now, because we're going to go right through the rest of the agenda as soon as we come back; five minute break.

(Whereupon a recess was taken.)

CHAIRMAN BORDEN: Can everyone have a seat, please. Pat, have you perfected the motion the way you want?

MR. KELIHER: Yes, Mr. Chairman, but Toni has now pointed out to me we may have an issue. My thinking was that a jurisdiction would be able to choose one or the other for their state. Toni has indicated that that now may be an issue of having two different sets of rules; and maybe she should comment on that before we go any further.

CHAIRMAN BORDEN: Let me ask Jim Gilmore. Jim, do you agree with the perfection of the language?

MR. GILMORE: Yes, but.

CHAIRMAN BORDEN: But you want to hear the discussion, okay.

MS. TONI KERNS: As Pat has explained to me on the break that he was thinking that each state could choose of different options that were within this claw only section of the document. My one concern and I guess it would be a question to Ali or Peter, is that if Maine federal water fishermen were fishing on one rule and Maryland federal water fishermen were fishing on another rule, both Area 3 fishermen. NOAA would have to choose one of those two rules. Having inconsistent set of regulations could be problematic for those federal water fishermen.

CHAIRMAN BORDEN: Ali, do you want to comment or Peter?

MS. ALISON MURPHY: I think Toni is right. Having states all pick their own measures for this certainly creates a lot of complications for us. My understanding of the addendum was to pick one option to be used coastwide or at least that's what all of the options in the document were for previously.

MR. WHITE: Well, if the 2,000 was adopted, a five gallon bucket is a lot less than 2,000; so that boat would just be more conservative. If the 2,000 was enforced offshore the vessel would have to make sure that he had good sized crabs if he wasn't measuring them.

MR. GROUT: The way I looked at this is this would be similar to a conservation equivalency within a plan. You have one state that wants to have 2,000 crab claws and the minimum size that is implemented in the plan. What the state of Maine was looking for was relief from having to have a minimum size, but they were going to drastically reduce by I think about an eighth, the amount of claws.

I could see a scenario, because I believe there are some plans that the Feds recognize conservation equivalency between the states. But I could see this working out where the federal agencies would implement the 2,000 pound and minimum size; but within the state of Maine or say in the state of New Hampshire.

We would implement something, a much smaller trip limit on it, but would not be enforcing the minimum size. The only problem we would run into is if there was a coast guard vessel out there that would start measuring claws on federally permitted vessels at sea.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I wonder if we could be very creative in how we worded this, which is that if you have more than five gallons of claws, you can't retain any claws less than 2.5 inches. There is a threshold of five gallons, and once you exceed that threshold then the size limit kicks in. If you want to retain more than five gallons you can't have any below 2.5

inches, or whatever the size limit is. Then you cap it at a maximum, but you set a threshold for when the size limit kicks in.

CHAIRMAN BORDEN: I'm just thinking of creative ways to handle this. Rather than try to do this with motions let me suggest that we pass this motion. If everyone agrees with Bob's suggestion; let me ask that first. Does anybody disagree with what Bob just suggested? It seemed like it was kind of a creative way of handling this. I see everyone kind of nodding, but let's not do this just based on verbal commitments. My suggestion would be to pass this motion, and then the staff will write that up and circulate it to everyone within a few days, and see whether or not everybody still is in agreement after they look at it in writing; any problem with that? It's basically an option that's going to be folded in; but we give the discretion to the staff to draft it.

MR. LUISI: I don't have a problem with the suggestion. What I do have a problem with just approving the motion. We discussed it in the call. Maybe somebody else that was on the call can help me remember the last sentence there about fishing. If you're participating in the claw fishery you can have no possession, whole crabs are prohibited.

That was something we discussed, I just can't remember who brought that up and what situation there was that we, I believe we decided that as long as the claws were still attached to the crab, they didn't need to meet the minimum size that we would be requiring for a claw only fishery; but a fisherman could bring both home. I think that is what we concluded on our call.

MS. WARE: Yes, I'm trying to remember as well, Mike. I think what we said was that if you harvest at sea you are basically held to a higher standard, so that you would have to meet that 2.75 inch minimum size. However, if you bring in whole crabs and then broke the claws off, you would be held to the whole crab minimum size.

It is really a higher standard for that at-sea harvest.

MR. KELIHER: I think Bob's suggestion is good, and I'm just wondering if under Option C we just get rid of this motion altogether. Then under Option C I think we could add one sentence that says, any amount of claws retained over a volumetric measure of five gallons would have to meet the minimum requirement. You would make that change within the existing Option C.

CHAIRMAN BORDEN: All right so we've got another suggestion here.

MR. KELIHER: Then we can just put it to bed.

CHAIRMAN BORDEN: Does anyone object to what Pat said? Are there any objections to that? If not, my suggestion is someone makes a motion to postpone this motion indefinitely and we'll go back and revise the language the way you just said.

**MR. GROUT: I'll make a motion to postpone this indefinitely.**

CHAIRMAN BORDEN: All right, is there a second? Seconded by Mark Gibson, any discussion, no discussion, any disagreement with this? **Any comments from anyone in the audience; no hands up any place, the motion to postpone indefinitely is passed by unanimous consent.** Let's go back to the language, Pat and make sure it's modified accordingly.

MR. KELIHER: I think if we can get that language up. **Option C currently reads, under this option claws may be detached and harvested at sea if they meet a minimum claw length of 2.75. I think it would say, under this option if a volumetric measure of greater than five gallons is to be retained, the claws may be detached and harvested at sea, as long as they meet a minimum claw length of 2.75.**

CHAIRMAN BORDEN: Okay so this is a motion to add this language to Option C, correct? Is there

a second, seconded by Doug Grout; discussion on it, any discussion? Any hands up? No hands up; anyone in the audience, no hands up. Are you ready for the question? All those; well I'm not going to vote, any objection to adopting this by consent? **Motion stands adopted by unanimous consent.** What other issues, Megan, do we need to discuss on this?

MS. WARE: The bycatch definition. There is a proposal to add a second issue to this addendum to consider adding a definition for bycatch in the fishery.

CHAIRMAN BORDEN: All right can we put that language up? It's going to take one minute. We'll put the language up and then my suggestion is I'll ask for whether or not we have any comments or questions on it. I'm not sure we need to go into a detailed debate on it, but we do need to pass a motion to include it in the document if that is what our intent is.

This is what happens when you move at light speed. Okay so there is the language. Bob indicated that we do not need a motion. Do we have consent on this? Does anyone object? Mike, no objection, do you want to comment on it? Turn your microphone on, please.

MR. LUISI: Just a question under Option D. Is there going to be anything written under this for the document to talk about claws versus weight of the whole crab versus? If you have 20 pounds of claws, does that mean you need just 20 pounds of your targeted species or more or are we going to have some debate down the road where we have a comparison of the whole crab weight that you harvested the claws from? I just want to make sure that sometime in the future we've got that clarified; because I'm sure someone is going to ask.

CHAIRMAN BORDEN: Does anyone want to comment on this? Dan.

MR. McKIERNAN: If we don't clarify it then it is a very liberal treatment, and that is something you can ratchet down later.

MR. GROUT: Just one thing that I agree that something like this needs to be put in, but I also think it might be important to include in the document a definition of how we determine what the target species is. As long as that's clear in the document, I think it is something that the states can implement.

MR. McKIERNAN: Yes, I would request that the states who supported the thousand Jonah crab bycatch option in non-lobster trap fisheries, maybe they could give Megan a list of those trap types and those target species that is being caught; because I think it's whelk. I think that was the one example that seemed plausible, however unlikely. In Massachusetts we don't have that issue, so I think we're looking to the states in the Mid.

CHAIRMAN BORDEN: Dan made a suggestion. Are the states that have been advocating this willing to work together and try to come up with that definition and provide it to Megan next week. Is that okay? We don't need a motion on this. **Are there any other changes, and if not then we need a motion to approve this addendum as modified by the discussion today for public hearing.**

MR. ADLER: I'll so move what you just said.

CHAIRMAN BORDEN: Seconded by Mike; any discussion on this? Ali.

MS. MURPHY: I've gone on the record a number of times at these meetings that NMFS is supportive of the Law Enforcement Committee's recommendation for a whole crab fishery, but at the same time we've also been supportive of this document having a wide range of alternatives for public consideration. Just one point of clarification to make sure my understanding is correct. The option is it under Option C, for the targeted fleet having a lobster permit. Those

vessels would be able to harvest an unlimited amount of claws, is that correct?

MS. WARE: That's a good question, Ali. In the original way that Option C was written the answer would be yes, because it was only individuals under the bycatch limit that would be limited to the 2,000 claws. I think that would still remain true, because you can still land greater than a five gallon bucket. Yes, those lobster permit holders are able to land an unlimited amount of claws.

MS. MURPHY: If I could just follow up. I think one of the goals of the original FMP was to preserve the Jonah crab fishery kind of as it stands today, and allow for this small, historic harvest of claws to continue. I guess that's just a little concerning to me that this option could potentially allow a vast expansion of the claw fishery.

CHAIRMAN BORDEN: Any further follow up on this? Megan just reminded me, we actually had a motion to approve this addendum; so we have to go back and clear the record on this. Thank you, Megan. Let me just, in the interest of time, does anyone have an objection to modifying this, perfecting this motion?

I'm not sure we have an original motion maker and seconder in the room. **It would basically say, move to approve Draft Addendum II to the Jonah Crab FMP for public comment as modified by the comments and conclusions today; any objection to doing that. No hands up so it is adopted by consensus.** Do we need to vote on this? I think not since we have pretty much unanimous agreement. Anyone object to approving this motion? **No objections, it is approved by unanimous consent.** The next issue on the agenda is the FMP Review, Megan.

**CONSIDER APPROVAL OF  
2016 AMERICAN LOBSTER FMP REVIEW AND  
STATE COMPLIANCE**

MS. WARE: While we pull up that presentation here, I'm doing the FMP review for the 2015

fishery. The lobster fishery has seen incredible expansion in effort and landings over the last four years. Coastwide landings in 2015 were 147 million pounds, which is equivalent to the landings in 2014 and just below the landings in 2013.

The largest contributors to the fishery are Maine, seen here in blue, and Massachusetts seen here in red, with 83 percent and 11 percent of landings respectively. Landings in descending order also occur in New Hampshire, Rhode Island, New Jersey, Connecticut, New York, Maryland, Delaware and Virginia

The ex-vessel value for all lobster landings in 2015 was \$617.7 million, which I believe is the largest on record; at least for the records that I have. In terms of status of the stock, the 2015 stock assessment indicated a mixed picture of the American lobster resource, with record high abundance through the Gulf of Maine and Georges Bank, and record low abundance throughout southern New England. The assessment found that the Gulf of Maine/Georges Bank stock is not overfished and overfishing is not occurring. However, some of the population indicators for the young-of-year estimates were low, and this could be a sign of some low recruitment in the future. We've talked extensively today about southern New England, so I won't go too much into that. But the stock is depleted.

For a status of management we are currently under Amendment 3, which created the seven lobster conservation management areas you see here; as well as Addenda I through XXIV. The most recent addenda sought to align federal and state regulations regarding trap conservation taxes, trap transfer increments, and trap allocation for dual permit holders.

We're currently working on Addendum XXV to respond to the poor condition of the southern New England stock. Addendum XVIII established a series of trap reductions for LCMA 2 and 3, and the intent of this addendum was to scale the size

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

of the southern New England fishery to the size of the resource.

Per this addendum, states with fishermen in Areas 2 and 3 are required to report on the degree of consolidation that has taken place. In total 33,880 traps were retired in Area 2, and 8,663 traps were retired in Area 3. Addendum X requires 100 percent dealer reporting and 10 percent active harvester reporting, as well as sea sampling.

Non de minimis states are required to conduct fishery independent sampling through one of the following methods, which could be annual trawl survey, a ventless trap survey, or a young of year survey. I've put Maine's information up, since I thought it might be appropriate for our meeting location.

Just to orient everyone here. We have on the left their young-of-year survey with 513 being in southern Maine, and 511 being in northern Maine. What you can see here is that all of these indices are below the average for that statistical area. On the right hand side here is the Maine ventless trap survey.

The different colored bars are different years with the right most bar being 2015. Again, as we move from 513 to 511 we get further north in Maine. What we're seeing here is we haven't really seen the drastic reductions yet in the ventless trap survey; and I think this is something to keep an eye on, because if we do start to see reductions in this ventless trap survey, then that would corroborate what we're seeing in the young-of-year survey.

In terms of compliance all states are found to be in compliance with Amendment 3 and Addenda I through XXIV. For de minimis status commercial landings in the two most recent years of data cannot exceed an average of 40,000 pounds. We received requests from Delaware, Maryland, and Virginia. Virginia and Delaware qualify. Maryland's two-year average

is slightly above the 40,000 pounds; so that can be open for discussion today.

In terms of PRT recommendations, the PRT recommends full implementation of data collection programs, including increased harvester reporting and creation of a fixed-gear VTR form. They recommend continued investigation in stock connectivity, and larval transport between the inshore and offshore areas. The PRT noted several inconsistent regulations, notably that in outer Cape Cod with the v-notch definition; and also noted that now that Gulf of Maine/Georges Bank is a single biological unit, the Board might want to consider the repercussions or potential options for consistent regulations in this area. Also, they're recommending improved enforcement of management measures, especially at-sea enforcement of trap limits. With that I will take questions.

CHAIRMAN BORDEN: Questions for Megan, any questions? No hands up. I think what we need here is **a motion to approve the FMP review including de minimis status. My suggestion is to include, I guess it is Maryland in the de minimis category, because it is only very slightly over the limit and normally below the limit.** I think it is a reasonable action. Does somebody want to make that as a motion? Dan.

MR. McKIERNAN: **Want me to read that or just make the motion? All right, I make the motion, so moved.**

CHAIRMAN BORDEN: Okay seconded by Brandon. Brandon, do you want to second this motion?

MR. MUFFLEY: Yes since this is my last meeting I will get my name up on the board, thank you Mr. Chairman.

CHAIRMAN BORDEN: I actually thought you wanted to propose a 12 inch minimum size for New Jersey. We have a motion, any discussion on it? Jim.

MR. GILMORE: Mike, how much did the one guy actually harvest over the 40,000 pounds?

MR. LUISI: It's a bit of an embellishment. We have a couple guys that bring a few lobsters in. I will say since I have the microphone and I'll be quick. You know while we have been harvesting, well we have been in de minimis status and have been hovering around that 40,000. I have dedicated some staff time for collection purposes to help better our understanding of the fishery down there. We're doing what we can to collect information, we just can't do as much as what is required under the FMP.

MR. BURNS: Mike, not to put you on the spot. I just was wondering is this something that is going to continue. Is it one particular vessel? I thought there was a vessel that came into Maryland and then it was no longer in Maryland anymore. Is that what happened? You think that after this, because it's a three-year average that's why it's been over?

MR. LUISI: That's exactly it. We had a vessel that was fishing in Area 3, and he was bringing a lot of lobsters in. He's no longer part of the fishery, so that three-year average is continuing to drop in my understanding, and we expect it to be below 40,000 in the future.

CHAIRMAN BORDEN: Any further discussion on this? **Any objection, no objections; motion stands approved by unanimous consensus.**

**UPDATE ON THE  
ATLANTIC MARINE MONUMENT DESIGNATION**

CHAIRMAN BORDEN: All right so we're going to move on to the next issue, which is the Marine Monument. I think everyone knows the background here. But what we have not discussed is the letter from NOAA, so Megan.

MS. WARE: I'm just going to go over the facts that we know of so far. It was designated on September 15th, it is over 100 miles southeast of Cape Cod, and it encompasses just under 5,000 square miles; some of which is shallower than

100 meters. It includes Oceanographer, Gilbert and Lydonia Canyons, as well as some of the offshore seamounts. The red crab and lobster fisheries are allowed to continue fishing in the monument for seven more years. However, other commercial fishing operations have 60 days to move their practices from within the monument, and recreational fishing is allowed within the boundaries.

CHAIRMAN BORDEN: Questions, are there any questions? I think it would be useful also to discuss the letter from NOAA. Peter, do you or somebody on the staff want to comment on this? Mike, then my suggestion is that if we can formalize a recommendation on this I think it would be useful.

MR. MICHAEL PENTONY: Just for the Boards understanding. Last Friday we sent out three letters, one each to the two councils; Mid-Atlantic and New England Council, and then one to the Commission, basically informing all three bodies of the current status of rulemaking.

CHAIRMAN BORDEN: Mike, can I stop you just for one second. Brandon, if you're going to sneak out of the room I would just point out to everybody, this is his last meeting. I think we owe him a debt of gratitude for all the work and dedication that he's put into serving the fisheries and fisheries in New Jersey.

He's done a terrific job; he's been a fabulous guy to work with. I'm sorry to see him go, but I look forward to working with him on the Mid-Atlantic Council. I suggest we give him a round of applause. (Applause) Are you sure you don't want to propose a 12 inch minimum size for New Jersey, just as a going away present?

MR. MUFFLEY: I have been talking to Steve Heins quite a bit. He had asked me to transfer all of the New Jersey's quota to New York.

CHAIRMAN BORDEN: We'll see you at the Mid-Atlantic meetings. Okay, Mike I apologize; please continue.



MR. PENTONY: No problem, Mr. Chairman. The letters basically were to inform the three bodies as to where we are in terms of implementing regulations to enforce or implement the proclamation; the president's proclamation for the monument. On the council side, under the Magnuson Act we're obligated to work through the councils.

The letters to the two councils are essentially asking the two councils to take up amendments to their existing FMPs through which we would modify the regulations to implement the restrictions in the monument; but also to let the councils know that if they decline to do so then we would be obligated under the Magnuson Act to develop Secretarial amendments to the plans to implement those regulations.

Then the letter to the Commission was along the same lines, but informing the Commission that because we don't have, for lobster regulations we implement those under 697 through Atlantic Coastal Act Provisions. Then when we work either with the councils or through a secretarial plan, we will at the same time be planning to develop regulations for the lobster fishery.

That would obviously go into effect seven years from the date of the proclamation for the trap fishery. During that process we plan to consult with the Commission on several occasions as we go through the development of that process. That is a quick summary of the letter.

CHAIRMAN BORDEN: Any questions for Mike? Does anyone have a preference here? Doug.

MR. GROUT: I have a preference if I can get an answer from Mike about one issue, and that is if the councils and the commissions preferred to have the NOAA Fisheries develop the plan, I know you would consult with the councils, but would you consult with the Commission?

MR. PENTONY: Yes, we would consult with the Commission in all circumstances, because the process under the Atlantic Coastal Act for us to

develop regulations for the lobster fishery if not required is certainly good practice to consult with the Commission on those actions.

MR. GROUT: Then my recommendation, Mr. Chair would be for the Council to defer to NOAA Fisheries to develop the measures that are needed to implement the Antiquities Act as they apply to fisheries.

CHAIRMAN BORDEN: Any objections to that suggestion? No objections. That will be the course of action that is reflected in the minutes. I don't think we need a motion on it. Any further action on this issue, if not we'll move on to the Deep Sea Corals. Terry, are you going to give the report or is Megan?

**UPDATE ON  
NEW ENGLAND FISHERY MANAGEMENT  
COUNCIL DEEP-SEA CORAL AMENDMENT**

MS. WARE: The New England Council is continuing to work on the Omnibus Deep Sea Coral Amendment, which could limit lobster traps. The document currently includes discreet zones, such as offshore canyons and in Gulf of Maine we have Jordan Basin, Mount Desert Rock, Lindenkohl Knoll and Outer Schoodic Ridge.

At the September council meeting a 600 meter depth-based broad coral zone was added for consideration. There was also a motion to consider an exemption for the lobster and crab fisheries, and this passed. But what this means is that the option for limiting the trap fishery still exists; and so analysis on the lobster fishery will continue.

ASMFC has been working with the council to provide data on potential impacts to the lobster fishery, and the TC has been consulting among themselves and also with staff from Maine DMR, to apply catch and effort in the potentially affected areas. In talking with Michelle, it sounds like the tentative timeline for that is to have a document ready for public comment in their spring or summer of 2017. I'm not sure

how concrete that timeline is, but we'll keep you guys posted and let you know of any developments.

CHAIRMAN BORDEN: Any comments, questions, Toni you've got your hand up, go ahead.

MS. KERNS: The discussion of the corals and the need for information reminds me that when we were talking about reporting, you made the suggestion that states give recommendations back in the one month time period. It made it sound like to me you're only talking about reporting that pertained to the southern New England addendum. But I believe what the working group was making a recommendation for was changes to reporting for coastwide reporting. With things like corals and ocean use, there is a lot of information that is being needed for us to give to the councils and to NOAA to be able to describe our lobster fishery, and the impacts to that fishery. I wanted to know if we were going to look at reporting just for the southern New England area or for all.

CHAIRMAN BORDEN: That's a good point and actually I talked to Pat during the brief break. He needs a little bit of time to talk to his staff about various aspects of the data collection suggestions. What I would suggest we do is not include data suggestions as part of this addendum that we're proceeding with.

At the February meeting we'll have a discussion of whether or not we want to initiate Addendum XXVI and do a comprehensive one. Is that agreeable? That will give you a little bit of time, Pat, and then we'll compile all of the data collection changes in one document.

MS. KERNS: Just one question. In the working group report I think they had made the suggestion of letting the TC take a look at what's a good percentage. I think there possibly could have been some tears for down the line. Is that something that we would want the TC to look at between now and February or would you want them to wait until after February; and I would look to Pat.

MR. KELIHER: I think having that input from the TC, if it is 30 percent that's fine, possibly fine. But I think getting that TC input as soon as we can. Then I can try to put some numbers around it to see if it's doable. One of the recommendations in the short term was the 10 percent focused on active harvesters within a two-year period. We could implement that for the next fishing year, and could do that voluntarily outside of this if that would be beneficial.

CHAIRMAN BORDEN: Let's do this. If you want to make that suggestion during the next one-month period, we'll consider it for this addendum. But all the rest of the suggestions we'll take up at the February meeting and see whether or not we want to initiate a draft addendum; any objections to doing that? Okay so no objections. Toni, are you getting heartburn?

MS. KERNS: No, no objections, just one more task for the TC to look at. Does the Board want to have the TC also evaluate what we're actually collecting, and what additional information might be informative, as we move into this new expansion of ocean use and folks asking for information from us? At least to give us a list to consider and what it would mean to actually have to try to collect that information.

MS. WARE: I think the Reporting Workgroup kind of had that list and there were TC members on that group, but we could run it by the TC and see if there are any others.

CHAIRMAN BORDEN: Any objection to doing that; no objections. Okay so it seems like we have a course of action. Pat, you can make your suggestion in terms of doing the quick fix to the Maine suggestion if that is what you want to do, and we'll consider that and then we'll deal comprehensively with the data deficiencies at the February meeting. That will take the form of initiating an addendum at that point.

MR. KELIHER: Mr. Chairman, I think I could simply for the 2017 fishing year just tweak our 10

percent reporting without any action, as long as it – why can't we? Yes, we can.

MS. KATHLEEN REARDON: I'm Kathleen Reardon; I'm the new TC Chair, but I also work for Pat in Maine. We do have some issues with our 10 percent, because we lose the randomness, we also lose being able to track latency within the fishery. We need to discuss it a little bit more before we commit to dropping anything other than the active harvesters.

CHAIRMAN BORDEN: I think that is consistent with what I offered. Maine has the ability to recommend that if they would like, after they do their internal consultations. If they don't recommend it, it will all get folded into the Comprehensive Data Deficiency Addendum. Okay, everyone clear?

MR. KELIHER: It's clear as mud, because if that's the case then the TC needs to comment on that. I would like that from the TC; no offense to my staff. The TC is going to have to look at the 10 percent change that was listed for the short term as well as the 30 percent.

CHAIRMAN BORDEN: Megan, you've got a charge for the TC. Bill Adler.

MR. ADLER: This is back on the closed area things, and I've already talked to you about a petition that's been put in to make Hudson Canyon a sanctuary. I'm not sure where that is in the middle of all the little dots and stuff. If that is an additional area to the monument area and the coral area and now an environmental group had put in for a sanctuary on Hudson Canyon. I just wanted that noted.

CHAIRMAN BORDEN: Thanks Bill, for noting that. Actually it is three canyons. There are three canyons all in the Mid-Atlantic area that I think have been proposed. My suggestion is let the staff get the information on that and then present whatever information they can get on that at the next meeting.

Are there any objections to handling that? Okay so anything further on corals? If not, any other business before the Board? If not, I would just like to personally thank, oh Doug; I was going to thank our host. But I would also like while I've got the microphone, before Doug flicks it off. I would like to thank the members of the PDT for all the work they put into the document.

Although it didn't go out the door today, I think that the first part of the document I thought was one of the better documents that have been written by the PDT. It is clear, it's concise, and it lays out all the facts. I think it's very well written. We can just tweak those sections that go behind it and I'm sure at the February meeting we'll get it out the door. But thank you very much for all your labors.

MR. GROUT: Thank you, Mr. Chair. I also wanted to thank all the commissioners for hard work this week. It was a long and very, I think productive week in what we did. If any of you happen to be staying over tonight, and that includes any staff. I'm going to open up my room at about 4:30 today for a little hospitality suite, its Room 2077, and it's going to be BYOB and BYO snacks.

CHAIRMAN BORDEN: Any other business? Peter.

MR. BURNS: Real quickly, I just wanted to commend Megan for her hard work. Since the last meeting she did an excellent job sharing and facilitating the Technical Committee, the PDT and all the working groups that had to meet, and she did that really effectively and that helped us get through our business today; so thank you for that.

#### ADJOURNMENT

CHAIRMAN BORDEN: Any other business? No hands up, meeting is adjourned.

(Whereupon the meeting adjourned at 3:48 p.m. on October 27, 2016.)

## ***Atlantic States Marine Fisheries Commission***

### **DRAFT ADDENDUM XXV TO AMENDMENT 3 TO THE AMERICAN LOBSTER FISHERY MANAGEMENT PLAN**

***RESPONSE TO SOUTHERN NEW ENGLAND STOCK DECLINE***



**This draft document was developed for Management Board review and discussion during the January 31, 2017 Lobster Board meeting. This document is not intended to solicit public comment as part of the Commission/State formal public input process. However, comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting. Also, if approved, a public comment period will be established to solicit input on the issues contained in the document.**

***ASMFC Vision Statement: Sustainably Managing Atlantic Coastal Fisheries***

**January 2017**

**Draft Document for Board Review. Not for Public Comment.**

**Public Comment Process and Proposed Timeline**

In May 2016, the American Lobster Management Board initiated Draft Addendum XXV to address continued stock declines in Southern New England. In August 2016, the Board identified a management goal for the Southern New England stock as well as management targets for development in this addendum. This draft addendum presents background on the Atlantic States Marine Fisheries Commission’s management of lobster, the addendum process and timeline, a statement of the problem, and management measures for public consideration and comment.

The public is encouraged to submit comments regarding the proposed management options in this document at any time during the addendum process. The final date comments will be accepted is **Month, Day 201X at 5:00 p.m. EST**. Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comments, please use the contact information below.

Mail: Megan Ware

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Email: [mware@asmfc.org](mailto:mware@asmfc.org)  
(Subject line: Lobster  
Draft Addendum XXV)

<i>August– October 2016</i>	Draft Addendum for Public Comment Developed
<i>October 2016 – February 2017</i>	Preliminary Industry Comment and Subcommittee Review
<i>February 2017</i>	Board Reviews Draft and Makes Any Necessary Changes
<i>February – April 2017</i>	Public Comment Period, LCMTs prepare preliminary proposals
<i>May 2017</i>	Management Board Review, Selection of Management Measures
<i>May 2017</i>	LCMTs Submits Proposals to Meet Target Increase in Egg Production
<i>August 2017</i>	Board Reviews and Approves LCMT Proposals, Final Approval of Addendum XXV
<i>2018</i>	Implementation of Addendum XXV

## **Draft Document for Board Review. Not for Public Comment.**

### **Executive Summary**

The Southern New England (SNE) lobster stock is at record low abundance and is experiencing recruitment failure (ASMFC, 2015). This poor stock condition is the result of environmental factors and continued fishing mortality (ASMFC, 2015). As an initial management response, the American Lobster Management Board initiated this draft addendum to consider increasing egg production in SNE by 20% to 60%. This addendum focuses on increases in egg production so that, if environmental conditions become favorable, the SNE stock can benefit from a strong recruitment year.

To respond to the Board's objective to increase egg production, the Plan Development Team (PDT) evaluated multiple management tools, including: gauge size changes, trap reductions, season closures, trip limits, v-notching, and culls. In their evaluation of these various management tools, the PDT analyzed not only the ability to achieve the specified management targets but also the ability to effectively monitor, administer, and enforce selected management tools.

This draft Addendum includes six issues. The first proposes five targets by which to increase egg production, ranging from 0% to 60%. The second issue asks whether the management tools considered for use in the document can be used independently or in conjunction with one another. The third issue addresses the effects of this addendum on the recreational fishery. The fourth issue explores the implementation of season closures and potential impacts to the Jonah crab fishery. The fifth issue examines whether management measures in SNE should be uniform across LCMAs. The sixth issue asks where in LCMA 3 the management measures in this document should apply.

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### 1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) has coordinated the interstate management of American lobster (*Homarus americanus*) from 0-3 miles offshore since 1996. American lobster is currently managed under Amendment 3 and Addenda I-XXIV to the Fishery Management Plan (FMP). Management authority in the Exclusive Economic Zone (EEZ) from 3-200 miles from shore lies with NOAA Fisheries. The management unit includes all coastal migratory stocks between Maine and Virginia. Within the management unit there are two lobster stocks and seven management areas. The Southern New England (SNE) stock (subject of this draft addendum) includes all or part of five of the seven Lobster Conservation Management Areas (LCMAs) (Appendix 1). There are eight states (Massachusetts to Virginia) which regulate American lobster in state waters of the SNE stock, as well as regulate the landings of lobster in state ports.

The Board initiated Draft Addendum XXV to respond to continued stock declines in SNE. The 2015 Benchmark Stock Assessment found abundance, spawning stock biomass (SSB), and recruitment are all at historic low levels in SNE. The stock was deemed depleted as the current reference abundance of 10 million lobsters is well below the management threshold of 24 million lobsters. As a result, the Board directed the Plan Development Team (PDT) to draft an addendum to address the poor condition of the SNE stock by increasing egg production and decreasing fishing mortality.

The principle challenge facing the SNE stock is the increase in natural mortality, primarily due to climate change and predation. Specifically, the 2015 stock assessment showed a pronounced warming trend in coastal waters, particularly in New England and Long Island Sound. These warming waters have negatively impacted the stock as they have resulted in reduced spawning and recruitment. Predation from species such as black sea-bass has further depleted the stock. Together, these challenges highlight the vital role the environment plays in the health of the American lobster population. Importantly, fishing pressure, while at an all-time low level, continues to be a significant source of mortality and a measurable factor contributing to the overall decline of the SNE stock.

Given these challenges, the Board identified the following goal for this addendum.

*“Recognizing the impact of climate change on the stock, the goal of Addendum XXV is to respond to the decline of the SNE stock and its decline in recruitment while preserving a functional portion of the lobster fishery in this area.”*

To achieve this goal, the Board tasked the TC and the PDT to analyze management tools that would result in increased egg production in the SNE stock. The Board identified four alternative egg production targets for analysis: increasing egg production by 20%; 30%; 40%; and 60%. A 0% increase was also analyzed to provide a baseline, no-action context



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to assist in decision-making. The Board is pursuing increases in egg production so that, if environmental conditions become favorable in SNE, there will be enough eggs in the water to produce a successful and impactful recruitment event. Given uncertainties surrounding future climate conditions and their impact on the stock, most notably on recruitment, it is unclear whether the SNE stock can be rebuilt to the current reference levels if unfavorable environmental conditions continue.

This addendum is intended to be an initial response to the most recent stock assessment. The 2015 Stock Assessment clearly stated climate change is impacting the SNE fishery in a profoundly negative way. While the Board recognizes serious and impactful management actions are needed to preserve the SNE stock, they also recognize questions regarding the full impacts of climate change still remain. As a result, the Board agreed to take quick and decisive action while preserving a functional portion of the fishery. It is important to note, that a functional fishery may not mean the continuation of the current state and size of the fishery. The Board will continue to monitor the stock and fishery in order to determine the next appropriate course of action. All management tools remain available for future consideration.

### **2.0. Overview**

#### ***2.1 Statement of the Problem***

The 2015 Benchmark Stock Assessment found the SNE stock to be depleted, with record low abundance and recruitment failure. This poor stock condition can be attributed to many factors including changing environmental conditions and continued fishing mortality. In response, the Board initiated Draft Addendum XXV with the goal of preserving a functional portion of the SNE lobster fishery while addressing the poor stock condition. The measures in this addendum are intended to increase egg production so that, if environmental factors improve, the stock can benefit from a successful recruitment event. This addendum is an initial response to the most recent stock assessment and may be followed by other management measures.

#### **2.2 Resource Issues**

Results of the 2015 Benchmark Stock Assessment concluded the SNE stock is depleted and experiencing continued declines (Table 1). The assessment highlighted that abundance, SSB, and recruitment are all at historic low levels for the model time-series (1982-2013). Model-free indicators corroborate these findings as spawning stock abundance, a measure of the reproductively mature portion of the population, is below the 25<sup>th</sup> percentile in six of the eight surveys from 2008-2013 (Appendix 2). Furthermore, the distribution of lobsters inshore has contracted as the survey encounter rate is negative in all six inshore indices over the 2008-2013 time period. In contrast to the poor condition of the SNE stock, the assessment concluded that the GOM/GBK stock is at record high abundance, with a dramatic increase in abundance since the late 1980's. This dichotomy suggests environmental conditions are changing along the coast and these changes are impacting the condition of the stock.

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Table 1. Current (2011-2013) reference estimates for each stock as well as the target and threshold levels for abundance and effective exploitation. The reference abundance is used to determine a depleted status while effective exploitation is used to determine an overfishing status.

		GOM/GBK	SNE
<b>Abundance (millions)</b>	<b>2011-2013 Reference</b>	<b>248</b>	<b>10</b>
	<b>Threshold</b>	<b>66</b>	<b>24</b>
	<b>Target</b>	<b>107</b>	<b>32</b>
<b>Effective Exploitation</b>	<b>2011-2013 Reference</b>	<b>0.48</b>	<b>0.27</b>
	<b>Threshold</b>	<b>0.50</b>	<b>0.41</b>
	<b>Target</b>	<b>0.46</b>	<b>0.37</b>

One of the largest indicators of poor stock condition in SNE has been the marked decline in recruitment, or the number of lobsters surviving to enter the fishery. Indices suggest the stock is in recruitment failure as, since 2011, all larval indices have been below the 25<sup>th</sup> percentile. Figure 1 depicts larval indices from Long Island Sound from 1983 to 2015 which show a significant decline in the density of larvae since the 1990's. Model-free indicators show similar trends as all four young-of-year indices, which measure the abundance of age 0 lobsters, are below the median (Appendix 2). In 2015, the young-of-year index in Massachusetts hit zero (Appendix 2). This is concerning as it means the number of young lobsters which have yet to recruit into the fishery is low and the stock may experience further declines.

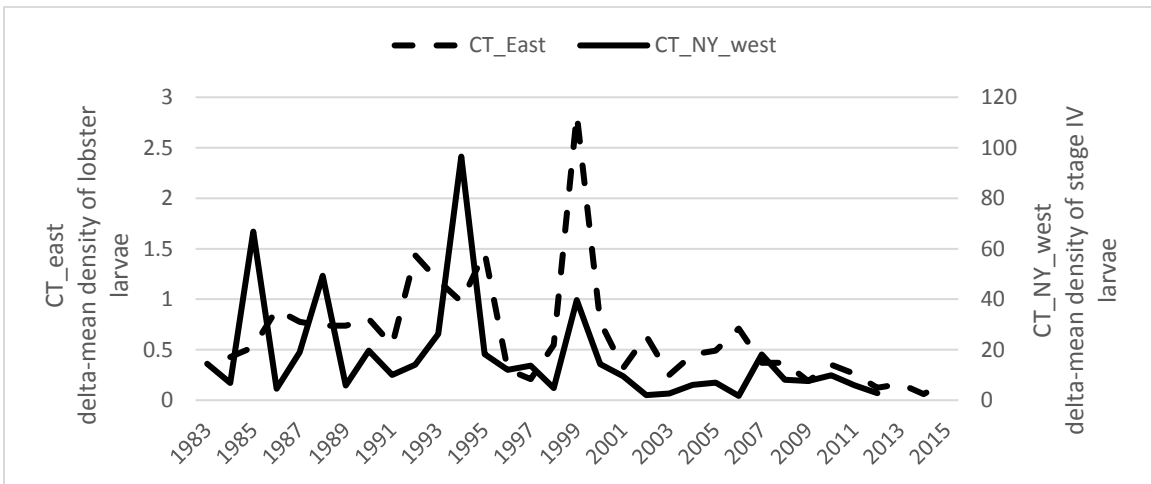


Figure 1: Annual density (delta mean per 1000 m<sup>3</sup>) of lobster larvae (all stages) in MPS entrainment samples during their season of occurrence (CT-East) and stage IV larvae captured in surface plankton nets at 8 stations in western Long Island Sound. Source: CT DEEP and Dominion Nuclear Power Station.

Furthermore, analysis by the TC shows spawning-stock biomass (SSB) and recruitment may be decoupled. Figure 2 shows the relationship between SSB and recruitment from 1979 to 2011. Overall, the plot indicates a positive relationship such that there are more lobsters entering the fishery when the reproductive portion of the population is larger;

however, over the last decade, this relationship has decoupled, with recruitment declining and SSB remaining steady. This suggests compensatory mechanisms may be at play in SNE, such that recruitment drops to very low levels well before SSB reaches zero. Low recruitment levels may be the result of reduced mating success, environmentally-mediated changes in survivorship, and/or increased predation. Figure 2 also shows the wide range of recruitment which can be produced from a single level of SSB, even when stock abundance was high in the early 1990's. This is important to note as management action seeking to increase SSB and egg production can result in a wide range of recruitment.

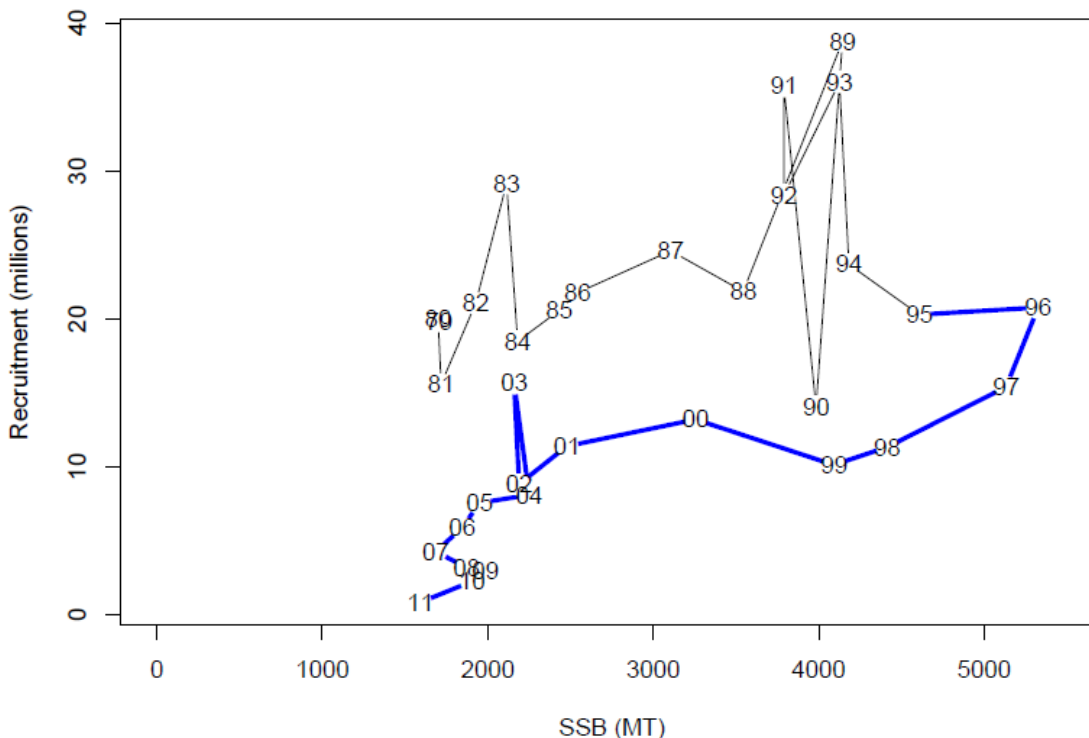


Figure 2: The relationship between model-based spawning stock biomass and recruits from 1979 to 2011. The blue line denotes the trajectory from 1995 – 2011 (recruiting to the model from 1998 to 2014).

There are several contributors to the poor stock condition in SNE, including an increase in natural mortality and continued fishing pressure. Climate change has had a significant impact on the stock as lobster physiology is intricately tied to water temperatures. Not only does water temperature impact when lobster eggs hatch but it also has a direct effect on larval survivorship as waters which are too cold (<10°C) or too warm (>22°C) increase mortality.<sup>1</sup> Adult lobsters also are impacted by warming waters as recent laboratory studies suggest lobsters have a threshold of ~20.5°C, above which lobsters experience significant stress.<sup>2</sup> Unfortunately, ocean temperatures, particularly inshore, have been rising. Data from Buzzards Bay, MA and Long Island Sound show the number

<sup>1</sup> MacKenzie, 1988.

<sup>2</sup> Powers et al., 2004.

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of days above 20°C has markedly increased since 1997 (Appendix 3). These warming waters have increased the natural mortality of the stock. Predation also has a significant impact on the species. Lobsters, especially juveniles, are an important source of food for many finfish species including Atlantic cod, spiny dogfish, black seabass and skate. When populations of these species increase, pressure on the lobster stock increases.

In conjunction with the increase in natural mortality, continued fishing pressure has furthered the decline of the SNE stock. As the stock has decreased to record low abundance, effort and landings in the SNE fishery have likewise declined. This is in response to not only the low abundance but also recently implemented regulations and the higher costs of fuel and bait. Importantly, while the 2015 Stock Assessment did not conclude overfishing is occurring, fishing mortality is still the primary contributor to the stock’s mortality. Work by the TC shows that, even when accounting for the recent increases in natural mortality, fishing mortality is removing roughly twice as much SSB from the population annually than natural mortality (Figure 3). This suggests that, in the face of climate change and increases in predation, management action can still have real effects on spawning stock abundance and egg production. Importantly, favorable environmental conditions will be needed to translate this increase in egg production into a successful recruitment event. This is highlighted in Figures 2 and 3 as, while the proportion of SSB surviving in SNE has generally increased since 2000, recruitment has significantly declined.

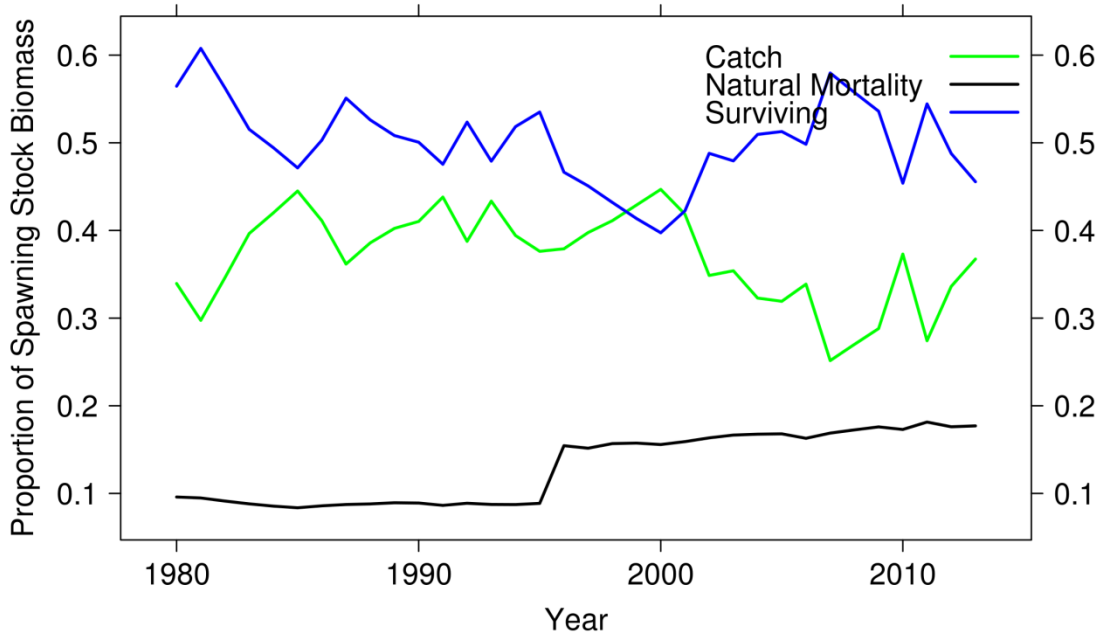


Figure 3: Proportion of SSB surviving or removed by fishing and natural mortality annually (1980-2013).

In an attempt to understand the extent of management action needed to improve stock conditions, the Board directed the TC to model future lobster abundance under various levels of fishing mortality and natural mortality. Results of these stock projections

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concluded a 75% to 90% reduction in fishing mortality would be needed to stabilize the stock under current natural mortality conditions (Appendix 4); should natural mortality increase, greater reductions in fishing mortality would be needed. The projections also showed that without management action, stock conditions would be expected to deteriorate and reference abundance could decline by 50%. These results highlight the poor condition of the stock and the need for impactful management action.

### **2.3 Fishery Status**

#### *2.3.1 Commercial Fishery*

The SNE fishery is carried out by fishermen from Massachusetts, Rhode Island, Connecticut, New York and New Jersey, with smaller contributions from Delaware, Maryland, and Virginia. This fleet is comprised of small vessels (22' to 42') which make day trips in nearshore waters (less than 12 miles) as well as larger boats (55' to 75') which make multi-day trips to the canyons along the continental shelf. The SNE fishery is executed in LCMAs 2, 4, 5, and 6 as well as the western portion of LCMA 3 (Appendix 1).

The SNE fishery has experienced a noticeable contraction in effort and landings over the last decade (Table 2). Landings in the 1980's steadily rose from 4.06 million pounds in 1981 to over 13 million pounds in 1989. Landings continued to rise in the 1990's, peaking at 21.9 million pounds in 1997. 43% of these landings were from New York, followed by Rhode Island (28%), Connecticut (16%), and Massachusetts (12%). Starting in the early 2000's, landings began to precipitously decline. In 2004, landings (5.48 million pounds) were less than half of what they were four years earlier in 2000 (13.39 million pounds). This trajectory continued such that landings in 2015 were 3.5 million pounds. Rhode Island was the largest contributor of landings (55%) followed by Massachusetts (22%). This large decline in harvest is likely the result of a declining stock size, attrition in the fishery, regulatory changes, and substantial increases in the operating costs of the fishery associated with fuel and bait. Interestingly, despite the decrease in overall fishing effort, those who remain in the fishery have experienced increasing catch rates. The TC discussed this trend in their February 2016 presentation to the Board and highlighted that this is due to high attrition in the lobster fleet which has resulted in fewer fishermen concentrating their effort on the remaining aggregations of lobster in SNE.

In conjunction with the decrease in landings, the number of active permit holders has also decreased (Table 3). In 1990, there were 202 active lobster permits in Massachusetts. Only 24 years later, this number decreased by ~50%. Similar trends can be seen in the other states as from 2007-2014, the number of active permits decreased by 50% in Rhode Island and by 60% in Connecticut.

Data on the number of traps fished in Massachusetts, Rhode Island, Connecticut, and New York also matches the trends seen in landings (Table 4). In 1990, the number of active traps fished in Massachusetts, Connecticut and New York was 291,632 and this quickly rose to 443,833 by 1995. The number of traps fished peaked in 1998, just one

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year after landings peaked, at 588,422 traps. At this time, 59% of traps were from New York. Since then, the number of active traps has dramatically declined. In 2013, only 151,970 traps were fished in SNE, with New York seeing the largest decline and comprising only 14% of active traps fished. Rhode Island fishermen contributed the largest number of traps fished in 2013 at 42%.

Table 5 shows 2016 trap allocations in LCMAs 2, 3, 4, 5, and 6. The greatest number of traps are allocated in LCMAs 2, 3 and 6; however, a large portion of traps in LCMA 6 are not actively fished. This is corroborated by data showing the harvest of lobster from LCMA 6 has the second lowest landings in the SNE fishery (Table 6). Roughly two-thirds of landings in 2012 came from LCMA 3, followed by LCMA 4 and LCMA 2. The lowest landings are from LCMA 5, which also the fewest traps allocated to its waters.

Table 2. SNE landings, in pounds, by state from 1981 to 2015.

Year	MA	RI	CT	NY	NJ & South	Total
1981	952,396	749,571	806,891	835,551	714,297	4,058,705
1982	1,161,835	1,737,241	879,643	1,119,947	1,007,511	5,906,177
1983	1,340,409	3,236,382	1,653,465	1,208,132	912,713	8,351,101
1984	1,494,732	3,611,168	1,796,765	1,307,340	1,168,449	9,378,453
1985	1,276,475	3,509,755	1,380,092	1,241,201	1,322,772	8,730,295
1986	1,300,726	4,310,032	1,254,429	1,417,571	1,382,297	9,665,054
1987	1,274,270	4,241,689	1,571,894	1,146,402	1,591,736	9,825,991
1988	1,384,501	3,897,768	1,922,429	1,571,894	1,699,762	10,476,354
1989	1,485,914	4,989,055	2,076,752	2,345,716	2,198,006	13,095,443
1990	2,004,000	6,382,375	2,645,544	3,414,956	2,350,125	16,797,000
1991	2,059,115	5,998,771	2,674,204	3,128,356	1,761,491	15,621,937
1992	1,792,356	5,502,732	2,533,108	2,652,158	1,263,247	13,743,601
1993	1,913,610	5,509,345	2,175,960	2,667,590	981,056	13,247,562
1994	2,158,323	6,078,137	2,147,300	3,955,088	597,452	14,936,301
1995	2,160,528	5,628,395	2,541,927	6,653,543	663,591	17,647,983
1996	2,151,709	5,557,847	2,888,052	9,409,318	690,046	20,696,973
1997	2,574,996	6,086,956	3,467,867	8,878,005	895,076	21,902,900
1998	2,420,673	5,897,359	3,712,580	7,896,949	745,162	20,672,722
1999	2,180,369	7,656,645	2,594,838	6,452,923	985,465	19,870,240
2000	1,629,214	6,483,787	1,386,706	2,883,643	1,005,307	13,388,657
2001	1,649,056	4,179,960	1,322,772	2,052,501	641,544	9,845,833
2002	1,653,465	3,600,144	1,062,627	1,439,617	293,214	8,049,068
2003	1,025,148	2,742,547	668,000	945,782	249,122	5,630,599
2004	989,874	2,250,917	639,340	1,170,653	425,492	5,476,276
2005	1,117,742	3,068,831	712,092	1,225,769	436,515	6,560,949
2006	1,199,313	2,769,003	789,254	1,300,726	529,109	6,587,405
2007	850,983	2,321,465	544,541	888,462	760,594	5,366,045
2008	751,775	2,707,273	416,673	705,478	800,277	5,381,477
2009	888,462	2,334,693	410,059	729,729	855,393	5,218,336
2010	762,799	2,231,075	432,106	811,300	806,891	5,044,171
2011	548,950	1,604,963	196,211	343,921	751,775	3,445,821
2012	637,135	1,845,267	240,304	275,578	992,079	3,990,362
2013	696,660	1,618,191	127,868	246,917	791,459	3,481,095
2014	727,525	1,807,788	141,096	216,053	619,542	3,512,004
2015	771,617	1,966,521	156,528	145,505	505,982	3,546,153

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Table 3. The number of active permits (MA, RI, CT, NJ, DE, MD) or total permits (NY) in the SNE stock. An active permit means any commercial vessel that reported landings. MA data includes both active trap and non-trap lobster permits.

	<b>MA (Active)</b>	<b>RI (Active)</b>	<b>CT (Active)</b>	<b>NY (Total)</b>	<b>NJ (Active)</b>	<b>DE (Active)</b>	<b>MD (Active)</b>	<b>Total</b>
<b>1990</b>	202			994				1196
<b>1991</b>	190			1067				1257
<b>1992</b>	184			1171				1355
<b>1993</b>	205			1211				1416
<b>1994</b>	236			1265				1501
<b>1995</b>	222		365	995				1582
<b>1996</b>	207		322	932	42		12	1515
<b>1997</b>	217		305	888	42		15	1467
<b>1998</b>	225		311	761	40		12	1349
<b>1999</b>	223		299	746	41		11	1320
<b>2000</b>	199		245	657	53		10	1164
<b>2001</b>	191		234	600	54		10	1089
<b>2002</b>	196		210	554	46		10	1016
<b>2003</b>	171		167	507	34	7	8	894
<b>2004</b>	152		177	477	35	7	9	857
<b>2005</b>	134		179	458	27	3	7	808
<b>2006</b>	144		220	428	27	5	7	831
<b>2007</b>	133	304	195	412	31	5	8	1088
<b>2008</b>	112	288	162	384	30	5	7	988
<b>2009</b>	110	267	139	375	33	3	7	934
<b>2010</b>	121	269	129	360	30	3	7	919
<b>2011</b>	116	216	98	344	30	2	5	811
<b>2012</b>	112	195	80	334	29	1	6	757
<b>2013</b>	95	163	59	326	29	1	5	678
<b>2014</b>	96	156	57	309	29	3	6	656

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Table 4. Traps fished by state in the SNE stock unit. Traps fished are those traps reported fished by industry members on their state catch reports or on VTRs. (Source: 2015 Stock Assessment)

<b>Year</b>	<b>Massachusetts</b>	<b>Rhode Island</b>	<b>Connecticut</b>	<b>New York</b>	<b>Total</b>
1981	41,395	NA		48,295	89,690
1982	44,123	NA		43,977	88,100
1983	46,303	NA		59,808	106,111
1984	49,072	NA	66,709	77,599	193,380
1985	55,954	NA	65,262	88,332	209,548
1986	59,156	NA	65,826	77,429	202,411
1987	63,518	NA	70,646	76,729	210,893
1988	63,610	NA	79,154	101,790	244,554
1989	62,700	NA	83,915	143,320	289,935
1990	53,768	NA	100,360	137,504	291,632
1991	59,922	NA	101,290	155,276	316,488
1992	58,406	NA	107,668	187,661	353,735
1993	62,615	NA	115,224	237,117	414,956
1994	71,472	NA	110,805	269,419	451,696
1995	71,269	NA	119,983	252,581	443,833
1996	71,830	NA	130,360	314,297	516,487
1997	76,717	NA	133,770	335,860	546,347
1998	83,166	NA	158,527	346,729	588,422
1999	83,394	NA	162,149	332,323	577,865
2000	68,162	NA	122,386	212,767	403,314
2001	65,225	173,133	121,501	191,853	551,712
2002	78,965	152,021	117,731	157,747	506,464
2003	63,444	133,687	85,048	101,207	383,386
2004	55,191	128,081	84,071	102,351	369,694
2005	47,779	117,610	83,946	85,817	335,152
2006	52,990	120,242	90,421	89,301	352,954
2007	49,722	130,556	81,792	92,368	354,438
2008	42,934	104,440	56,355	90,909	294,638
2009	40,237	105,414	63,824	51,173	260,648
2010	48,558	111,509	53,516	70,350	283,933
2011	58,783	78,849	39,518	49,779	226,929
2012	54,102	76,826	29,353	29,678	189,959
2013	49,319	63,089	18,435	21,127	151,970

Table 5: 2016 trap allocations by LCMA in the SNE stock. LCMA 3 includes traps fished in both the SNE stock and the Gulf of Maine/Georges Bank stock.

	<b>LCMA 2</b>	<b>LCMA 3</b>	<b>LCMA 4</b>	<b>LCMA 5</b>	<b>LCMA 6</b>
<b>MA</b>	33,377	49,040	1,100		
<b>RI</b>	59,789	41,288	2,424		
<b>CT</b>	4,163	652	2,725		139,186
<b>NY</b>	1,141	2285	11,075	600	111,108
<b>NJ</b>	940	12,155	6,530	3,154	
<b>DE</b>				4,530	
<b>MD</b>				4,000	
<b>VA</b>				1,200	
<b>TOTAL</b>	99,410	105,420	23,854	13,484	250,294



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Table 6. Estimated SNE lobster landings (in pounds) by LCMA.

Year	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6
1982	1,656,479	2,135,954	622,674	99,093	1,359,058
1983	2,958,366	2,258,492	633,254	71,804	2,428,633
1984	2,978,985	2,765,512	795,180	135,652	2,704,070
1985	2,992,330	2,330,628	964,043	170,998	2,273,337
1986	3,081,903	3,009,509	1,084,282	125,969	2,362,128
1987	3,219,900	2,655,725	1,473,841	98,486	2,378,765
1988	3,259,336	2,269,480	1,666,439	85,142	3,195,208
1989	4,175,114	2,845,444	2,232,935	106,126	3,735,250
1990	4,374,062	5,253,653	2,431,198	237,410	4,250,654
1991	4,140,145	4,811,267	2,096,138	115,020	4,393,986
1992	3,795,367	4,023,295	1,448,866	77,854	4,362,551
1993	3,772,494	3,776,113	1,597,447	89,495	3,968,663
1994	5,602,507	3,030,046	554,367	26,013	5,738,398
1995	4,960,453	2,661,176	962,077	45,054	8,564,325
1996	4,880,328	2,610,223	978,376	52,758	11,705,439
1997	5,324,775	3,183,034	1,162,862	36,623	11,650,701
1998	5,273,463	2,724,429	1,534,067	41,963	10,575,143
1999	6,938,658	3,195,423	1,346,509	77,621	8,331,142
2000	5,651,160	2,673,111	1,123,486	53,364	3,802,880
2001	3,862,054	2,053,831	762,408	55,537	3,013,551
2002	3,445,004	1,899,923	442,425	14,838	2,230,869
2003	1,110,534	2,519,713	423,583	17,394	1,448,011
2004	1,184,942	2,014,702	480,203	93,270	1,534,130
2005	1,464,433	1,800,406	457,275	54,181	1,673,396
2006	1,853,505	1,983,721	516,130	59,928	1,840,308
2007	1,430,836	1,494,830	617,978	56,866	1,263,648
2008	1,168,921	1,918,429	440,108	322,916	920,951
2009	1,051,241	2,227,432	488,792	308,212	896,594
2010	1,022,528	2,135,008	522,037	184,409	966,505
2011	730,889	1,954,052	488,977	148,587	306,079
2012	627,051	2,003,412	782,684	154,455	286,215

\*To separate landings by LCMA, NMFS statistical areas are placed into a single LCMA.

One of the largest changes over the last decade has been the transition from a primarily inshore to a primarily offshore lobster fishery. In 1982, 64% of landings in SNE were from the inshore portion of the stock. This increased to 87% in 1998 as landings quickly grew in the fishery. However, declines in the stock, particularly inshore, have led the fishery to be primarily executed offshore. Figure 4 shows the landings of lobster inshore and offshore. While the pounds of lobster landed inshore has declined since 1997, offshore landings have experienced less severe declines and have even stabilized over the last decade. In fact, 2011 was the first year in which a greater portion (55%) of lobster were landed offshore than inshore. This shift in the fishery can likely be explained by warming coastal waters which have caused declines in recruitment and prompted migrations of lobsters to cooler waters offshore.

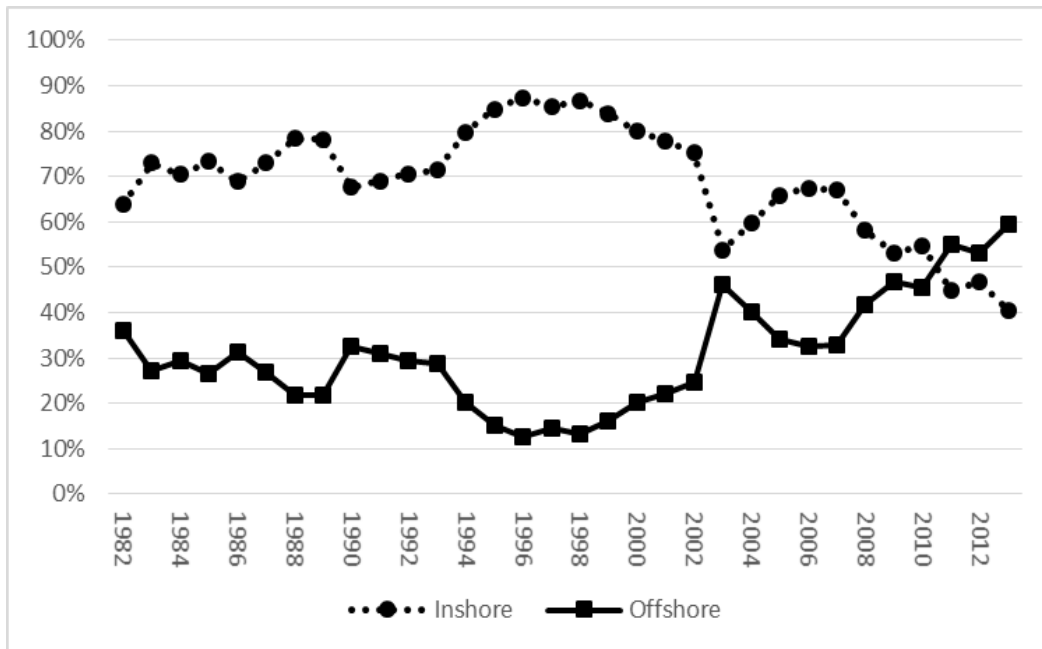


Figure 4: Percentage of landings in SNE occurring in the inshore and offshore fishery. The inshore fishery is defined as landings from statistical areas 538, 539, 611, 612, 613, 614, 621, 625, 631, and 635. The offshore fishery is defined as landings from statistical areas 533, 534, 537, 615, 616, 622, 623, 624, 626, 627, and 632.

The non-trap fishery for lobster is a relatively small percentage of the overall SNE landings. In 2015, a total of 858,736 pounds were landed with non-trap gear. This value is an overestimate as it includes non-trap landings from Massachusetts which spans both the GOM/GBK and SNE stock. 93.6% of non-trap landings come from Massachusetts, followed by Rhode Island (5.8%) and Connecticut (0.4%).

### 2.3.2. Recreational Fishery

While the lobster fishery is predominately commercial, there is a small recreational fishery which harvests lobsters. This recreational fishery primarily occurs in the summer months and lobster are typically harvested with traps, and in some states, by hand while diving. The states of Massachusetts, Connecticut, and New York currently collect recreational information on lobster landings. In general, recreational landings are only a small percentage of the states' total landings. In Connecticut, recreational landings have declined in conjunction with commercial landings, with the number of personal-use licenses sold in Connecticut dropping from 875 in 2009 to 163 in 2015. Recreational landings in Connecticut have varied between 1% and 4% of annual total harvest between 2001 and 2011. In New York, 2015 recreational harvest was 2,130 pounds, or roughly 1.4% of total state harvest. Recreational harvest in Massachusetts is significantly higher, in pounds, with a five year average from 2010-2014 at 224,932 pounds; however, it is important to note that this includes landings from both the GOM/GBK and SNE stocks. Similar to New York, Massachusetts' recreational fishery represents roughly 1% of total state landings.

## **2.4 Status of Management**

Lobster are currently managed under Amendment 3, and its twenty-four addenda. One of the hallmarks of Amendment 3 was the creation of seven LCMAs along the coast. These areas are intended to reflect the regional differences in the fishery and, as a result, are permitted to have disparate management measures. The Lobster Board, the Commission's managing body for the species, is comprised of 10 states (Maine through Virginia) and the Federal Government. While ASMFC is not under the purview of the Magnuson-Stevens Act (MSA), the Federal Government, via NOAA Fisheries, supports the Commission's management of interjurisdictional fisheries. When federal support involves the implementation of management measures offshore (3-200 miles), those regulations must both be compatible with the Commission Plan and consistent with the National Standards outlined in MSA.

To date, the American lobster fishery has primarily been managed through input controls, such as biological measures and trap caps, which limit the amount of effort fishermen put into the fishery. Table 7 describes current management measures for all LCMAs which fall within SNE. All areas have a minimum size of  $3 \frac{3}{8}$ " , with the exception of LCMA 3, which is at  $3 \frac{17}{32}$ ". All areas also have the same maximum size of  $5 \frac{1}{4}$ " , with the exception of LCMA 3, which is at  $6 \frac{3}{4}$ ". LCMAs 2, 5, and federal waters of Area 4 require v-notching of egg-bearing females; this is not required in LCMA 6, state waters of LCMA 4, or the SNE portion of LCMA 3. All areas in SNE, however, do have the same v-notch definition which prohibits retention if the notch is at least an 1/8 inch deep. All areas have history-based effort control programs with LCMA 2 having the lowest trap cap set at 800 traps.

In response to the findings of the 2009 stock assessment, the Board passed several addenda aimed at reducing exploitation and scaling the size of the fishery (Table 8). Addendum XVII reduced exploitation by 10% with LCMAs 2, 5, and federal waters of 4 instituting mandatory v-notching, LCMA 3 increasing the minimum gauge size by  $1/32$ " , and LCMAs 4, 5, and 6 instituting closed seasons. The Board also approved Addendum XVIII, which implemented a series of trap allocation reductions in LCMAs 2 and 3. The goal of this management action was to scale the size of the SNE fishery to the diminished size of the resource. Previous to Addendum XVIII, LCMA 3 also implemented a 10% (Addendum IV) and 5% (Addendum XI) reduction in trap allocations. In a subsequent phase of management action, the Board approved Addenda XXI and XXII, which modified the trap transferability rules for LCMAs 2 and 3. The intent of these addenda was to increase the flexibility for fishermen to adjust to management measures aimed at reducing latent effort through fishery consolidation. Management measures in these addenda include modifications to the single or individual ownership caps (otherwise known as trap banking) and aggregate ownership caps. These measures have not yet been implemented in Federal waters.

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Table 7. 2016 LCMA specific management measures.

<b>Mgmt Measure</b>	<b>Area 1</b>	<b>Area 2</b>	<b>Area 3</b>	<b>Area 4</b>	<b>Area 5</b>	<b>Area 6</b>	<b>OCC</b>
<b>Min Gauge Size</b>	3 1/4"	3 3/8"	3 17/32"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
<b>Vent Rect.</b>	1 15/16 X 5 3/4"	2 x 5 3/4"	2 1/16 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"
<b>Vent Cir.</b>	2 7/16"	2 5/8"	2 11/16"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
<b>V-notch requirement</b>	Mandatory for all eggers	Mandatory for all legal size eggers	Mandatory for all eggers above 42°30'	Mandatory for all eggers in federal waters. None in state waters.	Mandatory for all eggers	None	None
<b>V-Notch Definition<sup>1</sup> (possession)</b>	Zero Tolerance	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs	1/8" with or w/out setal hairs <sup>1</sup>	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs <sup>1</sup>
<b>Max. Gauge (male &amp; female)</b>	5"	5 1/4"	6 3/4"	5 1/4"	5 1/4"	5 1/4"	State Waters none Federal Waters 6 3/4"
<b>Season Closure</b>				April 30- May 31	February 1- March 31	Sept 8- Nov 28	February 1- April 30

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Table 8: Management action taken by the Board since the 2009 Benchmark Stock Assessment.

Year	Addendum	LCMA Affected	Action Taken	Implementation Date
2012	Addendum XVII	2	Mandatory v-notching	June 1, 2012
		3	Minimum gauge size increased from 3 ½" to 3 17/32"	January 1, 2013
		4	Mandatory v-notching Season closure from April 30 – May 31	July 1, 2012*
		5	Mandatory v-notching Season closure from Feb. 1 – Mar. 31	January 1, 2013
		6	Season closure from Sep 8-Nov 28	January 1, 2013
	Addendum XVIII	2	Trap allocation reduced by 25% on first year, reduced by 5% every year for following five years	2016
		3	Trap allocation reduction annually by 5% for five years	2016
2013	Addendum XIX	3	10% conservation tax assessed on any transfer or full business sale**	2013
	Addendum XX	3	Prohibitive to set lobster traps in Close Area II from Nov 1 – June 15	2013
	Addendum XXI	2	Recipient of a multi-LCMA trap allocation retains multi-LCMA history and declares which area(s) will be fished in a year; Single Ownership Cap/Aggregate Ownership Cap is 1,600 traps for any individual or corporation at a given time; Sunset Provision of two years on Single Ownership Cap	November 1, 2013***
		3	5% reduction for 5 years on active trap cap from 2,000 to 1,548; recipient of a multi-area trap allocation retains the multi-area history and declares which area(s) will be fished each fishing year	November 1, 2013***
Addendum XXII	3	5% reduction for 5 years on single-ownership and aggregate ownership caps	***	
2015	Addendum XXIV	2	Removed 10% conservation tax on full business transfers; traps shall be transferred in increments of 10; dual permit holders are allowed to transfer allocation with dual permit holders from other states	2015

\*ASMFC's Lobster Management Board voted to revise this closure from February 1 – March 31 to April 30- May 31 to maximize the conservation benefit of the closure. NOAA Fisheries implemented this change in Federal waters in November 2015.

\*\*Conservation tax on partial transfers was reduced from 20% and replaced Section 4.1.1 of Addendum XIV

\*\*\*NOAA Fisheries postponed rule making on Addenda XXI and XXII pending the outcome of SNE management in Addendum XXV.

**2.5 Economic Status of Fishery**

Total ex-vessel value in 2015 from the SNE lobster stock was just under \$18.5 million (Table 9). The largest contributor was Rhode Island with 57% of the total value in SNE. This was followed by Massachusetts (20.9%) and New Jersey (12.2%). While there are a number of participants in the SNE lobster fishery, a large portion of landings are harvested by a small portion of fishermen. In 2015, 57% of fishermen landed less than 10,000 pounds of lobster per year; however, these fishermen were responsible for just 9% of total SNE landings, in pounds. In contrast, just 2% of fishermen landed greater than 100,000 pounds each year but they were responsible for 20% of landings in the fishery. This suggests a significant portion of landings in the lobster fishery are made by a small number of participants. While the lobster fishery in New England is a distinct fishery with lobster being the primary catch, in the Mid-Atlantic, lobster is often a secondary component of catch in traps. Lobster fishermen in the southern extent of the lobster’s range participate in a multi-species fishery in which harvesters catch various species, including lobster, Jonah crab, and black seabass.

Table 9: 2015 ex-vessel values in the SNE lobster fishery.

	MA	RI	CT	NY	NJ	DE	MD	VA	Total
<b>Ex-Vessel (\$)</b>	3,871,993	10,535,726	748,797	820,456	2,248,638	61,400	186,039	24,092	18,497,141
<b>%</b>	20.9%	57.0%	4.0%	4.4%	12.2%	0.3%	1.0%	0.1%	100.0%

\*MA and RI values were calculated by multiplying landings from harvester reports by an average price based on dealer information.

In considering the economic status of the lobster fishery, it is also important to consider the Jonah crab fishery, as the two species are managed together and are primarily caught with the same gear. The Jonah crab fishery has experienced immense growth over the last 15 years. In the early 2000’s, landings were roughly 2.6 million pounds and the fishery was valued at \$1.5 million. By 2014, landings increased to over 17 million pounds with a value exceeding \$13 million. It is believed that this rapid increase in landings is the result of an increase in demand as well as the poor condition of the SNE lobster sock, which has prompted fishermen to supplement their income with Jonah crab.

Table 10 shows 2015 Jonah crab landings and ex-vessel value by state and quarter. Landings primarily came from Massachusetts (~70%) and Rhode Island (~29%) with landings occurring throughout the year. It is important to note that Massachusetts and Rhode Island landings include those from SNE and the GOM/GBK stock, and as a result, may represent an overestimate of Jonah crab landings in SNE.

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Table 10: 2015 pounds landed and ex-vessel value for the Jonah crab fishery by state and quarter. Massachusetts and Rhode Island landings include those from SNE and GOM/GBK.

		<b>Quarter 1</b>	<b>Quarter 2</b>	<b>Quarter 3</b>	<b>Quarter 4</b>
<b>Massachusetts</b>	Pounds	2,079,872	2,236,879	1,868,270	2,911,353
	Ex-Vessel	\$ 1,582,678	\$ 1,690,807	\$ 1,406,117	\$ 2,214,914
<b>Rhode Island</b>	Pounds	1,022,100	716,318	655,522	1,467,320
	Ex-Vessel	\$ 777,179	\$ 566,794	\$ 508,208	\$ 803,182
<b>Connecticut, New York, New Jersey</b>	Pounds	17,298	18,831	13,774	24,156
	Ex-Vessel	\$ 5,773	\$ 13,237	\$ 11,848	\$ 15,513
<b>Delaware, Maryland, Virginia</b>	Pounds	16,264	15,511	7,915	3,886
	Ex-Vessel	\$ 12,600	\$ 25,709	\$ 30,856	\$ 9,746

**2.6 Management Tools Considered**

At the August 2016 meeting, the Lobster Board provided the Plan Development Team (PDT) with a list of potential management tools to consider in this addendum. They included: gauge size changes, trap reductions, closed seasons, trip limits, v-notching, and culls. The PDT evaluated the effectiveness of these various tools, considering the ability to successfully achieve the management targets for egg production as well as the ability to monitor, administer, and enforce the management tools in the fishery. For this evaluation, the PDT made extensive use of the TC’s expertise, including their three memos to the Board in January 2016, April 2016, and July 2016.

*2.6.1 Gauge Size Changes*

Analysis conducted by the TC suggests that, both inshore and offshore, gauge size changes are an effective management tool to increase egg production and decrease fishing mortality. Changes to the minimum and maximum gauge size are enforceable and provide a direct benefit of keeping lobsters in the water longer. Furthermore, gauge size changes are intricately tied to the biology of lobsters, with clear benefits in terms of egg production and fitness. These impacts can be accurately predicted, adding confidence to the results of management decisions. As a result, gauge size changes are considered for use in this document.

Work presented in the TC’s July memo to the Board (see Appendix 5) suggests gauge size changes can be used to achieve up to a 60% increase in egg production. Increases in the minimum size result in larger increases in egg production; however, it is important to note that decreases to the maximum gauge size provide permanent protection to larger lobsters which have likely already survived stressful conditions. Changes to the gauge size may necessitate changes to the vent size as the harvestable window of lobster sizes narrows. This would allow a greater portion of undersized lobsters to exit the trap and reduce stress from handling.

Economic impacts of gauge size changes depend on how the change is implemented, as gradual changes to the gauge size over several years may dampen the reductions in

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harvest. Short-term impacts of gauge size changes include an immediate decrease in landings as there is a narrower slot from which to harvest lobsters; however, as the population stabilizes, landings settle into a common trajectory.

It is likely that the implementation of gauge size changes, or any of the proposed measures in the addendum, will create increased demand and shipments of lobsters from different LCMAs, including those LCMAs in the Gulf of Maine and Georges Bank (GOM/GBK), which have different gauge sizes. For many states, the minimum and maximum sizes in place are possession limits, meaning harvesters and dealers must abide by their state's regulations. While these strict regulations improve enforcement of gauge sizes, it can complicate interstate commerce as lobsters legally caught in LCMA 1 have a smaller minimum gauge size of 3 ¼". Some states have developed dealer provisions to address this concern. Rhode Island and Connecticut allow dealers to possess smaller lobsters legally harvested in other LCMAs as long as those lobsters are not sold to consumers in their state. Dealers are required to have thorough documentation regarding the origin of lobsters below the state's minimum size and these smaller lobsters must be kept separate from those lobsters legally landed in the state. Massachusetts, because it has lobster landed from four LCMAs, is only able to enforce LCMA-specific gauge sizes at the harvester level but has implemented significant penalties for violations.

### *2.6.2 Trap Reductions*

The relationship between the biology of lobsters and trap reductions is not well understood. One of the major sources of uncertainty is the effect of trap reductions on the exploitation rate. This is because current trap reductions reduce a fishermen's total trap allocation, which includes both actively fished traps and latent effort. As trap allocations are reduced, it is impossible to predict the tipping points between reductions in latent effort and reductions in the number of actively fished traps.

Currently, LCMAs 2 and 3 are going through a series of trap reductions aimed at reducing trap allocations (ASMFC, 2012). Specifically, Addendum XVIII established a 25% reduction in year 1 followed by a series of 5% reductions for 5 years in LCMA 2. In LCMA 3, Addendum XVIII established a series of 5% reductions for 5 years. The intent of these reductions is to scale the size of the SNE fishery to the reduced size of the SNE stock. These trap reductions were initiated in 2016 and, as a result, potential biological impacts of the trap reductions were not included in the 2015 stock assessment. It is important to note that these actions reduce a fishermen's total allocation (latent and active effort) and that through the Commission's Trap Transferability Program, fishermen can replace cut traps and immediately build back up their number of actively fished traps. Some fishermen may choose to reduce effort or depart the fishery.

In an attempt to understand the impact of trap reductions on the SNE stock, the TC attempted to model the relationship between the number of traps actively fished (as opposed to total trap allocations which include latent effort), the exploitation rate, and



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associated egg production. Information on the number of actively fished traps was from the 2015 stock assessment, which includes data from Massachusetts, Connecticut, Rhode Island and New York (Table 4). Data on the number of traps actively fished in states south of New York is not consistently collected and were not available for use by the TC. Furthermore, since the analysis uses data through 2014 (the last year of data in the 2015 Stock Assessment), it does not consider potential increases in egg production as the result of current trap allocation reductions (latent and active effort) in LCMAs 2 and 3. The analysis suggests, based on data from 1999-2013, a 25% reduction in the number of actively fished traps may result in a 14.3% (95% CI: 3.5%-21.2%) reduction in exploitation. This equates to a 13.1% (95% CI: 2.6%-19.7%) increase in egg production.

There are several concerns with the ability of trap reductions to achieve the projected increase in egg production. The first is that the above analysis assumes fishermen maintain a constant soak time when their trap allocation is reduced. Some studies show this assumption is not true, as fishermen reduce their soak time to compensate for fewer traps<sup>3</sup>; fishermen haul fewer traps more frequently to maintain current exploitation rates. This results in decreased impacts to catch and much smaller increases in egg production. It is important to note that many of these studies were conducted on the inshore fishery and the ability of offshore fishermen to increase their number of trips and trap hauls is unknown. Secondly, the analysis assumes that historic changes in exploitation are only the result of active trap reductions. This assumption is not true as previous management measures (gauge size changes, season closures, etc.) and general attrition in the fishery all contribute to the exploitation rate. Again, this results in an overestimate of egg production produced by trap reductions. Thirdly, the analysis is based on reductions in the number of traps actively fished; however, trap allocation reductions decrease a combination of latent and active traps. This further inflates the expected increase in egg production as trap reductions remove effort that is not currently in the water. Finally, fishermen in LCMAs 2 and 3 can maintain their number of actively fished traps through the Trap Transferability Program, which was created to allow active fishermen to replace cuts in their number of active traps with purchased traps. This again results in an overestimate of egg production benefits. Given these caveats, the TC's analysis, while based on the best available data, primarily serves as a tool for guidance by providing an upper limit of expected increases in egg production from trap reductions. It is likely that expected increase in egg production resulting from trap reductions is lower than 13.1%.

While there are several caveats to this management tool, trap reductions are considered for use in this document. Given the tenuous relationship between traps fished and fishing mortality, the economic impacts of trap reductions are not clear. Analysis suggests fishermen may be able to reduce their soak time in order to maintain current harvest levels, thereby minimizing reductions in profit. However, some

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<sup>3</sup> Miller, 1990; Fogarty and Addison, 1997.

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fishermen may also be encouraged to obtain trap allocations up to the trap cap in order to maintain their current business despite the reductions.

### *2.6.3 Closed Seasons*

Closed seasons are a management tool which can be used to reduce pressure on the lobster stock at vulnerable times. A biological benefit of this tool is it removes stress on lobsters as they are caught in a trap, hauled to the surface, and handled by fishermen. Analysis by the TC shows seasonal closures can achieve up to a 21.6% increase in egg production, provided fishermen do not drastically alter fishing behavior to compensate for the closure. The largest increases in egg production result from summer closures (July-September) when fishing mortality is highest. Furthermore, a summer closure protects female lobsters which have mated but have yet to extrude their eggs. Importantly, this analysis is predicated on the assumption that fishermen do not adapt to the implementation of a season closure by intensifying their effort during the rest of the year. It also assumes that season closures, on an area-by-area basis, are implemented in a complementary manner as both lobsters and fishermen (i.e. dual permit holders) can move between LCMAs. Otherwise, the realized increases in egg production may be lower than is predicted in the analysis.

An important consideration with closed seasons is the potential impact on the Jonah crab fishery. Particularly in SNE, the lobster fishery is evolving into a mixed crustacean fishery in which lobsters and Jonah crab can be caught with the same gear at different times of the year. Season closures would directly impact the Jonah crab fishery if traps must be taken out of the water. Allowing lobster traps to remain in the water during a closed season would reduce the biological benefit of the management tool as lobsters would still be hauled, handled, and thrown overboard. As a result, the timing of season closures, if used, should be considered to minimize impacts on the Jonah crab fishery.

Given the potential for season closures to result in biological benefits to the stock, season closures are considered for use in this document. Economic impacts of season closures include reduced profits at certain times of the year; however, studies suggest gross revenues over the year may increase as the result of season closures. Analysis of the Maine lobster fishery by Chen and Townsend (1993) suggests closures of at least 3-4 months causes the redistribution of landings across seasons, which evens out prices and strengthens market values. SNE markets are more tenuous than in Maine but may be strengthened by consolidation.

### *2.6.4 Trip Limits*

While trip limits are frequently used as a management tool in other fisheries, to-date they have not been used in the directed lobster fishery. Overall, trip limits are an enforceable management tool which can be used to maintain catch over the harvestable year and potentially reduce exploitation. Trip limits allow for the execution of both the lobster and Jonah crab fishery as lobster traps would still be allowed in the water.

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There are several concerns about the effectiveness and equity of this management tool. Given the difference in vessel size and capacity between the inshore and offshore fleet, trip limits may disproportionately impact the offshore fleet which frequently takes multiday trips. As a result, impacted fishermen may respond by increasing the number of trips taken each year to maintain current harvest levels. Trip limits may also encourage fishermen who typically harvest below the limit to increase their catch and maximize their potential harvest. This unintended consequence could result in increased landings, a result contradictory to the stated purpose of this Addendum. Furthermore, trip limits often result in increased discards and stress as lobsters are hauled, handled, and returned to the water. A challenge for trip limits is how states with fishermen harvesting from both the SNE stock and GOM/GBK stock should monitor compliance when only one area may have a trip limit.

Given these concerns, the TC recommended trip limits be considered in conjunction with a quota for the SNE stock. A quota, if properly enforced, can cap landings in a fishery and allow managers to increase or decrease the total catch for the year depending on the current stock status. Implementing a quota in the lobster fishery presents many challenges and questions. The establishment of quotas requires tough discussions on how the total allowable catch will be set and if this will be allocated among jurisdictions, LCMAs, and/or seasons. An effective quota also requires good monitoring and enforcement, both of which need to be carefully considered prior to implementation. A particular challenge in the lobster fishery is how states with fishermen harvesting from both the SNE stock and GOM/GBK stock should monitor landings.

Given the challenges associated with implementing a trip limit and quota in the SNE lobster fishery and the stated intent of the Addendum to take quick and decisive action, trip limits and quotas are not considered for use in this document. The Board has not specified quotas as a management tool to consider in this addendum.

#### *2.6.5 V-Notching*

V-notching is a tool which has been used in the lobster fishery to protect reproductive females in the population. Currently, LCMAs 2, 5, and federal waters of LCMA 4 require mandatory v-notching; LCMA 6, state waters of LCMA 4, and the SNE portion of LCMA 3 do not. All areas use the same 1/8" definition for possessing a v-notch lobster, a less strict definition than the zero tolerance rule in LCMA 1. As a result, there is some concern that reproductive females who are protected in the Gulf of Maine, receive less protection if they migrate south. While v-notching can be a valuable management tool when actively conducted, the value of this tool is predicated on high encounter and harvest rates. Given significant reductions in landings in SNE, v-notching is not expected to produce a large benefit to the stock. Furthermore, the effectiveness of v-notching in SNE has been hindered by issues with non-compliance and incorrect marking, which lessen the value of this management tool. As a result, v-notching is not considered for use in this addendum.

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### *2.6.6 Culls*

Lobsters which only have one claw are referred to as culls. Claws can be lost naturally, such as in an interaction with another lobster, or during handling by fishermen. Currently, culls can be legally landed in the lobster fishery. A prohibition on the harvest of culls may reduce fishing mortality; however, it may also encourage better handling practices, reducing the number of culls and the benefit of this management tool on the stock. Furthermore, should culls be prohibited, tolerances would have to be established in case a lobster loses a claw during the steam to port and a clear definition would be needed to address regeneration. Given these limitations, a prohibition on culls is not considered for use in this document.

## **2.7 Additional Issues Considered in Addendum**

### *2.7.1 Uniform Regulations*

The Commission's Lobster Plan attempts to balance the sometimes competing interests of the need for regulatory consistency with the desire for area flexibility. Amendment 3 established seven LCMAs by which to manage the fishery. The intent of these areas was to identify the different stock conditions in various parts of the fishery and recognize the different measures needed to successfully manage the species. Amendment 3 also created Lobster Conservation Management Teams intended to inform the Board of conditions in various areas and to advise the Board on LCMA management measures. LCMTs have provided an avenue for industry participation in the management of lobster.

Nevertheless, the Board has recognized the need for a certain amount of standardization in the fishery. For example, all LCMAs have minimum gauge sizes of at least 3 ¼ inches, a maximum gauge size, and a prohibition on the harvest of berried lobsters. Most recently, the Board expressed the importance of all permitted fishermen having a single uniform trap allocation, and implemented the Trap Tag Data Base Program to ensure congruence amongst the states and federal government.

Currently, LCMAs use different suites of management measures; however, the Board has expressed some interest in further standardizing regulations across LCMAs in SNE. Possible combinations of standardization include creating uniform management measures for the inshore areas (LCMAs 2, 4, 5, and 6) or grouping LCMAs by region. In their April 25<sup>th</sup> memo to the Board, the TC outlined the costs and benefits of standardizing regulations in SNE. Overall, the report stated that standardizing biological measures would improve enforcement and the stock assessment process but may negatively impact industry by creating clear winners and losers in the fishery. This is especially true in regards to changes to the gauge size, as uniform increases in the minimum size will primarily impact inshore fishermen while uniform decreases in the maximum size will primarily impact offshore fishermen. Uniform regulations, in the context of this addendum, may also create implementation challenges as various LCMAs would have to come together to identify a common suite of tools which enable multiple areas to achieve the specified increase in egg production. By contrast, differing

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Addendum XXV measures, particularly across states and adjacent LCMAs, may complicate needed management and undermine any potential benefits of the proposed measures as lobsters move from area to area.

### *2.7.2 Stock Boundaries*

A complicating factor in the management of lobster is that the boundaries of the LCMAs do not align with the biological boundaries of the stocks (SNE vs. GOM/GBK). This is particularly problematic in LCMA 3 which spans both SNE and GOM/GBK. Historically, management measures implemented in LCMA 3 to address the poor condition of the SNE stock also impacted the GOM/GBK stock, which is not depleted. The complexity of the stock boundaries is further complicated by the fact that many vessels fishing out of Rhode Island and Massachusetts and are harvesting lobsters on Georges Bank, must travel through the SNE stock area to reach their port of landing. In addition, these vessels may be permitted to fish in multiple management areas, including areas that span both lobster stocks.

To date there has been no permit requirements to delineate within which stock an Area 3 fisherman is eligible to fish. Management action taken in response to the 2009 stock assessment was applied throughout LCMA 3, including portions in the GOM/GBK. Given the conservation burden of this addendum applies only to SNE, new conservation rules must either apply to all Area 3 fishermen regardless of location and stock fished (with economic implications on the GOM/GBK fisheries) or new measures will have to be stock specific.

### **3.0 Management Options**

The following management issues are intended to increase egg production and decrease fishing mortality in SNE. Management tools which are considered for use in this document include gauge size changes, trap allocation reductions, and season closures. The management options are presented with the intent that each LCMT can choose how they would like to achieve the targeted increase in egg production. During the public comment period, LCMTs are encouraged to submit preliminary proposals on how they would prefer to achieve the various increases in egg production. One month after the Board chooses an egg production target and preliminarily approves the addendum, proposals on preferred management measures to achieve the required increase in egg production are due from the LCMTs. These proposals will be reviewed by the PDT, TC, and Board. If a proposal is not received from a LCMT, states with permitted individuals in that LCMA will work together to choose the management measures that will be implemented in that LCMA to achieve the target increase in egg production. The PDT encourages that states do not implement divergent management measures for a single LCMA; each state should agree on the management measures in a LCMA.

The starting point from which this document measures changes in egg production is 2014. This represents the last year for which data were incorporated into the 2015 Stock Assessment as well as the last year for which data were used in the TC's analyses on the

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management tools included in this document. Table 8 shows the management action implemented by each LCMA before and after 2014. Management action implemented after 2014 is not accounted for in the analysis for this addendum and, as a result, counts towards the egg production target chosen by the Board. The value of egg production credit will depend on the management tool used and the extent of the management action taken, and will be reviewed by the Board. Other measures which were not implemented as a result of an addendum but which a LCMA believes contributed to a measurable increase in egg production since 2014 may be brought before the Board through the through the LCMT proposal process.

This document considers potential changes to the minimum and maximum carapace length at which lobsters can be harvested. Carapace length is defined as the straight-line measurement from the rear of the eye socket parallel to the centerline of the carapace to the posterior edge of the carapace. LCMTs would use Table 11 or Appendix 5 to determine the minimum and maximum size limit which would achieve the targeted increase in egg production.

This document also considers trap allocation reductions. LCMTs would use Table 12 to determine the impacts of a 25% trap reduction. Should an LCMA which is currently going through a series of trap reductions as a part of Addendum XVIII decide to complete additional trap reductions to achieve the egg production target, these would occur following the final year of trap reductions specified in Addendum XVIII. LCMA that have previously agreed to reduce traps can accelerate these on-going trap cuts in order to begin implementation of any additional trap reductions which may result from this addendum and meet the timeline selected by the Board. The acceleration of on-going trap reductions does not result in a significantly higher level of egg production than trap reductions implemented on the current schedule.

This document also considers season closures. LCMTs would use Table 13 to determine the dates of the season closure and the expected increase in egg production.

***Issue 1: Target Increase in Egg Production***

*This issue asks what the targeted increase in egg production should be in SNE. The Board has stated that the goal of Addendum XXV is to respond to the decline of the SNE stock and its decline in recruitment while preserving a functional portion of the lobster fishery in this area. The Board also identified increases in egg production ranging from 20% to 60%. Option A: 0% Increase in Egg Production is included primarily to add context to the Board's deliberations. Larger increases in egg production have the potential to provide greater benefits to the stock but are also likely to result in greater detriments to the industry.*

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### Option A: 0% Increase in Egg Production (Status Quo)

Under this option there would be no targeted increase in egg production and no changes to management would be made through this addendum. All measures would remain the same as listed in Table 7.

### Option B: 20% Increase in Egg Production

Under this option, LCMAs must take management action to increase egg production by 20% from current levels. Current stock status is that which is characterized by the end of the 2015 Stock Assessment.

### Option C: 30% Increase in Egg Production

Under this option, LCMAs must take management action to increase egg production by 30% from current levels. Current stock status is that which is characterized by the end of the 2015 Stock Assessment.

### Option D: 40% Increase in Egg Production

Under this option, LCMAs must take management action to increase egg production by 40% from current levels. Current stock status is that which is characterized by the end of the 2015 Stock Assessment.

### Option E: 60% Increase in Egg Production

Under this option, LCMAs must take management action to increase egg production by 60% from current levels. Current stock status is that which is characterized by the end of the 2015 Stock Assessment.

## **Issue 2: Management Tools**

*This issue asks whether management tools can be used independently or must be used in combination with one another. Gauge size changes, trap reductions, and season closures are management tools which can be used to achieve the targeted increase in egg production. The Board has the greatest confidence in gauge size changes to achieve meaningful biological impacts. There is less confidence in trap reductions and season closures as the effectiveness of both tools is dependent on fishermen maintaining their current fishing behavior.*

### Option A: Management Tools Can Be Used Independently

Under this option, gauge size changes, trap reductions, and season closures can be used independently to achieve the targeted increase in egg production. For example, a season closure can be the sole management tool used to achieve the targeted increase in egg production. Management tools can still be paired together to achieve the required increase in egg production in this Addendum. For reference, analysis suggests that on their own, gauge size changes can account for up to a 60% increase in egg production, quarterly season closures can account for up to a 21.6% increase in egg production, and a 25% trap reduction in active traps can account for up to a 13.1% increase in egg production.

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**Option B: Trap Reductions and Season Closures Must Be Used In Conjunction with Gauge Size Changes**

Under this option, gauge size changes can be used as a sole management measure to achieve the targeted increase in egg production; however, trap allocations and season closures must be used in conjunction with gauge size changes. Furthermore, season closures and trap reductions cannot account for more than half of the targeted increase in egg production. For example, if the targeted increase in egg production is 40%, trap reductions or season closures cannot account for more than a 20% increase in egg production.

***Issue 3: Recreational Fishery***

*This issue asks whether the recreational fishery must abide by the management measures taken in this addendum. Recreational fishermen are those individuals who do not offer for sale their harvest of lobsters and are identified by their jurisdiction's recreational fishing permit. Historically, the recreational fishery has been subject to gauge size changes and season closures while trap reductions have only impacted the commercial fleet.*

**Option A: Recreational Fishery Must Abide by Management Action Taken in Addendum**

Under this option, recreational fishermen in the lobster fishery must abide by all of the management measures implemented in their LCMA as a result of this addendum. This could include gauge size changes, season closures, and trap reductions.

**Option B: Recreational Fishery Must Abide by Gauge Size Changes and Season Closures**

Under this option, recreational fishermen in the lobster fishery must abide by any gauge size changes or season closures that are implemented in their LCMA as a result of this addendum. Recreational fishermen would be exempt from any trap reductions taken in the LCMA in which they fish.

**Option C: Recreational Fishery Must Abide by Gauge Size Changes**

Under this option, recreational fishermen in the lobster fishery must abide by any gauge size changes that are implemented in their LCMA as a result of this addendum. Recreational fishermen would be exempt from any trap reductions or season closures taken in the LCMA in which they fish. Recreational fishermen with a trap allocation would be allowed to keep their pots in the water and land lobster during a season closure implemented as a result of this addendum.

***Issue 4: Season Closures***

*This issue asks how season closures, which are established as a result of this Addendum, should be implemented. Season closures implemented in LCMA's 4, 5, and 6 as a result of Addendum XVII currently require lobster traps to be removed from the water and prohibit harvesters from taking, landing, or selling lobster from that LCMA during the closure. Connecticut and New Jersey allows lobster traps to remain in the water only if*



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*the license holder has a permit for another species. Since Addendum XVII, a fishery management plan was established for Jonah crab, and the Jonah crab and lobster fisheries are now jointly managed as a mixed-crustacean fishery. As such, the removal of traps during a season closure may negatively impact the Jonah crab fishery; however, the greatest biological impacts of a season closure are achieved when traps are removed from the water as the hauling and discarding of lobsters can increase stress and predation.*

**Option A: Lobster Traps Removed from Water**

Under this option, lobster traps must be removed from the water during a season closure. No lobsters can be landed by any gear type including non-trap gear (trawls, gill nets, etc.) and trap gears (lobster traps, fish pots, whelk pots, etc.). During a season closure, lobster potters will have a two week period to remove lobster traps from the water and may set baited lobster traps one week prior to the end of the closed season.

**Sub-Option A: Most Restrictive Rule Applies:** Under this sub-option the most restrictive rule would apply to season closures. For example, if a fisherman is authorized to fish in LCMA 2 and 3, and LCMA 2 implements a season closure, that fisherman cannot fish in either LCMA 2 or 3 during the closure.

**Sub-Option B: Most Restrictive Rule Does Not Apply:** Under this sub-option, the most restrictive rule would not apply to season closures. For example, if a fisherman is authorized to fish in LCMA 2 and 3, and LCMA 2 implements a season closure while LCMA 3 does not, that fisherman could still fish in LCMA 3 while LCMA 2 is closed. The most restrictive rule would apply in the Area 2-3 overlap and the Area 3-5 overlap zones.

**Option B: No Possession of Lobsters While Fishing**

Under this option, no commercial harvester may possess on board or land lobsters during a season closure. Lobster traps, as well as other gears which harvest lobster, may remain in the water during a season closure and Jonah crab and whelk may be harvested during a season closure.

**Sub-Option A: Most Restrictive Rule Applies:** Under this sub-option the most restrictive rule would apply to season closures. For example, if a fisherman is authorized to fish in LCMA 2 and 3, and LCMA 2 implements a season closure, that fisherman cannot fish in either LCMA 2 or 3 during the closure.

**Sub-Option B: Most Restrictive Rule Does Not Apply:** Under this sub-option, the most restrictive rule would not apply to season closures. For example, if a fisherman is authorized to fish in LCMA 2 and 3, and LCMA 2 implements a season closure while LCMA 3 does not, that fisherman could still fish in LCMA 3 while LCMA 2 is closed. The most restrictive rule would apply in the Area 2-3 overlap and the Area 3-5 overlap zones.

**Option C: Limit for Non-Trap Bycatch Fisheries**

Under this option, a fisherman with a lobster trap allocation may not possess on board or land lobsters during a season closure but lobster traps may remain in the water and

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Jonah crab and whelk may be harvested. Individuals who are permitted to land lobsters incidentally caught in non-trap gears may continue to land the bycatch allowance established in Amendment 3 of 100 lobsters per day (based on a 24 hour period) up to a maximum of 500 lobster per trip, for trips 5 days or longer. Addendum I categorized the black seabass pot fishery as a non-trap fishery. As a result, vessels issued an Area 5 trap waiver to fish for black sea bass are allowed to land lobster equivalent to the bycatch allowance established for non-trap gears.

Sub-Option A: Most Restrictive Rule Applies: Under this sub-option the most restrictive rule would apply to season closures. For example, if a fisherman is authorized to fish in LCMA 2 and 3, and LCMA 2 implements a season closure, that fisherman cannot fish in either LCMA 2 or 3 during the closure.

Sub-Option B: Most Restrictive Rule Does Not Apply: Under this sub-option, the most restrictive rule would not apply to season closures. For example, if a fisherman is authorized to fish in LCMA 2 and 3, and LCMA 2 implements a season closure while LCMA 3 does not, that fisherman could still fish in LCMA 3 while LCMA 2 is closed. The most restrictive rule would apply in the Area 2-3 overlap and the Area 3-5 overlap zones.

***Issue 5: Uniform Regulations***

*This issue asks whether management measures should be uniform across LCMA. See Section 2.7.1 Uniform Regulations for additional information.*

Option A: Regulations Are Not Uniform Across LCMA (Status Quo)

Under this option, regulations would not need to be standardized across management areas. LCMA would be allowed to develop their own plans for how to achieve the targeted increase in egg production.

Option B: Regulations Are Uniform Across LCMA 4 and 5

Under this option, gauge size changes and season closures would be standardized in LCMA 4 and 5. Existing season closures implemented as a result of Addendum XVII must be reconciled such that they achieve the decrease in fishing mortality specified in Addendum XVII and the increase in egg production specified in Addendum XXV.

Option C: Regulations Are Uniform Across LCMA 2, 4, 5, and 6

Under this option, gauge size changes and season closures would be standardized in LCMA 2, 4, 5 and 6. Existing season closures implemented as a result of Addendum XVII must be reconciled such that they achieve the decrease in fishing mortality specified in Addendum XVII and the increase in egg production specified in Addendum XXV.

***Issue 6: Implementation of Management Measures in LCMA 3***

*The following management options are intended to determine where in LCMA 3 the management measures selected in this addendum will apply. See Section 2.7.2 Stock Boundaries for additional information. Due to implications to the Trap Tag Data Base Program, trap reductions must be applied throughout LCMA 3.*

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### Option A: Maintain LCMA 3 as a Single Area

Under this option, the current boundaries of LCMA 3 would be maintained. Management measures in this document would apply to all LCMA 3 permit holders, including those that fish in the GOM/GBK stock.

### Option B: Split LCMA 3 along the 70°W Longitude Line

Under this option, LCMA 3 would be split along the 70°W longitude line to create an eastern section and a western section in LCMA 3 (see Appendix 1). The eastern portion of LCMA 3 would be comprised of areas east of the 70°W longitude line which are currently a part of the GOM/GBK stock. The western portion of LCMA 3 would be comprised of areas west of the 70°W longitude line which are currently a part of the SNE stock.

LCMA 3 permit holders would make a one-time declaration into either the eastern or western portion of LCMA 3 and would only be allowed to fish in their declared portion of LCMA 3. Trap tags would be amended to include “3E” for fishermen exclusively fishing in the eastern portion of the LCMA and “3W” for fishermen exclusively fishing in the western portion of the LCMA. Traps with “3E” trap tags can only be fished in the eastern portion of LCMA 3 while traps with “3W” can only be fished in the western portion of LCMA 3.

LCMA 3 permits and trap allocations may still be transferred as specified in Addendum XXI and the transfer recipient will designate in which section he/she would like to fish. Season closures and gauge size changes that are implemented as a result of this addendum would not apply for fishermen who elect to fish exclusively in the eastern portion of LCMA 3.

### Option C: Split LCMA 3 along the 70°W Longitude Line with an Annual Declaration

Under this option, LCMA 3 would be split along the 70°W longitude line to create an eastern section and a western section in LCMA 3 (see Appendix 1). The eastern portion of LCMA 3 would be comprised of areas east of the 70°W longitude line which are currently a part of the GOM/GBK stock. The western portion of LCMA 3 would be comprised of areas west of the 70°W longitude line which are currently a part of the SNE stock.

On an annual basis, current LCMA 3 fishermen could elect to fish exclusively in the eastern portion of LCMA 3. Fishermen who do not choose this option could fish throughout the entire LMCA 3; however, they will be held to the stricter management measures of the two sections, as per the most restrictive rule (ASMFC, 2009). Fishermen can elect to fish exclusively in the eastern portion of LCMA 3 at the start of the fishing year but not during a fishing season. Trap tags would be amended to include “3E” for fishermen exclusively fishing in the eastern portion of the LCMA and traps with “3E”

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trap tags can only be fished in the eastern portion of LCMA 3. All other LCMA 3 trap tags can be fished in the eastern or western portions of LCMA 3.

LCMA 3 permits and trap allocations may still be transferred as specified in Addendum XXI and the transfer recipient will designate at the start of the fishing year in which section he/she would like to fish. Season closures and gauge size changes adopted in this addendum would not apply for fishermen who elect to fish exclusively in the eastern portion of LCMA 3.

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Table 11: Changes in the gauge size inshore (LCMAs 2, 4, 5, and 6) and offshore (LCMA 3) and the corresponding effects in egg production, exploitation, SSB, reference abundance, and catch. Each LCMT may use this table to propose how they will achieve the targeted increase in egg production.

		Min	Max	Harvest Window (mm)	Egg Production	Exploitation	Spawning Stock Biomass	Reference Abundance	Catch
20%	Inshore	88mm (3-15/32")	105mm (4-1/8")	17 (0.7")	20%	-18%	20%	9%	-11%
		91mm (3-9/16")	115mm (4 1/2")	24 (0.9")	18%	-22%	22%	11%	-14%
		92mm (3-5/8")	165mm (6 1/2")	73 (2.9")	20%	-27%	25%	13%	-17%
	Offshore	91mm (3-9/16")	105mm (4-1/8")	14 (0.6")	22%	-21%	22%	9%	-13%
		94mm (3-11/16")	115mm (4 1/2")	21 (0.8")	20%	-26%	24%	12%	-17%
		95mm (3 3/4")	165mm (6 1/2")	70 (2.8")	21%	-28%	26%	13%	-19%
30%	Inshore	94mm (3-11/16")	115mm (4 1/2")	21 (0.8")	31%	-36%	38%	19%	-24%
		94mm (3-11/16")	125mm (4-9/10")	31 (1.2")	29%	-35%	36%	18%	-23%
	Offshore	96mm (3-25/32")	115mm (4 1/2")	19 (0.7")	29%	-34%	34%	16%	-24%
		97mm (3-4/5")	165mm (6 1/2")	68 (2.7")	31%	-38%	38%	18%	-27%
40%	Inshore	96mm (3-25/32")	115mm (4 1/2")	19 (0.7")	40%	-43%	49%	23%	-30%
		96mm (3-25/32")	165mm (6 1/2")	69 (2.7")	37%	-42%	46%	22%	-29%
		97mm (3-4/5")	165mm (6 1/2")	68 (2.7")	43%	-46%	53%	25%	-33%
	Offshore	98mm (3-27/32")	165mm (6 1/2")	67 (2.6")	39%	-45%	46%	22%	-33%
		99mm (3-7/8")	165mm (6 1/2")	66 (2.6")	41%	-47%	49%	23%	-35%
60%	Inshore	99 mm (3-7/8")	115mm (4 1/2")	16 (0.6")	60%	-56%	71%	32%	-42%
		101mm (3-29/32")	165mm (6 1/2")	64 (2.5")	59%	-59%	76%	35%	-45%
	Offshore	102mm (4")	115mm (4 1/2")	13 (0.5")	62%	-60%	71%	31%	-47%
		103mm (4-1/16")	165mm (6 1/2")	62 (2.4")	63%	-63%	75%	34%	-50%

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Table 12: Trap reductions in active SNE traps and the corresponding effects in egg production and exploitation. “All years” include data from 1981-2013 and “recent years” include data from 1999-2013. This split is done to reflect two apparent regimes in the relationship between fishing exploitation and actively fished traps. This table presumes that every trap reduced is active and that latent traps purchased through the Trap Transferability Program do not replace reduced active traps.

Years	Trap Reduction	Egg Production	Exploitation	Spawning Stock Biomass	Catch
All Years (1981-2013)	25%	9.6% (95% CI: 4.5%-13.0%)	-11.6% (95% CI: 6.5% - 16.3%)	14.4%	-6.9%
Recent Years (1999-2013)	25%	13.1% (95% CI: 2.6% - 19.7%)	-14.3% (95% CI: 3.5% - 21.2%)	15.6%	-10.2%

Table 13: Season closures in SNE and the corresponding effects in egg production, exploitation, SSB, and catch. Each LCMT may use this table to propose how they will achieve the targeted increase in egg production. This table assumes that fishermen do not intensify fishing effort during open seasons.

Season Closure	Egg Production	Exploitation	Spawning Stock Biomass	Catch
Winter (Jan-March)	3.0%	-2.1%	2.3%	-0.7%
Spring (April-June)	15.0%	-10.8%	16.0%	-1.7%
Summer (July-Sept)	21.6%	-26.0%	15.5%	-12.3%
Fall (Oct-Dec)	8.1%	-13.6%	8.4%	-4.2%

#### **4.0 Monitoring**

Given Addendum XXV represents an initial response to the results of the 2015 stock assessment, monitoring is necessary to determine the need and extent of future management action. The stated goal of this addendum is to increase egg production and reduce fishing mortality. As a result, the exploitation rate of the SNE stock will be monitored. If a reduction in fishing mortality, and a corresponding increase in egg production, is not observed following implementation of this addendum, the management tools implemented in this document will be re-evaluated. Furthermore, in order to determine the extent of future management action, model-free abundance indicators for SNE will be updated each year as a part of the annual Fishery Management Plan Review. This includes information on spawning stock abundance, full recruit abundance, recruit abundance, young-of-year indices, and survey encounter rates.

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**5.0 Compliance**

If the existing lobster management plan is revised by approval of this draft addendum, the American Lobster Management Board will designate dates by which states will be required to implement the addendum. A final implementation schedule will be identified based on the target egg production and management tools chosen. In August 2016, the Board initially specified a two year implementation timeline; however, the length of the phase-in period may change with the degree of egg production increase chosen; a 60% increase in egg production may necessitate a longer implementation period than a 20% increase in egg production. The compliance schedule will take the following format:

XXXXX: States must submit programs to implement Addendum XXV for approval by the American Lobster Management Board. These programs must reflect the management changes that will occur in each LCMA for which they have a permitted individual.

XXXXX: The American Lobster Board Approves State Proposals

XXXXX: All states must implement Addendum XXV through their approved management programs. States may begin implementing management programs prior to this deadline if approved by the Management Board.

**6.0 Recommendation for Federal Waters**

The SNE lobster resource has been reduced to very low levels. ASMFC believes additional fishery restrictions are necessary to prevent further depletion of the resource.

The management of American lobster in the EEZ is the responsibility of the Secretary of Commerce through the National Marine Fisheries Service (NMFS). ASMFC recommends the federal government promulgate all necessary regulations in Section 3.0 to implement complementary measures to those approved in this addendum.

## **7.0 References**

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Appendix 1: LCMAs, stock boundaries, and NMFS statistical areas.

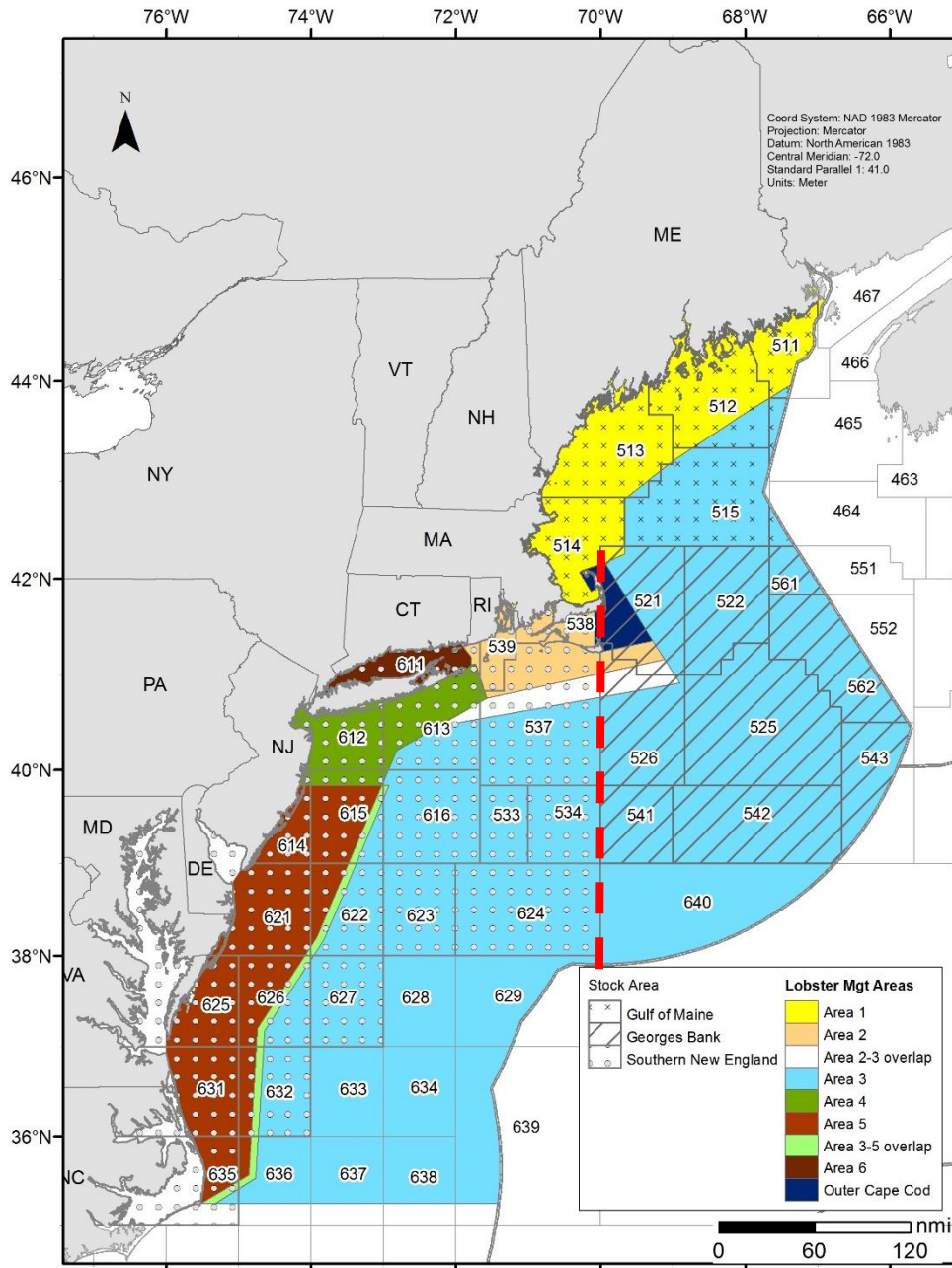


Figure 32.1. Statistical areas used to define the American lobster, *Homarus americanus*, stock.

Figure 1. Chart of Lobster stock units (GOM, GMB, and SNE), management conservation areas (1-6 and OCC), and NMFS statistical areas. The red dashed line represents the 70°W longitude line

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**Appendix 2: Southern New England Model Free Abundance Indicators**

SPAWNING STOCK ABUNDANCE								
Mean weight (g) per tow of mature females								
Survey	NESFC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981	198.93	15.71	9.21	99.78	161.55	111.57		
1982	156.07	118.29	50.04	26.42	53.52	43.52		
1983	120.20	35.51	0.72	59.62	87.86	141.69		
1984	192.38	44.50	4.04	51.67	203.58	259.91	2331.33	
1985	132.96	138.13	1.88	36.90	125.09	60.22	1040.42	1155.01
1986	59.83	61.35	87.60	19.06	128.49	136.78	1548.94	751.75
1987	143.76	67.33	44.51	35.12	475.51	86.13	1869.91	932.49
1988	122.36	121.34	13.16	46.33	662.07	100.75	1081.60	639.82
1989	124.57	44.65	233.88	70.68	363.92	151.06	853.74	1193.87
1990	175.83	75.87	59.02	150.21	230.17	258.72	1818.59	2369.93
1991	160.99	53.14	125.79	236.11	367.25	698.35	2185.29	2692.42
1992	178.88	61.38	179.80	47.84	321.95	117.18	1905.99	3598.02
1993	139.25	71.48	99.33	25.59	1286.74	1595.77	3335.55	2320.25
1994	54.70	36.40	126.00	82.42	359.96	164.37	3402.43	1170.49
1995	145.39	10.18	10.89	92.76	410.53	153.14	2253.58	3302.56
1996	227.08	32.01	59.61	54.16	861.32	353.55	3018.00	3882.27
1997	121.74	137.20	29.11	225.15	654.91	439.93	7173.56	5994.27
1998	161.20	44.97	52.73	138.81	251.53	286.59	2573.44	7738.30
1999	69.56	122.59	24.53	81.12	171.54	324.62	2546.24	8261.90
2000	95.66	60.02	20.08	142.78	268.99	303.32	1744.69	4430.68
2001	95.78	36.43	21.28	16.61	267.62	535.45	1513.56	3363.78
2002	85.56	146.86	0.00	44.75	35.68	572.35	365.12	2044.42
2003	52.83	31.71	0.00	5.97	205.85	110.43	1187.14	698.04
2004	47.10	47.01	37.18	3.58	288.49	591.60	626.96	522.99
2005	110.36	42.31	101.87	23.02	353.53	243.36	473.26	479.71
2006	65.03	90.62	0.00	60.77	465.26	788.63	219.99	465.37
2007	44.60	34.20	41.79	10.32	350.43	206.96	188.98	595.89
2008	25.90	58.14	0.00	19.67	401.73	194.57	248.63	760.88
2009	36.92	24.49	3.95	31.29	184.35	250.00	305.31	371.95
2010	101.74	46.39	130.73	32.09	166.07	177.64	na	361.72
2011	89.95	22.79	36.96	8.55	148.47	152.43	30.24	64.00
2012	205.12	39.64	14.13	9.93	31.16	118.13	6.28	88.85
2013	52.95	42.05	23.96	35.49	2.02	67.76	24.56	39.81
2014	50.93	198.30	0.10	20.95	190.12	24.98	23.00	34.02
2015	na	44.83	54.57	1.72	62.34	15.60	na	23.02
2011 - 2015 ave.	99.74	69.52	25.95	15.33	86.82	75.78	21.02	49.94
25th median	93.14	42.48	12.59	36.45	205.28	131.88	1431.95	1162.75
75th	128.76	60.69	36.81	52.92	295.47	259.32	1887.95	2369.93
75th	161.04	87.24	90.53	104.27	426.78	375.15	2553.04	3740.14

FULL RECRUIT ABUNDANCE (SURVEY)								
Abundance of lobsters > 85 mm CL (sexes combined)								
Survey	NEFSC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981	0.24	0.03	0.00	0.02	0.01	0.03		
1982	0.17	0.13	0.07	0.02	0.04	0.03		
1983	0.13	0.03	0.00	0.07	0.13	0.08		
1984	0.24	0.04	0.07	0.03	0.16	0.31	2.67	
1985	0.12	0.07	0.00	0.00	0.10	0.07	0.81	1.06
1986	0.06	0.12	0.05	0.00	0.08	0.11	2.73	0.63
1987	0.19	0.05	0.05	0.05	0.31	0.04	1.62	0.99
1988	0.15	0.04	0.00	0.03	0.83	0.09	1.26	0.82
1989	0.20	0.07	0.20	0.07	0.24	0.05	1.00	1.41
1990	0.19	0.05	0.05	0.05	0.38	0.10	2.39	1.35
1991	0.20	0.04	0.23	0.19	0.44	0.37	1.34	3.26
1992	0.20	0.07	0.22	0.05	0.34	0.10	2.37	1.44
1993	0.14	0.10	0.12	0.02	1.12	1.42	1.55	0.68
1994	0.08	0.03	0.00	0.00	0.55	0.10	3.75	0.50
1995	0.15	0.01	0.01	0.05	0.33	0.07	2.20	1.85
1996	0.22	0.02	0.06	0.08	0.82	0.19	1.97	1.96
1997	0.11	0.19	0.02	0.10	0.98	0.08	4.00	4.44
1998	0.25	0.00	0.04	0.00	0.17	0.17	1.48	4.10
1999	0.08	0.07	0.00	0.16	0.27	0.26	1.70	3.27
2000	0.08	0.08	0.08	0.08	0.30	0.32	0.95	2.44
2001	0.10	0.07	0.02	0.03	0.10	0.32	0.35	2.47
2002	0.08	0.08	0.00	0.08	0.00	0.20	0.03	1.35
2003	0.08	0.05	0.00	0.06	0.29	0.07	0.62	0.35
2004	0.07	0.04	0.04	0.00	0.26	0.41	0.27	0.30
2005	0.12	0.07	0.06	0.00	0.30	0.33	0.21	0.25
2006	0.11	0.06	0.00	0.14	0.24	0.65	0.03	0.20
2007	0.07	0.03	0.05	0.01	0.32	0.15	0.03	0.24
2008	0.07	0.06	0.00	0.02	0.74	0.12	0.19	0.66
2009	0.07	0.03	0.00	0.01	0.17	0.19	0.24	0.32
2010	0.11	0.05	0.15	0.07	0.07	0.12	na	0.26
2011	0.10	0.04	0.07	0.00	0.14	0.16	0.01	0.07
2012	0.19	0.05	0.03	0.02	0.02	0.09	0.03	0.06
2013	0.08	0.09	0.03	0.07	0.00	0.02	0.03	0.07
2014	0.07	0.18	0.00	0.02	0.00	0.00	0.01	0.04
2015	na	0.06	0.05	0.02	na	0.00	na	0.02
2011 - 2015 ave.	0.11	0.08	0.03	0.03	0.04	0.06	0.02	0.05
25th median	0.08	0.04	0.00	0.03	0.17	0.07	0.99	0.91
75th	0.14	0.06	0.04	0.05	0.31	0.10	1.59	1.41
75th	0.20	0.08	0.07	0.08	0.46	0.28	2.38	2.46

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RECRUIT ABUNDANCE (SURVEY)								
Abundance of lobsters 71 - 80 mm CL (sexes combined)								
Survey	NEFSC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981	0.40	0.05	0.07	0.65	1.31	0.89		
1982	0.29	0.24	0.04	0.10	0.62	0.26		
1983	0.28	0.14	0.04	0.09	0.43	0.94		
1984	0.19	0.04	0.01	0.42	1.21	1.03	8.62	
1985	0.34	0.78	0.09	0.34	0.97	0.26	5.03	4.73
1986	0.14	0.09	0.20	0.17	1.30	0.75	8.22	3.45
1987	0.20	0.33	0.17	0.27	2.53	0.79	9.46	3.90
1988	0.26	0.09	0.16	0.24	4.14	0.42	4.82	2.16
1989	0.52	0.04	0.43	0.14	3.26	0.93	6.32	5.51
1990	0.36	0.29	0.31	2.29	1.38	2.17	10.31	9.53
1991	0.24	0.18	0.87	1.18	3.05	4.77	14.23	15.39
1992	0.38	0.06	0.57	0.10	1.97	0.67	12.25	16.55
1993	0.17	0.29	0.52	0.25	8.29	7.81	21.46	10.69
1994	0.12	0.10	0.42	0.95	3.64	1.00	18.87	5.90
1995	0.28	0.00	0.03	1.14	4.48	1.36	15.30	16.31
1996	0.77	0.14	0.32	0.40	6.42	1.60	14.91	16.30
1997	0.56	0.62	0.12	1.45	6.10	2.58	40.43	25.49
1998	0.46	0.37	0.11	1.09	3.38	1.63	18.61	37.56
1999	0.20	0.92	0.19	0.75	2.10	1.64	20.22	40.84
2000	0.40	0.30	0.13	0.54	1.83	1.54	12.71	20.72
2001	0.17	0.14	0.03	0.18	2.21	3.03	11.94	19.12
2002	0.17	0.62	0.00	0.34	0.75	2.73	3.52	11.44
2003	0.12	0.21	0.00	0.07	1.00	0.29	5.56	4.58
2004	0.12	0.11	0.00	0.05	1.48	1.86	4.52	2.92
2005	0.08	0.06	0.00	0.08	2.48	1.02	2.14	2.67
2006	0.12	0.14	0.03	0.08	2.26	3.63	1.38	2.12
2007	0.11	0.12	0.00	0.08	2.76	0.73	1.35	2.86
2008	0.12	0.14	0.01	0.16	2.98	0.64	1.43	3.10
2009	0.05	0.05	0.05	0.16	1.36	1.14	1.72	1.55
2010	0.14	0.05	0.18	0.06	1.21	0.44	na	1.41
2011	0.12	0.03	0.00	0.18	1.02	0.42	0.19	0.42
2012	0.16	0.04	0.21	0.07	0.27	0.61	0.14	0.50
2013	0.10	0.02	0.04	0.11	0.02	0.18	0.06	0.23
2014	0.14	0.52	0.00	0.04	0.14	0.02	0.05	0.15
2015	NA	0.01	0.30	0.07	na	0.05	na	0.15
2011 - 2015 ave.	0.13	0.12	0.11	0.09	0.36	0.26	0.11	0.29

25th median	0.17	0.09	0.08	0.23	1.36	0.78	7.74	5.12
75th	0.25	0.20	0.17	0.37	2.37	1.45	12.09	11.44
	0.38	0.34	0.35	0.99	3.77	2.27	16.13	17.84

YOUNG-OF-YEAR INDICES				
Survey	YOY	YOY	Larvae	Postlarvae
	MA	RI	CT/ ELIS Summer	CT_NY/ WLIS Summer
1981				
1982				
1983				14.48
1984			0.43	6.89
1985			0.53	66.75
1986			0.90	4.58
1987			0.78	18.98
1988			0.74	49.27
1989			0.74	5.88
1990		1.31	0.81	19.66
1991		1.49	0.55	9.97
1992		0.63	1.44	14.12
1993		0.51	1.19	26.23
1994		1.23	0.98	96.52
1995	0.17	0.33	1.46	18.20
1996	0.00	0.15	0.31	12.07
1997	0.08	0.99	0.21	13.69
1998	0.20	0.57	0.55	4.85
1999	0.03	0.92	2.83	39.70
2000	0.33	0.34	0.78	14.28
2001	0.10	0.75	0.32	9.46
2002	0.10	0.25	0.64	1.99
2003	0.03	0.79	0.25	2.60
2004	0.03	0.42	0.45	6.10
2005	0.13	0.53	0.49	6.90
2006	0.17	0.44	0.71	1.70
2007	0.10	0.36	0.37	18.10
2008	0.00	0.14	0.37	8.10
2009	0.03	0.08	0.19	7.62
2010	0.00	0.11	0.35	9.91
2011	0.03	0.00	0.26	5.90
2012	0.00	0.09	0.12	2.77
2013	0.13	0.22	0.16	no data
2014	0.07	0.22	0.06	no data
2015	0.00	0.14	na	no data
2011 - 2015 ave.	0.05	0.13	0.15	4.34

25th median	0.03	0.39	0.50	6.64
75th	0.10	0.69	0.74	13.91
	0.17	0.97	0.92	21.30

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SURVEY LOBSTER ENCOUNTER RATE								
Proportion of positive tows								
Survey	NEFSC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981			0.15	0.38	0.54	0.49		
1982	0.34	0.24	0.21	0.28	0.59	0.30		
1983	0.22	0.14	0.16	0.21	0.36	0.45		
1984	0.27	0.09	0.18	0.40	0.45	0.59	0.76	0.72
1985	0.30	0.20	0.22	0.51	0.50	0.31	0.69	0.57
1986	0.25	0.19	0.38	0.39	0.43	0.64	0.61	0.67
1987	0.23	0.13	0.18	0.28	0.47	0.33	0.76	0.63
1988	0.27	0.08	0.21	0.39	0.59	0.49	0.66	0.65
1989	0.37	0.11	0.33	0.50	0.55	0.52	0.63	0.75
1990	0.43	0.14	0.44	0.66	0.54	0.66	0.76	0.73
1991	0.29	0.13	0.39	0.41	0.69	0.77	0.78	0.81
1992	0.31	0.23	0.23	0.51	0.57	0.41	0.69	0.78
1993	0.26	0.09	0.26	0.54	0.73	0.50	0.77	0.74
1994	0.23	0.09	0.20	0.51	0.57	0.56	0.74	0.73
1995	0.33	0.06	0.13	0.44	0.67	0.55	0.68	0.77
1996	0.41	0.08	0.16	0.30	0.76	0.79	0.78	0.68
1997	0.28	0.24	0.21	0.45	0.71	0.75	0.81	0.71
1998	0.30	0.11	0.13	0.54	0.55	0.59	0.71	0.83
1999	0.29	0.18	0.21	0.41	0.59	0.76	0.79	0.78
2000	0.30	0.13	0.15	0.45	0.63	0.68	0.73	0.82
2001	0.24	0.18	0.18	0.28	0.61	0.64	0.58	0.77
2002	0.21	0.19	0.03	0.28	0.45	0.63	0.59	0.73
2003	0.25	0.11	0.03	0.14	0.40	0.53	0.63	0.71
2004	0.20	0.10	0.03	0.28	0.50	0.54	0.66	0.61
2005	0.20	0.08	0.15	0.34	0.45	0.50	0.55	0.63
2006	0.23	0.13	0.03	0.43	0.61	0.81	0.53	0.61
2007	0.19	0.15	0.10	0.34	0.54	0.43	0.53	0.70
2008	0.24	0.11	0.10	0.33	0.52	0.55	0.65	0.63
2009	0.28	0.16	0.05	0.50	0.40	0.57	0.55	0.49
2010	0.30	0.09	0.24	0.23	0.45	0.47	na	0.54
2011	0.32	0.11	0.05	0.18	0.23	0.29	0.28	0.46
2012	0.32	0.12	0.15	0.18	0.16	0.29	0.20	0.44
2013	0.24	0.09	0.08	0.18	0.09	0.20	0.15	0.28
2014	0.24	0.23	0.08	0.13	0.23	0.07	0.10	0.26
2015	na	0.054	0.05	0.10	na	0.12	0.10	0.27
2011 - 2015 ave.	0.28	0.12	0.08	0.15	0.18	0.19	0.17	0.34
25th	0.25	0.09	0.16	0.37	0.49	0.52	0.65	0.70
median	0.29	0.13	0.20	0.42	0.57	0.59	0.72	0.73
75th	0.31	0.18	0.24	0.51	0.64	0.66	0.76	0.77

### Appendix 3. Bottom Water Temperatures

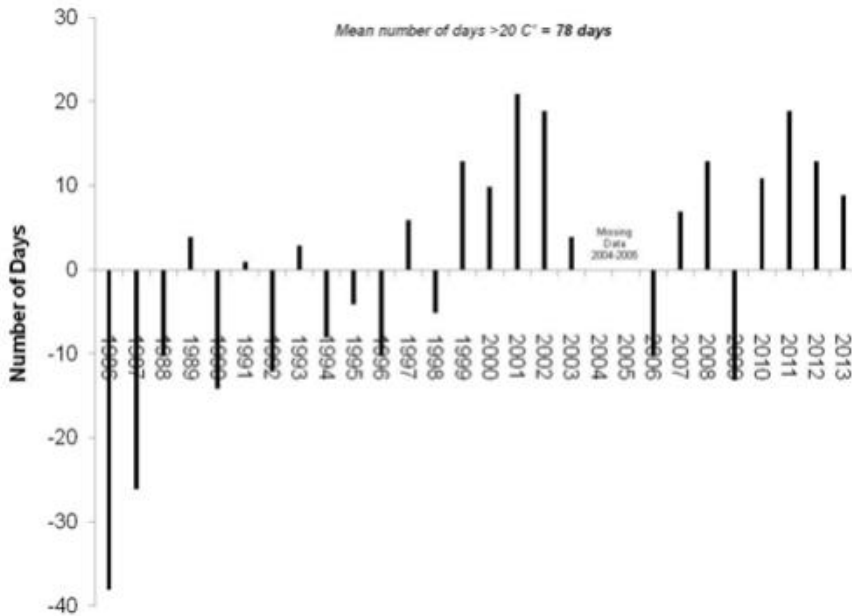


Figure 1: Bottom water (11m) temperature anomalies from the mean number of days >20°C at Cleveland Ledge, Buzzards Bay, MA, 1986-2013. Source: 2015 Benchmark Stock Assessment.

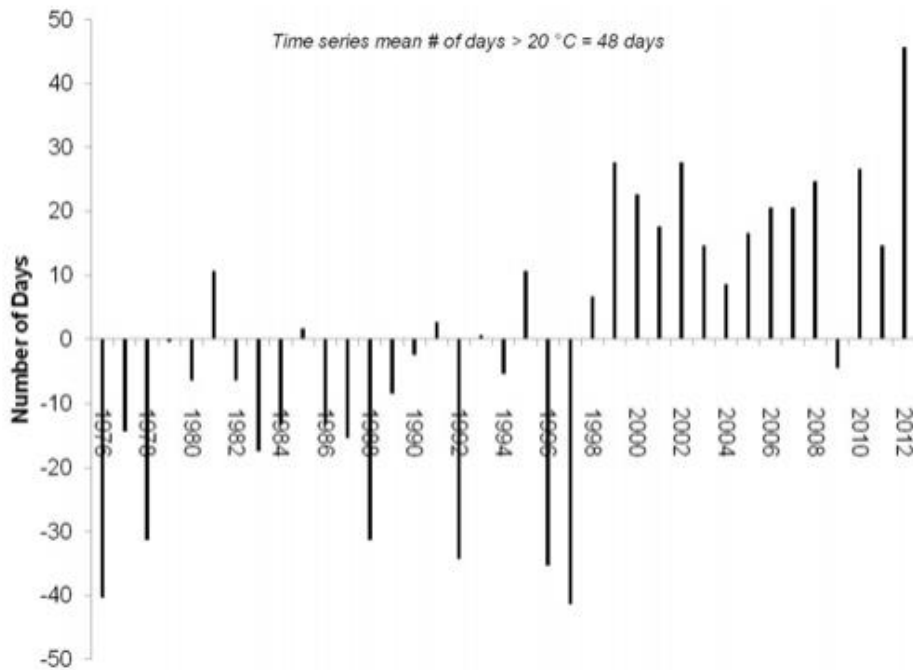


Figure 2: Bottom water (11m) temperature anomalies from the mean number of days >20°C at Dominion Nuclear Power Station, eastern Long Island Sound, CT, 1976-2012.

#### **Appendix 4: Southern New England Stock Projections**

The American Lobster Technical Committee (TC) met on December 8<sup>th</sup> to review projections for the Southern New England (SNE) lobster stock. Below are the series of projections that the TC unanimously recommends for Board consideration. These projections represent two potential scenarios. In the first scenario, recruitment is assumed to be independent of stock biomass and stable at current estimated levels. While this can limit the potential for rebuilding, it is perhaps the more realistic of the two scenarios given that recruitment has been declining for the past couple decades.

In the second scenario, future recruitment is linked to the spawning stock via a Beverton-Holt stock-recruitment relationship. This is perhaps less realistic than the first scenario with regards to stock rebuilding but more realistic for the continued decline of the population because recruitment decreases with further depletion of the spawning stock.

Under the first scenario with fixed recruitment, an 80% to 90% reduction in harvest rate is projected to stabilize the stock at current levels, assuming natural mortality also stabilizes at current levels; even lower harvest rates show some potential for recovery. Under the second scenario with recruitment linked to spawning stock, a 75% reduction in harvest rate would be needed to stabilize the stock under current natural mortality conditions.

The TC ran stock projections to examine population responses under various levels of natural mortality (M) and fishing mortality (F). It is important to note that here F is used to represent the proportion of current catch levels by weight, not a fishery removal rate as is typical. In plots where F was fixed at zero, M varied from 0.15 to 0.5. The effect of varying M on population projections is presented and highlights the sensitivity to the assumed value of M.

The projections are shown in two different units: reference abundance (N) and spawning stock biomass (SSB). Reference abundance is the number of lobsters 78+ mm carapace length on January 1<sup>st</sup> plus the number that will molt and recruit to the 78+ group during the year. Current reference points are also expressed in N. SSB is the total weight of mature lobsters (both sexes) in the stock. In the projections, SSB shows greater recovery potential than reference abundance because SSB is the product of abundance at-size, the probability of maturity at-size, and weight at-size. As a result, SSB increases more rapidly than N because larger individuals weigh more than smaller lobsters.

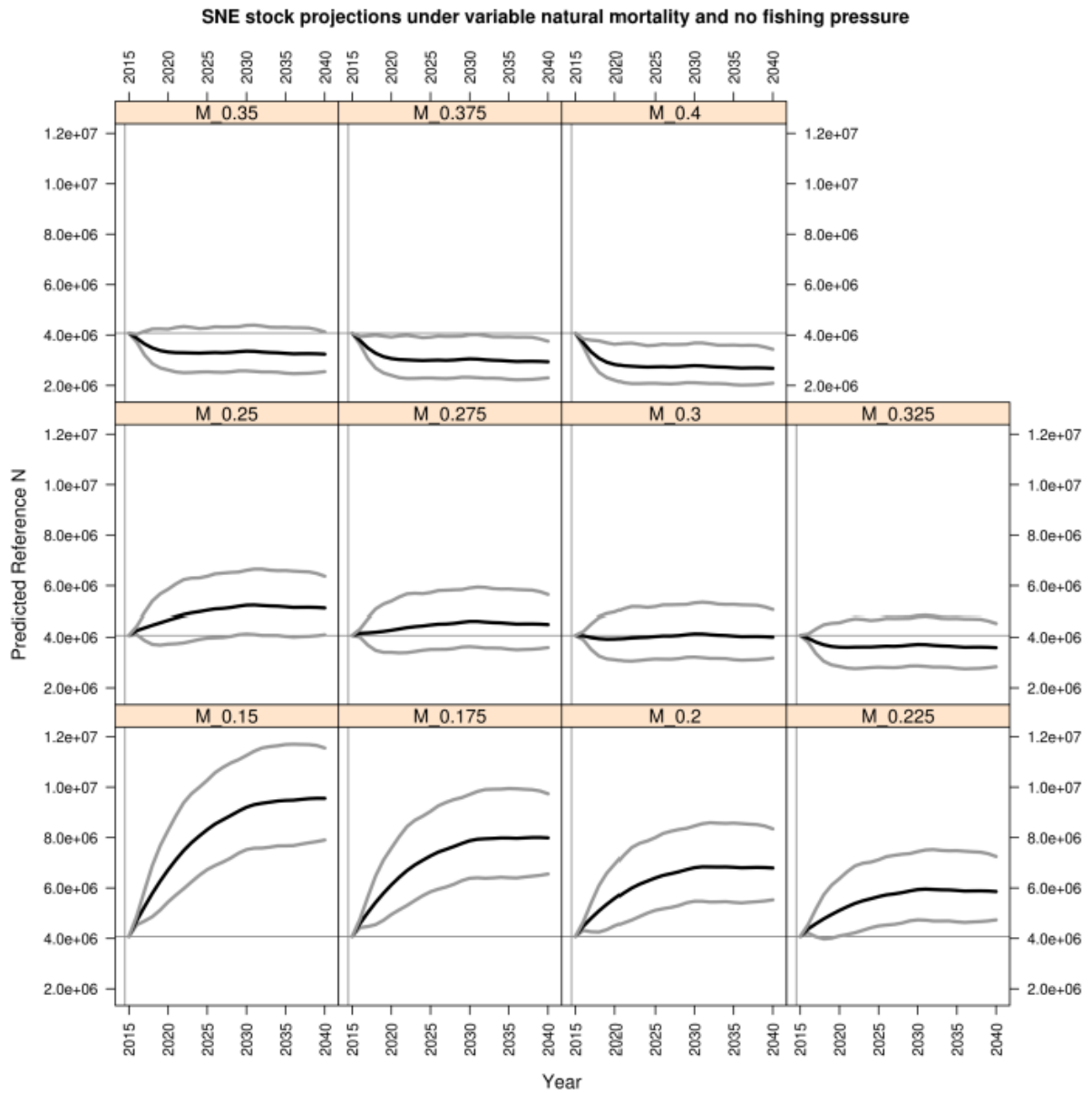


Figure 1: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of M. F is fixed at zero. The units are reference abundance. Black line is the mean trend +/- 2SD (gray lines).

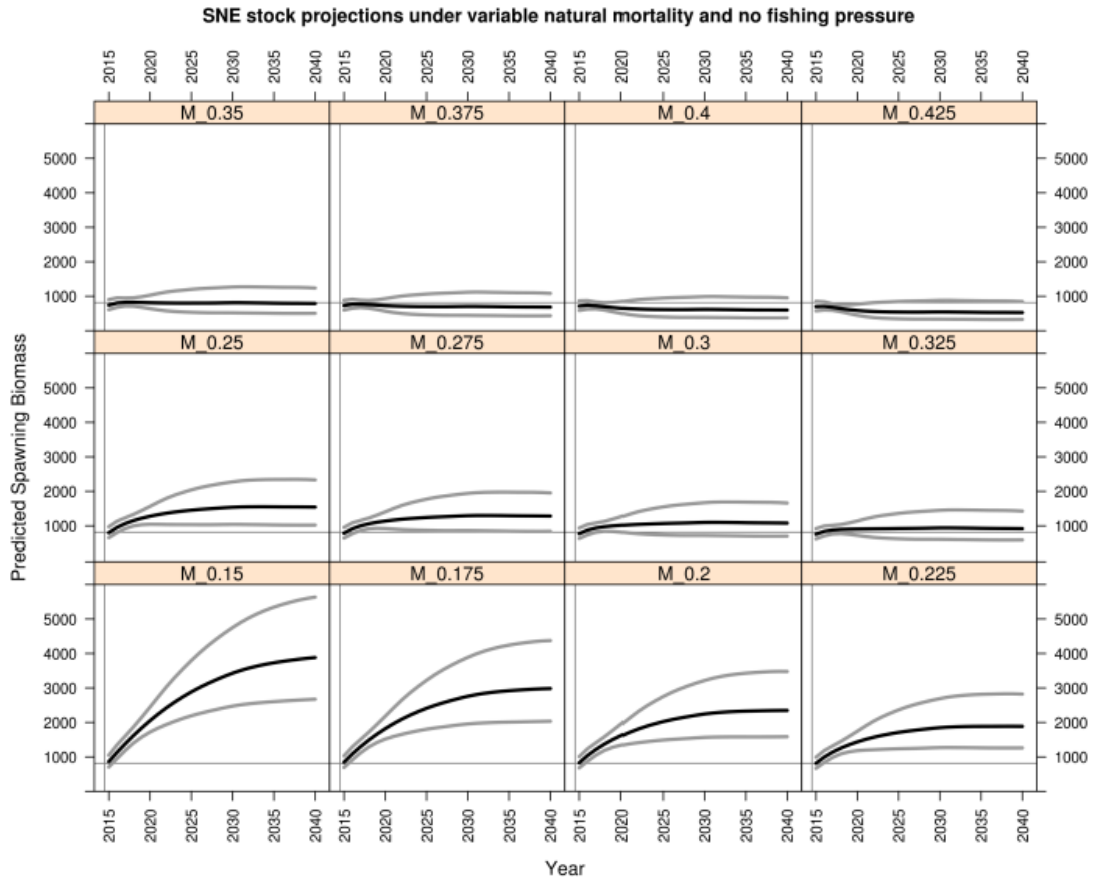


Figure 2: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of  $M$ .  $F$  is fixed at zero. The units are SSB. Black line is the mean trend  $\pm$  2SD (gray lines).



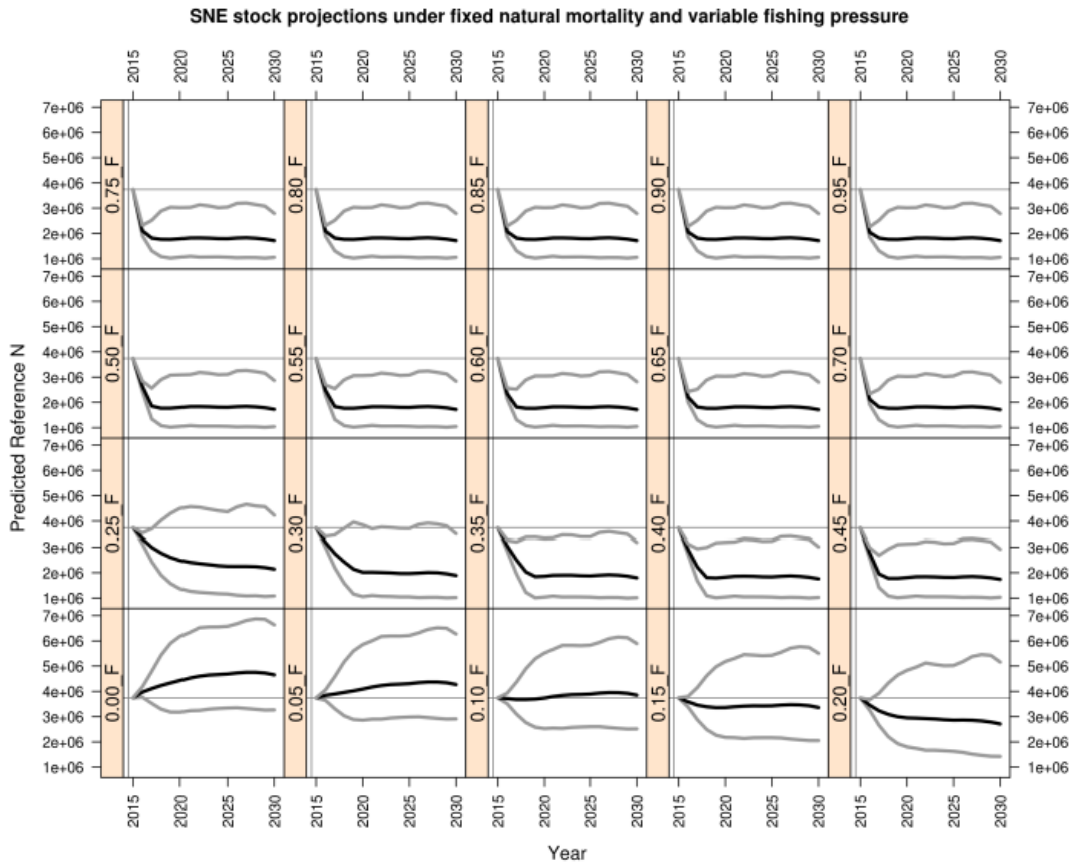


Figure 3: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of  $F$ .  $M$  is fixed at 0.285. The units are reference abundance. Black lines is the mean trend  $2 \pm 2SD$  (gray lines).

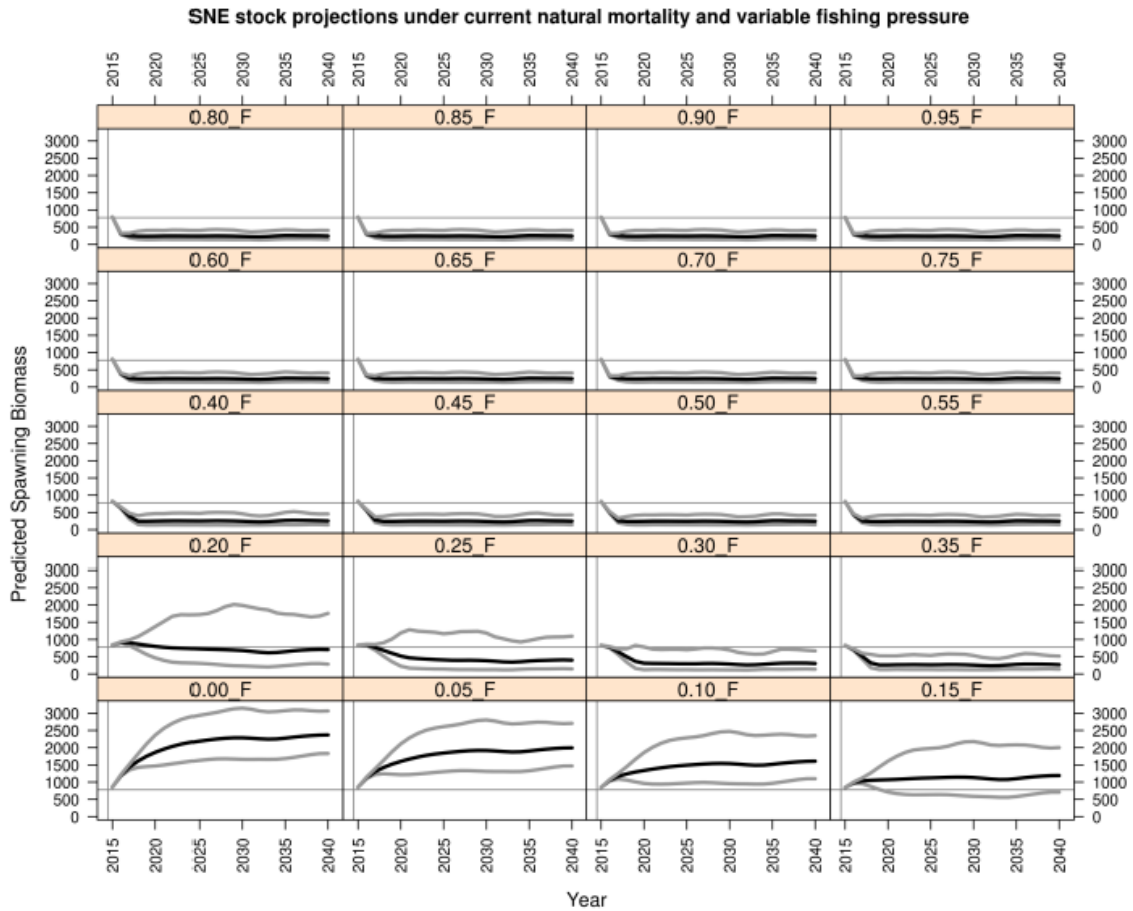


Figure 4: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of  $F$ .  $M$  is fixed at 0.285. The units are SSB. Black line is the mean trend  $\pm 1$  2SD (gray lines).

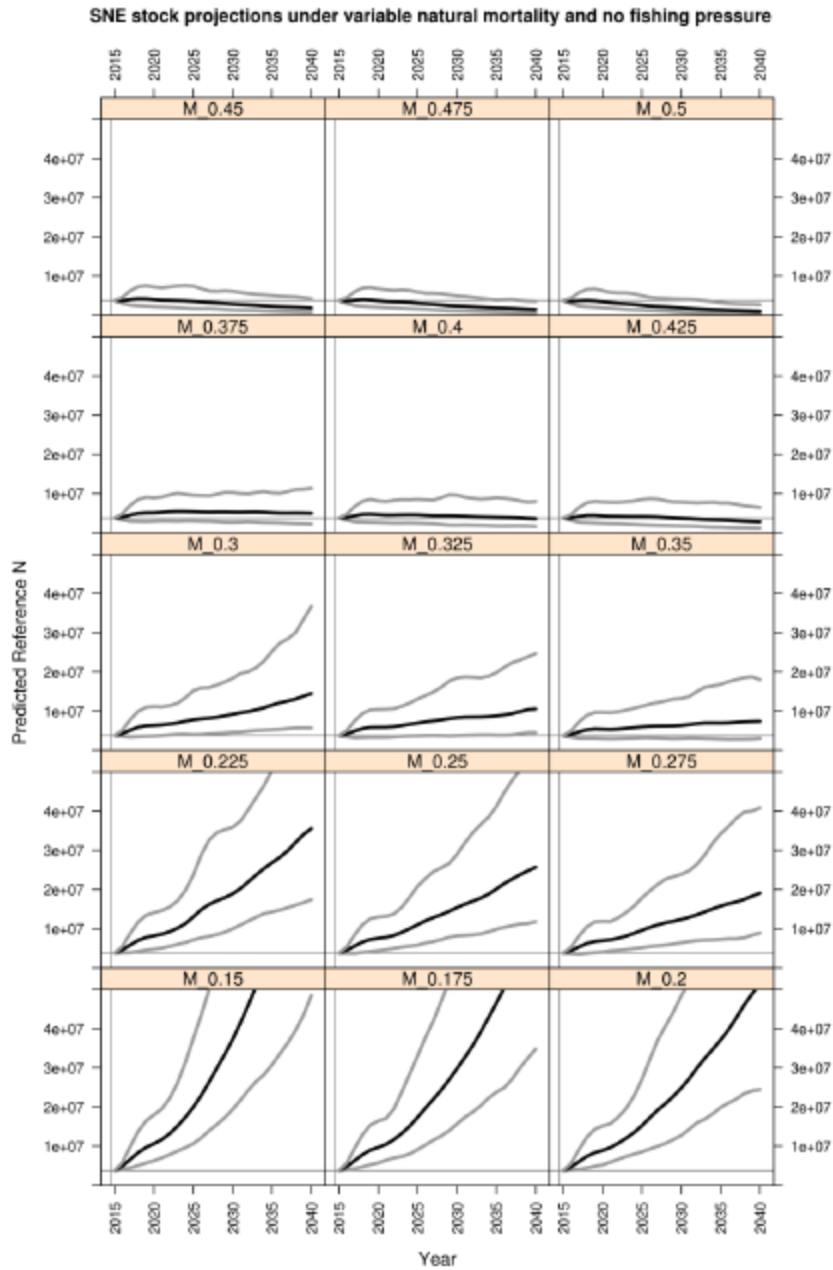


Figure 5. SNE stock projections assuming a Beverton-Holt stock recruit relationship under various levels of M. F is fixed at zero. The units are reference abundance.

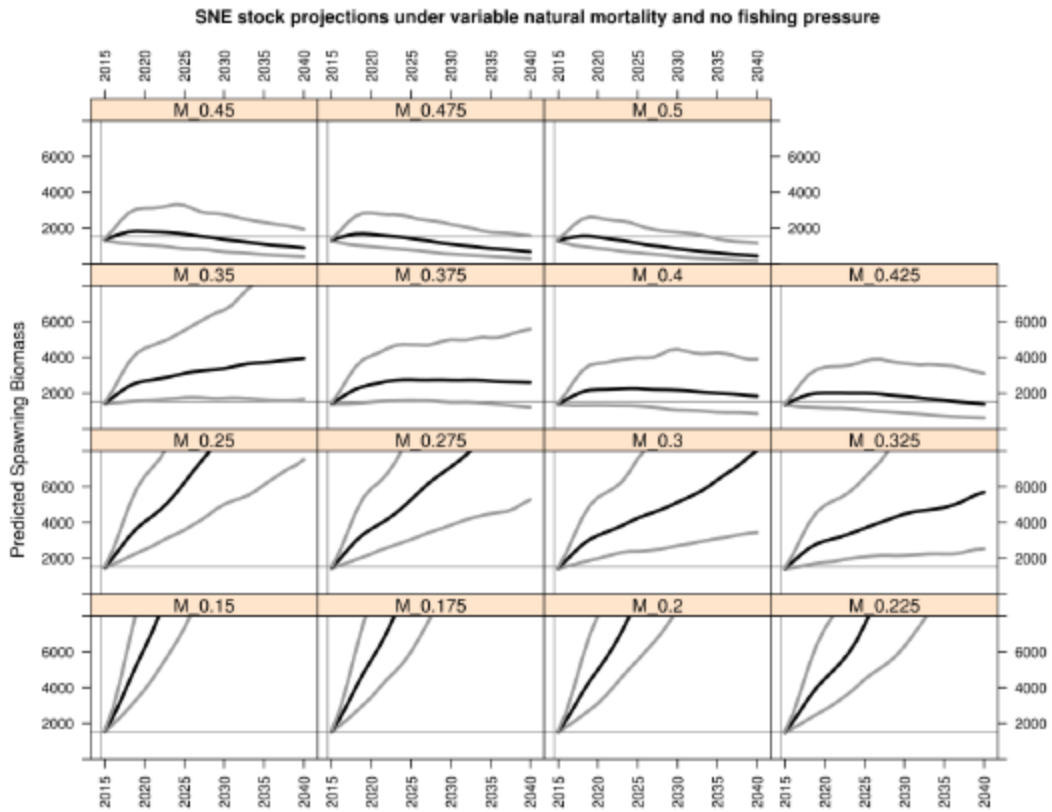


Figure 6: SNE stock projections assuming Beverton-Holt recruitment under various levels of M. F is fixed at zero. The units are SSB.

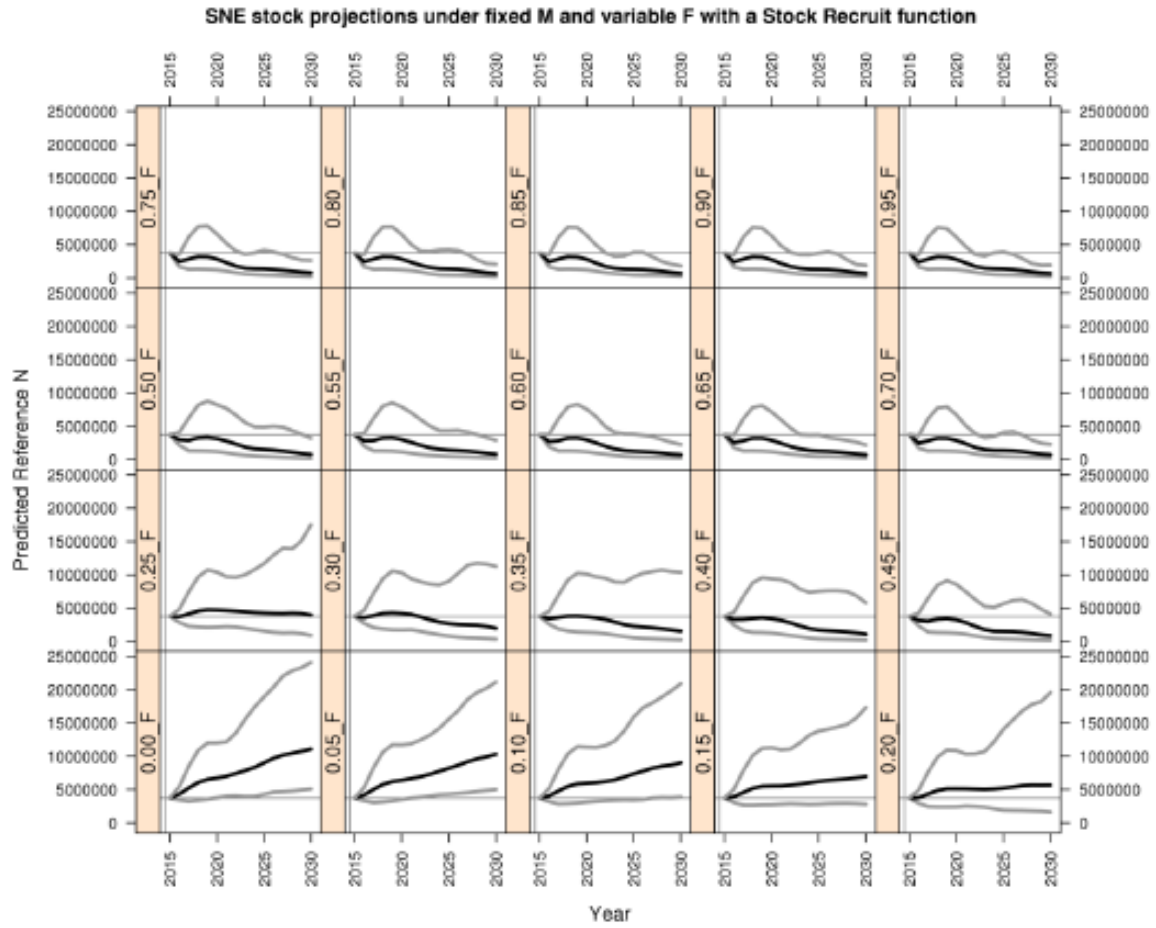


Figure 7: SNE stock projections assuming Beverton-Holt recruitment under various levels of F. M is fixed at 0.285. The units are reference abundance.

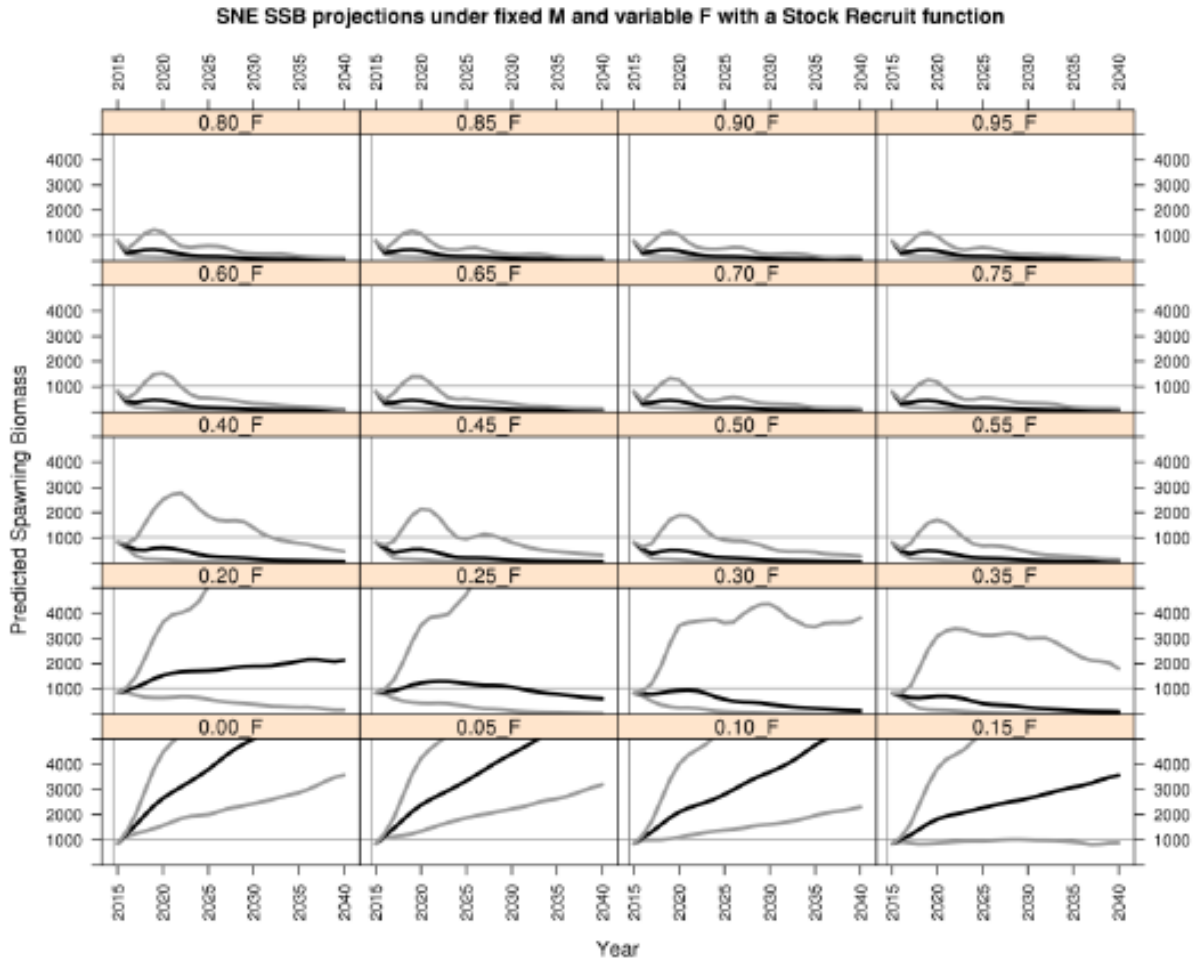


Figure 8: SNE stock projections assuming Beverton-Holt recruitment under various levels of F. M is fixed at 0.285. The units are SSB.

Appendix 5: TC Memo to Board on Gauge Size Changes

MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** American Lobster Technical Committee  
**DATE:** July 25, 2016  
**SUBJECT:** Effect of Gauge Changes on Exploitation, SSB, Reference Abundance, and Catch

The following analysis looks at the effect of gauge size changes on egg production, exploitation, spawning stock biomass (SSB), reference abundance, and catch. This work is intended to provide a holistic view of stock and fishery changes that may result from alterations to the minimum and maximum gauge size. Table 1 summarizes scenarios in which a 20% or 60% increase in egg production is achieved, per the motion of the Board at the May 2016 meeting. Tables 2-6 look at all combinations of gauge changes in regards to egg production, exploitation, SSB, reference abundance, and catch.

**Table 1.** Minimum and maximum size window necessary to achieve a 20% and 60% increase in egg production respectively. Includes % change in exploitation, spawning stock biomass, reference abundance, and catch associated with the size windows presented. \*Assumes changes in gauge size from the current 86 mm minimum and 133 mm maximum size inshore, and an 89 mm minimum size and a 171 mm maximum size offshore. English unit conversions are approximate.

	Min	Max	Egg Production	Exploitation	Spawning Stock Biomass	Reference Abundance	Catch
Inshore	88 mm (3 <sup>15</sup> / <sub>32</sub> "	105 mm (4 <sup>1</sup> / <sub>8</sub> "	20%	-18%	20%	9%	-11%
	91 mm (3 <sup>9</sup> / <sub>16</sub> "	115 mm (4 <sup>1</sup> / <sub>2</sub> "	18%	-22%	22%	11%	-14%
	92 mm (3 <sup>5</sup> / <sub>8</sub> "	165 mm (6 <sup>1</sup> / <sub>2</sub> "	20%	-27%	25%	13%	-17%
Offshore	91 mm (3 <sup>9</sup> / <sub>16</sub> "	105 mm (4 <sup>1</sup> / <sub>8</sub> "	22%	-21%	22%	9%	-13%
	94 mm (3 <sup>11</sup> / <sub>16</sub> "	115 mm (4 <sup>1</sup> / <sub>2</sub> "	20%	-26%	24%	12%	-17%
	95 mm (3 <sup>3</sup> / <sub>4</sub> "	165 mm (6 <sup>1</sup> / <sub>2</sub> "	21%	-28%	26%	13%	-19%
Inshore	99 mm (3 <sup>7</sup> / <sub>8</sub> "	115 mm (4 <sup>1</sup> / <sub>2</sub> "	60%	-56%	71%	32%	-42%
	101 mm (3 <sup>29</sup> / <sub>32</sub> "	165 mm (6 <sup>1</sup> / <sub>2</sub> "	59%	-59%	76%	35%	-45%
Offshore	102 mm (4")	115 mm (4 <sup>1</sup> / <sub>2</sub> "	62%	-60%	71%	31%	-47%
	103 mm (4 <sup>1</sup> / <sub>16</sub> "	165 mm (6 <sup>1</sup> / <sub>2</sub> "	63%	-63%	75%	34%	-50%

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**Table 2.** Inshore and offshore minimum/maximum gauge change scenarios and corresponding egg production changes from the current gauge sizes. Egg production is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

Min Size		Max size						
		105	115	125	135	145	155	165
	82	2%	-7%	-8%	-8%	-8%	-8%	-8%
	83	3%	-6%	-7%	-7%	-7%	-7%	-7%
	84	5%	-4%	-5%	-5%	-5%	-5%	-5%
	85	8%	-1%	-3%	-3%	-3%	-3%	-3%
	86	12%	1%	0%	0%	0%	0%	0%
	87	15%	5%	3%	3%	3%	3%	3%
	88	20%	8%	6%	6%	6%	6%	6%
	89	23%	11%	9%	9%	9%	9%	9%
	90	27%	14%	12%	12%	12%	12%	12%
	91	33%	18%	16%	16%	16%	16%	16%
	92	39%	22%	20%	20%	20%	20%	20%
	93	46%	28%	26%	25%	25%	25%	25%
	94	51%	31%	29%	28%	28%	28%	28%
	95	NA	35%	32%	32%	32%	32%	32%
	96	NA	40%	37%	37%	37%	37%	37%
	97	NA	47%	43%	43%	43%	43%	43%
	98	NA	56%	51%	51%	51%	51%	51%
	99	NA	59%	54%	54%	54%	54%	54%
	100	NA	63%	58%	57%	57%	57%	57%
	101	NA	69%	63%	62%	62%	62%	62%
	102	NA	76%	70%	69%	69%	69%	69%
	103	NA	87%	79%	78%	78%	78%	78%
	104	NA	91%	82%	81%	81%	81%	81%
	105	NA	NA	85%	84%	84%	84%	84%
	106	NA	NA	90%	89%	89%	89%	89%
	107	NA	NA	97%	96%	95%	95%	95%
	108	NA	NA	107%	105%	105%	105%	105%
	109	NA	NA	110%	108%	107%	107%	107%
	110	NA	NA	113%	111%	110%	110%	110%

Offshore; Min=89, Max=171

Min Size		Max size						
		105	115	125	135	145	155	165
	82	-7%	-14%	-15%	-16%	-16%	-16%	-16%
	83	-6%	-14%	-15%	-15%	-15%	-15%	-15%
	84	-3%	-12%	-13%	-13%	-13%	-13%	-13%
	85	0%	-9%	-10%	-11%	-11%	-11%	-11%
	86	3%	-7%	-8%	-8%	-8%	-8%	-8%
	87	6%	-4%	-5%	-5%	-5%	-5%	-5%
	88	10%	-1%	-2%	-2%	-2%	-2%	-2%
	89	13%	2%	0%	0%	0%	0%	0%
	90	17%	5%	3%	3%	3%	3%	3%
	91	22%	8%	6%	6%	6%	6%	6%
	92	27%	12%	11%	10%	10%	10%	10%
	93	34%	18%	15%	15%	15%	15%	15%
	94	39%	20%	18%	18%	18%	18%	18%
	95	NA	24%	22%	21%	21%	21%	21%
	96	NA	29%	26%	26%	25%	25%	25%
	97	NA	35%	32%	31%	31%	31%	31%
	98	NA	43%	39%	39%	39%	39%	39%
	99	NA	46%	42%	41%	41%	41%	41%
	100	NA	50%	45%	45%	45%	45%	45%
	101	NA	55%	50%	49%	49%	49%	49%
	102	NA	62%	56%	55%	55%	55%	55%
	103	NA	72%	64%	64%	63%	63%	63%
	104	NA	75%	67%	66%	66%	66%	66%
	105	NA	NA	70%	69%	69%	69%	69%
	106	NA	NA	75%	74%	73%	73%	73%
	107	NA	NA	81%	80%	79%	79%	79%
	108	NA	NA	90%	89%	88%	88%	88%
	109	NA	NA	92%	91%	90%	90%	90%
	110	NA	NA	95%	93%	93%	93%	93%



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**Table 3.** Inshore and offshore minimum/maximum gauge change scenarios and corresponding exploitation changes from the current gauge sizes. Exploitation is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

	Max size						
	105	115	125	135	145	155	165
82	7%	14%	14%	14%	14%	14%	14%
83	5%	12%	13%	13%	13%	13%	13%
84	1%	8%	9%	9%	9%	9%	9%
85	-4%	4%	4%	4%	5%	5%	5%
86	-8%	-1%	0%	0%	0%	0%	0%
87	-13%	-6%	-5%	-5%	-5%	-5%	-5%
88	-18%	-11%	-10%	-10%	-10%	-10%	-10%
89	-22%	-14%	-13%	-13%	-13%	-13%	-13%
90	-26%	-18%	-17%	-17%	-17%	-17%	-17%
91	-31%	-22%	-22%	-21%	-21%	-21%	-21%
92	-37%	-28%	-27%	-27%	-27%	-27%	-27%
93	-43%	-33%	-32%	-32%	-32%	-32%	-32%
94	-46%	-36%	-35%	-35%	-35%	-35%	-35%
95	NA	-39%	-38%	-38%	-38%	-38%	-38%
96	NA	-43%	-42%	-42%	-42%	-42%	-42%
97	NA	-48%	-46%	-46%	-46%	-46%	-46%
98	NA	-54%	-53%	-53%	-52%	-52%	-52%
99	NA	-56%	-54%	-54%	-54%	-54%	-54%
100	NA	-58%	-56%	-56%	-56%	-56%	-56%
101	NA	-61%	-59%	-59%	-59%	-59%	-59%
102	NA	-65%	-63%	-63%	-63%	-63%	-63%
103	NA	-71%	-68%	-68%	-68%	-68%	-68%
104	NA	-72%	-69%	-69%	-69%	-69%	-69%
105	NA	NA	-71%	-70%	-70%	-70%	-70%
106	NA	NA	-73%	-72%	-72%	-72%	-72%
107	NA	NA	-75%	-75%	-75%	-75%	-75%
108	NA	NA	-80%	-79%	-79%	-79%	-79%
109	NA	NA	-81%	-80%	-80%	-80%	-80%
110	NA	NA	-81%	-81%	-81%	-81%	-81%

Offshore; Min=89, Max=171

	Max size						
	105	115	125	135	145	155	165
82	23%	31%	32%	32%	32%	32%	32%
83	21%	29%	30%	30%	30%	30%	30%
84	16%	24%	25%	25%	25%	25%	25%
85	11%	20%	20%	21%	21%	21%	21%
86	6%	14%	15%	15%	15%	15%	15%
87	0%	9%	10%	10%	10%	10%	10%
88	-6%	3%	4%	4%	4%	4%	4%
89	-10%	-1%	0%	0%	0%	0%	0%
90	-15%	-5%	-4%	-4%	-4%	-4%	-4%
91	-21%	-11%	-10%	-9%	-9%	-9%	-9%
92	-27%	-16%	-15%	-15%	-15%	-15%	-15%
93	-34%	-23%	-22%	-22%	-22%	-22%	-22%
94	-38%	-26%	-25%	-25%	-25%	-25%	-25%
95	NA	-30%	-28%	-28%	-28%	-28%	-28%
96	NA	-34%	-33%	-33%	-33%	-33%	-33%
97	NA	-40%	-38%	-38%	-38%	-38%	-38%
98	NA	-47%	-45%	-45%	-45%	-45%	-45%
99	NA	-49%	-47%	-47%	-47%	-47%	-47%
100	NA	-52%	-50%	-50%	-49%	-49%	-49%
101	NA	-55%	-53%	-53%	-53%	-53%	-53%
102	NA	-60%	-57%	-57%	-57%	-57%	-57%
103	NA	-66%	-63%	-63%	-63%	-63%	-63%
104	NA	-68%	-64%	-64%	-64%	-64%	-64%
105	NA	NA	-66%	-66%	-66%	-66%	-66%
106	NA	NA	-68%	-68%	-68%	-68%	-68%
107	NA	NA	-72%	-71%	-71%	-71%	-71%
108	NA	NA	-77%	-76%	-76%	-76%	-76%
109	NA	NA	-78%	-77%	-77%	-77%	-77%
110	NA	NA	-79%	-78%	-78%	-78%	-78%

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**Table 4.** Inshore and offshore minimum/maximum gauge change scenarios and corresponding spawning stock biomass (SSB) changes from the current gauge sizes. SSB is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

	Max size						
	105	115	125	135	145	155	165
82	-1%	-9%	-10%	-10%	-10%	-10%	-10%
83	0%	-8%	-9%	-9%	-9%	-9%	-9%
84	4%	-5%	-6%	-6%	-6%	-6%	-6%
85	7%	-2%	-3%	-3%	-3%	-3%	-3%
86	11%	1%	0%	0%	0%	0%	0%
87	16%	5%	4%	4%	4%	4%	4%
88	20%	9%	8%	8%	8%	8%	8%
89	25%	13%	11%	11%	11%	11%	11%
90	30%	17%	15%	15%	15%	15%	15%
91	36%	22%	20%	20%	20%	20%	20%
92	43%	27%	26%	25%	25%	25%	25%
93	51%	34%	32%	32%	32%	32%	32%
94	57%	38%	36%	36%	36%	35%	35%
95	NA	43%	40%	40%	40%	40%	40%
96	NA	49%	46%	46%	46%	46%	46%
97	NA	57%	54%	53%	53%	53%	53%
98	NA	67%	63%	63%	63%	63%	63%
99	NA	71%	67%	66%	66%	66%	66%
100	NA	76%	71%	71%	71%	71%	71%
101	NA	82%	77%	76%	76%	76%	76%
102	NA	90%	84%	84%	84%	84%	84%
103	NA	102%	95%	94%	94%	94%	94%
104	NA	106%	98%	97%	97%	97%	97%
105	NA	NA	102%	101%	101%	101%	101%
106	NA	NA	107%	106%	106%	106%	106%
107	NA	NA	115%	113%	113%	113%	113%
108	NA	NA	125%	124%	124%	124%	124%
109	NA	NA	128%	126%	126%	126%	126%
110	NA	NA	131%	129%	129%	129%	129%

Offshore; Min=89, Max=171

	Max size						
	105	115	125	135	145	155	165
82	-11%	-18%	-19%	-19%	-19%	-19%	-19%
83	-10%	-17%	-18%	-18%	-18%	-18%	-18%
84	-7%	-15%	-16%	-16%	-16%	-16%	-16%
85	-4%	-12%	-13%	-13%	-13%	-13%	-13%
86	0%	-9%	-10%	-10%	-10%	-10%	-10%
87	4%	-6%	-7%	-7%	-7%	-7%	-7%
88	8%	-2%	-3%	-3%	-3%	-3%	-3%
89	12%	1%	0%	0%	0%	0%	0%
90	17%	5%	4%	4%	4%	4%	4%
91	22%	9%	8%	8%	8%	8%	8%
92	29%	15%	13%	13%	13%	13%	13%
93	36%	21%	19%	19%	19%	19%	19%
94	41%	24%	22%	22%	22%	22%	22%
95	NA	28%	26%	26%	26%	26%	26%
96	NA	34%	31%	31%	31%	31%	31%
97	NA	41%	38%	38%	38%	38%	38%
98	NA	50%	47%	46%	46%	46%	46%
99	NA	54%	50%	50%	49%	49%	49%
100	NA	58%	54%	53%	53%	53%	53%
101	NA	64%	59%	59%	59%	59%	59%
102	NA	71%	66%	65%	65%	65%	65%
103	NA	82%	75%	75%	75%	75%	75%
104	NA	85%	78%	77%	77%	77%	77%
105	NA	NA	82%	81%	81%	81%	81%
106	NA	NA	87%	86%	85%	85%	85%
107	NA	NA	93%	92%	92%	92%	92%
108	NA	NA	103%	101%	101%	101%	101%
109	NA	NA	105%	103%	103%	103%	103%
110	NA	NA	108%	106%	106%	106%	106%

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**Table 5.** Inshore and offshore minimum/maximum gauge change scenarios and corresponding reference abundance changes from the current gauge sizes. Reference abundance is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

	Max size						
	105	115	125	135	145	155	165
82	-3%	-6%	-6%	-6%	-6%	-6%	-6%
83	-2%	-5%	-5%	-5%	-5%	-5%	-5%
84	0%	-3%	-4%	-4%	-4%	-4%	-4%
85	2%	-2%	-2%	-2%	-2%	-2%	-2%
86	4%	0%	0%	0%	0%	0%	0%
87	6%	3%	2%	2%	2%	2%	2%
88	9%	5%	5%	5%	5%	5%	5%
89	11%	7%	6%	6%	6%	6%	6%
90	13%	9%	8%	8%	8%	8%	8%
91	16%	11%	10%	10%	10%	10%	10%
92	19%	14%	13%	13%	13%	13%	13%
93	23%	17%	16%	16%	16%	16%	16%
94	25%	19%	18%	18%	18%	18%	18%
95	NA	21%	20%	20%	20%	20%	20%
96	NA	23%	22%	22%	22%	22%	22%
97	NA	26%	25%	25%	25%	25%	25%
98	NA	31%	30%	30%	30%	30%	30%
99	NA	32%	31%	31%	31%	31%	31%
100	NA	34%	33%	33%	33%	33%	33%
101	NA	36%	35%	35%	35%	35%	35%
102	NA	40%	38%	38%	38%	38%	38%
103	NA	45%	42%	42%	42%	42%	42%
104	NA	46%	43%	43%	43%	43%	43%
105	NA	NA	45%	44%	44%	44%	44%
106	NA	NA	46%	46%	46%	46%	46%
107	NA	NA	49%	49%	49%	49%	49%
108	NA	NA	53%	53%	53%	53%	53%
109	NA	NA	54%	54%	54%	54%	54%
110	NA	NA	55%	55%	55%	55%	55%

Offshore; Min=89, Max=171

	Max size						
	105	115	125	135	145	155	165
82	-8%	-11%	-11%	-11%	-11%	-11%	-11%
83	-8%	-10%	-11%	-11%	-11%	-11%	-11%
84	-6%	-9%	-9%	-9%	-9%	-9%	-9%
85	-4%	-7%	-8%	-8%	-8%	-8%	-8%
86	-2%	-5%	-6%	-6%	-6%	-6%	-6%
87	0%	-3%	-4%	-4%	-4%	-4%	-4%
88	2%	-1%	-1%	-2%	-2%	-2%	-2%
89	4%	0%	0%	0%	0%	0%	0%
90	6%	2%	2%	2%	2%	2%	2%
91	9%	4%	4%	4%	4%	4%	4%
92	12%	7%	7%	7%	6%	6%	6%
93	16%	10%	10%	10%	10%	10%	10%
94	18%	12%	11%	11%	11%	11%	11%
95	NA	14%	13%	13%	13%	13%	13%
96	NA	16%	15%	15%	15%	15%	15%
97	NA	19%	18%	18%	18%	18%	18%
98	NA	23%	22%	22%	22%	22%	22%
99	NA	25%	23%	23%	23%	23%	23%
100	NA	26%	25%	25%	25%	25%	25%
101	NA	28%	27%	27%	27%	27%	27%
102	NA	31%	30%	30%	30%	30%	30%
103	NA	36%	34%	34%	34%	34%	34%
104	NA	37%	35%	35%	35%	35%	35%
105	NA	NA	36%	36%	36%	36%	36%
106	NA	NA	38%	38%	38%	38%	38%
107	NA	NA	40%	40%	40%	40%	40%
108	NA	NA	44%	44%	44%	44%	44%
109	NA	NA	45%	45%	45%	45%	45%
110	NA	NA	46%	46%	46%	46%	46%

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**Table 6.** Inshore and offshore minimum/maximum gauge change scenarios and corresponding catch changes from the current gauge sizes. Catch is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

	Max size →						
	105	115	125	135	145	155	165
82	4%	7%	8%	8%	8%	8%	8%
83	3%	6%	7%	7%	7%	7%	7%
84	0%	4%	5%	5%	5%	5%	5%
85	-2%	2%	2%	2%	2%	2%	2%
86	-5%	0%	0%	0%	0%	0%	0%
87	-8%	-3%	-3%	-3%	-3%	-3%	-3%
88	-11%	-6%	-6%	-6%	-6%	-6%	-6%
89	-14%	-9%	-8%	-8%	-8%	-8%	-8%
90	-17%	-11%	-10%	-10%	-10%	-10%	-10%
91	-20%	-14%	-13%	-13%	-13%	-13%	-13%
92	-25%	-18%	-17%	-17%	-17%	-17%	-17%
93	-30%	-22%	-21%	-21%	-21%	-21%	-21%
94	-33%	-24%	-23%	-23%	-23%	-23%	-23%
95	NA	-27%	-26%	-26%	-26%	-26%	-26%
96	NA	-30%	-29%	-29%	-29%	-29%	-29%
97	NA	-34%	-33%	-33%	-33%	-33%	-33%
98	NA	-40%	-39%	-38%	-38%	-38%	-38%
99	NA	-42%	-40%	-40%	-40%	-40%	-40%
100	NA	-44%	-42%	-42%	-42%	-42%	-42%
101	NA	-47%	-45%	-45%	-45%	-45%	-45%
102	NA	-51%	-49%	-49%	-49%	-49%	-49%
103	NA	-58%	-55%	-54%	-54%	-54%	-54%
104	NA	-59%	-56%	-56%	-56%	-56%	-56%
105	NA	NA	-58%	-57%	-57%	-57%	-57%
106	NA	NA	-60%	-60%	-60%	-59%	-59%
107	NA	NA	-63%	-63%	-63%	-63%	-63%
108	NA	NA	-69%	-68%	-68%	-68%	-68%
109	NA	NA	-70%	-69%	-69%	-69%	-69%
110	NA	NA	-71%	-71%	-71%	-71%	-71%

Offshore; Min=89, Max=171

	Max size →						
	105	115	125	135	145	155	165
82	13%	17%	17%	17%	17%	17%	17%
83	12%	16%	16%	16%	16%	16%	16%
84	9%	13%	14%	14%	14%	14%	14%
85	6%	11%	11%	11%	11%	11%	11%
86	3%	8%	9%	9%	9%	9%	9%
87	0%	5%	6%	6%	6%	6%	6%
88	-4%	2%	2%	2%	2%	2%	2%
89	-6%	-1%	0%	0%	0%	0%	0%
90	-10%	-3%	-3%	-3%	-3%	-3%	-3%
91	-13%	-7%	-6%	-6%	-6%	-6%	-6%
92	-18%	-11%	-10%	-10%	-10%	-10%	-10%
93	-24%	-15%	-14%	-14%	-14%	-14%	-14%
94	-27%	-17%	-17%	-16%	-16%	-16%	-16%
95	NA	-20%	-19%	-19%	-19%	-19%	-19%
96	NA	-24%	-23%	-22%	-22%	-22%	-22%
97	NA	-28%	-27%	-27%	-27%	-27%	-27%
98	NA	-35%	-33%	-33%	-33%	-33%	-33%
99	NA	-37%	-35%	-35%	-35%	-35%	-35%
100	NA	-39%	-37%	-37%	-37%	-37%	-37%
101	NA	-42%	-40%	-40%	-40%	-40%	-40%
102	NA	-47%	-44%	-44%	-44%	-44%	-44%
103	NA	-54%	-51%	-50%	-50%	-50%	-50%
104	NA	-56%	-52%	-52%	-52%	-52%	-52%
105	NA	NA	-54%	-54%	-53%	-53%	-53%
106	NA	NA	-56%	-56%	-56%	-56%	-56%
107	NA	NA	-60%	-60%	-60%	-60%	-60%
108	NA	NA	-66%	-66%	-66%	-66%	-66%
109	NA	NA	-67%	-67%	-67%	-67%	-67%
110	NA	NA	-69%	-68%	-68%	-68%	-68%



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** Megan Ware, American Lobster FMP Coordinator  
**DATE:** December 20, 2016  
**SUBJECT:** Recommended Changes to Draft Addendum XXV

The Addendum XXV Subcommittee met via conference call on December 8, 2016 to review comments submitted by state agencies on draft Addendum XXV. The Subcommittee was comprised of David Borden (Board Chair), Dan McKiernan (MA Commissioner), John Clark (DE Commissioner), Story Reed (PDT), and Megan Ware (ASMFC Staff).

Comments on draft Addendum XXV were received from Massachusetts, Rhode Island, Connecticut, New York, and NOAA Fisheries. Copies of the letters are attached to this memo. Based on the comments received, the Subcommittee makes the following recommendations to the American Lobster Management Board (Board) and Plan Development Team. The Subcommittee notes that no management options have been removed from draft Addendum XXV but additional options are recommended for inclusion in the document to address the comments received and to offer a broad range of alternatives on each subject for public comment.

If the Board agrees to these changes, they will be directed to the PDT for their inclusion in draft Addendum XXV, which the Board hopes to approve for public comment at the winter meeting. The recommendations below fall into two general categories based on the magnitude of the change: 1) editorial clarifications; and 2) the addition of a broader range of options for public comment. For the new options recommended by the Subcommittee, no new analysis are required by the Technical Committee.

### Editorial Changes

- Per the suggestion of Rhode Island and Connecticut, *Section 1.0: Introduction* should be expanded to clearly outline the expectations of this addendum, including a statement that it may not be possible to rebuild this stock to the reference levels unless favorable environmental conditions develop.
- Ventless trap survey data should be added to *Section 2.2: Resource Issues* in order to provide more recent evidence of low settlement, per the recommendation of Massachusetts. Both Rhode Island and Massachusetts have agreed to provide the updated material.
- *Section 2.2: Resource Issues* should describe the shifting abundance of American lobster as there is record high abundance in GOM/GBK but record low abundance in SNE, per the recommendation of Rhode Island.
- The terminal year of Figure 2 in *Section 2.2: Resource Issues* should be noted in the caption.
- The number of active permits in Table 3 (*Section 2.3.1*) should be verified by the PDT based on concerns from Massachusetts that these numbers may not be accurate.
- Non-trap landings from Massachusetts should be added to *Section 2.3.1 Commercial Fishery* to fully describe catch in that state and the impact on the non-trap fleet.
- New Hampshire recreational landings should be removed from *Section 2.3.2 Recreational Fishery* in order to focus the document on SNE, per the recommendation of Massachusetts and Rhode Island.

- A table of management action taken in each LCMA since the 2009 stock assessment should be added to *Section 2.4: Status of Management*, per the recommendation of Rhode Island. This information is already reported in the FMP Review and can be reformatted for the addendum.
- Potential economic impacts to the Jonah crab fishery should be further explained in *Section 2.5 Economic Status of Fishery* per the recommendation of Massachusetts and Rhode Island. This should include a table of landings and ex-vessel value by state and quarter. The multi-species nature of the fishery (crab/lobster) should also be highlighted and described.
- References to positions taken in *Section 2.6: Management Tools Considered* by the PDT or TC should be reworded to indicate that these are Board positions, per the recommendation of Massachusetts. This will ensure the Board is responsible for the content of the document.
- Per the recommendation of Rhode Island, *Section 2.6.2: Trap Reductions* should note that many of the studies which cite the ability of fishermen to increase trap hauls to offset the impacts of trap reductions were conducted inshore. It should also be added that it is more difficult for offshore fishermen to alter their behavior due to long travel times and longer soak times.
- *Section 5.0: Compliance* should note that the Board may select a final implementation schedule based on the target egg production identified and management tools chosen. The PDT noted that a phase-in period might be useful to lessen negative impact of gauge changes. This change was recommended by Rhode Island given that some tools, such as large gauge size changes, may be best implemented over several years. The current Board position is to implement Addendum XXV over two years, but we may need flexibility depending on the final strategy selected by the Commission.

#### **Additional Alternatives for Inclusion in Draft Addendum XXV**

- Based on a recommendation from Rhode Island, add a 30% egg production target to draft Addendum XXV so that the implications of this alternative can be evaluated by the public. According to ASMFC staff this does not pose major technical problems as analysis exists for this target level.
- To address concerns raised by both Massachusetts and Rhode Island on the potential impacts of gauge size changes to inter-state commerce, it is recommended that a brief description and management alternatives be added to the document asking whether minimum gauge size changes greater than 3 ¼" should apply to all persons or just to harvesters. If higher minimum gauge sizes do not apply to dealers, they would be allowed to possess lobster legally landed in another LCMA which has a smaller gauge size. A table of current state regulations on this issue should also be added to the addendum.
- Given concerns raised by Massachusetts and Rhode Island that Addendum XXV needs to clarify which gear types are affected by seasonal closures, it is recommended that a description and associated management alternatives be added to the document to further explain the impacts on various gear types, such as recreational gears and trawlers. The management alternatives should ask whether a season closure restricts the landing of lobsters, implements a possession limit for bycatch fisheries, or requires lobster traps to be hauled out of the water.
- As pointed out by Massachusetts and Rhode Island, draft Addendum XXV does not discuss the application of regulatory changes to the recreational fishery. It is recommended that management alternatives be added to the addendum to seek comment on how the recreational fishery should be impacted. The issue should specifically ask if the recreational fishery must abide by new season closures, size and bag limits or be exempt from the regulation applied to the commercial fishery.
- To respond to comments that draft Addendum XXV is not clear on the need for standardized management measures among LCMAs, it is recommended that additional language and alternatives be added to Addendum XXV to explore standardization. Alternatives should be added for different combinations of LCMAs, as well as an option that does not require standardization.

- The Rhode Island comment letter stated that Rhode Island fishermen feel singularly penalized for trap cuts taken in Addendum XVIII, as those cuts were implemented after the 2015 stock assessment, which was based on data through 2012. The trap cuts were also only implemented in two LCMAs (2&3) and the other LCMAs in SNE stock area were exempt. They have requested that an option be added to provide credit for trap reductions which have been completed prior to implementation of this addendum. This change would result in there being two alternatives in the document, one which does not give credit towards the egg production target and one which does give credit.
- To address requests from Massachusetts and Rhode Island that the acceleration of current trap reductions prescribed in Addendum XVIII be included as a management option, an issue should be added to draft Addendum XXV asking whether current trap reductions should be accelerated to end in 2018. Massachusetts believes the acceleration of current trap reductions may negate the need for trap banking in federal waters which would simplify the federal rule making process.
- Two states, Rhode Island and Connecticut, questioned the necessity to link management tools together. Both suggested that the various management tools should be independent. As a result, it is recommended that two options be included in Addendum XXV, one requiring that season closures and trap reductions be used in conjunction with gauge size changes, and a second option to allow them to be considered independently.
- Per Rhode Island's request, additional options should be added to *Issue 2: Stock Boundaries*, to determine how the 70°W latitude split should be implemented in the lobster fishery. Additional options include a 70°W split with no annual declaration and a 70°W split with states issuing permits and new tags. Other options can be developed by the PDT as they see fit.
- New York's comments were received after the Subcommittee call; however, the letter included a recommendation that alternatives for restrictive trap cuts in Area 4 and Long Island Sound be added to the draft addendum. Should the Board want to include this issue in draft Addendum XXV, analysis would need to be conducted on expected egg production from restrictive trap cuts. Any such analysis will be conducted following the Winter meeting and be available prior to the Spring meeting.

## ***Massachusetts Suggestions for Amendments in Addendum 25***

Section 2.2 Resource Issues. It would be revealing and useful if the ventless trap results in MA & RI could be updated to include the most up to date time as possible (2016?) to corroborate the decline in the stock and to confirm the poor year classes that Figure 1 portrays in the model-based spawning stock biomass and recruits. The fact that the stock assessment was last done based on data up to 2012 makes us vulnerable to criticism that our results are out of date, but if the ventless trap surveys can corroborate the decline since 2012, then that makes the case for more conservation.

Section 2.3: Fishery Status. The number of active permits needs to be checked. It seems unlikely NY would have 50% more active permits than MA. Moreover the number of active permits seems too high to me, esp. in MA.

Since we embarked on a plan to scale the fishery to the size of the resource, it seems important to me to get the most recent numbers of traps fished and active permits into the document. Else the industry will be highly critical of the info.

Number of traps allocated in Table 5 has no year mentioned.

Not sure why MA non-trap landings are excluded (p. 11, 1<sup>st</sup> paragraph) . We can provide those.

NH's rec landings should not be mentioned at all (p. 11, 2<sup>nd</sup> paragraph).

Section 2.5 Economic Status of the fishery.

This section ignores the growing dependence on jonah crabs. Part of my rationale in approving the Jonah Crab plan was to recognize the SNE fishery as a mixed crustacean fishery (Jonah & lobster). This should be investigated and revealed because if an addendum is enacted that constrains the Jonah catch due to closed seasons or closed areas, then the economic impacts of the loss of Jonah crabs needs to be revealed. This is especially true for the Area 3 vessels (I think). NMFS will surely need this information in their EIS so we might as well get this out asap. Table 8 should include poundage and value of jonahs as well as lobster

2.6.1 Gauge Size changes.

On pg. 15 2<sup>nd</sup> paragraph it's not clear if the document is endorsing SNE/MA states to sell GOM sized lobsters (3 ¼") or just allowing them to be shipped through to other markets in states not subject to the plan. I recommend the former be allowed and the states address potential noncompliance by harvesters with elevated penalties. For example there is a \$150 criminal fine per short lobster in MA. This is an effective deterrent.

2.6.2 Trap Reductions



It would be useful to broaden this section to include the reductions in active permits fished.

On page 16 paragraph 4, the document recommends against accelerated trap cuts. This should be reconsidered because if adopted it would negate much of the need for the feds to develop a rule to allow trap allocation banking. This should be welcomed by NMFS.

#### 2.6.3 Closed Seasons

As noted above, referring to the Jonah crab fishery as a distinct fishery is really a mistake.

#### 2.6.4 Trip Limits

Reference to positions taken by the PDT or the TC should be downplayed in the document. The Board should be responsible for proposing and embracing whatever is in the document.

## *Rhode Island Letter on Draft Addendum XXV*

At the October 27, 2016 meeting of the ASMFC Lobster Management Board, the Board deferred action on sending Addendum XXV out for public comment and remanded the draft document back to the States and or the appropriate Lobster Conservation Management Teams (LCMTs). The following comments were provided to the State of Rhode Island Department of Environmental Management, Marine Fisheries Section from the Lobster Industry leaders, which represented comments from the State of Rhode Island Southern New England Lobster Fishing Industry. Comments are arranged by section corresponding to those in the draft Addendum. Actual sections from the Addendum are in bold and sections comments refer to are italicized.

SNE Industry representatives of the LCMT's of 2 and 3 met on November 7, 2016 at the RI Marine Fisheries Lab in Jamestown, RI and offered the following industry comments on Draft Addendum XXV.

### **2.2 Resource Issues**

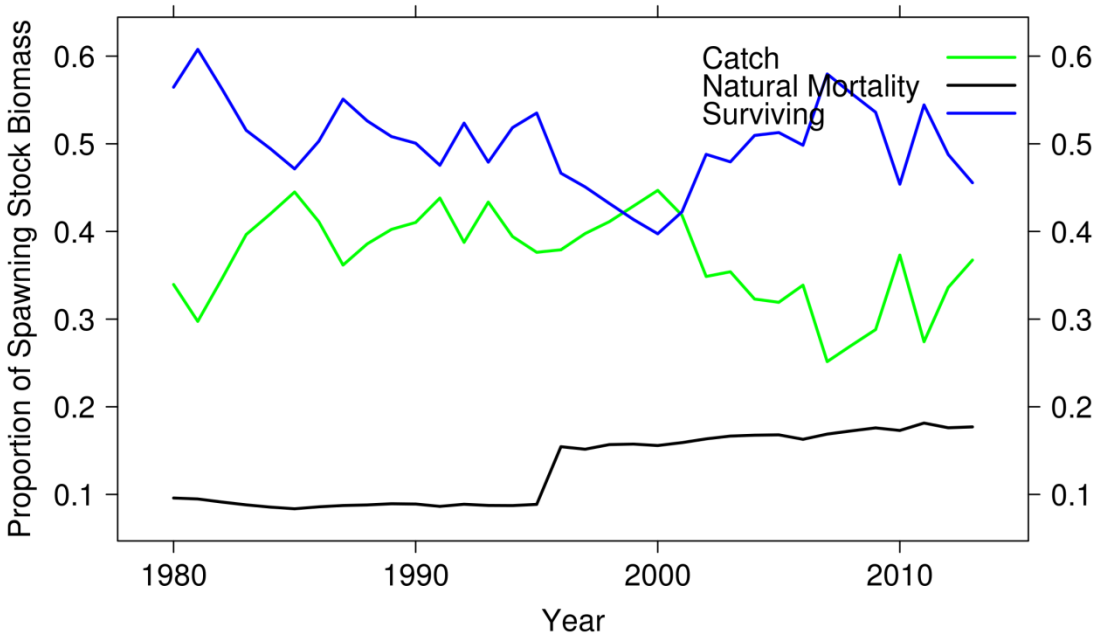
There was a question of whether the abundance value in Table 1 for SNE is still relevant given prolonged low abundance levels in Long Island Sound in recent years. Upwards of 60 % of landings came from LI Sound (Table 2) as reported in section 2.3.1 below. There is the belief that there may be little hope of achieving the reference numbers presented, given the decline in the Long Island portion of the SNE stock.

Given the environmental changes in LI Sound, which historically contributed 60 % of the landings to SNE, it may not be realistic to expect the stock to rebuild to former levels unless environmental conditions become more favorable .It may be unlikely that the reference levels for the SNE stock are achievable without the contributions of LIS .

Table 1. Current (2011-2013) reference estimates for each stock as well as the target and threshold levels for abundance and effective exploitation. The reference abundance is used to determine a depleted status while effective exploitation is used to determine an overfishing status.

		GOM/GBK	SNE
Abundance (millions)	2011-2013 Reference	248	10
	Threshold	66	24
	Target	107	32
Effective Exploitation	2011-2013 Reference	0.48	0.27
	Threshold	0.50	0.41
	Target	0.46	0.37

The group also noted in this section that the proportion of SSB surviving is relatively stable over the time period. Therefore, one might argue then that under a period of believed high natural mortality (warming waters, shell disease, predators increasing) intense fishing pressure and LIS stock declines, SSB has not changed dramatically.



## 2.3 Fishery Status

### 2.3.1 Commercial Fishery

From the draft Addendum: “Table 5 shows the current trap allocations in the LCMA 2, 3, 4, 5, and 6. The greatest number of traps are allocated in LCMA 2, 3 and 6; however; a large portion of traps in LCMA 6 are not actively fished. This is corroborated by data showing the harvest of lobster from each LCMA (Table 6) as LCMA 6 has the second lowest landings in the SNE fishery. Roughly two-thirds of landings in 2012 came from the LCMA 3.”

This is important given the lack of bio sampling from that area and its eventual implications with regards to changes in egg production due to minimum and maximum size changes. It is assumed that little bio sampling takes place in area 4 and 5 and this would make it difficult to predict min/max size impacts in those areas that are not sampled because their population demographics may be different than those areas that are sampled.

In table 6 below, landings from A-4 are suspect. A 60 % increase in landing in one year (see 2011 to 2012 in area 4 below) does not seem possible, therefore the data in this table should be investigated further to make sure it is accurate.

Table 6. Estimated lobster landings (in pounds) by LCMA.

Year	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6
1982	1,656,479	2,135,954	622,674	99,093	1,359,058
1983	2,958,366	2,258,492	633,254	71,804	2,428,633
1984	2,978,985	2,765,512	795,180	135,652	2,704,070
1985	2,992,330	2,330,628	964,043	170,998	2,273,337
1986	3,081,903	3,009,509	1,084,282	125,969	2,362,128
1987	3,219,900	2,655,725	1,473,841	98,486	2,378,765
1988	3,259,336	2,269,480	1,666,439	85,142	3,195,208
1989	4,175,114	2,845,444	2,232,935	106,126	3,735,250
1990	4,374,062	5,253,653	2,431,198	237,410	4,250,654
1991	4,140,145	4,811,267	2,096,138	115,020	4,393,986
1992	3,795,367	4,023,295	1,448,866	77,854	4,362,551
1993	3,772,494	3,776,113	1,597,447	89,495	3,968,663
1994	5,602,507	3,030,046	554,367	26,013	5,738,398
1995	4,960,453	2,661,176	962,077	45,054	8,564,325
1996	4,880,328	2,610,223	978,376	52,758	11,705,439
1997	5,324,775	3,183,034	1,162,862	36,623	11,650,701
1998	5,273,463	2,724,429	1,534,067	41,963	10,575,143
1999	6,938,658	3,195,423	1,346,509	77,621	8,331,142
2000	5,651,160	2,673,111	1,123,486	53,364	3,802,880
2001	3,862,054	2,053,831	762,408	55,537	3,013,551
2002	3,445,004	1,899,923	442,425	14,838	2,230,869
2003	1,110,534	2,519,713	423,583	17,394	1,448,011
2004	1,184,942	2,014,702	480,203	93,270	1,534,130
2005	1,464,433	1,800,406	457,275	54,181	1,673,396
2006	1,853,505	1,983,721	516,130	59,928	1,840,308
2007	1,430,836	1,494,830	617,978	56,866	1,263,648
2008	1,168,921	1,918,429	440,108	322,916	920,951
2009	1,051,241	2,227,432	488,792	308,212	896,594
2010	1,022,528	2,135,008	522,037	184,409	966,505
2011	730,889	1,954,052	488,977	148,587	306,079
2012	627,051	2,003,412	782,684	154,455	286,215

Table 6 should to be updated through 2015. Reasoning being that by the time this goes to hearing in 2017, the information will be five years out of date, so should be updated to the extent possible.

From the draft Addendum: *“The non-trap fishery for lobster is a small percentage of the overall SNE landings. In 2015, a total of 55,191 pounds were landed with non-trap gear. It is important*

to note that this value is an underestimate as it does not include non-trap landings from Massachusetts.”

Massachusetts non-trap landing should be included if possible.

### **2.3.2. Recreational Fishery**

This section needs to be updated as the inclusion of MA data from north of the cape and NH is not relevant to this Addendum which is focused on SNE.

## **2.4 Status of Management**

From the draft Addendum: “The Board also approved Addendum XVIII, which implemented a 50% trap reduction in LCMA 2 over a 6-year period and a 25% trap reduction in LCMA 3 over the span of 5 years. The goal of this management action was to scale the size of the SNE fishery to the diminished size of the resource.”

The Board initiated addendum XVIII to scale the SNE fishery to the diminished size of the SNE resource, however the management measures in the addendum only apply to Areas 2/3. These areas shouldn’t be penalized for being proactive, and their existing management efforts should be recognized and credited in this new action for both past and future trap reductions.

A summary table showing the management changes by LCMA in response to the 2009 stock assessment should be included in this document.

## **2.5 Economic Status of Fishery**

Table 8: 2015 ex-vessel values in the SNE lobster fishery.

	MA	RI	CT	NY	NJ	DE	MD	VA	Total
Ex-Vessel (\$)	3,871,993	10,535,726	748,797	820,456	2,248,638	61,400	186,039	24,092	18,497,141
%	20.9%	57.0%	4.0%	4.4%	12.2%	0.3%	1.0%	0.1%	100.0%

A similar table of Jonah crab landings by state and quarter with value is needed which will become very pertinent in any discussion of a closed season.

## **2.6 Management Tools Considered**

### **2.6.1 Gauge Size Changes**

Minimum and maximum gauges interact with lobster pot escape vent size, therefore it needs to be clarified as to whether this interaction will be acknowledged in the document.

From the draft Addendum: “Economic impacts of gauge size changes depend on how the change is implemented, as gradual changes to the gauge size over several years may dampen the reductions in catch. Short-term impacts of gauge size changes include an immediate decrease in landings as there is a narrower slot from which to harvest lobsters; however, as the population stabilizes, landings settle into a common trajectory.”

The board should reconsider the 2 year implementation strategy if the targets are set at 40% or higher.

When considering changes to the gauge size, potential impacts to interstate commerce should be considered.

If this is deemed to present a significant problem, a strategy to counteract this problem should be offered in the document or the gauge size strategy should not be part of the document until this can be further vetted.

### **2.6.2 Trap Reductions**

From the draft Addendum: *“The relationship between the biology of lobsters and trap reductions is not well understood. Recent analysis by the TC suggests a 25% reduction in the number of actively fished traps in SNE may result in, at most, a 13.1% increase in egg production. Importantly, the TC heavily caveated this result by highlighting the analysis assumes fishermen maintain a constant soak time when their trap allocation is reduced. Studies show this is not true, as fishermen reduce their soak time to compensate for fewer traps.”*

These fishery behavioral assumptions are pertinent to inshore and areas of high trap density. The study cited also takes place under these characteristics which are no longer the case. Since the majority of SNE landings now come from offshore, it makes it much more difficult to change behavior as offshore fisheries operate very differently than inshore fisheries from an economic standpoint. Therefore these caveats offered do not account for the dynamics currently occurring in SNE and the trap reduction analysis should not be so readily dismissed.

From the draft Addendum: *“Trap reductions are recommended for use in conjunction with gauge size changes; trap reductions are not recommended as the sole management measure used to increase egg production.”*

How the methods are used, either by themselves or in conjunction with other measures is a policy decision and not a PDT decision. Another option could be the allowance to use trap reduction without size changes, or make the measures independent. This is policy/management uncertainty and risk question and the purview of the board not the PDT.

From the draft Addendum: *“Accelerated trap reductions are not recommended as a management tool in this addendum.”*

We believe other lobster management areas should implement trap reductions. Reducing traps 10 % a year in these areas would remove some of the latent effort at minimum and possibly reduce exploitation. TC has pointed out in prior memos that the trap reduction strategy should be universal, otherwise the trap reductions in A-2 and 3 may be circumvented by more fishing in A4 and 5. Furthermore, accelerated trap cuts should be an option as well as calculating the benefit from the additional scheduled trap cuts for Areas 2 and 3.

### **2.6.3 Closed Seasons**

Fishing effort or the fleet's capacity to fish lobsters is currently changing with far more large vessels capable of fishing offshore and as the Jonah crab fishery becomes more important it will ultimately make seasonal closures more problematic.

Closed seasons will likely not be effective because fishermen will adapt to the implementation of seasonal closures by intensifying effort during the rest of the year.

Spatial distribution of lobsters does change seasonally which may allow more lobsters to migrate offshore so they would no longer be available to inshore fishermen.

Offshore enforcement of a seasonal closure would be a challenge.

An indirect consequence of closed seasons is the loss of trap grounds to other fisheries when forced to remove gear from the water. After the closed season, lobstermen wouldn't be able to place their gear back due to other fisheries claiming it in their absence.

Potential impacts to the Jonah Crab and Black Sea Bass fisheries.

Massachusetts has fishermen landing from 4 LMA's - Closure enforcement would seem problematic.

Impacts of summer closure on recreation fishery should be discussed.

It is not reflected in the document on how seasonal closures would affect the mobile gear and non-trap gear fleet.

There is the need to evaluate the impacts of seasonal closures with regard to the fact that the lobster fishery is now a mixed crustacean fishery in SNE. It is important to maintain a viable crab fishery in SNE and closed seasons would impact this.

From the draft Addendum: *“Given the assumptions in the analysis on season closures and the potential impact on the Jonah crab fishery, closed seasons are recommended for use in conjunction with gauge size changes; closed seasons are not recommended as the sole management measure used to increase egg production.”*

As noted previously, how to use these various options is a policy decision, so the document should not be prescriptive as to how to use the various options. This is policy/management uncertainty and risk question and the purview of the board not the PDT.

### **2.6.4 Trip Limits**

From the draft Addendum: *“Given these concerns, the TC recommended trip limits be considered in conjunction with a quota for the SNE stock.”*

As noted previously, how to use these various options is a policy decision, so the document should not be prescriptive as to how to use the various options. This is policy/management uncertainty and risk question and the purview of the board not the PDT.

This issue of trip limits was suggested in addendum XVIII, which noted all of the problems associated with trip limits. None of the identified issues have been resolved.

It would also imply that there would be a change in the management currency from traps to resource, which would complicate many of the existing management programs already in place.

From the draft Addendum: *“The PDT recommends trip limits and quotas be considered in a subsequent management document. This will allow for the proper consideration.”*

It is important to note that there are numerous implementation issues that need to be resolved before it can be considered, therefore these measures are not recommended as a management tool for use in this addendum.

### **2.6.7 Standardize Regulations**

From draft Addendum Document: *“Given the different dynamics of the fishery, the PDT does not recommend standardized regulations between the inshore and offshore fishery but does support standardized regulations within the inshore fishery (LCMAs 2, 4, 5, and 6). This would be achieved by maintaining uniform gauge sizes and standardizing closed seasons.”*

If each LMA chooses a separate set of management measures this would move farther away from the concept of standardized regulations but also realizing inshore lobster fisheries are not a one size fits all. Consideration should be given to the unforeseen results of this action such as redistribution of effort.

## **2.7 Stock Boundaries**

From draft Addendum Document: *“The complexity of the stock boundaries is further complicated by the fact that many vessels fishing out of Rhode Island and Massachusetts who are harvesting lobsters in Georges Bank, must travel through the SNE stock to reach their port of landing. This means SNE-specific rules designed to be enforced only at the port of landing provide compliance challenges.”*

The Document should include a list of options

1. No line, which means the SNE restrictions apply everywhere
2. A line at 70 degrees
3. A line at 70 degrees plus an annual declaration
4. A line at 70 degrees plus an annual declaration on a shorter timeline
5. A line at 70 degrees and let the States issue permits and new tags

It is likely NOAA won't implement until 2018 or 2019 and the states have no appreciable offshore enforcement.



### **3.0 Management Options**

#### **Issue 1: Increases in Egg Production**

From draft Addendum Document: *“This document also considers trap allocation reductions. These potential reductions are separate and in addition to the trap allocation reductions established in Addendum XVIII. Should trap allocation reductions be chosen in this addendum for LCMA 2 and 3 fishermen, they will occur following the final year of trap reductions specified in Addendum XVIII.”*

The existing trap reductions should count towards some of the reduction needed and future reductions should be analyzed for potential future increases in egg production.

The TC tables relating to the egg production options from gauge changes found in appendix 5 should be added to the document.

Hi Megan,

Connecticut DEEP hosted an informal public meeting last night to discuss the options presented in draft addendum XXV.

20 fishermen attended. Although many comments were shared, the two that are most important at this stage were in regard to the option to require uniform measures throughout the SNE stock area and the Technical Committee suggestion that would require many options to be bundled with a gauge adjustment. Uniform measures could have very different impacts across LMA's given the differences in seasonality of the fisheries, size composition of the resource as examples. The requirement to bundle a season closure with a gauge adjustment was of particular concern. Fishermen generally felt no options should be taken off the table at this stage, suggesting hatchery stocking, water quality improvements and subsidy for fishermen who stop or curtail fishing or who v-notch lobsters.

I do not suggest any modifications to the document based on these comments given that their main desire was to keep all options on the table and that the suggested additions would be costly with no apparent source of funding or in some cases likelihood of success in increasing egg production.

However, I do have some real concerns with some of the options given our legal mandate to base Commission FMP's on the best available science under ACFCMA and for any element of the plan adopted for federal waters to comply with all aspects of the MSA. The Board needs to come to terms with the fact that the Technical Committee has said as clearly and politely as possible that trap reductions will not achieve meaningful conservation – they will not reduce exploitation or increase egg production meaningfully or nearly as much as they calculate (13.1% for 25% reduction in traps) because the assumptions of that estimate are invalid. We have tortured writing in the Addendum now that tries to rationalize how despite the TC's advice to the contrary we may consider taking credit for "at most, a 13.1% increase in egg production" by reducing active traps by 25%. Option 2c goes on to say "trap allocations must be used in conjunction with gauge size changes to achieve the 20% increase in egg production" and goes on to stipulate that trap reductions and closed seasons cannot account for more than 10% of the expected increase in egg production.

The absence of a table that equates percent reduction in active traps with a percent increase in egg production is the clearest evidence that there is no scientific basis for the trap reduction option. Further, how would we implement a trap reduction under Option 2c? As written that option requires we take no more than 10% of the 20% increase from the trap reduction side. So does that mean we can cut traps less than 25% (77% of 25% or 19.2%)?

It gets worse when we move to Option 3c when the implication is an LMA could take all of the 13.1% credit for the same 25% trap reduction that can at most account for 10% in Option 2c. It seems NOAA was pretty well discounted the mid-stream switch from managing total trap allocations to active trap currency in federal waters which seems enough to sink this option from moving forward.

How do we preserve credibility as a Commission when we consider moving forward with an Addendum that devotes almost 1 ½ pages of Technical Committee rebuke of trap reductions as an effective means of conserving lobsters then forge ahead and offer it as an option anyway? Example text: "The relationship between the biology of lobsters and trap reductions is not well understood." "Current trap reductions may impact the number of traps actively fished; however it is impossible to predict the tipping point between reductions in latent effort and reductions in the number (of) actively fished traps." (The analysis of traps is only possible in about half the states in the SNE stock region.) "The expected increase

in egg production is likely much lower as trap reductions remove latent effort too". "Given the tenuous relationship between traps fished and fishing mortality..."

The final paragraph in Section 2.6.2 Trap Reductions would seem to put a nail in the trap reduction coffin – "given the TC's concerns.. the acceleration of trap reductions (in ADDXVIII) .. is not recommended as a management tool in this addendum." It's some area 2 interests that have pushed this option, yet the Addendum says it shouldn't be applied there.

Closed seasons needs to be offered as a stand-alone option in this addendum. The technical comment on the merits of closed seasons are mainly positive especially with respect to a summer closure that would prevent lobsters from repeated hauling and handling during a thermal stress period and would protect "pregnant" females prior to egg out although they offer a word of caution over potential recoupage during the open season, the TC has been consistent for several years that there would be real benefits to protecting lobsters during the summer. We believe Area 6 has derived similar benefits from its fall closure when most females have still not egged out and water temperatures remain high (Sept-Oct at least). The PDT also apparently felt confident enough in the scientific merit of a season closure that a table of closures and percent egg production / exploitation response was provided.

We need to take the same tact with trap reduction in this addendum as it takes for v-notching and culls– it gets mentioned to document it was considered but a statement is included that it is not recommended for use as a management tool and it is not included in any of the options.

I appreciate all of your work on this addendum and that of the PDT and TC. The TC has provided a tremendous amount of very useful and important analysis for our consideration. My final comment is that the draft Addendum needs a clear concise discussion of what the Board, Lobstermen and the public can expect from any actions taken under this Addendum.

We have created a bit of fuzz by migrating from fishing mortality and SSB to egg production but the addendum contains enough information that the connection remains. The goal now is to "respond to the decline of the SNE stock... while preserving a functional .. fishery". I believe that requires some additional text in the Introduction that references the % reduction in exploitation required to stabilize the stock (something like 80%) to put into context the range of actions we are considering. 80% cuts are not being considered because we don't believe that would preserve enough of the fishery. I think the rest of the Introduction does a very good job of laying out the situation we are in. The last sentence of Intro paragraph at the top of page 2 I think does a good job of handling the lack of certainty in any action we take. It is a fingers crossed situation.

Thanks again for all of your work on this addendum. Please give me a ring if you have any questions / want to discuss.

Dave

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# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## Division of Marine Resources

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## MEMORANDUM

**To:** Megan Ware  
**From:** Kim McKown  
**Subject:** Lobster Addendum XXV additional management measures from LCMT  
**Date:** December 8, 2016

The NYSDEC mailed letters on November 18, 2016 to Lobster Conservation Management Team (LCMT) 6 and LCMT 4 members and alternates asking them to contact us if they had ideas for additional management measures for Addendum XXV. Letters were mailed to eight LCMT 6 and four LCMT 4 fishermen (see attached letter).

Five LCMT members replied, four from LCMT 6 and one from LCMT4. A number of additional management measures were recommended, they are listed below:

- Very restrictive trap limit. Suggestions ranged from 250 to 500 traps per permit holder.
  - Could have LCMA 6 subarea in Long Island Sound with very restrictive trap limit.
    - Potential subarea would run from 72 degrees 20 minute longitude to 72 degree 50 minute longitude.
  - The trap limit could have a sunset date to reassess if the limit is still needed.
- Decrease effort by increasing the trap tag fee to a large amount (such as \$15 per tag).
- Get rid of latent trap effort. Dates would need to be selected to determine active versus latent effort.
- Pay fishermen market price to v-notch legal females and return them to the water.
- Male only fishery in August – September to preserve the new shell females so they could egg out.
- Increase the quotas for lobster predators, especially black sea bass and scup.

In addition, I heard from a number of fishermen that there were a large number of lobsters caught this year and that they were in very good condition, no shell disease. Fishermen also said there were good numbers of small lobsters.



Department of  
Environmental  
Conservation



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
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NOV 29 2016

David Borden, Chair  
American Lobster Management Board  
Atlantic States Marine Fisheries Commission  
1050 N. Highland Street, Suite 200A-N  
Arlington, VA 22201

Dear David,

Thank you for the memorandum dated November 7, 2016, requesting public comments on potential management alternatives in draft Addendum XXV to Amendment 3 of the Interstate Fishery Management Plan for American Lobster. As participants on the Lobster Management Board and co-managers of the lobster fishery, we provide our comments to assist the Board in moving ahead as soon as possible for public comment with a comprehensive draft addendum to address the continued decline of the Southern New England (SNE) lobster stock.

Now that the Board has chosen to postpone approval of the draft addendum, we question the process that the Board is undertaking with Addendum XXV, as outlined in your memorandum. In October, the Board granted the states time to solicit further comments on the addendum, but it is unclear who they will solicit and how they will accept that commentary. While we certainly endorse public and industry commentary, the memorandum does not state whether this process will convene the Lobster Conservation Management Teams or seek comment from the public.

Further, it appears that this open-ended process could lead to changes to the draft addendum. The memorandum does not outline the opportunity for the Technical Committee (TC) or the Plan Development Team (PDT) to review and comment on any potential changes. Certainly, voting on new material without TC or PDT input would be inappropriate given the importance of the action. It would also seem contrary to Commission best practices and could potentially result in management alternatives that lack the appropriate technical and scientific basis to achieve the addendum's goals and objectives.

Additionally, we have concerns about the scope of the process outlined in the memorandum. As you know, given the poor condition of the SNE lobster stock, the Board voted in August to increase egg production for the stock by 20 to 60 percent, which remains the directive for the PDT, TC, and others who will be commenting on Addendum XXV. We were encouraged to see that the PDT offered, for Board consideration in October, a very effective, responsible, and science-based approach for achieving the various egg production alternatives based on changes to the minimum and maximum lobster carapace sizes, either alone or in combination with seasonal closures and/or trap reductions. The options in the draft addendum are clear and concise. The PDT and TC conducted a substantial number of analyses in advance of the Board's October meeting and concluded that many other potential Addendum XXV alternatives are infeasible based on the best available science. In fact, at the time of the document's development, scientists suggested that gauge restrictions, as the primary measure, are the



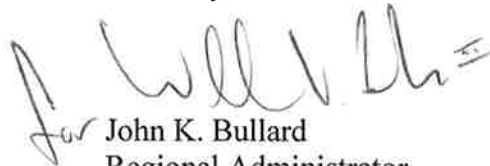
singular reasonable choice. As a result, we urge that the Board not seek unfettered commentary as part of the process outlined in the memorandum. The Board's tasking on measures to increase SNE egg production is clear and commentary outside the bounds of the Board's mandate at this stage will not be useful.

We note the Board's intent to develop Addendum XXV as an initial next step to address the recruitment failure in the SNE stock. We agree that the draft addendum provided by the PDT meets this mandate because it provides a quick and quantifiable means of improving stock conditions. Consequently, we ask that the Board continue its urgency in finalizing Addendum XXV and apply to a subsequent addendum any comments received during the revised process addressed in the memorandum. Alternatively, if the Board considers changes to the addendum based on comments it receives prior to the February Board meeting, then we recommend that the TC and PDT have the opportunity to review them and submit their own comments and recommendations to the Board.

Under the current timeline, the Board will not be able to finalize the management measures for this action until August 2017, at the earliest. This compresses the timeline for implementation by the states and us. It will be a challenge for us to implement Federal regulations by the start of the 2018 fishing year that begins May 1, 2018. Accordingly, we recommend that the Board take action to expedite the development of this addendum so we can see the benefits as soon as possible.

We look forward to continuing to collaborate with the states and the industry in the conservation of the American lobster stock and fishery.

Sincerely,

  
for John K. Bullard  
Regional Administrator



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** American Lobster Plan Development Team  
**DATE:** January 12, 2017  
**SUBJECT:** Revisions to Draft Addendum XXV

The American Lobster Plan Development Team (PDT) met via conference call on January 4, 2017 to review the recommendations made by the American Lobster Management Board (Board) and Subcommittee on draft Addendum XXV. The PDT then made changes to Draft Addendum XXV based these recommendations and a revised Addendum is included in briefing materials for Board consideration. The intention of this memo is to provide a synopsis of the discussion had by the PDT so the Board may better understand revisions made to draft Addendum XXV. This memo highlights areas where the PDT expanded upon, deviated from, or expressed concerns about the Board's recommendations. This memo also highlights a question for the Board regarding what year should be the baseline by which egg production increases will be measured. The PDT has drafted language for the Board to use a starting point for their discussion. All other changes from the Board and the Subcommittee were included, as recommended, in draft Addendum XXV.

### Editorial Changes

- There was a recommendation to include ventless trap survey data in *Section 2.2 Resource Issues* in order to provide additional evidence of low settlement, especially in recent years. Given that the ventless trap data has a limited timeframe and would not show a full picture of declines in settlement, the PDT included larval survey data from Old Dominion Power Plant and Connecticut DEEP which has an extensive time-series (1983-2015). The PDT believes this provides a more complete picture of settlement declines in SNE.

### Additional Alternatives for Inclusion in Draft Addendum XXV

- There was a recommendation that alternatives be added to the document to investigate how gauge size changes could be implemented to minimize impacts on interstate commerce. ASMFC has received advice that this document should not address issues related to interstate commerce and as a result, the PDT did not include this issue in draft Addendum XXV.
- There was a recommendation that an issue regarding the implementation of season closures be added to draft Addendum XXV, with management alternatives that ask whether a season closure restricts the landings of lobster, implements a possession limit for bycatch fisheries, or requires lobster traps to be hauled out of the water. The PDT has added these issue to the document (*Issue 4: Season Closure*); however, the PDT recommends Option C, which allows for lobsters to continue to be landed under the non-trap bycatch provision, be

removed from the document. The PDT finds this option defeats the purpose of a season closure because it allows for continued harvest and could create enforcement challenges if a harvester has permits for both lobster pots and mobile gear.

- There was a recommendation that impacts to the recreational fishery be addressed in an additional issue. The PDT has added this issue to the document (*Issue 3: Recreational Fishery*); however, the PDT did not add an option that exempts the recreational fishery from changes to the gauge size. The PDT expressed concern that exempting the recreational fishery from changes to the gauge size could create two sets of minimum and maximum sizes: one for the recreational fishery and one for the commercial fishery. This could create enforcement challenges in the fishery and undermine the gauge sizes set in the commercial fishery.
- There was a recommendation that an issue be added to draft Addendum XXV to further explore the standardization of management measures across LCMA's. The PDT has added this issue to the document (*Issue 5: Standardized Regulations*); however, some members of the PDT expressed concern that standardizing regulations across LCMA's could create implementation challenges. Notably, LCMA's would have to find a uniform set of management measures which continue to achieve the 10% decrease in fishing mortality prescribed in Addendum XVII and achieve the targeted increase in egg production in this addendum. On the other hand, the PDT encourages uniform measures be implemented within a LCMA; states should not have different regulations for the same LCMA. Some level of standardization may also be desired since lobsters and fishermen (i.e. dual-permit holders) can move between areas.
- There was a recommendation that an issue be added to the document which asks whether LCMA's 2 and 3 should receive credit for the on-going trap reductions implemented in 2016 as a part of Addendum XVIII. In their discussion of this issue, the PDT concluded the primary question this issue asks is: what time period does this addendum consider to be 'current conditions'? Said another way, this issue prompts the question: what is the baseline from which the Board will measure increases in egg production? In reviewing the TC reports on trap reductions, gauge size changes, and season closures, all of these analyses rely on data from the 2015 stock assessment and use data through 2014. This means that these analyses do not include biological benefits that may result from the on-going trap reductions. To address this issue, the PDT has added the following language to draft Addendum XXV:

*The starting point from which this document measures changes in egg production is 2014. This represents the last year for which data were incorporated into the 2015 Stock Assessment as well as the last year for which data were used in the TC's analyses on the management tools included in this document. Table 8 shows the management action implemented by each LCMA before and after 2014. Management action implemented after 2014 is not accounted for in the analysis for this addendum and, as a result, counts towards the egg production target chosen by the Board. The value of egg production credit will depend on the management tool used and the extent of the management action taken, and will be reviewed by the Board. Other measures which were not implemented as a result of an addendum but which a LCMA*



*believes contributed to a measurable increase in egg production since 2014 may be brought before the Board through the through the LCMT proposal process.*

Should the Board disagree with the above language, the Board needs to direct the PDT on how they would like to resolve this issue and what baseline they would like to use to measure increases in egg production. Furthermore, if the Board would like to exempt certain management tools from receiving credit, that needs to be specified by the Board. An eventual question for the Board will be what level of credit will be given to LCMAs who have implemented management measures after 2014. The PDT does not feel it is in their purview to comment on the amount of credit received.

- There was a recommendation that an issue be added to draft Addendum XXV which allows for the acceleration of on-going trap reductions in LCMAs 2 and 3. While the implementation timelines prescribed in Addendum XVIII provide the final date by which trap reductions can be completed, there is nothing which stops a LCMA from implementing trap reductions ahead of schedule. Rather than adding an issue to address this topic, a sentence was added to *Section 3.0 Management Measures* which states that LCMAs can accelerate on-going trap cuts in order to meet the final objectives and timeline selected by the Board in draft Addendum XXV. The PDT does note that the acceleration of trap reductions, as opposed to the implementation of trap reductions on the current schedule, does not result in a significantly higher increase in egg production.
- There was a recommendation that an issue be added to draft Addendum XXV which considers whether management tools should be linked together or independent of one another. The PDT has added this issue to the document but notes trap reductions and season closures are limited in their ability to produce large increases in egg production. As a result, higher egg production targets may necessitate the use of gauge size changes.

A Proposal from Rhode Island to Add an Option to Issue 6: Implementation of Management Measures in LCMA 3

Currently there are an estimated twelve lobster vessels that fish east of 70 degrees for lobster in the spring and summer and then in the fall and winter fish for crabs west of the 70 degree line. The number that do so changes by year and fishing season. This provision would allow vessels to continue their current practices within the overlap area and allow the continuation of the historic crab fishery in SNE. This change would also reduce the probability of a redirection of effort into the eastern area and the Gulf of Maine.

Option D: Split LCMA 3 along the 70°W Longitude Line with an Overlap Area

Under this option, LCMA 3 fishing declarations would be split along the 70°W longitude line to create an eastern section and a western section in LCMA 3 with an overlap area of 30' on either side of the 70°W longitude line. The eastern boundary of the LCMA 3 overlap would be comprised of the area west of the 69° 30' W longitude line. The western boundary of the overlap would be comprised of the area east of 70° 30' W longitude line. Within this overlap area, permit holders who declare fishing activity in either LCMA "3W" (SNE) or LCMA "3E" (GOM) would be allowed to fish for American Lobster or Jonah Crab regardless of their LCMA 3 sub-area declaration. The western portion of LCMA 3 would be comprised of areas west of the 70° 30' W longitude line which are currently a part of the SNE stock. The eastern portion of LCMA 3 would be comprised of areas east of the 69° 30' W longitude line which are currently a part of the GOM/GBK stock.

On an annual basis, LCMA 3 fishermen could elect to fish exclusively in the western or eastern portions of LCMA 3 while being allowed to fish annually in the overlap zone without the need to change their area declaration. In the overlap zone, the fishermen would be held to the management measures of the sub-area declared. Fishermen can elect to fish exclusively in either portion of LCMA 3 at the start of the fishing year but not during a fishing season. Trap tags would be amended to include "3E" for fishermen exclusively fishing in the eastern portion of the LCMA and "3W" for fishermen exclusively fishing in the western portion of the LCMA. Traps with "3E" trap tags can only be fished in the eastern portion of LCMA 3 or the overlap area while traps with "3W" can only be fished in the western portion of LCMA 3 or the overlap area.

LCMA 3 permits and trap allocations may still be transferred as specified in Addendum XXI and the transfer recipient will designate at the start of the fishing year in which section he/she would like to fish. Season closures and gauge size changes adopted in this addendum would only apply to the western portion of LCMA 3. Trap reductions would apply to all LCMA 3 permit holders as fishermen are able to switch their annual designation.

A Proposal from Delaware, Maryland, and Virginia to Add an Issue to Draft Addendum XXV to Consider an Exemption for De Minimis States

The three states at the southern end of the commercial American lobster fishing range, Delaware, Maryland, and Virginia contribute little to American lobster landings, less than 0.1% coast wide and, at most, 2% of SNE. The lobster fishery in these states is, for the most part, a secondary fishery for the black sea bass fishery and participation in each state is limited to very few (<5) lobster permit holders. Recent American lobster biological information from the benchmark assessment suggested that lobsters inhabiting the southern end of its range were living under conditions not conducive to lobster reproduction and these lobsters were not likely to contribute much to the recovery of the SNE lobster population. The management measures proposed in Addendum XXV will impose a large administrative burden on the de minimis states relative to the size of their lobster fisheries and the importance of the lobsters targeted in the de minimis states to the SNE population. De minimis states want to allow their few lobster permit holders to continue some level of harvest, but the costs of compliance with all Addendum XXV management measures could force de minimis states to close their lobster fisheries. The potential benefit of reducing the already extremely low landings from de minimis states to the stated goals of Addendum XXV is small, since these minimal landings do little to drive fishing mortality or egg production. Allowing de minimis states an exemption from Addendum XXV requirements based on the criteria selected from options below could afford the few existing permit holders a chance to remain in the fishery.

Amendment 3 to American Lobster FMP (ASMFC 1997) allows the Board to exempt de minimis states from management actions, “If de minimis status is granted, the de minimis state is required to implement, at a minimum, the coastwide requirements contained in Section 3.1 of Amendment 3. 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. For all other required components of the plan, the Board will specify by motion which measures a de minimis state must adopt”. The Board may opt to require de minimis states to implement all Addendum XXV management measures or to exempt de minimis states from these management measures provided these states meet certain conditions.

**Issue X: De Minimis Management Options**

***Option 1:*** Status Quo - De minimis states must implement all Addendum XXV management measures.

***Option 2:*** De minimis states are exempted from Addendum XXV management measures if the said states meet the following conditions:

- a) Close the lobster fisheries in the de minimis state to new entrants (state permit/license transfers allowed)
- b) Allow only lobster permit/license holders of the de minimis state to land lobsters in that state
- c) Limit landings in the de minimis state lobster fishery to the de minimis level of no more than 40,000 lbs. annually



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** American Lobster Technical Committee  
**DATE:** January 12, 2017  
**SUBJECT:** Report on the GOM/GBK Stock

At their May 2016 meeting, the American Lobster Management Board (Board) charged the American Lobster Technical Committee (TC) with a series of tasks to investigate stock conditions in the Gulf of Maine and Georges Bank (GOM/GBK). This was prompted by the 2015 stock assessment which found that, while the GOM/GBK is at record high abundance, there has been a decline in settlement in recent years. This could be a sign of poor recruitment in the future.

To more fully understand potential changes occurring in the GOM/GBK stock, the Board tasked the TC with: describing ocean currents and larval supply patterns; investigating stock connectivity; identifying changes in the size distribution of egg-bearing females; plotting a stock recruit relationship; investigating the potential standardization of biological management measures; develop a traffic light analysis; and identifying research holes and data gaps. The TC also investigated habitat availability for recruitment.

The TC met via conference call on September 7<sup>th</sup>, November 29<sup>th</sup>, and January 6<sup>th</sup> as well as in-person on September 27<sup>th</sup> and 28<sup>th</sup>. Below is the TC's analysis on the tasks requested by the Board. An executive summary is presented on pages 2-3 followed by the full report.

The TC would like to start by noting that current reference abundance and SSB are at all-time highs according to the 2015 stock assessment. While YOY indices have declined, the trends in total abundance and SSB suggest that egg production is not the cause behind the observed declines in young-of-year (YOY) settlement.

## Executive Summary

**Ocean currents** play a critical role in the life history of lobsters as studies suggest there is a strong connectivity between the life stages of lobster that rely on physical oceanography. Lobster larvae in the GOM are primarily transported by the Gulf of Maine Coastal Current (GMCC) which moves counter-clockwise and is comprised of two major branches including the Eastern Maine Coastal Current, which flows intensely along the shore from the Bay of Fundy to Penobscot Bay, and the Western Maine Coastal Current, which is weaker and flows southwest along the coast west of Penobscot Bay. Potential changes in the Gulf of Maine oceanography, including changes in temperature, stratification, phytoplankton species composition, and wind forcing advection patterns could all impact lobster settlement and recruitment.

Based on tagging data, lobster movement appears to be quite complex with long distance movements between some areas, but limited evidence of exchange in other areas. Although there is tag data suggesting some movement of lobsters between GOM and GBK, the impacts of this movement cannot be determined with the existing tagging data. Using historic tagging data alone to determine stock **connectivity** is inconclusive and requires some additional research. In an effort address this question, the TC intends to further analyze a historic tagging study that was recently brought to their attention and continue to collect/analyze data on a recent tagging effort on GBK. Larval connectivity, as well as the location of larval sinks, is dependent on the GMCC. Typically the GMCC operates in a “gate ajar” scenario, causing water to be deflected offshore at Penobscot Bay with some leaking into the WMCC; however, the GMCC can flow in a “gate open” scenario, which causes greater water flow along the coast strengthening WMCC, or a “gate closed” scenario when the current is completely deflected offshore at Penobscot Bay.

Commercial trap sampling data provides evidence of **decreased size-at-maturity**. Increases in the proportion of egg-bearing females in the 76-80 mm CL size range are evident in all statistical areas but most prominent in the southern portion of GOM. Importantly, while spawning stock biomass is at an all-time high and larval indices show increases in the abundance of Stage I larvae, there has been a noticeable decrease in the abundance of stage IV larvae. This could be the result of changes in wind patterns (advection), food availability, or timing of hatch. There is evidence that zooplankton populations have decreased in recent years and that eggs are hatching earlier in the season.

In an effort to look at the **habitat available for recruitment**, analysis was undertaken to examine the quantity of habitat by depth for the GOM. The results show that incremental increases in depths suitable as recruitment habitat would likely result in incremental increases in total recruitment habitat. This suggests that the decrease seen in settlement cannot be explained solely by increases in the habitat available for recruitment. More work is needed to assess the importance of, and potential changes in, temperature and increased bottom complexity with depth.

The **stock-recruit relationship** for the GOM/GBK shows increases in recruitment through the time series. The relationship between recruitment and SSB is generally linear from 1981-2002, suggesting that recruitment per unit of spawning biomass was stable. In contrast, recruitment between 2002 and 2007 increased while spawning biomass remained relatively stable, suggesting that recruits per unit of spawning biomass increased over these years. In contrast, spawning biomass in SNE has remained stable since 2003 while recruitment has decreased, suggesting a decline in recruitment per unit of spawning biomass.

**Biological management measures**, namely gauge size changes, were explored as a way to improve resiliency of the stock. Analysis shows that increasing the minimum size is predicted to increase total catch in the fishery by weight but decrease catch by number. Furthermore, increases in the minimum gauge size could result in dramatic increases in the number of mature lobsters and SSB, potentially adding resilience to the fishery. An important caveat regarding this analysis is that, given lobster abundance in the GOM is already at record levels, it is unclear whether the ecosystem can support large increases in the amount of lobster biomass.

The development of a **Traffic Light Analysis (TLA)** was explored as a method to maintain high catch rates in the GOM/GBK; however, several concerns were noted with this method. Primarily, concerns were expressed that a TLA is designed for data-poor species and that color coded model-free indicators are already created as a part of the stock assessment, and can be used for annual updates to monitor stock conditions. Recognizing the Board's desire to be proactive, the TC recommends the Board monitor the ventless trap surveys for decreases in recruitment as this would confirm changing stock conditions. Further, it is recommended that management action be triggered at the 50th percentile, rather than the 25th percentile. Finally, the TC could develop an environmental indicator based on water temperature, should the Board desire this analysis.

Given the effects of water temperature of lobster life history, **research** is critically needed to update the maturity and growth information used in the stock assessment. Studies are also needed to examine age- or length-varying natural mortality and post-larval settlement dynamics given changes in the distribution of spawning females.

## **1. Ocean Currents in GOM**

Circulation changes in the Gulf of Maine may have implications for future recruitment and spawning stock of American lobster through population connectivity. Recent genetic work indicates lobsters north of Nova Scotia and in the Gulf of St. Lawrence may be genetically different than the GOM/GBK and SNE stocks; however, lobsters within the U.S. managed stocks appear to be genetically indistinguishable, suggesting possible stock mixing (Benestan et al., 2015). Synchrony between settlement densities and models that predict larval transport suggests there is strong connectivity between these life stages that rely on physical oceanography (Incze et al., 2010). Given the apparent significance of circulation on recruitment, Gulf of Maine current systems are summarized to evaluate prospective future challenges under a changing environment.

The Gulf of Maine is a semi-enclosed system with an overall counterclockwise circulation (Figure 1). The majority of deep water entering the Gulf of Maine is through the Northeast Channel, located between Georges Bank and Browns Bank (Figure 2). Water masses entering deep through the Northeast Channel are largely influenced by current systems north and south of the domain and are reflective of the slope water outside of the Gulf (Townsend et al. 2004). The slope water conditions vary based on the predominance of two types of slope water: the Labrador Sea Slope Water (LSSW) and the Warm Slope Water (WSW) (MERCINA, 2001; Townsend et al., 2010). The LSSW originates from the Labrador Current, moves south around the Grand Banks towards the Northeast Channel, and is characterized as cold, fresh, and low in nitrate. The WSW originates from the Gulf Stream, moving north/northeast, and is typically warmer, saltier, and higher in nitrate than the LSSW. Prevalence of either water mass on the slope and that enters the Gulf of Maine typically depends on the strength of the Labrador Current and/or Gulf Stream. The strength of these current systems are linked to the atmospheric pressure system over the North Atlantic, represented as the North Atlantic Oscillation (MERCINA, 2001, Pershing et al., 2005). NAO phase shifts and changes in slope water temperatures have implications for water column mixing, primary productivity, and zooplankton abundances in the Gulf of Maine (MERCINA et al. 2001, 2004). With strong tidal mixing and progressive counter-clockwise circulation in the northern Gulf of Maine, deep water entering via the Northeast Channel is vertically mixed with surface waters. At the surface, these waters move counterclockwise in the Gulf of Maine and eventually exit through the Great South Channel between Georges Bank and Nantucket Shoals, or the Northeast Channel.

Fresh, less dense surface water enters the Gulf of Maine from the Scotian Shelf (Brown and Beardsley, 1978; Pettigrew et al. 1998; Ji et al. 2010). It is this northern portion of the Gulf of Maine, near the mouth of the Bay of Fundy, where the Gulf of Maine's coastal current system begins, known as the Gulf of Maine Coastal Current (GMCC). The GMCC is a pressure gradient current driven by freshwater inflows to the Gulf of Maine (Pettigrew et al. 2005). GMCC surface waters flow south as part of two major branches. The Eastern Maine Coastal Current (EMCC) is characteristic of a cold band that extends southwestward from the Bay of Fundy towards Penobscot Bay. At this juncture, the EMCC bifurcates (Figure 2). One pathway includes water moving offshore to the center of the Gulf, contributing to the cyclonic circulation around Jordan Basin (Pettigrew et al. 1998). The other branch continues along the coast to what becomes the Western Maine Coastal Current (WMCC) (Brooks, 1985; Pettigrew et al., 2005). The WMCC is a buoyant, wind-driven current which accumulates plume water from several Maine rivers (e.g. Kennebec, Androscoggin, Penobscot, Merrimack and St. John Rivers) as it flows southwest (Geyer et al., 2004; Janzen et al., 2005). Plume thickness within the WMCC can be 20m in depth up to 100m, suggesting the WMCC can be stratified over the water column depending on the amount of freshwater (Geyer et al. 2004). Once around Cape Ann, the WMCC either enters northern Massachusetts Bay or moves offshore

along the eastern edge of Stellwagen Bank towards Georges Bank, depending on the wind conditions (Lynch et al., 1997; Jiang et al., 2007).

The physical structure of the GMCC and its two branches (EMCC, WMCC) can change from year to year. Pettigrew et al. (2005) described the three GMCC summer scenarios at the interface of the EMCC and the weaker WMCC. The typical condition of the GMCC is “gate ajar” where most of the EMCC deflects offshore at Penobscot Bay, though there is some spillover in the nearshore into the WMCC. The two other scenarios are when the EMCC is connected to the WMCC increasing the western flow and connectivity as a “gate open” condition or the “gate closed” condition where the EMCC does not flow west of Penobscot Bay and is deflected offshore. *Section 3B: Larval Connectivity* describes how these three scenarios can impact larval settlement.

The GMCC strength and water properties have implications for downstream nutrient and particulate loading (Balch et al., 2012), phytoplankton species composition (Jiang et al. 2014) harmful algal bloom prevalence (Franks and Anderson 1992), primary productivity (McManus et al., 2014), and larval fish transport and survival (Churchill et al. 2016). Particularly for the clockwise gyre circulating around Georges Bank, phytoplankton biomass produced in GMCC can support biological productivity on the Bank (Hannah et al., 1998).

As such, lobster settlement in coastal Maine may be influenced by the transport and the habitat structure of the GMCC. Physical transport, behavioral responses to changing environments, and reduced survival are all mechanisms that the GMCC may have on lobsters from hatch to settlement. Annis et al. (2013) found that while larval lobster abundances did not vary across different bottom temperature regions in coastal Gulf of Maine, settlement abundances were higher in the warmer (>12°C), coastal areas. Barret et al. (2016) also identified temperature as critical in dictating larval survival, settlement behavior, and post larval energetics. The authors found that thermoclines in the water column reduce settlement (Barret et al. 2016), thus prospective stratification in the GMCC could impact recruitment for the GOM/GBK stock. Differences in the EMCC and WMCC systems may transcend to spatial differences in lobster recruitment patterns along the coastal Gulf of Maine. Chang et al. (2016) found that stock-recruitment relationships, both fitness, form, and parameter estimates, varied between eastern and western Gulf of Maine. Further, the authors note that data aggregation and analyses at a medium scale were best in identifying stock-recruitment relationships. Thus, while it is known that fine-scale oceanographic processes are important to larval settlement, there is not a good understanding of how to scale this fine-scale information up to the population level.

Future changes in Gulf of Maine oceanography and the GMCC may have implications for larval transport and settlement locations. Given lobster larval transport relies heavily on the GMCC and varies with strength of the GMCC and prevailing winds (Xue et al. 2008), long term changes in stratification, river runoff, and temperature may influence mortality rates through thermal tolerance, larval drift offshore and food supply. Sea surface temperatures and days above thermal thresholds in coastal Gulf of Maine have increased since the 1980s (Figure 3). The northwest Atlantic is projected to further increase in temperature in the coming decades (Saba et al., 2016), which could increase Gulf of Maine temperature and stratification, as well as alter the water masses circulating in the Gulf of Maine.



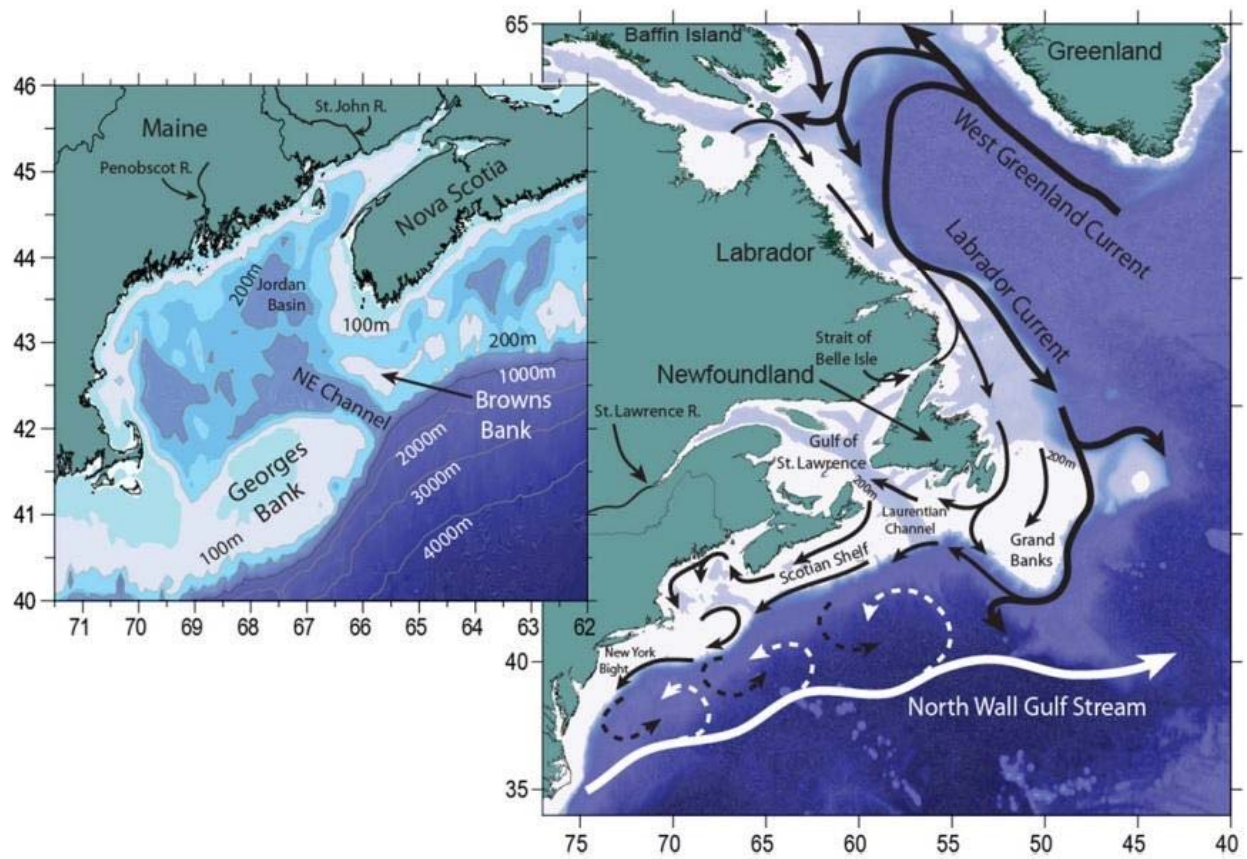


Figure 1. Maps of Gulf of Maine and Georges Banks (left) and larger northwest Atlantic current paths (Townsend et al., 2010).

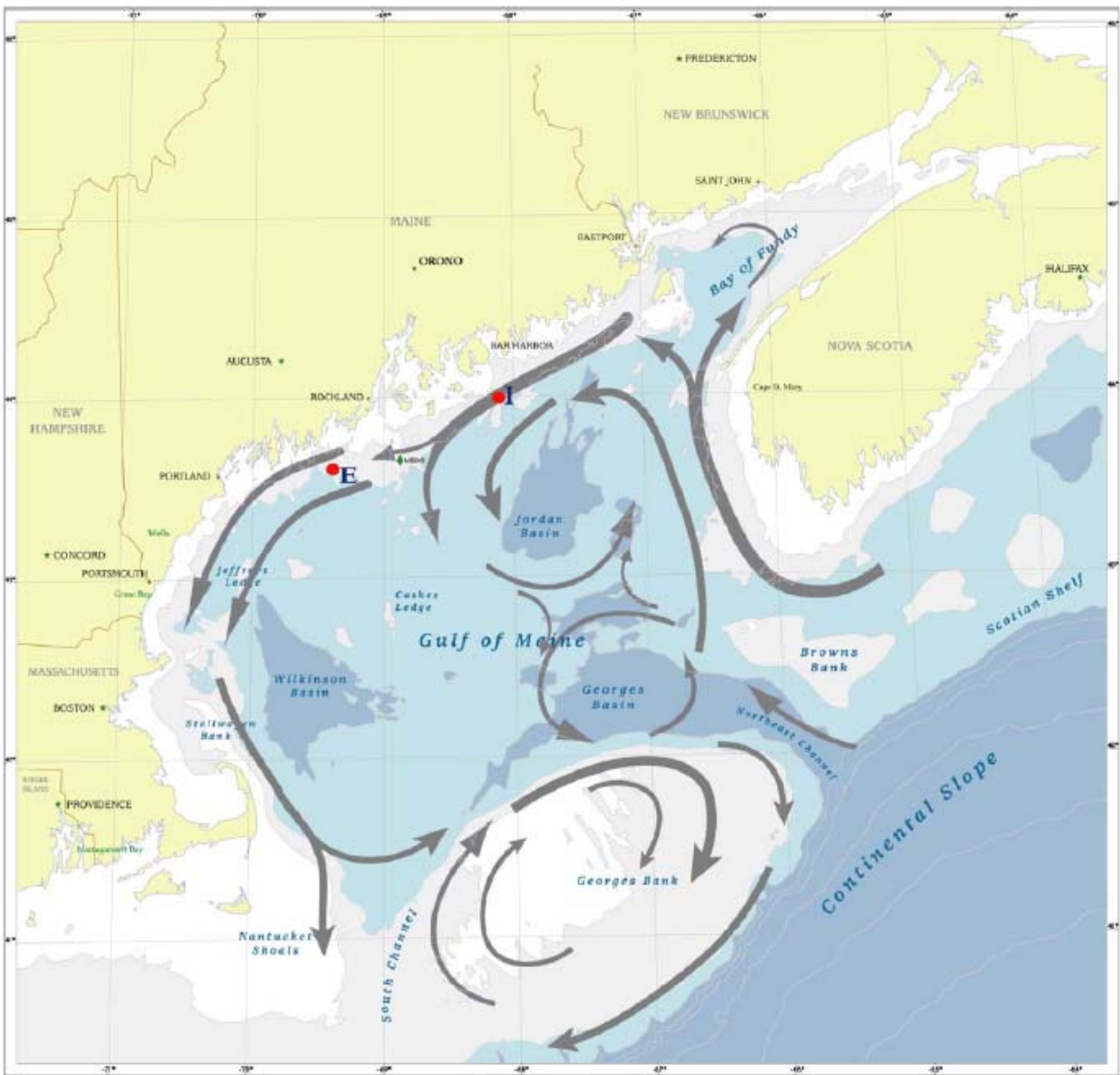


Figure 2. Finer scale circulation of Georges Bank and the Gulf of Maine. The EMCC and WMCC are delineated with the bifurcation near Penobscot Bay (Pettigrew et al. 2005).

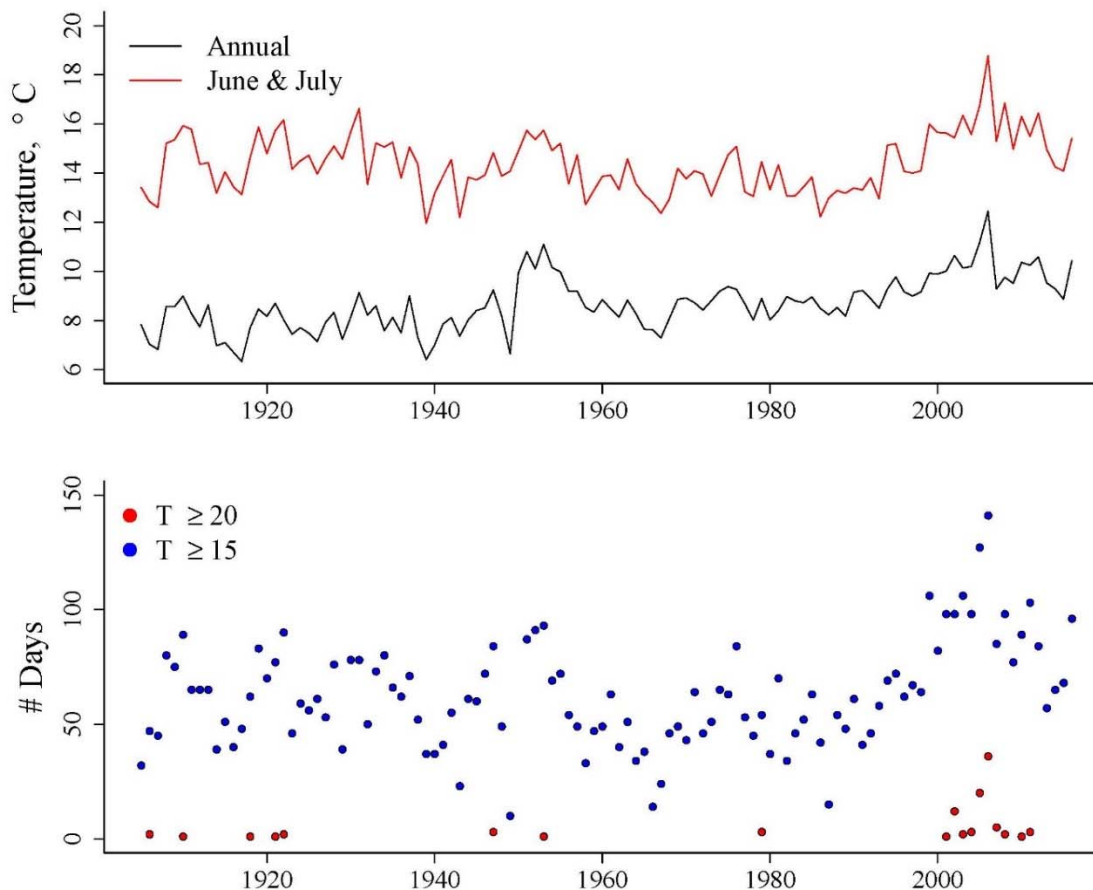


Figure 3. Long-term Boothbay Harbor, ME average sea surface temperatures (top) annually (black) and May-June only (red). Number of days per year  $\geq 15$  (blue) and  $20^{\circ}\text{C}$  (red) from the same data are also presented (bottom).

## 2. Connectivity Between GOM, GBK, and Canada

### A. Tagging Studies Show Some Migration Over Stock Boundaries

American lobster movement has been studied dating back to 1898, when Herman Bumpus released approximately 500 mature females near Woods Hole, Massachusetts (reviewed in Krouse, 1980). This tagging study, as well as others that followed through 1950 showed that lobster movement was limited to  $<18\text{km}$ . It wasn't until 1957-59 when Robert Dow tagged 162 non-legal lobsters (i.e. sublegals, ovigerous, v-notch and oversize) on the coast of Maine that it was discovered lobsters can take on extensive movements (Dow, 1974). One lobster in Dow's study traveled 138 miles in 7 months.

Since the early tagging studies conducted from 1898-1960, it's easy to get lost in the volumes of information available with regards to lobster movement. To date there have been well over 40 studies conducted with some form of active or passive tagging device. There are certain patterns that tend to hold true for lobster movement throughout the range and there are also some discrepancies and questions that remain unanswered.

It's well established in literature that smaller lobsters, in particular, early benthic phase lobsters are cryptic and move little from areas which provide shelter from predators (Wahle and Steneck, 1992). Larger immature lobsters show limited movement whereas movement increases as individuals

reach sexual maturity (Morrissey, 1971; Dow, 1974; Krouse, 1980; Campbell and Stasko, 1985; Campbell and Stasko, 1986, Campbell, 1989). Several research papers have shown that sexually mature lobsters tend to exhibit seasonal patterns of movement towards deep waters in the colder months and towards shoal waters in the warmer months (Cooper and Uzmann, 1971; Campbell and Stasko, 1986; Campbell et al., 1984; Krouse, 1980; Campbell and Stasko, 1986; Campbell, 1986). Authors of these papers have hypothesized that these directed movements are to obtain sufficient heat units for egg development. Furthermore, Aiken and Waddy (1992 and 1995) suggested that temperatures must decline to less than 8°C in the winter for proper synchronization of the molt/reproduction cycle. There's a strong association between lobsters and temperature and it has been demonstrated they will behaviorally thermoregulate (Crossin et al., 1998) and can detect very small changes in temperature (Jury and Watson, 2000).

The abovementioned patterns are well documented and there's a general consensus on these topics among the scientific community. In contrast, attempting to use these past tagging studies to assess impacts of movement on stock structure has proven quite difficult. Tagging conducted in Canada near Grand Manan and on Browns Bank has shown some movement of animals throughout the Gulf of Maine and Georges Bank (Campbell and Stasko, 1985 & Campbell and Stasko, 1986). Furthermore, preliminary results from a tagging study conducted in the 1980s that was recently brought to the attention of the TC indicates that some lobsters tagged in offshore GOM moved both to GBK and to inshore GOM. The rate of exchange between these areas is still unclear, but further analyses will be pursued by TC members once this dataset is located (NMFS, unpublished).

Another approach to determining mixing between the stocks is to tag lobsters on Georges Bank and assess movement from tags recaptured inshore. Past tagging studies using this method have shown limited movement between the stocks (Cooper and Uzmann, 1971; Campbell et al., 1984). Between 1968 and 1973, a total of 5,500 lobsters were tagged on GBK and Browns Bank and none were recaptured inshore north of Cape Cod.

In an attempt to better determine movement between GBK and GOM; AOLA and NH Fish and Game were awarded a grant to tag ~4,000 lobsters on Georges Bank in 2015. Tag returns from this project are still being reported and final results will be available in 2019. Of the 3,500 tags deployed during the duration of this study, thus far, 100 have been recaptured. A large majority of these recaptures were from GBK; however, one lobster was reported "inshore" in Gulf of Maine and three returns were reported from Canada. Tag returns from this project will continue to be collected and updates will be provided to the Board. In addition, TC members from both Maine and New Hampshire are working with AOLA to secure funding to continue tagging on GBK and in the deep water of the GOM.

There are limitations associated with this type of tagging method, mainly that the days-at-large for many of these studies are on the order of weeks and spatiotemporal patterns of fishing effort can create biased patterns in tag-return rates. Empirical data from the most recent assessment suggests movement between stocks based on NMFS trawl survey data as there are high catches of females in the fall which are not present in the spring (ASMFC, 2016).

In conclusion, inshore tagging studies in the GOM have shown movement throughout inshore Gulf of Maine and to the OCC, but no movement to Georges Bank proper. Additionally, lobsters tagged on GBK have shown minimal movement to the Gulf of Maine; however, preliminary results from a newly re-discovered tagging dataset indicate that lobsters tagged in offshore GOM have been

reported to move to both GBK and to inshore GOM. Lobster movement appears to be quite complex with long distance movements between some areas, but little to no evidence of it in other areas. Although there appears to be some movement between GOM and GBK, the impacts of this movement on population structure, looking solely at tagging studies, cannot be determined at this time based. In an effort to better understand stock structure, the TC will further pursue analysis of the offshore GOM dataset that was recently brought to our attention and continue to analyze data from the 2015 GBK tagging effort.

### **B. Larval Connectivity**

Coupled biophysical models have been used to describe the connectivity for larval lobsters in the Gulf of Maine system with different scales and parameters considered (Incze et al., 2010 and Xue et al., 2008). The management areas considered were a combination of Canadian regions, Maine Lobster Zones, and southern GOM areas in New Hampshire and Massachusetts (Figure 4). They found that source and sink larval dynamics are complex and likely a combination of self-recruitment in local areas, adjacent areas, and distant sources. Larval connectivity in the GOM depends on egg production, hatching location, hatch timing, larval development times, coastal current transport, drift by wind forcing, and the location and size of the receiving management zones (Incze et al., 2010 and Xue et al., 2008). Some of these parameters can be difficult to model, especially if the annual trends vary in strength and direction, like wind forcing (Xue et al., 2008).

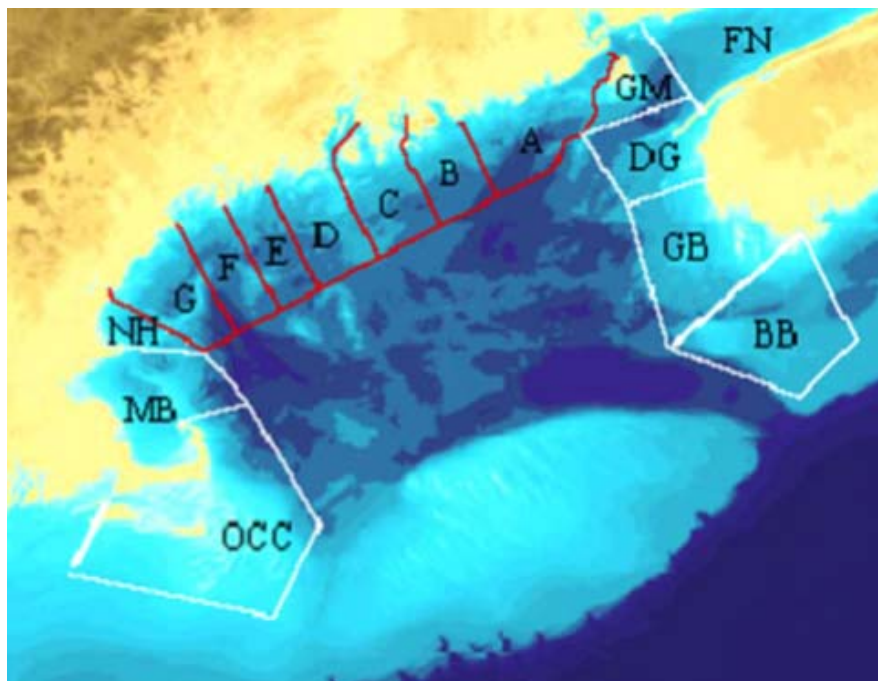


Figure 4. Management areas considered by modeling of small particles as proxy for larval connectivity. Red polygons A–G are Maine’s Lobster Management Zones; others are: BB (Browns Bank); GB (German Bank); DG (Digby Neck); FN (Bay of Fundy); GM (Grand Manan); NH (New Hampshire); MB (Massachusetts Bay) and OCC (Outer Cape Cod). (Xue et al., 2008.)

As discussed in the first section, the prevailing direction of larval transport in GOM is via the GMCC in a counterclockwise cyclonic direction along the coast; however, the degree of the larval sink dynamics for each inshore management area can depend on the inter-annual variability of sea surface temperatures as well as the strength and interaction of subsections of the nearshore current, offshore wind forcing, and eddies. Incze et al. found that post-larvae in a management area

(Figure 4) were hatched in the same, adjacent, or nearby zones in the prevailing upstream direction, but it was also common that the sources could be diverse and distant (Incze et al, 2010). The predicted distance of travel depended on assumptions about larval mortality in addition to currents. There was less accumulation in the eastern regions and greater accumulation in western management areas, but overall Xue et al. found that 20-40% of the modeled particles remained in a local area. Eastern GOM, consisting of the Bay of Fundy and eastern Maine management zones, were primary sources for settlers for downstream areas with higher levels of egg production and the strong EMCC carrying the larvae downstream (Incze et al., 2010). Western Maine, especially just west of Penobscot Bay in Zones D and E, acted as sink areas. Based on field survey data from 1989-2001, there were more post-larvae in western Maine than there were in eastern areas confirming these patterns (Annis, 2004).

Also discussed in the first section are the three summer scenarios for the physical structure of the EMCC and WMCC (gate ajar, gate open, gate closed). Incze et al. (2010) determined these three scenarios impacted larval transport, especially for the zones at the interface of the two branches of the GMCC. When the gate was ajar or open, more larvae were predicted to travel to western zones while the gate closed scenario allowed for more offshore transport during the early to mid-summer months (Incze et al., 2010). Additional eastward drift from wind forcing primarily impacted the post-larvae along the coast because biologically they were most likely to be at the surface and subject to Ekman transport by the prevailing southwesterly summer winds (Xue et al., 2008). The modeled scenarios also tested the fate of larvae which hatch later in the season when the prevailing winds change direction, and predicted less eastward advection of larvae and therefore less offshore supply from US areas to the Canadian areas of Browns Bank and German Bank (Xue et al., 2008).

There continues to be uncertainty about the connectivity with offshore areas, especially as a source of larvae. Some preliminary modeling by Quinn et al. (in prep but not peer reviewed), expanded Incze and Xue's GOM models to the offshore banks, Nova Scotia and Gulf of St. Lawrence. Quinn's initial model predictions confirmed the limited connectivity between Gulf of Saint Lawrence and GOM and those regional population assemblages determined by genetic studies (Benestan et al., 2015). Quinn et al.'s model also implied that Georges Bank could be a partial sink for larval supply coming from southern Maine, New Hampshire, and Massachusetts. Harding et al. (2005) suggested that the exact source for post-larvae found near the offshore banks likely varies annually and depends on the strength and location of wind fields near and offshore. As noted above, Xue et al. confirmed this idea of inter-annual variability. There is evidence of additional high self-recruitment from the preliminary model predictions (Quinn et al., in prep), but post-larvae have been observed over Brown's and Georges Bank at the same time as the resident ovigerous females are hatching so there was no credible development period for those observed post-larvae to be locally recruited (Harding et al, 2005).

The connectivity of the inshore lobster population in the Gulf of Maine is high and depends on inter-annual environmental variability, hatching location, larval development, mortality, larval dispersion rates, relative egg production among zones, and transport pathways impacting losses and gains. There is modeled evidence for variable larval connectivity to the offshore banks, including Georges Bank. The role of each area as a sink or source may have specific consequences and implications with future environmental and management changes. While larval connectivity is very important, ocean currents and temperatures alone cannot control changes in all recognized connectivity and, it is important to also consider the biological process of growth, maturity, and adult lobster movement.

### 3. Size Distribution of Egg-Bearing Females

#### A. Evidence of Decreased Size At Maturity

While specific studies to update size-at-maturity have not been conducted recently, evidence from various states' commercial trap sampling programs indicates that there has been a downward shift in size-at-maturity. This coincides with multiple reports from fishermen stating they have been seeing smaller females with eggs than in the past. The TC examined the commercial trap sampling data for Maine (NMFS Areas 511, 512, and 513), New Hampshire (NMFS Area 513), and Massachusetts (NMFS Area 514) for changes in the proportion of females in 5 mm size bins that were egg-bearing. We used only those sizes that have always been below minimum legal size, to avoid any influence in changes in gauge size on the proportion egg-bearing. Each state and statistical area was analyzed separately, to examine geographic differences.

Increases in the proportion of females bearing eggs in the 76-80 mm CL size range are evident in all statistical areas, but are most dramatic in the more southern SAs, representing the southern portion of GOM (Figure 5a-e). In MA, which had the longest data set available for this analysis, increases in proportion egg-bearing in the 76-80 mm size bin started in the early 1990s, and over the time series have gone from 0.02 (2%) to around 0.14 (14%) (Figure 5e). Increases in the proportion of females bearing eggs are also evident in the 71-75 mm size class in the more southern SAs, specifically 513 and 514 (Figure 5c,d,e).

These data indicate that lobsters in the southern GOM, in particular, are maturing at smaller sizes. This suggests that spawning stock biomass estimates from the 2015 stock assessment may be slightly underestimated, since they were based on old maturity data. Other studies have documented similar changes in size at maturity (Landers et al. 2001, DNC 2013, Pugh et al. 2013, Gaudette et al. 2014). We strongly suggest that a standardized study to update maturity indices be funded and undertaken in all portions of the stock, to confirm this fishery-dependent based analysis.

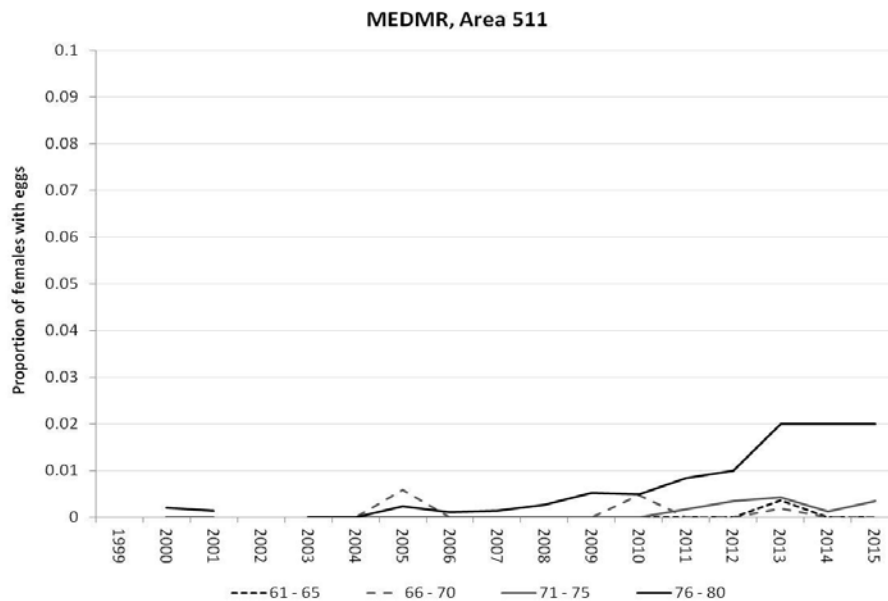


Figure 5a. Annual proportion of females that were bearing eggs in each 5 mm size bin (61 – 65 mm CL, 66 – 70 mm CL, 71 – 75 mm CL, 76 – 80 mm CL) for NOAA Statistical Area 511. Data from ME commercial trap sampling program, May – November, by NMFS Statistical Area.

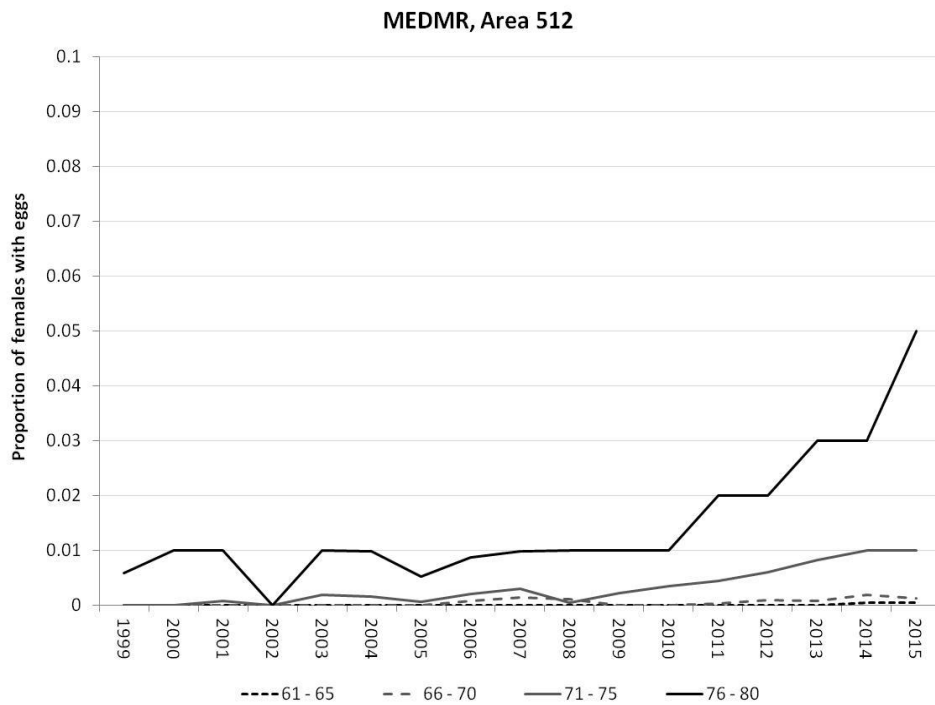


Figure 5b. Annual proportion of females that were bearing eggs in each 5 mm size bin (61 – 65 mm CL, 66 – 70 mm CL, 71 – 75 mm CL, 76 – 80 mm CL) for NOAA Statistical Area 512. Data from ME commercial trap sampling program, May – November, by NMFS Statistical Area.

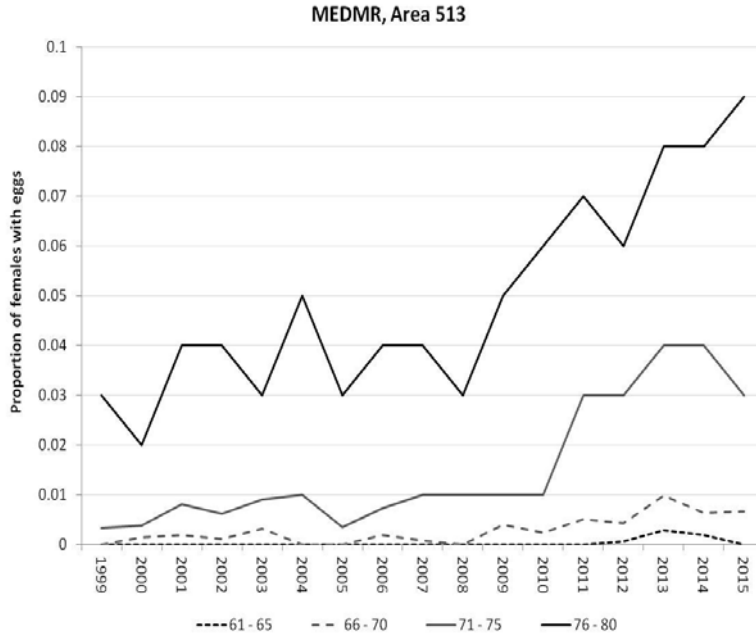


Figure 5c. Annual proportion of females that were bearing eggs in each 5 mm size bin (61 – 65 mm CL, 66 – 70 mm CL, 71 – 75 mm CL, 76 – 80 mm CL) for NOAA Statistical Area 513. Data from ME commercial trap sampling program, May – November, by NMFS Statistical Area.



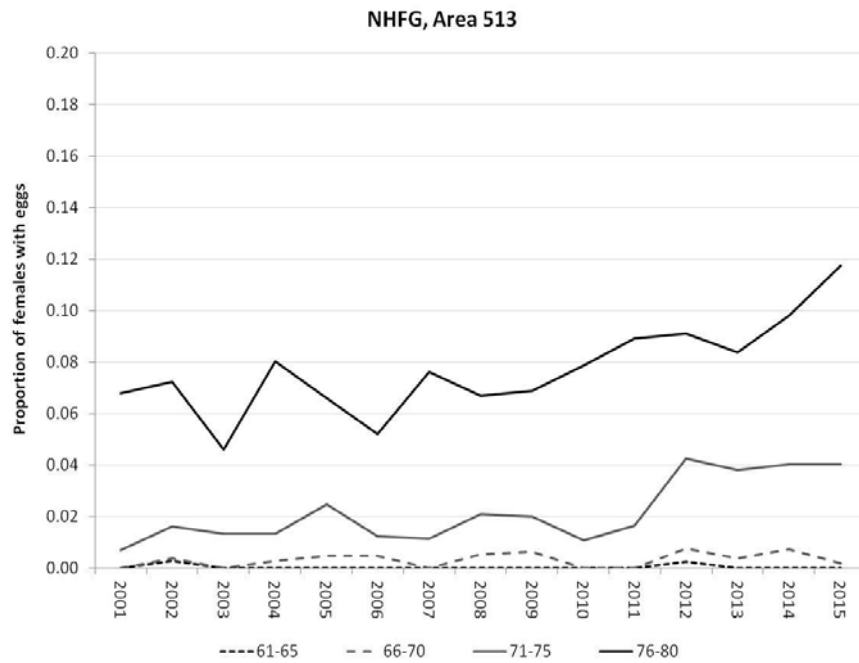


Figure 5d. Annual proportion of females that were bearing eggs in each 5 mm size bin (61 – 65 mm CL, 66 – 70 mm CL, 71 – 75 mm CL, 76 – 80 mm CL) for NOAA Statistical Area 513. Data from NH commercial trap sampling program, May – November, by NMFS Statistical Area.

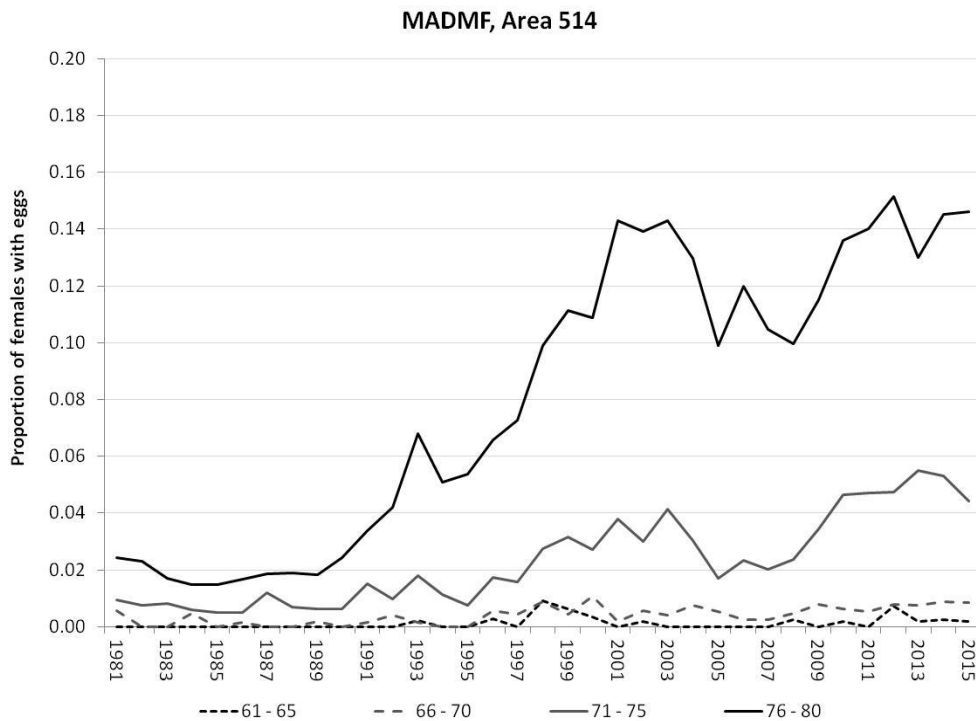


Figure 5e. Annual proportion of females that were bearing eggs in each 5 mm size bin (61 – 65 mm CL, 66 – 70 mm CL, 71 – 75 mm CL, 76 – 80 mm CL) for NOAA Statistical Area 514. Data from MA commercial trap sampling program, May – November, by NMFS Statistical Area.

## B. Larval Studies Show Decreasing Trend of Stage IV Lobsters

Monitoring of indigenous populations of fish, shellfish and wildlife has been ongoing since the late 1970s at Seabrook Nuclear Power Station on the coast of New Hampshire. Normandeau Associates Inc. (NAI) has been contracted for this work by Nextera Energy and data from this environmental monitoring were generously provided to New Hampshire Fish and Game and the ASMFC Technical Committee to conduct the following analyses. As part of this environmental monitoring American lobster larvae have been sampled via neuston nets collected once a week from single tows at three locations. Collections were consistently taken from all locations starting in 1988. Additionally, both temperature and zooplankton populations have been monitored consistently along the coast of New Hampshire during the same time period.

Spawning stock biomass (SSB) in the Gulf of Maine (GOM) is at time series highs (ASMFC 2015). Additionally, Lobster Sea Sampling Programs for ME, NH and MA have recorded an increase in the proportion of female catch bearing eggs over the past 15 years in the southern SA's of 513 and 514 (Figure 6). This suggests high levels of egg production, which should presumably lead to increased larval abundance. Based upon neuston sampling from Seabrook Station Environmental Monitoring (SSEM), this high abundance of egg bearing lobsters has translated into a high abundance of stage I larvae in the water column (Figure 7). This time series shows a significant upward trend (Mann Kendall,  $p < 0.05$ ) and current levels are at or near time series highs. Additionally, the past seven years are above the time series median. In contrast, the time series for stage IV from SSEM neuston sampling shows a significant downward trend (Mann Kendall  $p < 0.05$ ) and the past four years have been below the time series median (Figure 8). The time series (1988-2015) for stage IV from SSEM shows a similar trend to the American Lobster Settlement Index (ALSI) from mid-coast Maine and the two surveys show a moderate to strong relationship (Figure 9,  $r^2 = 0.6$ ,  $df = 25$ ,  $p < 0.05$ , excluding 1990). The relationship between the stage IV sampled via neuston and YOY sampled via SCUBA based surveys is improved when limiting analysis to the most recent 15 years ( $r^2 = 0.69$ ,  $df = 14$ ,  $p < 0.05$ ).

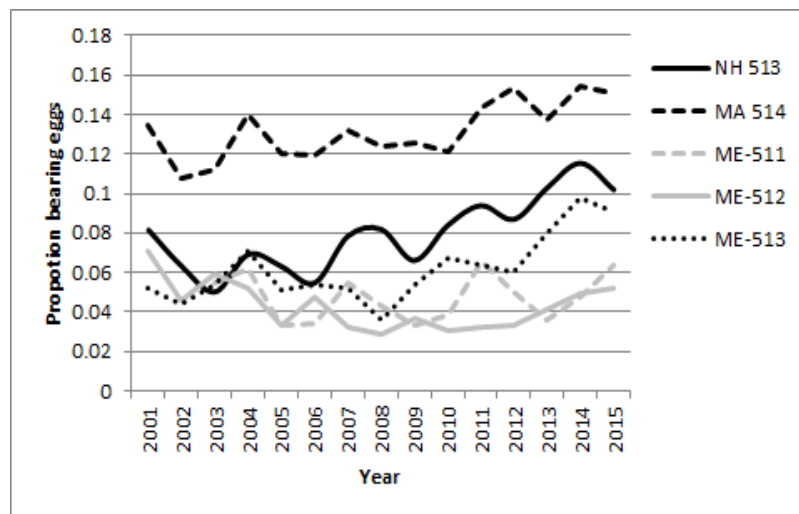


Figure 6. Proportion of female catch bearing eggs observed in Lobster Sea Sampling programs in ME, NH and MA.

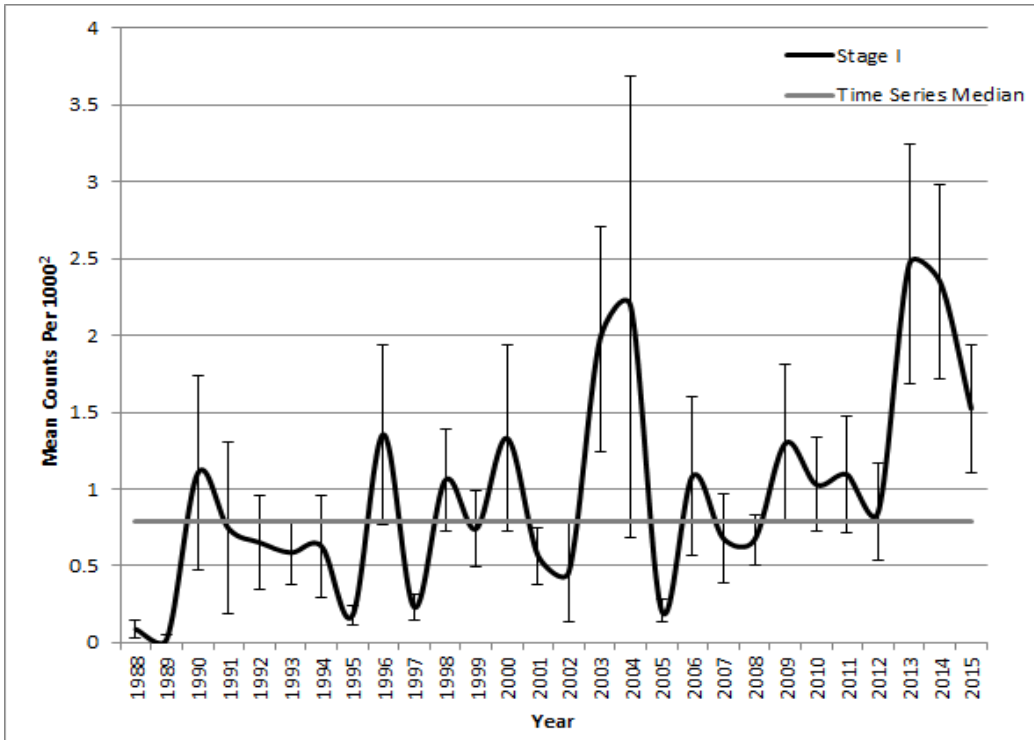


Figure 7. Mean count of stage I larvae collected from neuston tows on the coast of NH during SSEM.

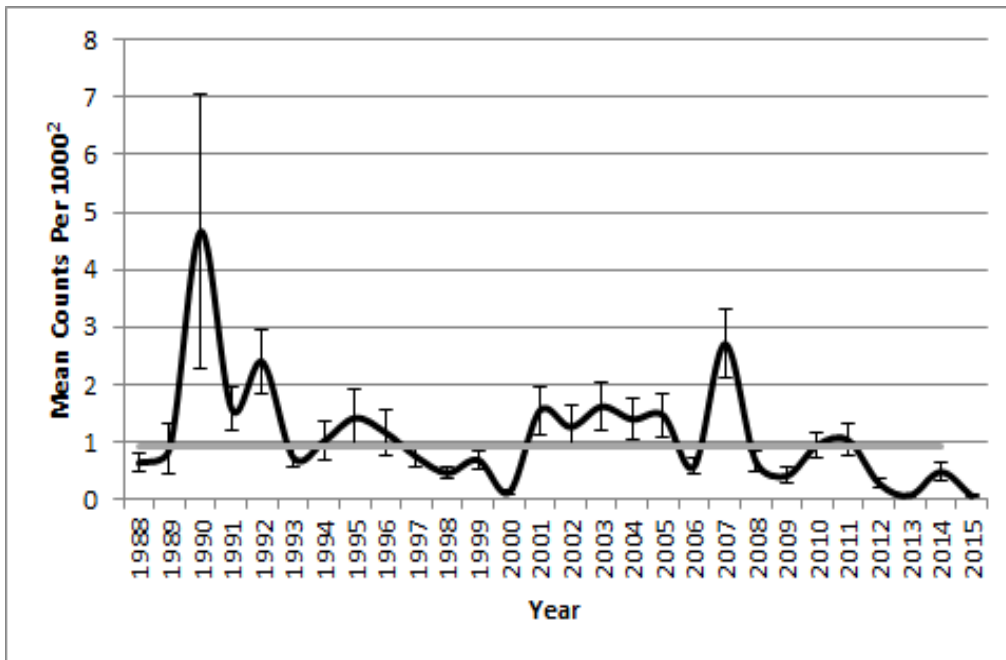


Figure 8. Mean count of stage IV larvae collected from neuston tows on the coast of NH during SSEM.

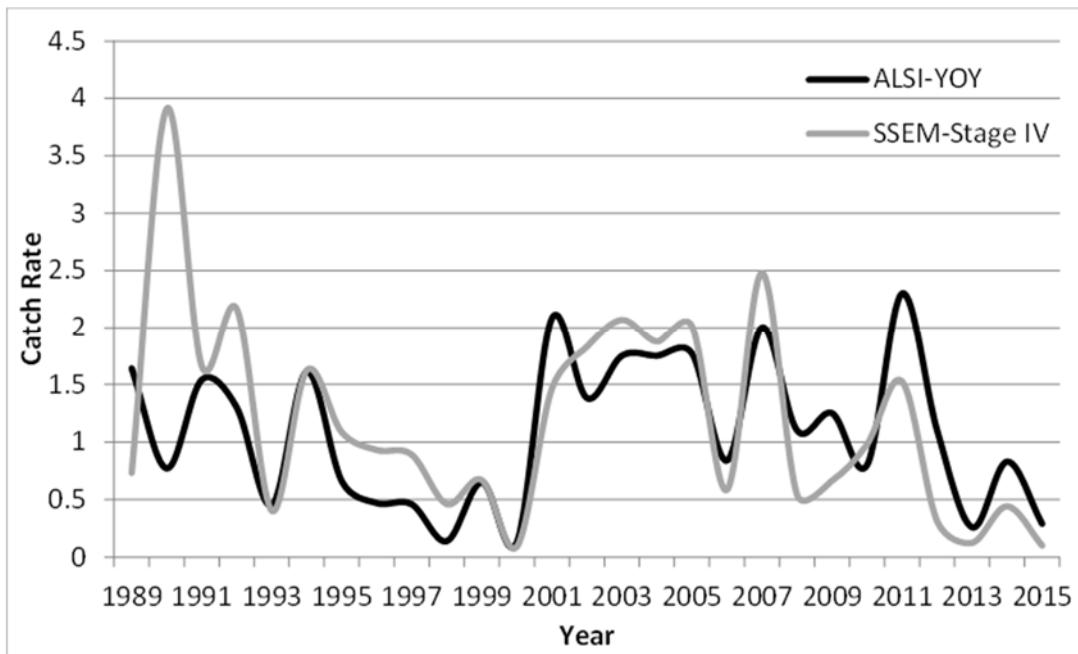


Figure 9. Time series of SSEM neuston sampling of stage IV larvae compared to YOY lobster index from ALSI (midcoast Maine).

Based on the available data, it is clear there is a record high abundance of SSB in the GOM and a higher than average abundance of stage I larvae along the coast of NH; however, this does not appear to be translating into stage IV and newly settled lobsters within the areas being sampled. There are obviously many factors at play and the possible explanations for this are certainly complex and numerous. For instance, changes in wind patterns or currents over the time series could be advecting the later stage larva to areas not being sampled by SSEM or ALSI (Hudon & Fradette, 1993). Two of the other factors that could be responsible for this disconnect are temperature and food availability which are discussed below.

SSEM takes both surface and bottom water temperatures during neuston sampling and monthly mean temperatures are presented in Figure 10. Although there does appear to be a modest increase in surface temperatures in the months of June and July throughout the time series, monthly mean temperatures do not exceed temperatures that would suggest an increase in mortality. In fact, total cumulative survival to stage V has been shown to be highest at 18 C (Mackenzie, 1988). Based on literature the temperatures recorded during sampling are in the optimal range for lobster larvae. These data suggest that temperature is not a major factor responsible for mortality within the sample area. Warmer water temperatures could lead to accelerated transition time from stage I to stage IV, or to changes in location of larvae in the water column leading to a change in catchability of the neuston net (Annis, 2005). However, the fact that the time series for stage IV from SSEM and YOY from ALSI correlate well, and the ALSI time series is at low levels as well, suggest catchability of the neuston net is not a major factor in estimating stage IV larvae in the water column.

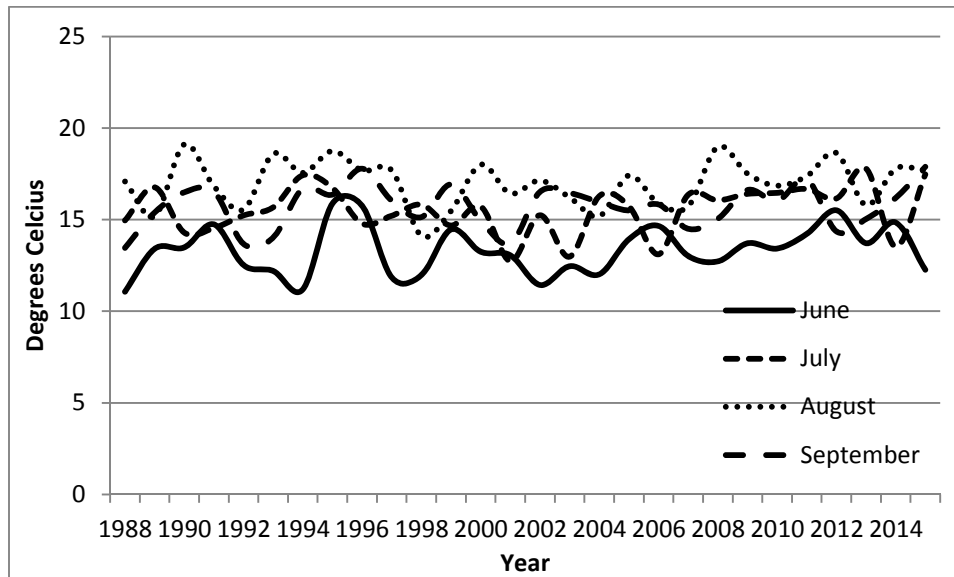


Figure 10. Mean monthly water temperature collected during neuston tows on the coast of NH during SSEM.

There is the potential that the food supply for larvae is limited throughout the inshore GOM. Lobster larvae feed on both phytoplankton and zooplankton. With record high SSB and record high stage I larvae in the water column, food availability could be a limiting factor in the development of larvae. Survival and rate of development to fourth stage are correlated positively with food quality; high survival requires that first stage larvae encounter an abundance of food (Eagles et al. 1986). Furthermore, research shows that reducing the food (copepods) provided by half reduces lobster survival to the post-larval stage from 60% to 20% and increases the time required to reach post-larval stage from 25-30 days to 50-55 days (Templeman, 1936). When decreasing the food by another half, few larvae reach stage II and none reach stage III. With this information in mind, it's plausible that larval food supply is a limiting factor in the development of larvae from stage I to stage IV. This theory is supported by data collected from SSEM on zooplankton populations. Several species of both holoplankton and meroplankton populations are decreasing throughout the SSEM sample area (NAI 2015). Trends from SSEM have been corroborated by larger scale trends of zooplankton in the Gulf of Maine where zooplankton size structure has decreased since the mid-2000s (Morse et al. 2016; Pershing et al., 2005).

The following populations of zooplankton have been declining in recent years: *Cancer* spp., *Calanus finmarchicus*, *C. typicus*, *Crangon septemspinosa*, *Temora longicornis*, *Centropages hamatus* (NAI, 2015). Additionally, some offshore species of zooplankton have been showing up in samples in recent years and in 2015, Lion's Mane Jellyfish were abundant on the coast, a time with abnormally low zooplankton in SSEM samples (NAI 2015). Lobsters are known to feed on a variety of phytoplankton and zooplankton species and once they reach stage III are known to prefer larger zooplankton species (Juinio and Cobb, 1992). Lobster larva are omnivorous, opportunistic feeders and diet will depend on geographic location and food availability. No natural diet studies are available for this local area, but in Rhode Island lobster post-larvae primarily feed on larvae of decapod crustaceans and copepods (Juinio and Cobb, 1992). Appendix I shows the time series of selected zooplankton species sampled by SSEM. One of the most common zooplankton species available locally is *Calanus finmarchicus*. There appears to be a relationship between the decline in *Calanus finmarchicus* and YOY from ALSI sampled during the time period of 2001-2015 ( $r^2=0.55$ ,

$p < 0.05$ , excluding 2011). This is just one of many zooplankton populations that appear to be declining within the study area and this regression is meant to illustrate potential relationships.

There has also been a concern that the timing of egg hatch could be changing with warming water in the Gulf of Maine. This could potentially lead to changes in the success of settlement in any given year due to the mismatch theory, in which hatch time does not match up with food availability (Cushing, 1990). Data from SSEM show a higher proportion of larvae in the water column earlier in the season in recent years. Between 2001 and 2015, the proportion of total larvae sampled for the year that were in the water column in June has shown a significant upward trend (Figure 11, Mann Kendall,  $p < 0.05$ ). Furthermore, though not significant, the proportion of total larvae sampled in July shows a general upward trend and both August and September show a general downward trend. This shift in phenology is corroborated by Sea Sampling programs conducted in ME and NH. In Maine, there appears to be a higher proportion of eggs hatching early in the season in the 2009-2015 time period compared to the 2001-2008 time period (Figures 12, 13 & 14). Furthermore, sea sampling from NH shows there's a significant upward trend in the proportion of females sampled with eggs in the process of hatching or with signs of eggs that have recently hatched in July (Figure 15, Mann Kendall,  $p < 0.05$ ). The availability of food matching up with the time of hatch could also be a factor responsible for the lack of stage IV and newly settled lobster in the GOM in recent years.

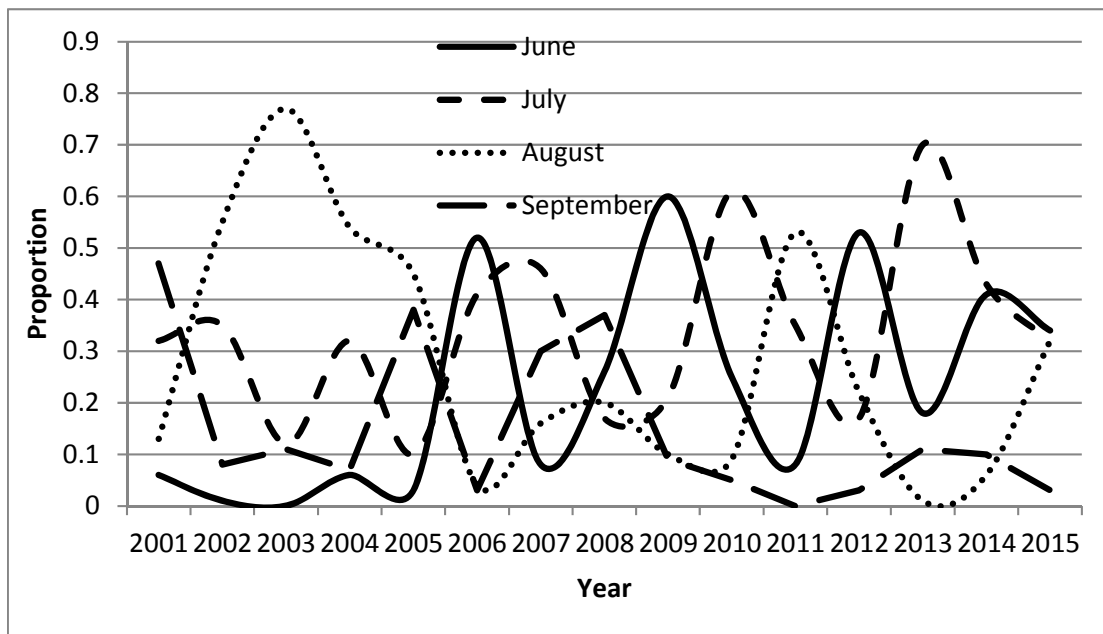


Figure 11. Monthly proportion of total annual larvae sampled during SSEM.

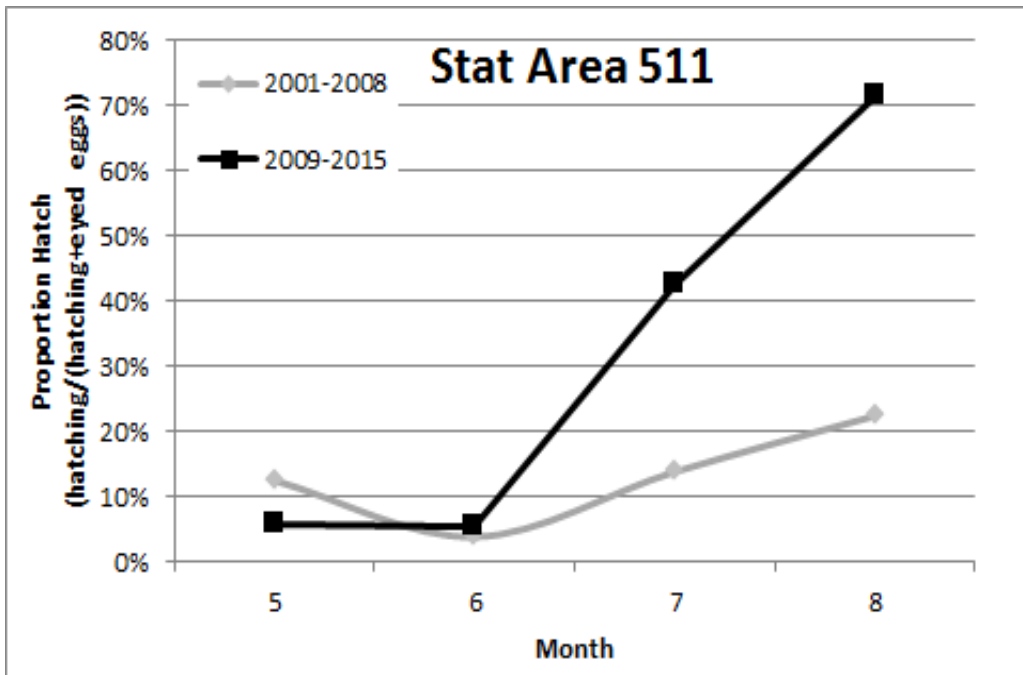


Figure 12. Proportion of eggs hatching by month for two different time periods in SA 511.

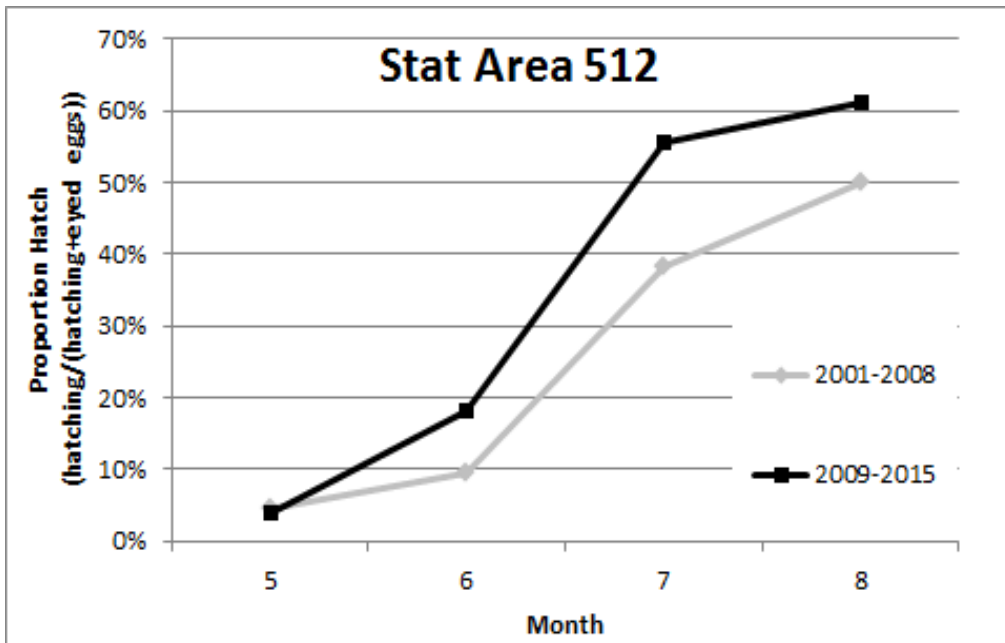


Figure 13. Proportion of eggs hatching by month for two time different periods in SA 512.

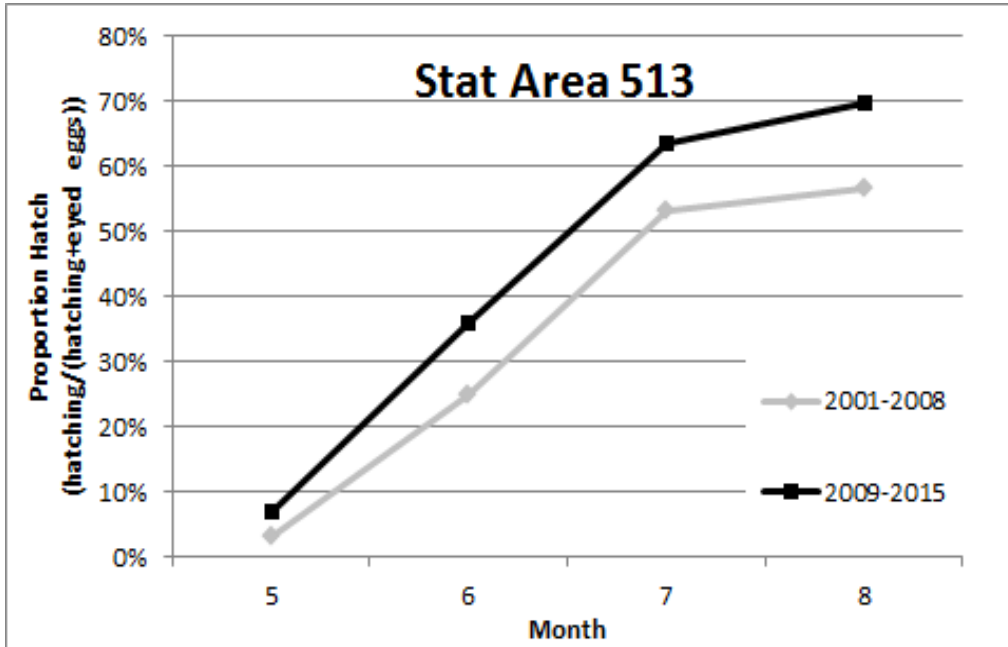


Figure 14. Proportion of eggs hatching by month for two different time periods in SA 513.

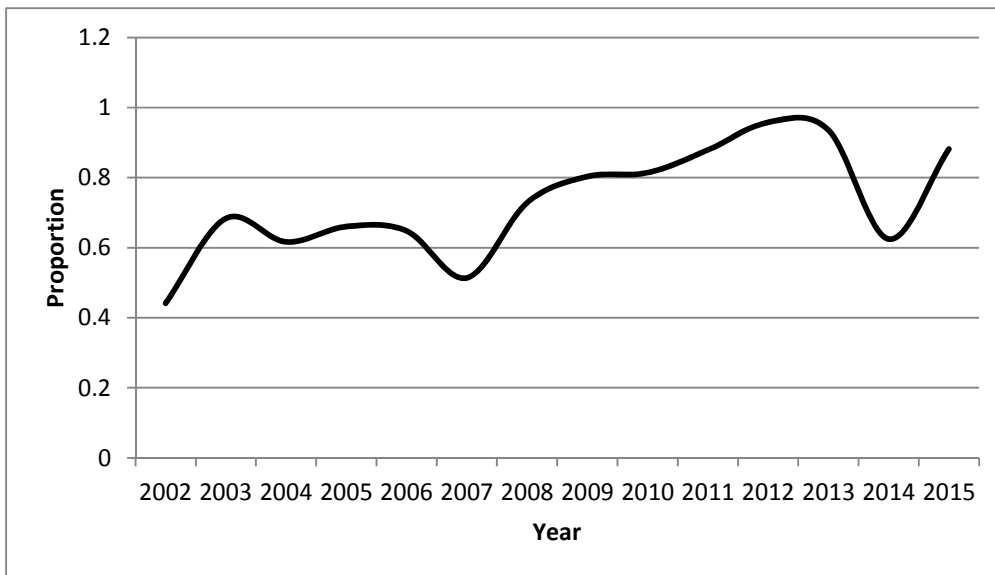


Figure 15. Proportion of total egg bearing lobsters with signs of eggs hatching or recently hatched in the month of July from NH Lobster Sea Sampling Program.

As stated above, there are several possibilities for why the ALSI has shown low numbers over the past four years. Water temperatures have increased in the Gulf of Maine and there's evidence that thermal habitat suitable for lobster settlement may be expanding (see *Section 4. Habitat Availability for Recruitment*). With a warming climate a myriad of changes may be taking place that affect the lobster population, including, but not limited to changes in wind/current patterns and predation by finfish. As with all natural systems, many factors are at play, but the above analysis does suggest that larval food supply may be one of the factors responsible for the recent declines in settlement in the Gulf of Maine.



#### **4. Habitat Availability for Recruitment**

The TC was interested in examining the relative abundance of coastal habitat to see how available benthic habitat might increase if coastal waters warmed to greater depths. If lobster recruits are constrained to shallow water due to sensitivity to cold water and there is an abundance of habitat marginally deeper than what has historically been recruitment habitat, then warming of this deeper habitat could be spreading recruitment across a greater area, resulting in declining densities in shallow habitat and a perceived drop in recruitment.

This analysis is preliminary and only examines the distribution or quantity of habitat by depth for the Gulf of Maine. It does not examine any analysis on the quality of habitat at greater depths or empirical evidence for changing bottom water temperatures or the extent of recruitment habitat.

To quantify the amount of bottom habitat with depth, we used the NGDC Coastal Relief Model bathymetry and cropped it to NMFS statistical areas 511 – 514. We then totaled the number of raster cells by bottom depth for each statistical area, converted to approximate square kilometers and calculated cumulative area with depth. Finally, we used total habitat less than 10 m depth (approximate habitat sampled by ALSI) for a baseline recruitment habitat and converted total habitat-at-depth to values relative to the 10m baseline.

Figure 16 shows the quantity of habitat (area in km<sup>2</sup>) for each depth bin by statistical area. For interpretation, a generally flat profile would suggest consistently sloping bottoms with increased distance from shore while peaks in these profiles correspond to depths where habitats are comparatively abundant due to the presence of basins or flat-topped banks. Such “peaks” can be identified as various ocean floor features. For example the peak in habitat around 170m depth in statistical area 513 corresponds to the presence of Platt’s Basin and the northern end of Wilkinson Basin in this statistical area, while the multiple small peaks between 30 and 80m in stat area 514 correspond to Stellwagen Bank and Jeffrey’s Ledge. If waters warm sufficiently to include depths exhibiting such “peaks”, the amount of available recruitment habitat could increase rapidly.

The majority of the benthic habitat in the Gulf of Maine is at depths between 150 and 250 meters. Shallower habitat (<50m) is generally constrained to the coastline with the exception of waters adjacent to islands along the central and eastern Maine coast and a couple of the shallower offshore banks in Massachusetts (Figure 17).

In general, stat areas 512 (mid-coast Maine) and 514 (MA) have the most shallow habitat while downeast Maine (511) has the least. Large “peaks” in habitat are lacking in shallow waters with only some moderate “peaks” shallower than 60m evident in stat areas 512 and 514. As a result, the cumulative amount of habitat in any given stat area increases almost linearly with increasing depth without evidence that incremental increases in depth will create sudden increases in available habitat.

Relative increases in potentially suitable habitat quantity vary across statistical areas (Figure 18). Relative to the total habitat <10m, available habitat doubles around 18 – 20m depth for stat areas 512, 513, and 514 but wouldn’t double until around 27 m depth for stat area 511.

This preliminary analysis suggests that incremental increases in depths suitable as recruitment habitat would most probably result in similarly incremental increases in total recruitment habitat and small observed decreases in recruit densities in shallow water. If observed recruitment densities in shallow water decreased substantially, say by 50%, then the depths available to

recruitment would have to approximately double to get no net change in total recruitment. Moreover, in order for the diffusion of post-larvae over a larger area to be an explanation for the observed decreases in YOY indices, the available area over which they diffused would have to be more than double the original area available. This suggests that increased availability of habitat is not sufficient to solely explain decreases seen in the YOY indices.

These results are only preliminary and, as mentioned above, do not account for the quality of habitat at depth (for example, substrate type or complexity) or include data on the structure-of or changes-in water temperature profiles. A more in-depth analysis is certainly warranted.

A more comprehensive analysis of changes in recruitment thermal habitat in coastal Gulf of Maine is currently being conducted at the University of Maine in Damian Brady's and Rick Wahle's laboratories, supported by the NSF Coastal SEES, NOAA-FATE, and the UMaine Research Reinvestment programs. This study is combining local American Lobster Settlement Indices (ALSI) and bottom temperatures from ocean circulation model output to examine if the availability of thermal habitat has changed over recent years, explore the range of depths that may currently supply appropriate recruitment habitat, and if such changes can partially explain recent dynamics in the ALSI. An update on this research is expected within a year.

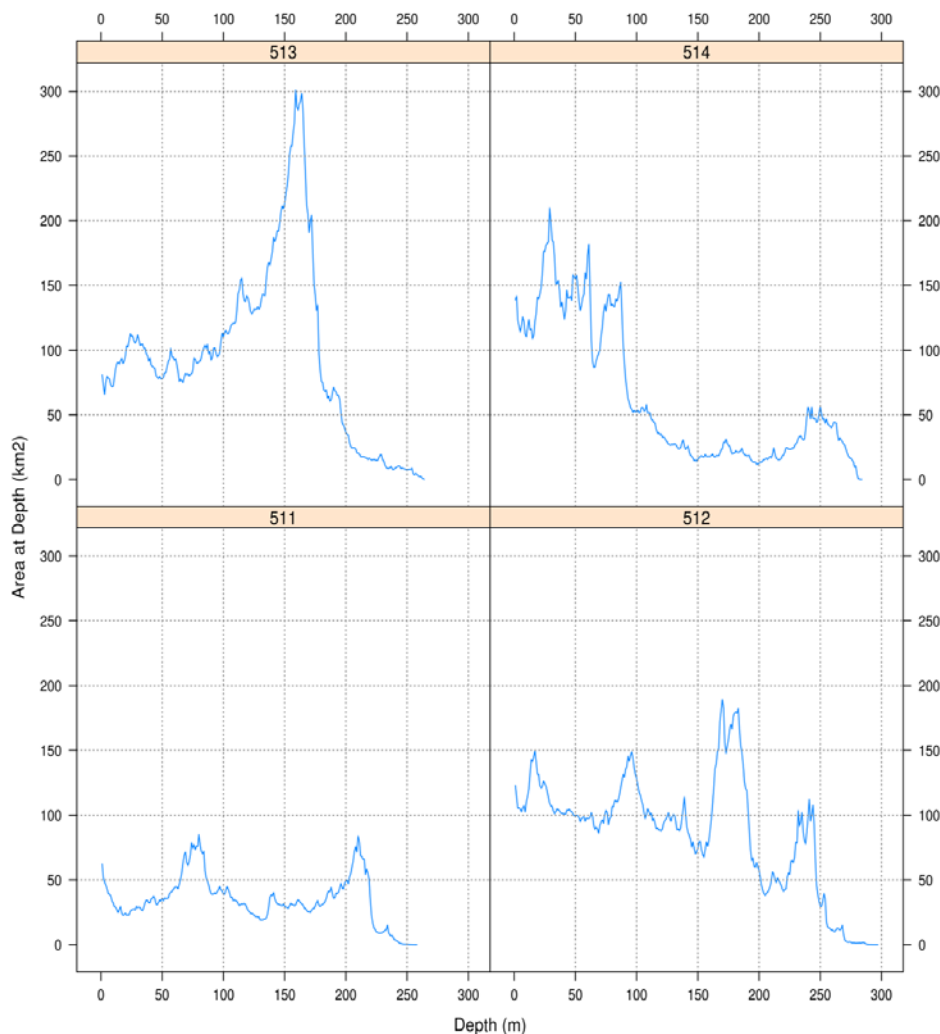


Figure 16. Area at depth (i.e. square kilometers of habitat for each 1m depth increment) by statistical area.

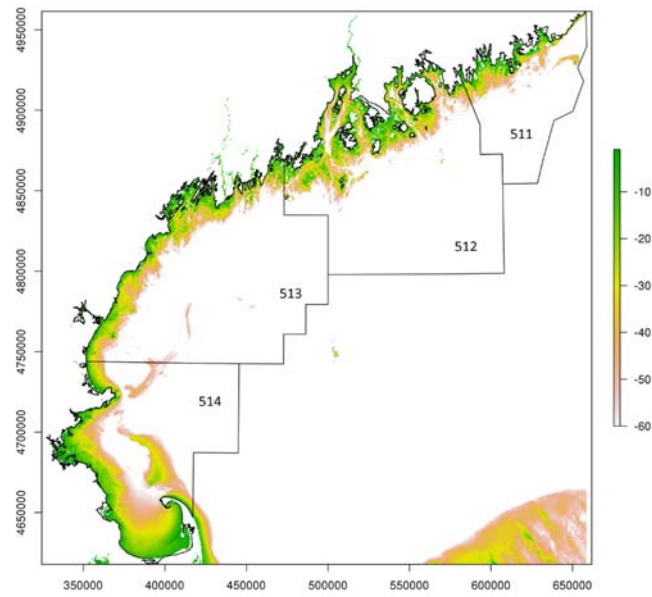


Figure 17. Coastal bathymetry (m) constrained to <60m.

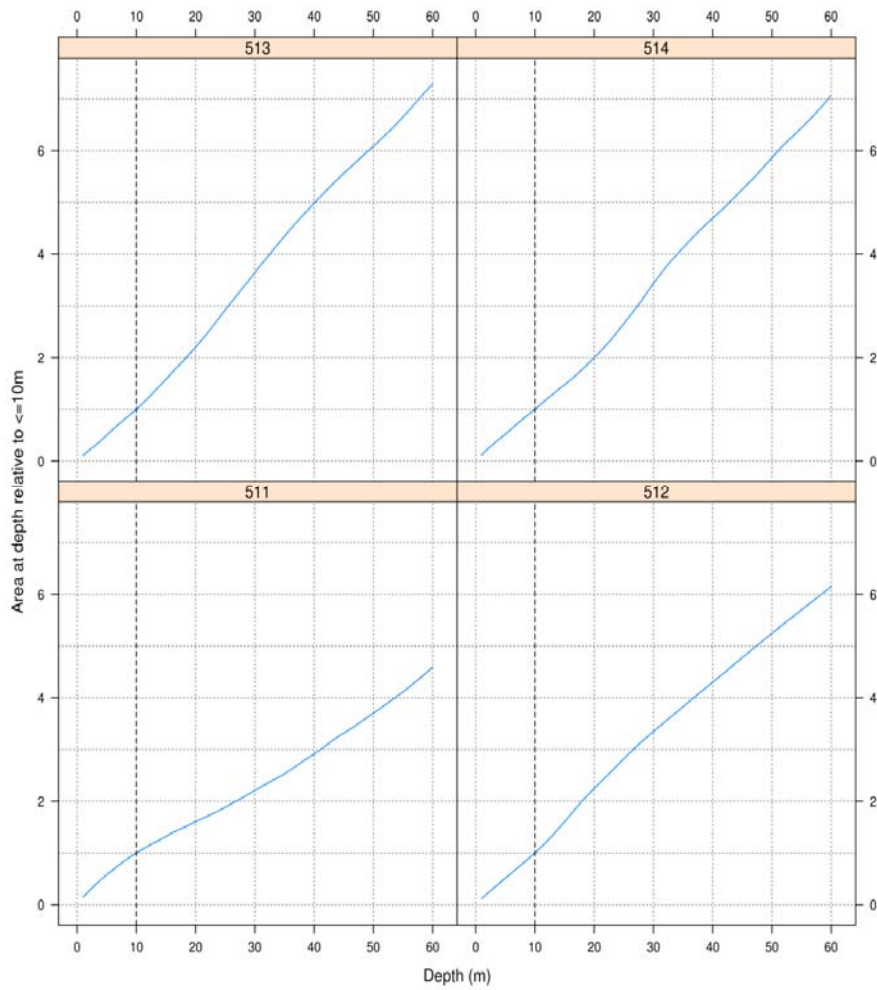


Figure 18. Cumulative area at depth, relative to total area <=10m. The vertical dashed line at 10m demarks the baseline shallow habitat that other depths are compared to. I.e. in Area 511, total habitat < ~27m is double the habitat <10m.

## **5. Stock-Recruit Relationship**

The TC was tasked with presenting the trajectory of stock-recruit estimates for the GOM/GBK stock. A similar analysis was previously presented for the Southern New England (SNE) stock, which proved to be a useful tool for understanding underlying recruitment processes and identifying potential regime shifts in reproductive success. Such analysis for both stocks is presented below for comparison of the dynamics occurring in the different regions.

Information for this analysis comes from model outputs from the respective basecase 2015 assessment model. Recruitment numbers are model estimates for the number of lobsters that were needed to enter the model population in a given year to fit the observed data (landings, survey indices, and fishery and survey length compositions). Similarly, Spawning Stock Biomass (SSB) is derived from the numbers of female lobsters at-size in any given year as estimated by the model from the data-fitting process. It should be highlighted that these are model estimates and do not represent empirical data. As a result, changing the assumptions or tuning of the model will yield different results, though the general trajectories should be robust. It is also worth noting that there is no stock-recruit relationship included in the basecase models, so there was no constraint on the model for recruitment to be related to SSB. Thus, care should be used in interpreting these plots.

Since lobsters “recruit” to the assessment model at a minimum size of 53mm, it is necessary to lag recruitment estimates back a number of years to match them with the approximate year they were spawned. Due to different growth rates between stocks, the GOM/GBK recruits were lagged back five years (i.e. recruitment estimates for 2014 were matched to SSB estimates for 2009), while the SNE recruits were lagged four years. As a result of this biological lag, the most recent years are not included in this analysis because recruits spawned in recent years have not yet grown into the sizes tracked by the assessment model. Lag years are approximate based on growth studies but, again, general trajectories are robust to small changes in this assumption.

For both the recruit and SSB estimates, both the raw model estimates and smoothed time series are presented. The smoothed time series are included because raw model estimates can be erratic due to interannual variability, errors in model data input (i.e. sampling error, etc.), or model specification. The smoothed time series are intended to remove this variability to capture only the longer-term trends. Smoothed time series were calculated using a loess smoothing function with span of 0.4 or 40% of the time series. This span was visually selected for removing inter-annual variability that is probably “noise” while conserving the general dynamics. While both the raw model estimates and smoothed series are presented, only the smoothed series are discussed.

For GOM/GBK, recruitment increases throughout the time series (Figure 19), with the exception of 2008 and 2009 (discussed below). The relation between recruitment and SSB is nearly linear from 1981 – 2002, suggesting that recruitment per unit spawning biomass was stable over these years at a level favorable for increasing the abundance of lobsters. Between 2002 and 2007, spawning biomass remained relatively stable but recruitment continued to increase, suggesting that recruits per spawner increased over these years. This change in pattern likely indicates an external influence on recruitment success, such as an environmental driver. Recruit estimates decline marginally but remain high in 2008 and 2009. However, these two years are based on recruitment estimates from the terminal years of the model (2013 and 2014) and are, therefore, unstable and should be interpreted carefully.

The stock-recruit trajectory for SNE is complex, suggesting the potential for multiple shifts in reproductive processes. Recruits/spawner increase from 1979 to 1991 as both recruitment and SSB increase. From 1991 to 1996, recruitment declines despite increasing SSB as the recruitments from 1990 – 1992 grow and reach maturity. Between 1997 and ~2003 spawning biomass drops precipitously, though recruitment remains remarkably stable. Recruitment per spawner was considerably lower in this time period than in the 1980's. After 2003, spawning biomass remains fairly stable but recruitment begins an incremental decline, suggesting that recruitment per spawner and stock productivity are declining rapidly over these years.

Thus, there are contrasting dynamics between the two stocks. Since 2002, both GOM and SNE spawning stock biomass has remained fairly stable, with GOM at time-series highs and SNE near time-series lows; however, recruitment rates from these spawning stock have trended in opposite directions. This suggests that factors other than spawning stock biomass itself are strongly influencing recruitment processes. Possible accessory factors would include, but are not limited to, shifts in where lobsters are hatching-out, changing water circulation patterns that affect larval retention, and changing environmental conditions that affect larval and juvenile survival rates. Regardless, this decoupling of recruitment from SSB presents difficulties to management.

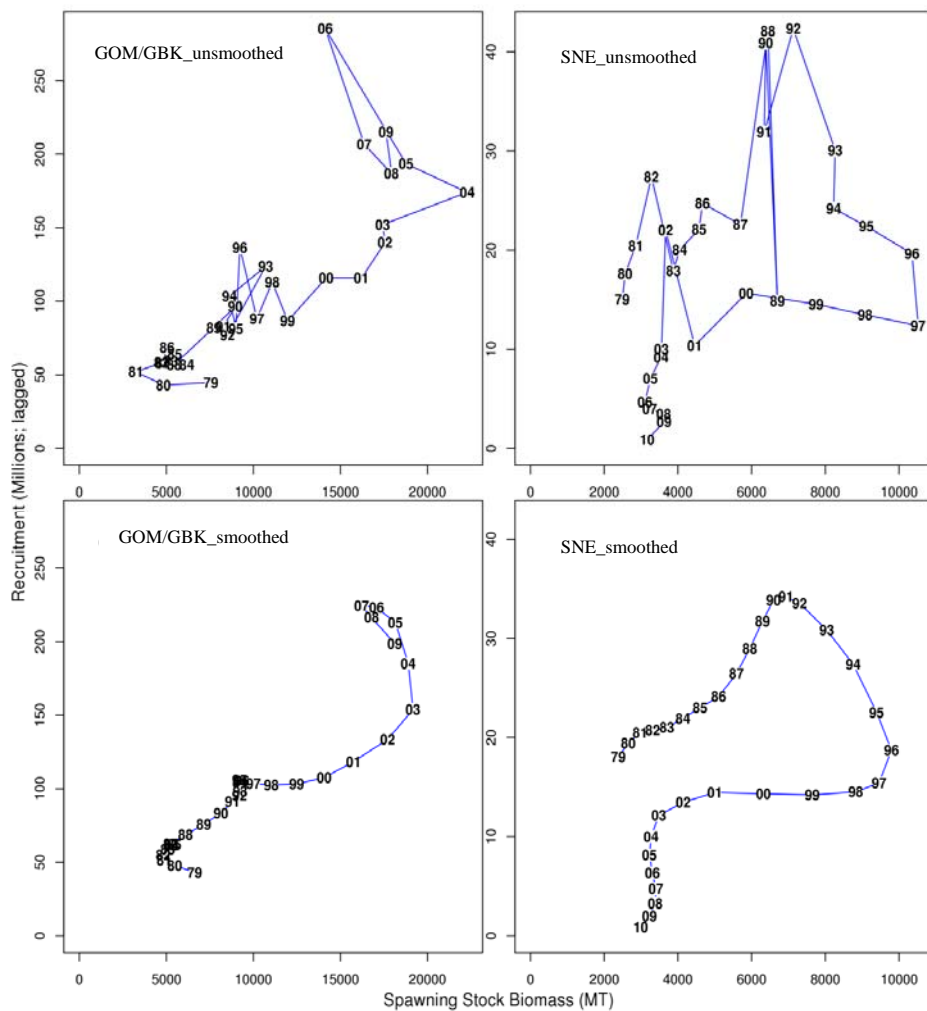


Figure 19. Model-estimated SSB and Recruitment trajectories for the GOM/GBK (left) and SNE (right), from the 2015 stock assessment. Both Raw (top) and smoothed (bottom) time series are shown. Recruitment estimates are lagged back to match the approximate year they were spawned. Numbers in the plots represent the last two digits of spawning year.

## **6. Biological Management Measures**

Though the Gulf of Maine lobster fishery is currently at record abundances, some data suggest that young-of-year (YOY) recruitment has decreased in recent years, in which case landings may decrease in coming years. Out of a concern for this possibility, the Board asked the TC to provide advice on management measures that could be implemented to make the lobster population more robust to decreasing recruitment. Existing regulations protect egg-bearing and v-notched females, which helps protect the spawning stock. Thus, another reasonable management measure to consider is if lobsters are being fished optimally based on legal size regulations. In particular, if lobsters are being harvested at too small of a size, it may be possible to realize similar harvest in total pounds, by deferring harvest to a larger size.

An increase in the minimum legal size may have biological benefits that will increase the resiliency of the population to environmental changes and fishing pressure. This action would ensure that a higher proportion of lobsters are sexually mature before they are vulnerable to harvest. This may also increase the proportion of females who produce more than one clutch prior to harvest, which might be beneficial to larval fitness as some (albeit limited) information suggests that larger females produce larger larvae (Ouellet and Plante 2004) and may better manage the thermal environment to which their eggs are exposed (Cowan et al 2007).

Models that examine how a change in legal size affects population size, length composition, spawning biomass, and commercial harvest are necessarily dependent on, and sensitive to, life history parameters including natural mortality, probability of molting, and probable molt increment. Thus, it is important to understand how life history parameters are used in these calculations and how errors in these parameters affect the conclusions.

For a simplified example, one can examine the difference between harvesting an 82mm male lobster in a given year versus leaving that lobster in the population for an additional year. For lobster modeling in the Gulf of Maine, we generally assume a natural mortality (M) of 0.15. So the probability of losing a lobster to natural mortality in a given year is  $1 - e^{(-0.15)} = 0.139$  or 13.9%. If a lobster survives to the next year, the lobster may or may not molt. Based on existing tagging studies and similar data sets, the probability of molting is 86.5% with 13.5% not molting. The probability of survival is combined with the probability of molting or not molting to estimate that 11.6% survive and don't molt and 74.5% survive and do molt. If that lobster does molt, it will on average grow ~11mm to 93mm CL, again based on data from tagging and growth studies. From available length-weight data, an 82mm CL male lobster weighs 0.97 pounds while a 93mm CL male weighs 1.44 pounds. We then combine these calculations to determine what the projected harvest would be if the lobster was caught in the next year (Table 1).

Based on the above assumptions, leaving the lobster in the population for an additional year and accounting for molt and mortality would yield ~1.19 lbs while harvesting the lobster immediately would yield ~0.97 lbs. Changing any of the above assumptions necessarily changes the outcome; increasing natural mortality, or decreasing the molt probability or molt increment would all decrease the projected next-year yield.

Table 1. Simplified example calculations for leaving an 82mm CL male lobster in the population for an extra year.

Scenario	Probability of Scenario	CL next year (mm)	Weight at size (lbs.)	Harvest (Probability * Weight)
Lost to Natural Mortality	13.9%	NA	NA	0
Survived, didn't molt	11.6%	82	0.97	0.11
Survived and molted	74.5%	93	1.44	1.07
			Projected Harvest (lbs.)	1.19

We used a population simulation model to examine the effects of different minimum legal sizes on projected lobster populations and fishery catch. The structure of the model is based on the assessment model and uses the same natural mortality, growth model (molt probability and increment), and estimated fishing mortality as the accepted GOM/GBK assessment model run from the 2015 benchmark. The calculations in the model are similar to the above example but marginally more complex as the model applies natural mortality, growth, and fishing mortality at quarterly intervals. Unlike the above example, lobsters are only available to the fishery when they reach the minimum legal size, rather than delaying fishing mortality for a set period of time. Finally, the fishing mortality rate, estimated from the assessment model, results in a portion of legal lobsters surviving for additional years. The same simulation model has been used over the past year for examining management options for the SNE stock.

#### Population Model Configuration

Most model inputs were based on inputs or outputs from the GOM/GBK assessment model, including:

- Size at maturity
- Recruitment length composition
- Recruitment seasonality
- Quarterly growth transition matrices
- Weight-at-length relationships by size
- Natural mortality assumed to be 0.15

Quarterly fishing mortality rates (F) were calculated from the average estimated F from the assessment model for 2011 – 2013 where estimates of F were stable.

Separate model runs were conducted for legal minimum carapace length (MCL) ranging from 72 to 95mm in 1mm increments. This range was chosen to provide contrast between model runs but to not greatly exceed the domain under which we understand lobster biology. Some proportion of the population above legal size is also not available to the fishery due to differences in minimum and maximum legal sizes between inshore and offshore LMA's, as well as the proportion of females at size that are egg-bearing or v-notched. For these simulations, proportion of legal lobsters at-size

above minimum legal size were the same as the inputs for the assessment model and were calculated based on biosample data and the spatial distribution of landings.

Because we explored some minimum legal sizes that are smaller than the currently assumed trap selectivity, we removed gear selectivity for all model runs, which makes all lobsters equally available to the fishery. This only has notable effects for model runs where MCL was smaller than the current minimum.

All model runs started with no population and had constant recruitment of one million individuals per year. This model initiation and recruitment was selected so that any differences between different legal size scenarios could be attributed only to the difference in MCL. Otherwise, starting with an assumed existing population abundance and size composition can create transient behavior in model projections, complicating interpretation of results. Model results like catch and population abundance are directly proportional to the assumed recruitment rate. As a result of using a convenient but arbitrary recruitment rate for the simulations, results are only valid for comparison among different projection scenarios.

Models were allowed to run for 25 years and the output examined to ensure that the populations had reached equilibrium abundance and size composition. Simulation model and analysis code are archived on NEFSC servers at:

```
/net/work4/LobsterGroup/Management/GOM_PostAssessment2015/LegalSizeAnalysis/script  
LegalSize_FixedR_FixedM_FnoF.R
```

### Results

Note that data series in Figures 20, 21, 26, 27, and 28 exhibit a regular “wavy” pattern at 5mm intervals within the general trend. This is an artifact from changing MCL at finer scales than the projection model can fully resolve, as the model bins all lobsters at 5mm intervals. Thus, such fine-scale irregularities should not be interpreted.

Across the range of MCL examined (72 – 95mm), increasing the minimum size is predicted to increase total catch of the fishery by weight but decrease catch by number (Figure 20). Reducing the MCL to 72mm would decrease catch weight by ~25% but increase catch number by ~15%. In contrast, increasing legal size to 90mm is projected to increase catch weight by ~20% but decrease catch number by ~10%. Catch weight and number by sex are similar for males and females at smaller MCL but diverge at larger MCL with males exhibiting larger catch numbers and weights than females, presumably because female growth slows once they become reproductively mature and are more likely to be egg-bearing (Figure 21).

The length composition of the catch shifts with increasing MCL with larger size classes representing a larger portion of the catch at higher MCL (Figures 22 and 23). For at the current MCL of 82mm, the model estimated median catch size is 87mm (50% of catch between 83 and 91mm) and median weight is 538g (1.18 lbs). For a MCL of 90mm, median catch size is projected to be 95mm (50% of catch between 92 and 100mm) and median weight would be 703g (1.54 lbs).

As MCL increases, the number of lobsters at-size in the population also increases (Figure 24). If we apply the expected proportion of lobsters that are mature at-size to this population, we get an estimate of the mature population at-size (Figure 25). Because the current MCL is near the size that lobsters are expected to mature, increasing the minimum legal size results in dramatic increases in



the number of mature lobsters (Figure 25) and SSB (Figure 26). Additionally, the biomass of the population as a whole (>53 mm) will also increase as a result of changing MCL (Figure 27).

Population exploitation is calculated as the proportion of lobsters above a fixed size (78mm in this case) that are removed from the population by fishing within a year. Because changing the MCL directly changes the portion of the population that is available to the fishery, increasing MCL is expected to decrease exploitation rates (Figure 28). Projections suggest that an MCL between 85 and 86mm would achieve a 20% decrease in exploitation while an MCL of 90mm would result in a 40% reduction in exploitation.

### Discussion

These simulation calculations suggest that increasing the minimum carapace length has the potential to produce similar total landings by weight, with a smaller number of lobsters but at larger sizes. However, because lobsters would survive longer before capture, such changes in MCL could result in a significant increase in the numbers of mature lobsters and SSB, potentially adding resilience to the lobster population. It is important to note that there is no stock-recruit relationship included in the current model configuration, so any benefits in recruitment and population abundance resulting from increasing SSB is not accounted for in this analysis.

These results are preliminary and would only be the first step in the research that would be necessary before any recommended changes to management would be appropriate. As mentioned in the methods, all results presented here are based on assumed growth rates, molt increments and natural mortality rates. Though the growth model was updated to include all available growth data for the 2015 assessment, much of the data are dated and may not be accurate for current lobster populations in the GOM. Also, relatively little growth data exist for larger sized lobsters, so projection results that are strongly influenced by the abundance of large lobsters are more uncertain.

The assumed rate of natural mortality ( $M$ ) also needs further examination and validation. The current natural mortality rate is one of the major sources of uncertainty for similar analysis recently conducted for SNE. Targeted research and diagnostic analysis of the stock assessment model for SNE indicate an increase in  $M$  in recent decades but it is hard to determine what values are currently appropriate or how this value may change in the near future. This is less of a problem for the GOM as there is no strong evidence that  $M$  has changed markedly or is expected to change in the near future. However, the assumed value of  $M$  for the GOM, along with the assumption that  $M$  is the same for lobster of all size in the model, should be carefully examined.

The assumed rate of maturation is very influential on calculations for numbers of mature lobsters (Figure 25) and particularly changes in SSB (Figure 26). The TC generally agrees that the maturation rate used in the stock assessment needs updating and suspects that lobster are actually maturing at a smaller size than the maturity schedule used in these calculations. Shifting the maturity schedule to smaller sizes would increase the number of mature lobsters at smaller sizes for all MCL scenarios in Figure 25 and decrease the relative changes in SSB with increasing MCL in Figure 26.

Given the above concerns, this or similar analyses would benefit greatly from a closer examination and potentially updating the major parameters that determine the results. In the absence of additional data, meetings could be held with experts from industry, management, and research to

agree on appropriate ranges for input parameters and sensitivity analysis could be conducted across these ranges.

Additionally, it would be good to externally validate the results against another population model. We initially tested this population model against the projection model written into the stock assessment model and confirmed that both models produced the same results. However, it would still be potentially useful to validate model calculations from this model against a different model framework, like an Individual Based Model (IBM). Such an IBM has been developed in Yong Chen's laboratory at the University of Maine and is currently being used to examine different management actions. A formal comparison of results from the two models would be appropriate.

In addition to the concerns listed above, there are additional ecological assumptions that are not captured in the model and need to be examined. Primarily, the model assumes no resource limitations that would constrain the size of the lobster population. With the lobster population currently at record high numbers, it is unclear if the GOM ecosystem could actually support the 50% increase in lobster biomass projected for a 90mm MCL (Figure 27) or if habitat, food, or other resources would become limiting. It is also difficult to understand how these large-scale projections would scale down to local dynamics. If this increase in biomass could not be supported, it would be important to understand the factors that limit the carrying capacity of the lobster population to accurately project the effects of different management actions or appropriate scales for management.

Beyond the validity of the model projection and biological constraints, it is critical to consider the impacts that changing the MCL would have on the economics of the lobster fishery and fleet dynamics for a fishery as valuable and important as the GOM. While the above analysis suggests that landings of a similar biomass may be possible with a larger MCL, it does not address how changing MCL would actually impact the total revenue of the fishery. With a large enough increase in minimum size, entire market categories would disappear with landings being pushed into larger market categories. Extensive economic analyses should be conducted before any major management action is implemented. Similarly, increasing MCL may serve to further push the fishery to deeper waters at greater distances from shore, complicating fishing operations for operators of smaller vessels.

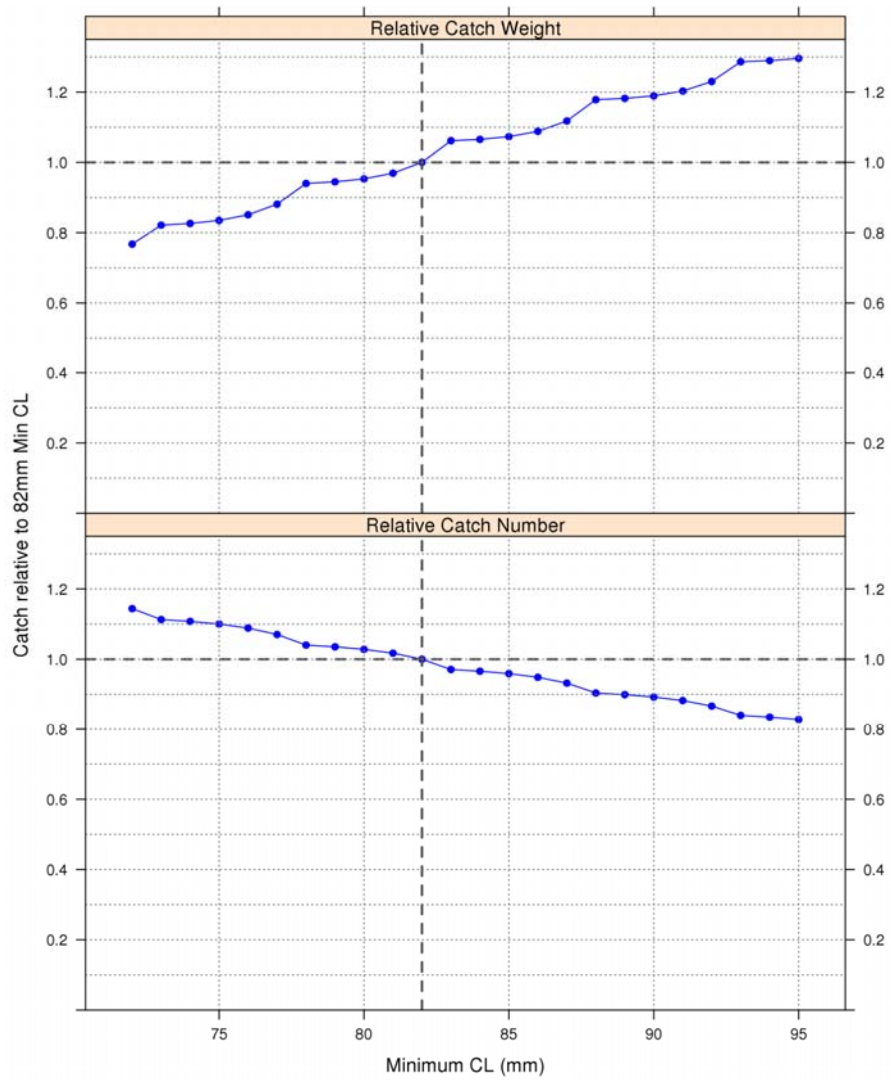


Figure 20. Projected changes in annual catch weight and catch number for different minimum sizes. Values are relative to an 82mm minimum size, so a value of 0.8 represents a 20% reduction, etc.

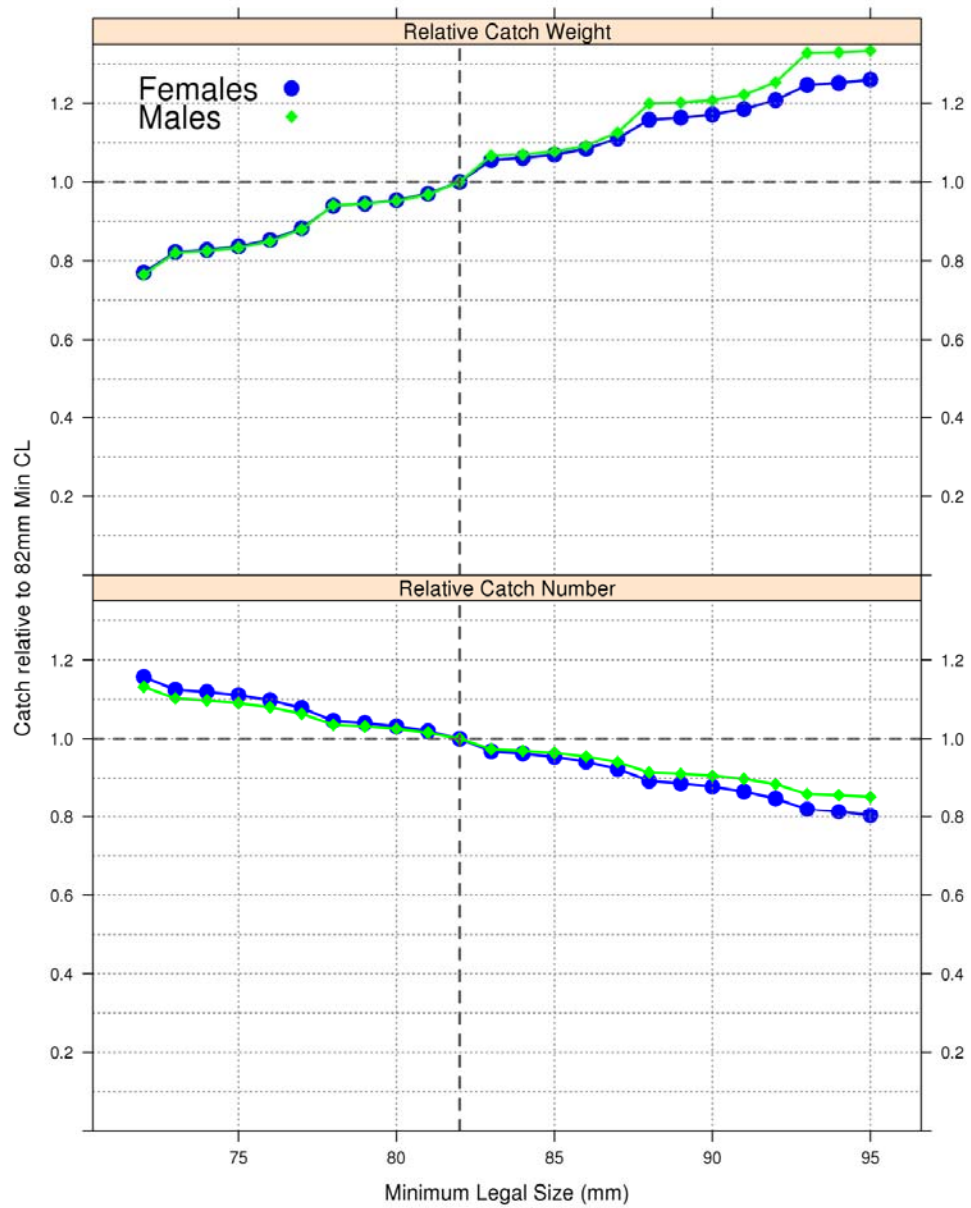


Figure 21. Projected changes in annual catch weight and catch number by sex for different minimum sizes. Values are relative to an 82mm minimum size, so a value of 0.8 represents a 20% reduction, etc.

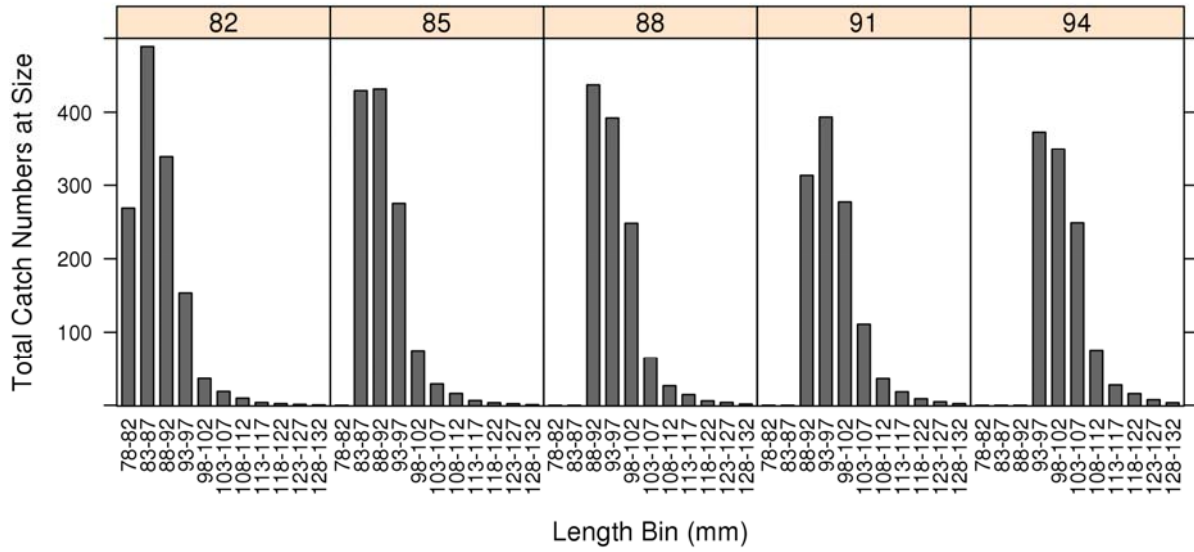


Figure 22. Projected size composition of catch under five different minimum legal size scenarios.

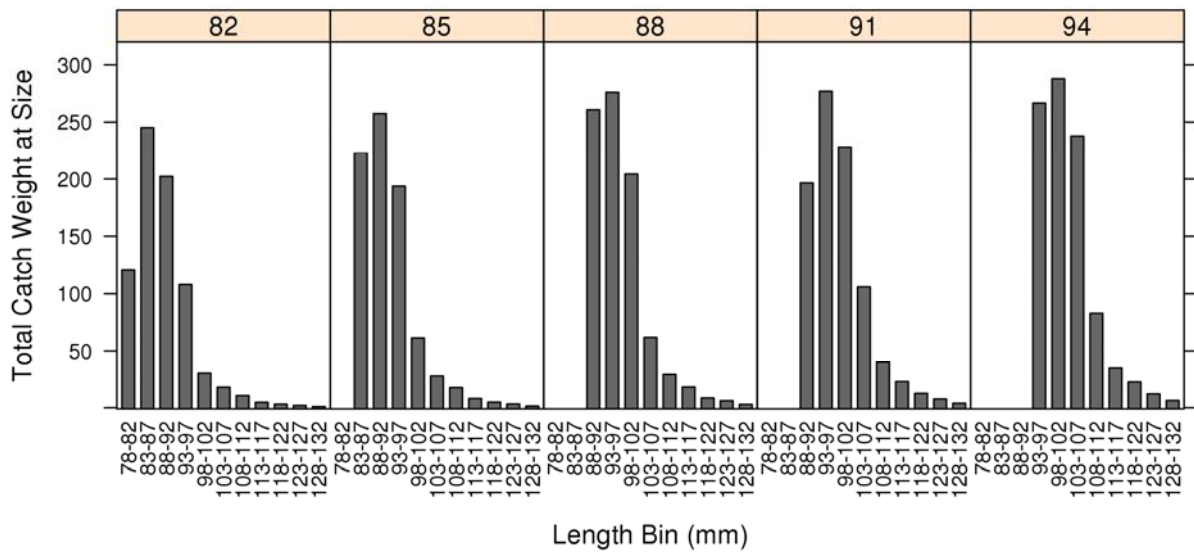


Figure 23. Projected weight composition of catch under five different minimum legal size scenarios.

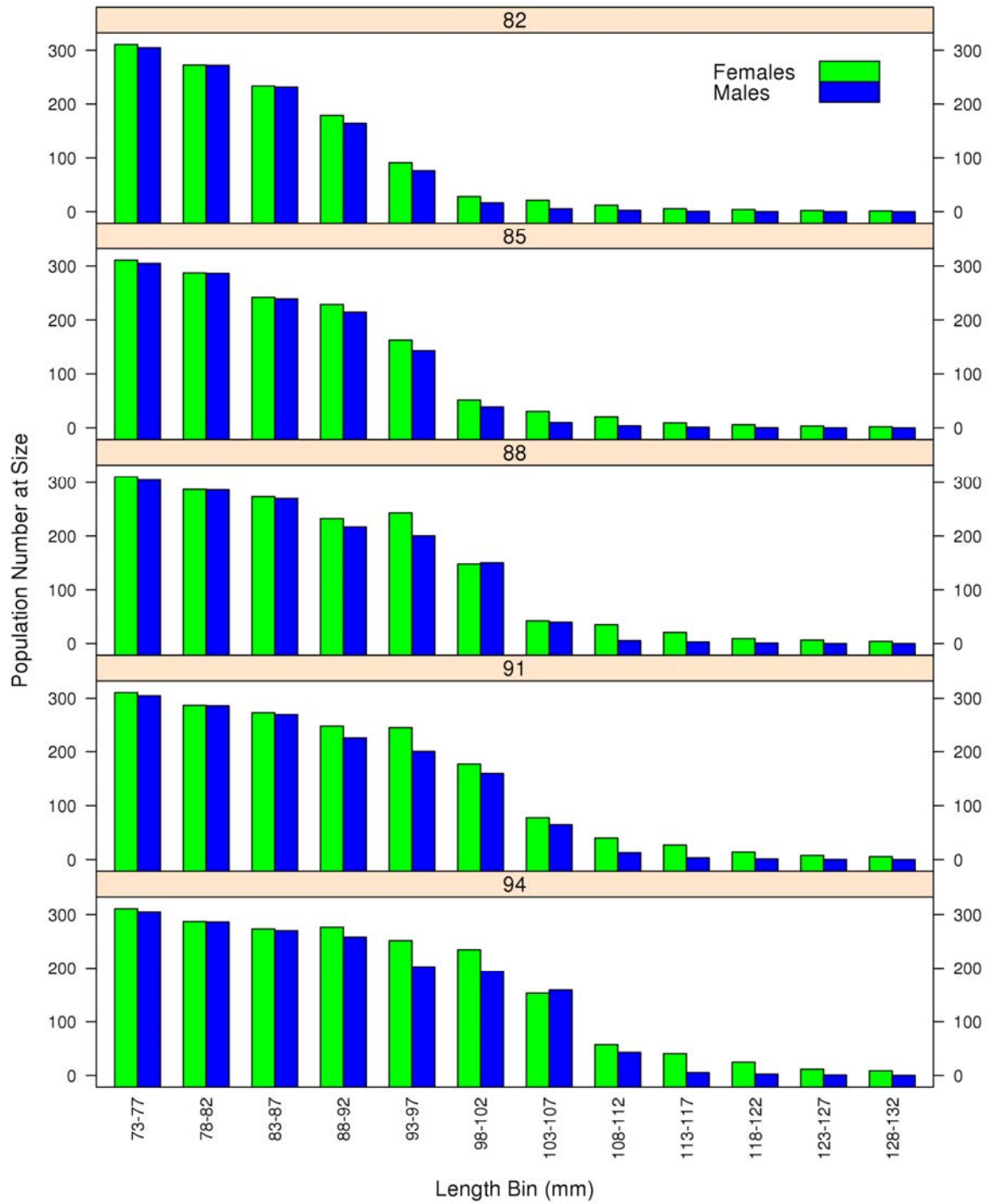


Figure 24. Projected population size composition by sex for five minimum legal size scenarios at equilibrium at the end of the Spring quarter.

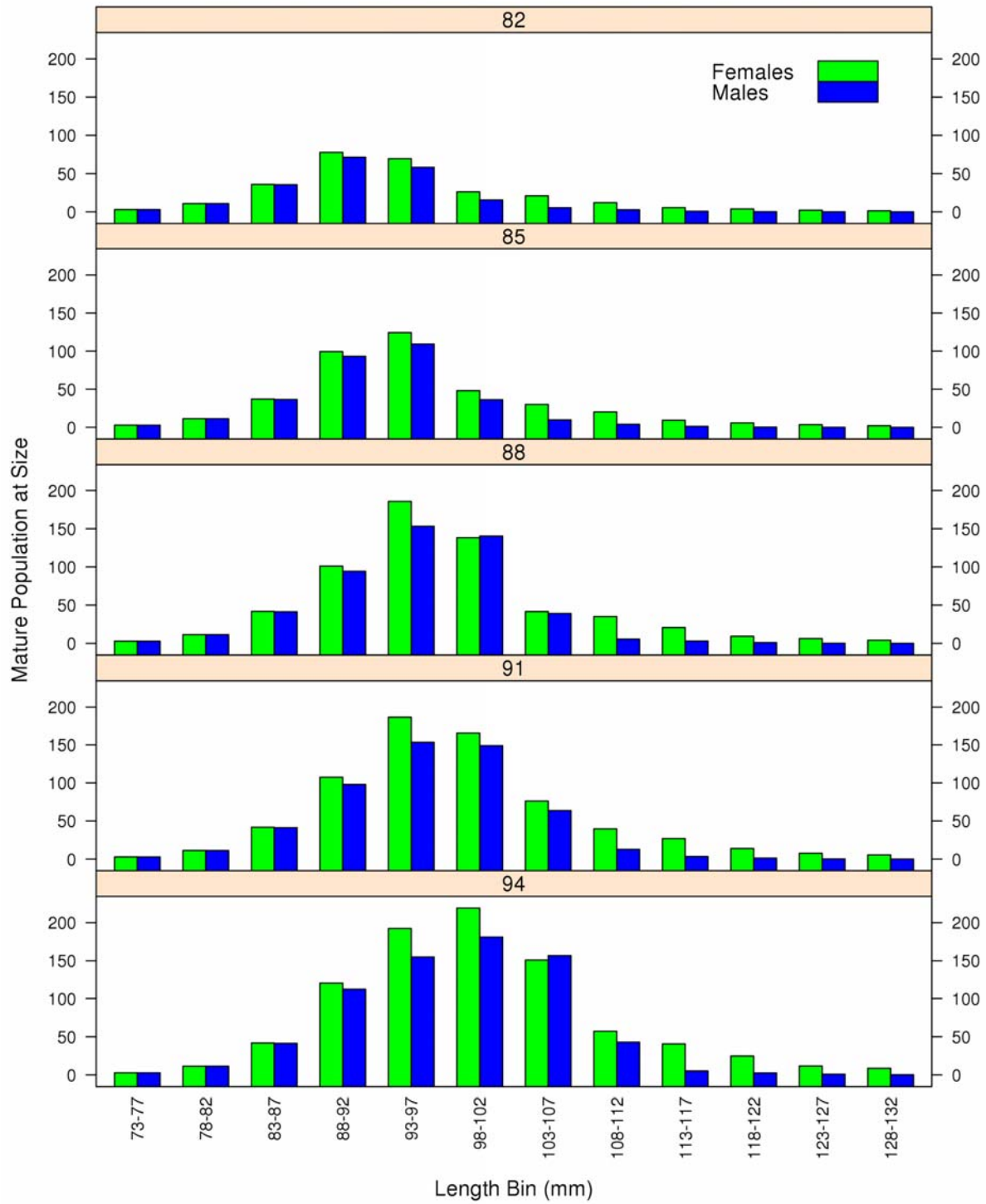


Figure 25. Projected population size and abundance of mature lobsters, by sex at equilibrium at the end of the Spring quarter for different minimum legal size scenarios.

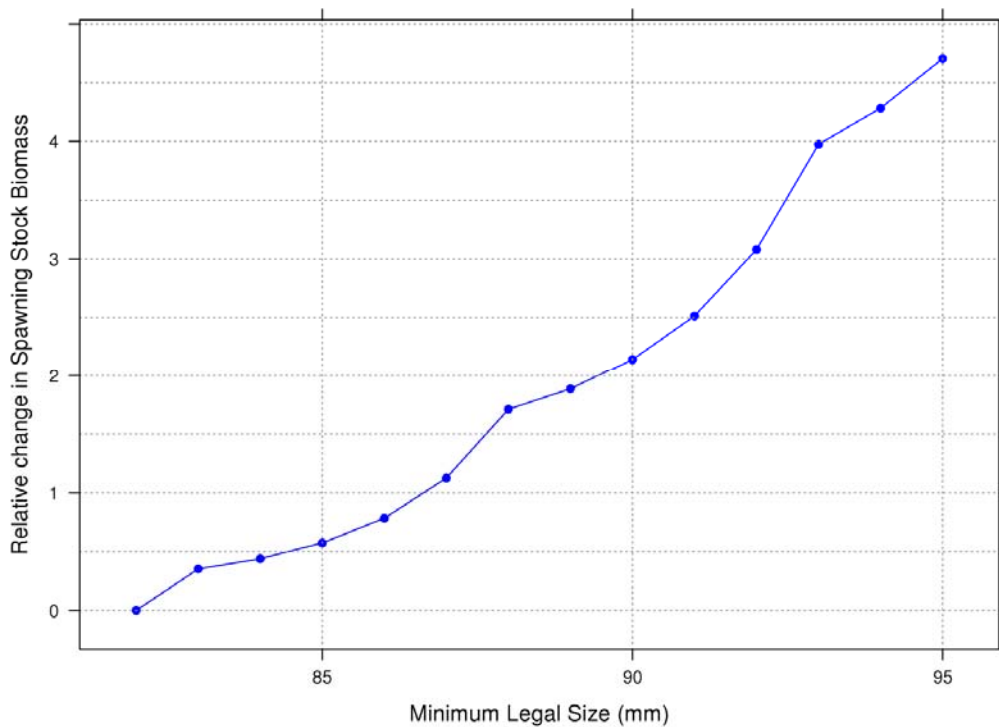


Figure 26. Projected changes in Spawning Stock Biomass at equilibrium at the end of the Spring quarter under different legal size scenarios. Values are relative to an 82mm minimum size, so a value of 1 represents a 100% increase.

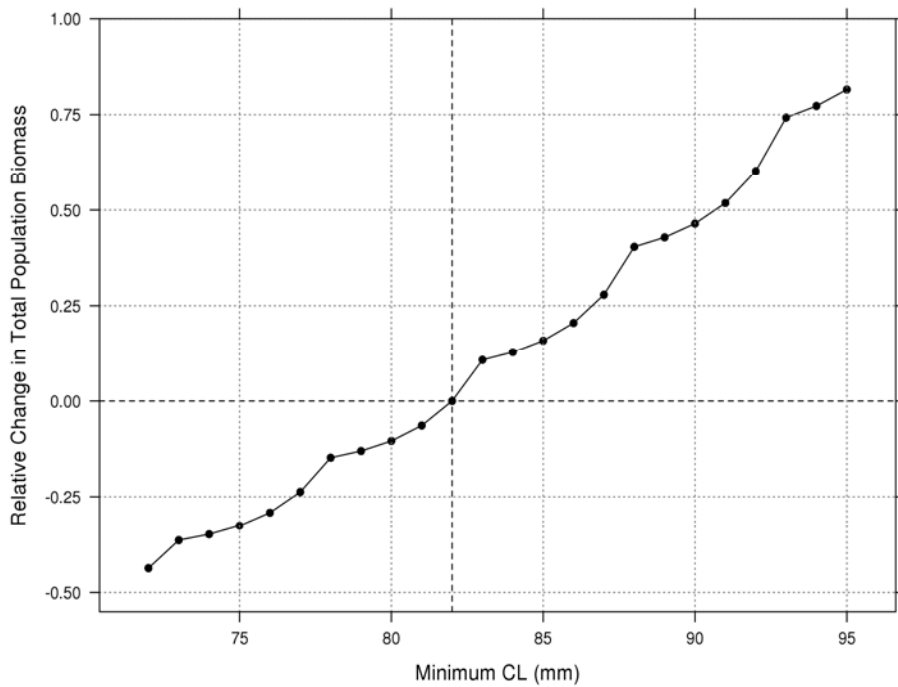


Figure 27. Relative total population biomass at equilibrium at the end of the Spring quarter for all lobsters  $\geq 53$ mm CL. Values are relative to the current minimum legal size of 82mm so a value of 0.5 represents a 50% increase in lobster population biomass.



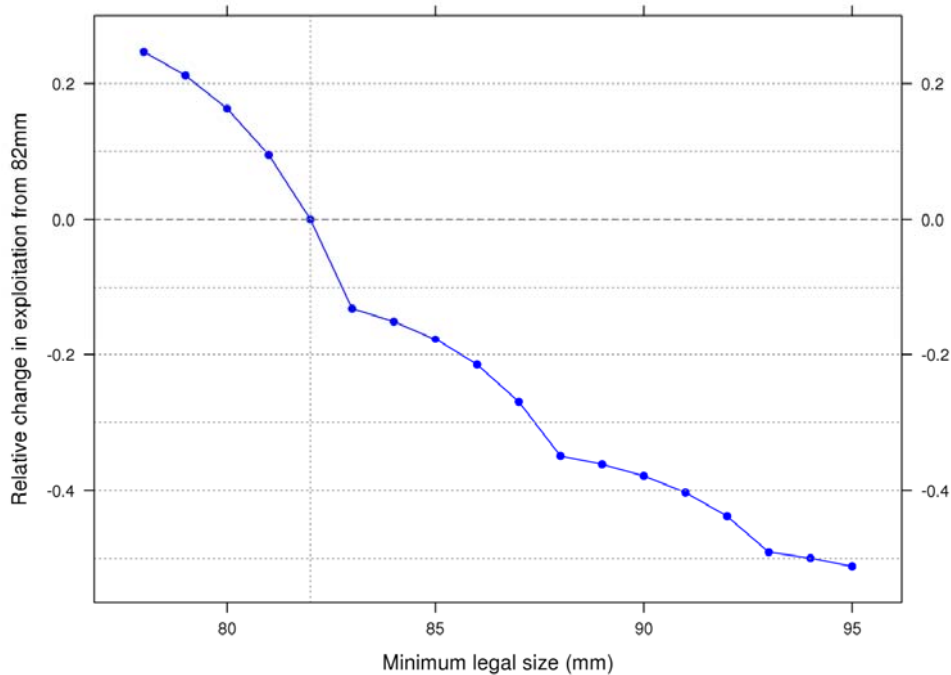


Figure 28. Projected changes in annual population exploitation under different minimum legal sizes. Values are relative to an 82mm minimum size so -0.2 represents a 20% reduction in exploitation.

### 7. **Traffic Light Analysis**

Given the desire to maintain high catch rates in the GOM/GBK, the Board asked the TC to develop a control rule, such as a Traffic Light Analysis (TLA), to trigger management action before the stock is overfished or overfishing is occurring. TLAs are currently used in the management of other Commission species, such as Atlantic croaker and spot. In both cases the TLA monitors the stock in between stock assessments and provides a simple metric to understand the condition of the population.

The TC discussed the potential application of a TLA to the GOM/GBK lobster stock and several concerns were raised by the group. The first concern was that the TLA was originally developed as a precautionary management tool for data-poor species. Given that significant data exist on the lobster population and sophisticated models have been developed to determine the stock's status, the TC raised concerns that a TLA could over-simplify and dilute the work already done to model the stock. Furthermore, the TC noted that model-free indicators have already been developed for the GOM/GBK stock which provide color-coded information on spawning stock biomass, recruit abundance, young-of-year indices, revenue, and landings. Noting the Board's desire to maintain high catch rates seen in the last 10 years, the TC also considered developing reference points based on a more recent time period. However, the TC discussed that periods of high reference abundance can occur even when recruitment is low. As a result, truncating the reference time period can be deceiving as the stock could be achieving the reference abundance target but experiencing poor recruitment. This scenario occurred in SNE where low YOY indices were seen in the early to mid-1990's when landings were at their highest.

Recognizing the Board's desire to be proactive in the management of the GOM/GBK stock, the TC has two recommendations which could inform the Board of changing conditions and enhance

resiliency of the stock. The first recommendation is to closely monitor the Ventless Trap Surveys (VTS) and Inshore Trawl Surveys (ITS) from Maine, New Hampshire, and Massachusetts. Currently, the young-of-year (YOY) indices are showing declines which could foreshadow poor recruitment in the stock. However, there may be other reasons, besides deteriorating stock conditions, which could be causing declines in the YOY indices. One reason could be changes in the distribution of newly settled lobsters. Given the YOY surveys are fixed site surveys, they may not be able to discern changes in the distribution of lobsters from decreases in settlement. As a result, the TC highlights the importance of monitoring results of the VTS and ITS, which can detect the abundance of sub-legal lobsters. Should the decline in the YOY indices indeed reflect a decline in settlement, this change will next be seen in the VTS and the ITS. The TC expects to see declines in the VTS 5-7 years after the declines the YOY survey. Distinct changes in the trajectory of abundance indices from the VTS and/or ITS would help confirm changing stock conditions and poor recruitment in the GOM/GBK stock.

Another recommendation is to modify the abundance reference threshold for GOM/GBK. In an April 2010 memo to the Board, the TC recommended that, when stock abundance falls below the 50th percentile, action be taken to increase the spawning stock and reducing fishing mortality.<sup>1</sup> Currently, reference abundance in the GOM/GBK can decline to the 25<sup>th</sup> percentile before management action is triggered to rebuild the stock. The TC again recommends that management action be triggered at the 50th percentile to increase resiliency in the stock.

While writing up this report, the TC also discussed adding an environmental indicator to the model-free indicators that are a part of the benchmark stock assessments. One of the clear conclusions of the 2015 stock assessment is that environmental factors, primarily water temperature, are impacting the lobster stock. Sea surface temperatures from Boothbay Harbor, ME show that the number of days in the optimal temperature range of 12-18°C has increased since the early 2000's (ASMFC 2015). In contrast, the number of days above 20°C, a number considered to be an important temperature threshold for lobsters, has increased in Woods Hole, MA and Long Island Sound, CT (ASMFC 2015). Given this information, the TC discussed creating a water temperature indicator for SNE and GOM/GBK to help illuminate these trends. Specifically, the indicator could look at anomalies from the mean number of days above 20°C. While there was not enough time to complete this analysis for this report, the TC is willing to continue work on this indicator should the Board feel this is a worthy exercise.

As the Board considers potential control rules in the GOM/GBK, the TC cautions the Board against creating a biological trigger for an economic problem. Recent landings in the GOM/GBK have been unprecedented and are likely a result, in part, of ideal environmental conditions (including water temperatures) for egg production and settlement. The Board may not be able to manage the stock to maintain these record high abundance rates, especially as conditions in the Gulf of Maine continue to change. Furthermore, the TC notes that there may be declines in the population and the stock might still be considered healthy given its historical abundance levels.

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<sup>1</sup> American Lobster Technical Committee memo to American Lobster Board, RE: American Lobster Reference Points. April 23, 2010. M010-034.

## **8. Research Holes and Data Gaps**

In an attempt to highlight data gaps as well as on-going research in the Gulf of Maine, the TC discussed remaining questions regarding the biology and recruitment of lobsters, especially in regards to changing habitat conditions, and compiled information regarding on-going projections. This section is split into three parts: A) Research Needs; B) Assessment Model Development; and C) On-Going Research.

### **A. Research Needs**

#### *Maturity, Growth, and Age*

Increases in water temperatures over the past several decades have likely resulted in changes to size at maturity and growth patterns. Maturity data used in the 2015 assessment are more than 20 years old, making it likely that available maturity and growth information are not representative of present rates. Evidence of decreased female size at maturity exists for both the GOM/GBK stock (Pugh et al. 2013) and the SNE stock (DNC 2013, Landers et al. 2001). Changes in sizes at maturity will subsequently affect growth, since female molting frequency decreases after reaching sexual maturity. Such phenomena have been documented for the SNE stock, as increased molt frequency and decreased molt increments have occurred (DNC 2013). Additionally, female maturity and growth are directly linked to reproduction, as females do not molt if they are carrying eggs. It is critical to collect updated information on maturity and growth in order to appropriately assign molt probabilities to lobsters in the U. Maine length-based model. When females mature at smaller sizes, their growth slows down earlier than what the existing transition matrices predict. This research would also inform age-length relationships, which may also have changed with increased temperatures. Future research should aim to confirm the transition matrices used in the University of Maine model and improve the current assessment, particularly at older ages/sizes.

#### *Natural Mortality*

Research is needed to examine new methods for determining age- or length-varying natural mortality, as well as looking at more rigorous ways of determining time-varying natural mortality for lobster. The former is of critical significance given the probable overestimation of natural mortality in older individuals. The latter is also critical given climatic shifts and changing predator fields. Additionally, interplay between natural mortality and the potential for under-reported harvest should be examined to determine how these factors may impact assessment outcomes. Quantifying differences in natural mortality with and without shell disease must be investigated as disease prevalence continues to be significant in certain areas of SNE and may be spreading northward.

#### *Environmental Influence on Lobster Life History*

As noted above, environmental conditions, particularly temperature, significantly influence lobster life history. Research should continue exploring relationships between environmental drivers and lobster population dynamics (maturity schedules, growth, mortality, recruitment, and movement). With oceanographic projections, relationships should look at how lobster life history may change with future climate change, particularly habitat suitability.

Post-larval settlement dynamics should be examined in relation to movement or re-distribution of a spawning stock and the habitat required for post-settling lobsters (e.g. temperature, substrate, water column structure, light, prey, predators).

#### *Mating and Reproductive Success*

Due to continued observations of female-skewed sex ratios in the GOM/GBK stock, questions regarding the reproductive capacity of these large females should be considered. Recent laboratory work showed that females who mated with smaller males, or who mated under female-skewed sex ratios, did not have completely filled seminal receptacles, and may have been sperm-limited (Pugh 2014). As such, information regarding the location and timing of the female molt (and thus mating) would be required to determine whether the skewed sex ratios and larger female size structure might impact female reproductive output. Additionally, sampling of the large females to determine whether they have mated would also be informative with regard to reproductive activity, as preliminary data indicated some large females had not mated (Goldstein et al. 2014).

#### *Stock Connectivity*

There is need for a comprehensive large scale tagging study to examine stock connectivity between GOM and GBK, as well as GBK and SNE. Historical tagging studies demonstrated movement from the inshore GOM to locations east of Cape Cod in the inshore portions of GBK, from the Scotian Shelf to GBK, and from inshore areas east of Cape Cod to inshore GOM (ASMFC 2015). What is lacking is a tagging study of lobsters in the fall/winter on Georges Bank proper, prior to seasonal migrations which occur in the spring. This information would be extremely valuable to strengthen data used to justify the merged GOM/GBK stock.

Tagging information provides insight into movement of ovigerous females that can be used to understand stock connectivity via larval transport. Hydrodynamic modeling of the GBK and SNE outer shelf areas, with particles assigned lobster larval behaviors, would add valuable insight to the possibility that northern stocks may provide a source of larvae ultimately recruiting to the SNE stock. See Ongoing Research VII below.

Tagging studies are often used to assess stock connectivity; however, information on the reporting rates of tagging studies is still unclear. A study which had both high and low reward tags would help elucidate fishermen behavior and expected tag returns rates in the fishery.

#### *Fishery-Dependent Information*

Analysis of fishing effort compared to economic indicators would be valuable in understanding the contributions of resource availability (e.g. SSB) and U.S. economic status on industry and recorded landings.

Accurate and comparable landings are the principal data needed to assess the impact of fishing on lobster populations. The quality of landings data has not been consistent spatially or temporally. Limited funding, and in some cases elimination of sea sampling and port sampling programs, have negatively affected the accuracy of catch and conservation discard assessment. This lack of accuracy then limits the ability of the model to accurately describe landings and stock conditions. It is imperative that funding for critical monitoring programs continues, and increased monitoring efforts for offshore areas are necessary, particularly those from which a large portion of landings originate. These types of programs are essential for accurate lobster assessments and must have dedicated funding.

There are some indications that lobster harvest were under-reported and this under-reporting was significant for extended time frames. Impacts of under-reporting should be investigated via simulation testing. One particular area that should be examined is the period prior to the

implementation of the 100/500 possession rule for non-pot gear, as landings by non-pot gear may have been a significant source of under-reporting.

A thorough investigation of methods for determining optimal biological sampling intensity based on variability in catch and spatial/temporal landings information should be undertaken. This investigation should explore other metrics that may be more variable than length composition (i.e. conservation discards, sex ratio, legal proportions), as well as an examination of the importance of data from different Statistical Areas to the assessment and the interplay with various levels of sampling from each Area.

## **B. Assessment Model Development**

### *Natural Mortality*

Incorporate varying natural mortality rates to produce scenarios of healthy vs. shell diseased populations of lobsters, and incorporate environmentally-explicit model between climate (e.g. temperature), shell disease prevalence, and mortality for forecasting SSB and catches.

### *Survey Data Aggregation*

Examine the use of a hierarchical modeling technique (Conn, 2010) to aggregate survey information for the different stock areas as an alternative to internally weighting indices in the model or using area-swept information.

### *Settlement-YOY Survey*

Incorporate settlement-YOY survey into the assessment to construct abundance indices for early age classes and understand mortality rates in the first few years of life.

### *Stock-Recruitment Relationship*

Identify appropriate stock-recruitment functions, both traditional and environmentally explicit, to more accurately understand the feedbacks between spawning adults and recruitment, particularly under recent dynamics of recruit/spawner rates (i.e. SNE recruitment failure and GOM/GBK recruit/spawner increase).

### *Assessment Model Language*

A priority that was emphasized by the Review Panel during recent SASC presentations and discussions was the rigidity of the UM model that is written in Advanced Differential Model Builder (ADMB, Fournier *et al.* 2012) and difficulty of reconfiguration. We recommend re-writing the UM model in a more flexible and efficient configuration, using either the ADMB or Template Model Builder (TMB, Kristensen *et al.* 2016) software platforms.

## **C. On-Going Research**

I) In 2013 the Maine Department of Marine Resources contracted with the University of Maine for a five year \$250,000 project designed to apply Kilada *et al.*'s (2012) approach to ageing for lobster. This work focuses on lobsters ranging in size from newly settled lobsters to fully recruited sizes. Regional temperature regimes will be tested as well as differences between laboratory and field scenarios. Anticipated deliverables should be directly applicable to future assessment and will include size-at-age estimates, molt increments and molt frequency.

II) The Maine Department of Marine Resources conducted a three-year study (2010-2013) where settlement was measured in randomly selected sites, based on depth and substrate, and compared to standardized sentinel locations in Mid-Coast Maine. Mid-Coast Maine is the region with the

longest time series for settlement, dating back to 1989. For this reason, it was important to investigate the patterns of settlement from fixed and randomly selected sites. Initial results indicate fixed and random stations have similar magnitude and trend with respect to settlement density for this region.

In other regions in Maine, there is evidence that thermal conditions may have changed, providing additional habitat for settlement. Annis et al. (2013) suggest that small differences in water temperature may shape settlement patterns through either behavioral avoidance of colder settlement sites or elevated post-settlement mortality of post-larvae settling at colder sites. Wahle et al. (2013) observed young-of-year lobsters as deep as 80 m. If available substrate has increased in eastern/northern Maine, simply as a result of increasing water temperatures, then fixed sentinel sites in shallow water may miss a broader pattern of settlement in the region. Researchers (Rick Wahle) at the University of Maine, Orono and NOAA have received funding from the University of Maine Research Reinvestment Program to study changing depth distributions of lobster recruitment. The study is using collectors to determine if lobsters are settling at greater depths than have historically been monitored. This research may provide insight into recent trends observed in the American Lobster Settlement Index. Work has also been funded through NOAA's Northeast Regional Sea Grant Consortium to research the genetic and phenotypic response of larval American lobster to ocean warming and acidification across New England's steep thermal gradient (Rick Wahle, UMaine; David Fields, Bigelow Laboratory for Ocean Sciences; and Spencer Greenwood, University of PEI). A number of projects have been funded to enhance and expand forecasting lobster fishery recruitment using the American Lobster Settlement Index (Rick Wahle, UMaine; A. Pershing, GMRI; L. Jacobson, NEFSC; D. Brady, UMaine; B. Beal, UMaine Machias; B. Shank, NEFSC).

III) Kathy Castro of the University of Rhode Island is currently assessing the impact of various vent sizes on retaining lobsters entering traps. Traps were stocked with lobsters of known sizes and sexes and released for 5 night soaks to see the degree of escapement.

IV) Researchers from VIMS (John Hoenig, Jeff Shields, Maya Groner) are currently working on environmentally explicit models to describe size-specific mortality rates for shell-diseased lobsters. These relationships will be evaluated for inclusion in the currently used projection model to understand future lobster population dynamics under diseased and non-diseased scenarios.

V) Researchers from Davidson Laboratory at the Stevens Institute, CT DEEP, and NOAA have recently evaluated habitat restrictions for lobster using high resolution climate change model for Long Island Sound. Future habitat work should draw on these techniques for other SNE states (RI and MA) as well as the GOM/GBK stock.

VI) Massachusetts Division of Marine Fisheries is currently conducting research into the sub-lethal effects of shell disease, specifically in relation to reproductive capacity. The research, funded by NOAA's Saltonstall-Kennedy grant, will examine male and female lobster reproductive capabilities relative to presence or absence of shell disease. Female mating success, initial fecundity (number and quality of eggs spawned) and realized fecundity (number of eggs expected to hatch) will be determined. Male spermatophore quality will be determined relative to disease status. Mating behaviors of diseased males and females will be examined, and compared to that of non-diseased lobsters. The results are intended to help understand the potential for rebuilding the SNE stock based on reproductive capacity, and to identify potential consequences of increased incidence of shell disease in the GOM stock.

VII) Researchers from Woods Hole Oceanographic, University of Massachusetts, Dartmouth, Mass DMF and NOAA are currently investigating the impact of climate change on larval connectivity, larval dispersal patterns and recruitment of lobster in Southern New England (SNE). This project, funded by the NOAA Saltonstall-Kennedy Program will help determine how changing spatial distributions of the spawning stock are impacting larval supply to SNE nursery habitats and provide management advice on measures that may help mediate recruitment failure.

VIII New Hampshire Fish and Game and AOLA were awarded funds to conduct a T-bar tagging study on Georges Bank in 2015. Recaptures from this study are still being reported by fishermen and information from this research is being shared with the ASMFC Lobster TC to assist in their ongoing stock connectivity analysis. Tagging proposals for future funding covering expanded spatial regions have been submitted.

IX) Researchers from Virginia Institute of Marine Science and Cornell University (Jeff Shields and Jeff Maynard) received SK funding to develop a predictive model integrating sea surface temperature and shell disease incidence in the Gulf of Maine. They plan to validate predicted shell disease incidence rates with data from state commercial at sea sampling programs.

X) Over the last few years, Dr. Heather Hamlin, Dr. Robert Bayer and Deborah Bouchard (University of Maine and Lobster Institute) have been engaged in lobster health research addressing the effects of a changing ocean ecosystem on lobster health in the context of rising water temperatures and ocean acidification. Focus has been on how these changes may directly impact lobster biology in regards to reproductive development and susceptibility to disease. A parallel component of these projects moving forward is to develop the ability and sensibility within Maine's lobster industry that early reporting and diagnosis of presumed diseased or deformed lobsters is critical to gauging the population's susceptibility to new and emerging pathogens. Funding for this work has been obtained from the Saltonstall-Kennedy Program (NOAA Fisheries), the University of Maine Research Re-investment Fund and the Lobster RED Board (State of Maine, Department of Marine Resource).

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Appendix 1: Figures from SSEM of zooplankton time series.

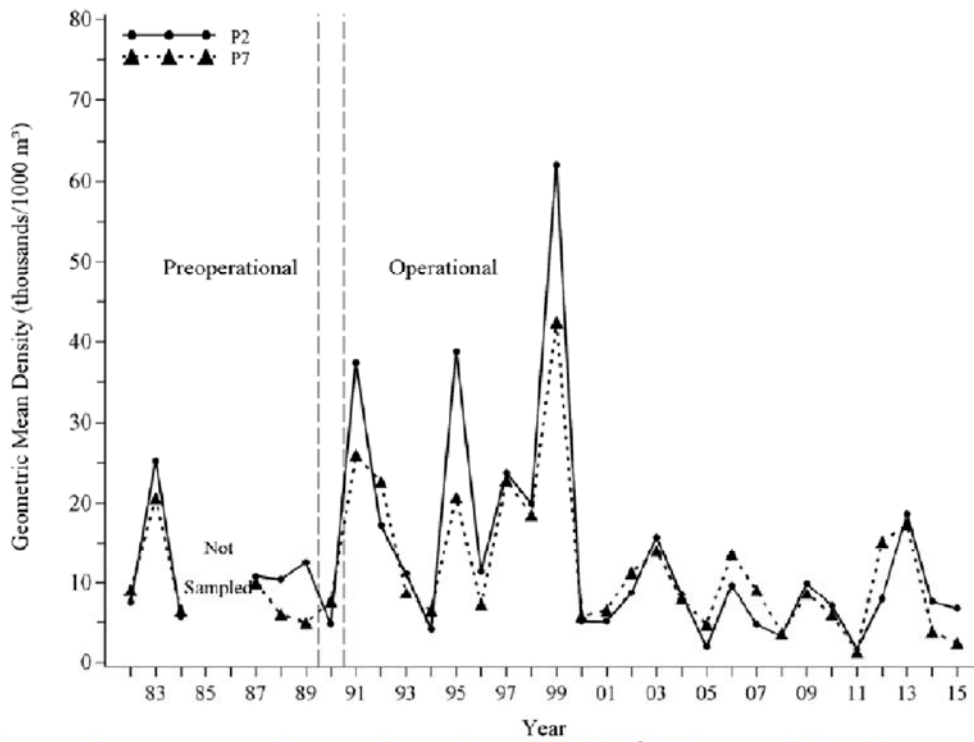


Figure 6-10. Annual geometric mean density (thousands/1000 m<sup>3</sup>) of *Cancer* spp. larvae from 1982-2015 (data between dashed lines excluded from the ANOVA model). Seabrook Operational Report, 2015.

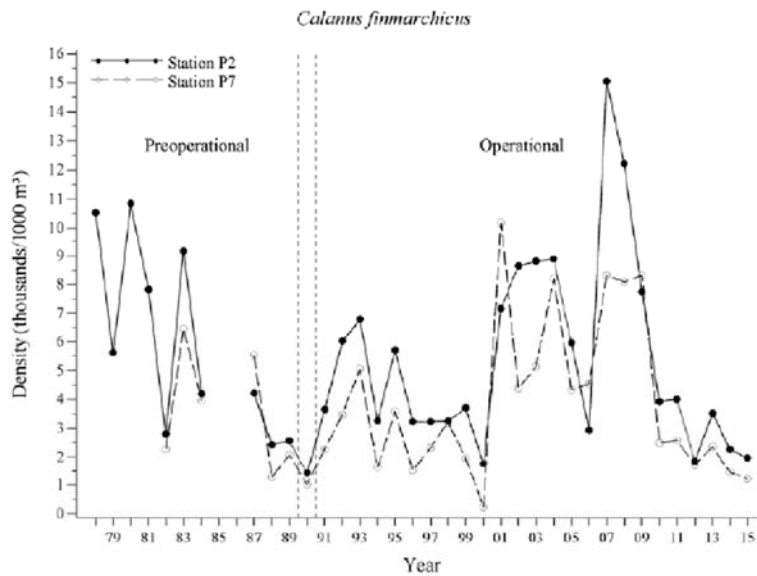


Figure 3-8. Annual geometric mean density of *Calanus finmarchicus* at Stations P2 and P7 from 1978 to 2015. Seabrook Operational Report, 2015.

***Atlantic States Marine Fisheries Commission***

**DRAFT ADDENDUM II TO THE INTERSTATE FISHERY  
MANAGEMENT PLAN FOR JONAH CRAB**

**Coastwide Standard for Claw Landings and Bycatch Definition**



***Vision: Sustainably Managing Atlantic Coastal Fisheries***

**November 2016**

## Public Comment Process and Proposed Timeline

At its May 2016 meeting, the American Lobster Management Board (Board) discussed concerns over the equity of the current claw provision in the Jonah Crab Fishery Management Plan (FMP). As a result, the Board initiated Draft Addendum II to consider establishing a coastwide standard for Jonah crab claw landings. At its October 2016 meeting, the Board added a second issue to the document to consider establishing a definition of bycatch in the Jonah crab fishery.

The public is encouraged to submit comments regarding the proposed management options in this document at any time during the addendum process. The final date comments will be accepted is **January 6, 2017 at 5:00 p.m. EST**. Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comments, please use the contact information below.

Mail: Megan Ware

Atlantic States Marine Fisheries Commission

1050 N. Highland St. Suite 200A-N

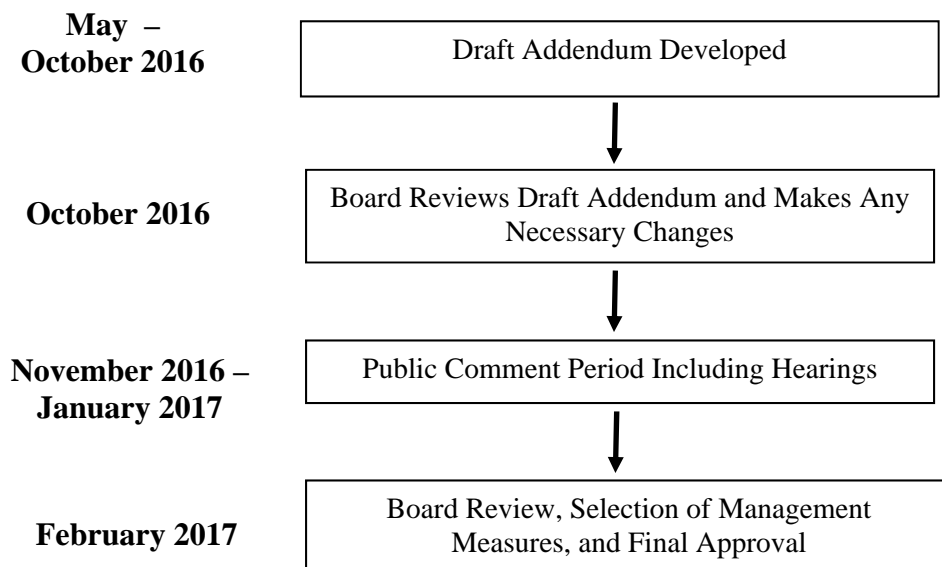
Arlington, VA 22201

Fax: (703) 842-0741

Email: [mware@asmfc.org](mailto:mware@asmfc.org)

(Subject line: Jonah Crab

Draft Addendum II)



## 1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) coordinates the interstate management of Jonah crab (*Cancer borealis*) in state waters (from 0-3 miles offshore). ASMFC manages Jonah crab through an Interstate Fishery Management Plan (FMP), which was approved in August 2015 under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (1993). Management authority in the exclusive economic zone (EEZ), which extends from 3-200 miles offshore, lies with NOAA Fisheries. The management unit for Jonah crab includes the Atlantic states from Maine through Virginia. The biological range of the species is primarily from Newfoundland, Canada to Florida.

The American Lobster Management Board (Board) initiated Addendum II to the FMP to consider a coastwide standard for claw landings in the Jonah crab fishery. The FMP currently specifies a whole crab fishery with the exception of individuals from New Jersey, Delaware, Maryland and Virginia who can prove a history of claw landings before the June 2, 2015 control date. The FMP allows claw landings for these fishermen due to the historic practice of declawing Jonah crab in the Delmarva Peninsula. After final action was taken on the FMP, claw fishermen were identified in New York and Maine. In accordance with the FMP, these New York and Maine fishermen are required to land whole crabs.

Given concerns regarding the equity of the current claw provision (namely that some fishermen with a history of claw landings are allowed to continue this practice while others must land whole crabs) and the fact that the fishery is primarily executed in federal waters, the Board requested NOAA Fisheries provide regulatory guidance on the claw provision in the FMP. In a letter dated February 29, 2016, NOAA Fisheries highlighted potential challenges with implementing the current claw regulation since it does not provide equal opportunities to like participants across the fishery. As a result, the Board directed the Plan Development Team (PDT) to draft an addendum to consider a range of options that would establish a coastwide standard for claw harvest in the Jonah crab fishery.

At its October 2016 meeting, the Board added a second issue to Draft Addendum II to consider establishing a definition of bycatch in the Jonah crab fishery. Per Addendum I, there is a 1,000 crab per trip bycatch limit for non-trap and non-lobster trap fishermen. While the bycatch limit is intended to accommodate incidental catch, no definition of bycatch is provided. As a result, the bycatch allowance may support a small-scale fishery as fishermen harvesting Jonah crab under the bycatch limit may land 1,000 crabs per trip and nothing else. In order to reflect the intention of the bycatch limit, to account for Jonah crab caught while targeting another species, the Board added options to Draft Addendum II to establish a definition of bycatch in the fishery.

## **2.0 Overview**

### **2.1 Statement of the Problem**

The Jonah Crab FMP established a whole crab fishery with the exception of individuals from New Jersey, Delaware, Maryland, and Virginia, who can prove a history of claw landings before June 2, 2015. However, following approval of the FMP, fishermen from New York and Maine who were landing claws were identified. These individuals are currently only allowed to land whole crabs. Given concerns about the equity of the current claw provision, as well as potential challenges implementing the regulation in federal waters, the Board initiated this addendum to consider establishing a coastwide standard for claw harvest in the Jonah crab fishery. In October, the Board added a second issue to the Addendum to consider establishing a definition of bycatch in the Jonah crab fishery in order to prevent the creation and expansion of a small-scale fishery.

### **2.2 Background**

Jonah crab has long been considered a bycatch of the lobster fishery; however, in recent years there has been an increase in the targeted harvest of Jonah crab. Since the early 2000s, landings of Jonah crab have increased 650%, creating a mixed crustacean fishery which can target lobster or crab at different times of the year based on slight, legal gear modifications and small shifts in the areas in which traps are fished. This rapid increase in landings can be attributed to a number of factors including a decrease in the abundance of lobsters in Southern New England, causing fishermen to supplement their income with Jonah crab, and an increase in the price of other crab (such as Dungeness), creating a substitute market for Jonah crab. There is also speculation that the increase in landings reflects an increase in abundance of Jonah crab. While a stock assessment has not been completed for the species, data from the Rhode Island Fish Trawl Survey suggests that the abundance of cancer crabs has increased since 1959. As a result of the immense growth in this fishery, ASMFC approved a FMP for Jonah crab to support the implementation of a unified coastal management program which promotes the conservation and full utilization of the Jonah crab resource.

Landings in the commercial fishery fluctuated between approximately 2 and 3 million pounds throughout the 1990's but steadily rose to over 17 million pounds in 2014. A similar increase occurred in the economic importance of the fishery as ex-vessel value rose from roughly \$1.5 million in the 1990's to an estimated \$13 million in 2014. Landings in 2014 predominately came from Massachusetts (70.4%), followed by Rhode Island (24.5%).

While the majority of Jonah crab is harvested as whole crabs, fishermen from numerous states, including Maine, New York, New Jersey, Delaware, Maryland and Virginia land claws. Jonah crab claws are relatively large and can be an inexpensive substitute for stone crab claws. As a result, they can provide an important source of income for fishermen. Claws can also be harvested for personal consumption; however, these landings are not well documented. A historic claw fishery takes place along the



Delmarva Peninsula. These traditionally small boat fishermen harvest Jonah crab claws because they do not have a seawater storage tank on board to store whole crabs. As a result, landing claws avoids economic inefficiencies for this small fleet.

Jonah crab is also landed as bycatch in non-trap gear, such as bottom otter trawls and gillnets, and non-lobster trap gears, such as whelk pots, crab pots, and fish pots. Non-trap gears account for roughly 0.1% of Jonah crab landings annually, with total non-trap landings varying between 2,986 pounds in 2011 and 13,211 pounds in 2014 (Table 1). Landings by non-lobster trap gears are a bit higher. Data submitted by NOAA Fisheries show between May 1, 2013 and August 31, 2015, 194 trips landed Jonah crab with whelk pots, crab pots, and fish pots.<sup>1</sup> Of these, 80 trips landed 100 crab or fewer and 115 trips landed 200 crab or fewer. Approximately 45 trips landed between 200 and 500 crab and 40 trips landed more than 450 crab. Trips with the highest landings came from whelk pots.

**Table 1:** Number of trips landing Jonah crab with non-trap gear and estimated total landings (2010-2014). Provided by New England Fishery Management Council (NEFMC).

Year	Number of Permits Landing Jonah Crab w/ Non-Trap Gear	Number of Trips Landing Jonah Crab w/ Non-Trap Gear	Total Non-Trap Jonah Crab Landings (lbs)	% of Year's Total Jonah Crab Landings
2010	21	87	10,815	0.099%
2011	23	62	2,986	0.032%
2012	14	45	4,099	0.035%
2013	22	89	6,081	0.038%
2014	17	113	13,221	0.078%

Jonah Crab Claw Landings

Information on the magnitude of the Jonah crab claw fishery is limited. As a result, it is unclear how many fishermen are landing claws or the magnitude of pounds being harvested. The primary obstacle in obtaining this information is that trip level harvester reporting has not been required in all jurisdictions. Furthermore, prior to the implementation of the Jonah Crab FMP, many states did not require trip-level dealer reporting to delineate between whole crabs and claws.<sup>2</sup> As a result, data on the Jonah crab claw fishery is incomplete. Refer to Appendix 1 for a summary of state reporting in the Jonah crab fishery prior to the implementation of the FMP.

Table 2 shows claw landings reported to the ACCSP Data Warehouse between 2010 and 2015. Total claw landings from 2010-2015 were just under 150,000 lbs; however, this is likely an underestimate given that Jonah crab dealer reporting has not always specified market category and claws harvested for personal consumption are often not reported.

<sup>1</sup> Data provided by NOAA GARFO from the Vessel Trip Report database. Assumes that 1 crab=1 pound.

<sup>2</sup> As a part of the Jonah Crab FMP, states were required to implement Jonah crab dealer reporting which specifies market grade by June 1, 2016.

Claws are primarily landed by pots and traps, with lobster pots accounting for up to 95% of the claw landings (a majority of pots and traps are not specified in the data reports so it is unclear what percentage of these landings are from lobster pots versus fish pots). Gill net and otter trawl fishermen comprise 2.7% of claw landings. When these gears encounter Jonah crab, fishermen harvest the claws because they are often forced to detach the claws in order to remove the crab from the net.

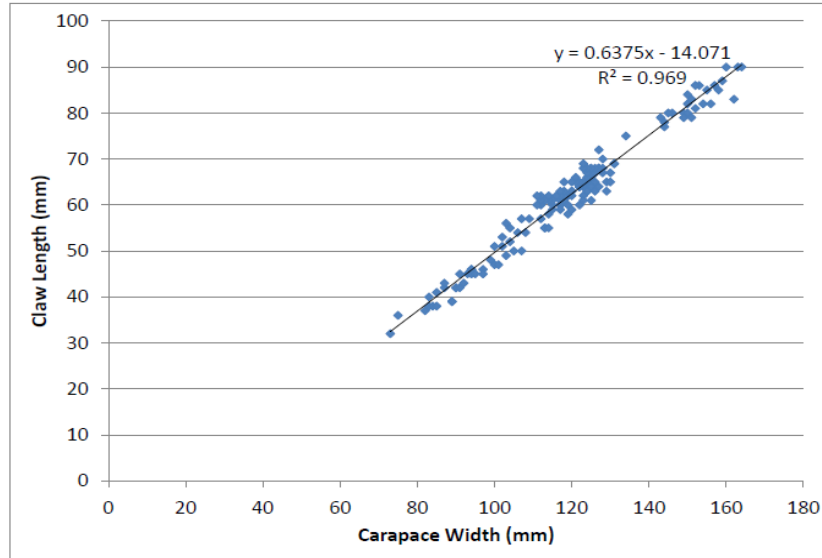
**Table 2:** Jonah crab claw landings in the management unit (ME through VA) from 2010-2015. (Source: ACCSP Data Warehouse.) The unspecified ‘pots/traps’ category could include lobster pots, fish pots, conch pots, and crab traps.

Year	Pots/traps (Type not specified)	Lobster Pot	Fish Pot	Gill Net	Otter Trawl	Total
Jonah Crab Claw Landings from 2010 – 2015 (lbs)	75,847	66,296	3,081	2,115	1,958	149,297
Percent of Total	50.8%	44.4%	2.1%	1.4%	1.35%	100%

While prior to the FMP Maryland did not require reporting to differentiate between claws and whole crabs, efforts were made to determine the market category of Jonah crab landings from trip level reports. ACCSP confidential dealer reports and state fishing report data were analyzed. Available fishermen were interviewed and a Jonah Crab Advisory Panel member described the practices of the fleet over the time period. From these efforts, Maryland staff determined that between 2000 and 2015, only one fishing vessel predominately landed whole crabs while the remainder of the fleet (n=18) landed both claws and whole crabs. The information also showed that the number of trips landing claws has increased from approximately 19 trips in 2011 to 70 trips in 2015. The amount of claws landed on these trips ranged from just a few pounds to a couple thousand pounds. These vessels used a variety of gears including lobster pots, conch pots, otter trawls, and gill nets.

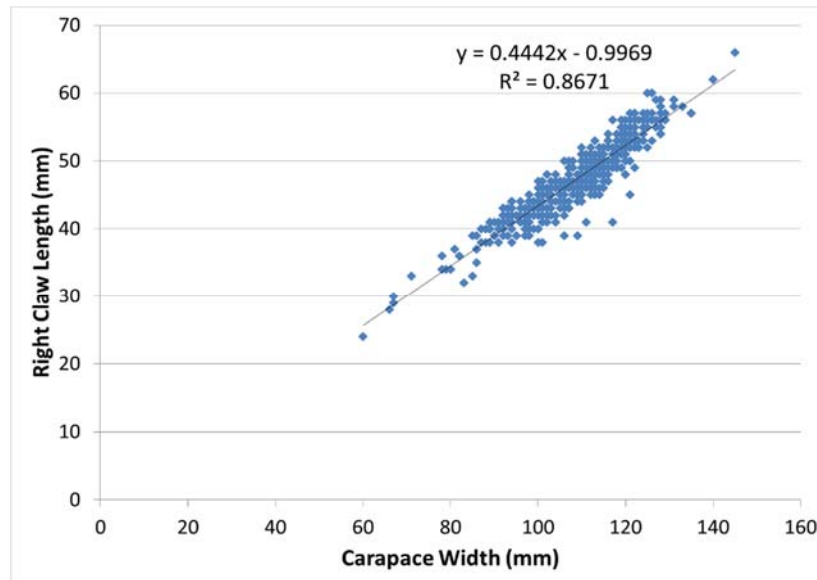
Jonah Crab Claw Morphometric and Mortality Data

To date, the life cycle of Jonah crab is poorly understood. Several studies have recently been conducted to better understand the biology of this species. As part of a Saltonstall-Kennedy Grant awarded in 2015 to collect biological data in the Jonah crab fishery, the Massachusetts Division of Marine Fisheries measured the carapace width and claw length of several hundred Jonah crabs from Southern New England (inshore and offshore) and Georges Bank. From this data, the relationship between carapace width and claw length was examined (Figure 1). The data suggests that, for a male crab whose carapace width meets the minimum size of 4.75” (120.65 mm), an average (expected) claw length would be 2.47” (62.84mm).



**Figure 1:** Linear regression between the carapace width and claw length of male Jonah crabs (n=153). Measurements from regenerated claws were removed using a least square method. Regional differences in claw length may be masked since crabs from Southern New England and Georges Bank are presented together (Source: MA DMF).

Morphometric data was also collected on female Jonah crabs in Georges Bank and Southern New England. Figure 2 shows that, for a female crab whose carapace width meets the minimum size of 4.75" (120.65mm), the expected claw length would be 2.06" (52.33mm). This is smaller than the expected claw length for males. Furthermore, 100% of female crabs sampled had claw lengths less than 2.75" (69.85mm).



**Figure 2:** Linear regression between the carapace width and claw length of female Jonah crabs (n=480). Measurements from regenerated claws were removed using a least square method. Regional differences in claw length may be masked since crabs from Southern New England and Georges Bank are presented together (Source: MA DMF).

Preliminary data is also available from a small scale laboratory study which is investigating Jonah crab claw removal and its impacts on survivorship. The study, conducted by New Hampshire Fish & Game and the University of New Hampshire, looked at the biological implications of claw harvest by subjecting crabs to one of three treatments: one claw removed, two claws removed, and no claws removed. Crabs (n=232) were monitored in seawater trays over a four week period and their activity levels and survival were evaluated. Preliminary results suggest that 19% of crabs died when no claws were removed, 56% of crabs died when one claw was removed, and 74% died when both claws were removed. There is 100% mortality when whole crabs are harvested.

#### Federal Adoption of the Jonah Crab FMP Claw Provision

Given that the Jonah crab fishery is primarily executed in federal waters and there is a need for NOAA Fisheries to enact complementary measures in the EEZ, the Board sent a letter to NOAA Fisheries asking for preliminary guidance on the current claw provision. In a letter dated February 29, 2016, NOAA Fisheries responded to the Board's request, highlighting several concerns with a claw fishery in federal waters. Specifically, NOAA Fisheries reiterated the Law Enforcement Committee's position that a claw fishery could "complicate effective enforcement of a minimum-size standard, and introduce an opportunity to move undersized crabs through the system".<sup>3</sup> Additionally, NOAA Fisheries stated that it "may prove challenging"<sup>4</sup> to implement the current claw provision due to Magnuson-Stevens Fishery Conservation and Management Act's National Standard 4, which requires that management measures "not discriminate between residents of different states"<sup>5</sup>. NOAA Fisheries noted their support of the Commission's public process, encouraging the Board to consider changes to the Jonah Crab FMP through an addendum which encompasses a range of alternatives and is released for public comment. Refer to Appendix 2 for a copy of the NOAA Fisheries letter received by ASMFC.

Given that the current claw provision does not provide the same fishery opportunities to like participants, the Board initiated this addendum to the Jonah Crab FMP to consider establishing a coastwide standard for claw harvest. The Draft Addendum considers a range of options including a strictly whole crab fishery and the allowance of claw harvest coastwide.

#### Definition of Bycatch

The Jonah Crab Fishery Management Plan (FMP) established a 200 crab per day, 500 crab per trip incidental bycatch limit for non-trap gear. This bycatch limit was increased to 1,000 crab per trip under Addendum I to accommodate several mobile gear trips which were above the original allowance. Furthermore, Addendum I established a 1,000

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<sup>3</sup> John Bullard to Robert Beal. 29 February 2016. Re: Jonah Crab Claw Fishery.

<sup>4</sup> John Bullard to Robert Beal. 29 February 2016.

<sup>5</sup> Ibid.

crab per trip incidental bycatch limit for non-lobster traps, which include fish pots, whelk pots, and crab pots.

The increase of the bycatch limit has raised concerns that the allowance could support a small-scale fishery. While the intent of the bycatch limits prescribed in Addendum I are intended to accommodate incidental catch, no definition of bycatch is provided in the Addendum. As a result, fishermen harvesting Jonah crab under the bycatch limit may, in fact, 'direct' on Jonah crab by landing 1,000 crabs per trip. Moreover, there is the potential for a small-scale fishery to develop in which fishermen can land 1,000 crabs per trip and nothing else. This does not reflect the intention of the bycatch limit: to account for Jonah crab caught while targeting another species.

### **3.0 Management Program**

#### **3.1 Claw Harvest**

This section proposes to replace "Crab Part Retention" in *Section 4.1* of the Jonah Crab FMP.

##### Option A: Status Quo

Under this option, only whole crabs which meet the minimum size of 4.75" may be retained and sold with the exception of individuals who can prove a history of claw landings before the June 2, 2015 control date in the states of New Jersey, Delaware, Maryland, and Virginia.

The PDT notes that if the Board pursues this option, it may be necessary to specify the size and volume of claws which may be harvested.

##### Option B: Coastwide Whole Crab Fishery

Under this option, only whole crabs which meet the minimum size of 4.75" may be harvested and sold coastwide. Once landed, claws may be detached from the whole crab and sold. There is no minimum size for claws detached at the dock.

This option would eliminate the provision that those who can prove a history of claw landings before June 2, 2015 in the states of New Jersey, Delaware, Maryland, and Virginia can land detached claws.

##### Option C: Claw Harvest Permitted Coastwide

Under this option, claws may be detached and harvested at sea. If the volume of claws detached at sea is under 5 gallons, there is no minimum claw length; however, if the volume of claws detached at sea is greater than 5 gallons, all claws must meet a minimum claw length of 2.75". Claw length is measured along the bottom of the claw, from the joint to the lower tip of the claw. This minimum claw length is more conservative than the expected claw length of 2.5" for a Jonah crab at the 4.75" minimum carapace width and was chosen to ensure claws are harvested from neither

sublegal crabs nor berried females. Two claws may be harvested from the same crab. Bycatch limits will remain in effect per Addendum I such that a fisherman fishing under the bycatch allowance may land up to 2,000 claws (1,000 whole crabs = 2,000 detached claws). For reference, 2,000 claws is equivalent to approximately eight 5-gallon buckets. Lobster permit holders are not constrained by the bycatch limit and can land an unlimited number of claws.

Fishermen may also harvest whole crabs which meet the 4.75" minimum size under this option. Once landed, claws may be detached from whole crabs and sold. There is no minimum size for claws which are detached at the dock.

This option would eliminate the need for the provision that those who can prove a history of claw landings before June 2, 2015 in the states of New Jersey, Delaware, Maryland, and Virginia can land detached claws.

### **3.2 Bycatch Definition**

This section considers adding a definition of incidental bycatch in the Jonah crab fishery to Sections 3.1 and 3.2 of Addendum I.

#### Option A: Status Quo

Under this option, there would be no definition of bycatch in the Jonah crab fishery. Fishermen using non-trap gear and non-lobster trap gear could land Jonah crab up to the bycatch limit without having another species on board.

#### Option B: Bycatch Defined as Percent Composition

Under this option, Jonah crab caught under the incidental bycatch limit must comprise at all times during a fishing trip an amount lower, in pounds, than the target species the deployed gear is targeting.

A target species are "those species primarily sought by the fishermen in the fishery" and are "the subject of directed fishing effort."<sup>6</sup> Potential target species of non-lobster traps, such as fish pots, crab pots, and whelk pots, include but are not limited to whelk, conch, crabs (other than *Cancer borealis*), scup, black sea bass, tautog, flounder, and eel. Potential target species of non-trap gear, such as bottom otter trawls and gillnets, include but are not limited to butterfish, herring, shrimp, skates, scallops, halibut, black sea bass, striped bass, bluefish, cod, crab (other than *Cancer borealis*), dogfish, flounder, croaker, hake, scup, squid, tautog, weakfish, monkfish, polluck and shad. Groundfish, as a compilation of multiple species, are considered a target species.

### **4.0 Compliance**

If approved, states must implement the management measures in Addendum II by Month, 201X.

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<sup>6</sup> NOAA Fisheries Glossary. 2006, rev. 2006. NOAA Technical Memorandum NMFS-F/SPO-69.

### **5.0 Recommendation for Federal Waters**

The management of Jonah crab in the EEZ is the responsibility of the Secretary of Commerce through the National Marine Fisheries Service (NMFS). The Atlantic States Marine Fisheries Commission recommends that the federal government promulgate all necessary regulations in Section 3.0 to implement complementary measures to those approved in this addendum.

### **6.0 Literature Cited**

- ASMFC, 2015. [Interstate Fishery Management Plan for Jonah Crab](#). Atlantic States Marine Fisheries Commission, Arlington, VA. 73p.
- The University of Rhode Island Graduate School of Oceanography. 2016. 2015 Annual Fish Trawl Survey Report. 6p.

**Appendix 1:** States Jonah crab reporting prior to implementation of the Jonah Crab FMP.

	<b>NMFS</b>	<b>ME</b>	<b>NH</b>	<b>MA</b>	<b>RI</b>	<b>CT</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>
<b>Is it lawful for harvesters to land Jonah crabs and NOT report?</b>	No for most federal permit holders. Yes for federal lobster-only permit holders and Jonah crab-only harvesters with no other federal permits	Yes	No	No	No	No	No	Yes, only if the vessel does not have a federal permit and is fishing state waters.	No	No	No
<b>Trip-level harvester data collected delineates landings as whole crab vs. claw</b>	No	No	No	No	No	No	No	No	No	No	Yes (though not always done in the past)
<b>Trip-level dealer data is collected that would capture Jonah crab transactions</b>	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes, through SAFIS for vessels with federal permit.	No	Yes	Only for federal water harvest that is sold to a federal dealer and can be tied back to a VTR
<b>Trip-level dealer data delineates transactions as whole crab vs. claws</b>	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No



## Appendix 2



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

FEB 29 2016

Robert Beal  
Executive Director  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St, Suite A-N Arlington, VA 22201

Dear Bob:

Thank you for your February 17, 2016, letter requesting preliminary guidance on the development of a claw-only Jonah crab fishery under the Interstate Fishery Management Plan for Jonah Crab. As your letter points out, I cannot provide definitive, final guidance on this issue because the Lobster Board continues to discuss revisions to claw-only measures and my staff have not yet completed the rulemaking process to implement the management measures recommended in the Jonah Crab Plan. I can provide guidance on preliminary conservation, enforcement and legal issues associated with a claw-only fishery.

As you noted, I urged the Lobster Board in my July 16, 2016 letter to develop a whole-crab fishery, as the Jonah Crab Plan did "not contain information on the post-release survivability of Jonah crab after one or both claws has been removed." My staff echoed this concern at the August 2016, Lobster Board meeting. Since that time, the University of New Hampshire and New Hampshire Fish and Game have undertaken a small scale laboratory study to evaluate the impacts of claw removal on the health and behavior of Jonah crabs. Preliminary results from these trials indicate high levels of mortality (approximately 50 percent for crabs with one claw removed and approximately 75 percent for crabs with both claws removed). Unless additional information becomes available indicating that post-claw removal survival is higher than this preliminary study suggests, I believe the Lobster Board would have a difficult time justifying that a claw-only fishery is a sustainable practice and is consistent with the Jonah Crab Plan goals and objectives.

As you noted, the Law Enforcement Committee previously weighed in on the option for a claw-only fishery, stating "Introducing an option to retain parts or remove claws will complicate effective enforcement of a minimum-size standard, and introduces an opportunity to move undersized crabs through the system. Adding an additional measurement standard for claws, such as a count-per-pound or something similar, will greatly complicate enforcement requirements to monitor and inspect fishing." Staff from NOAA's Office of Law Enforcement participated in that discussion and concurred with the Committee's recommendation. In addition, the Office of Law Enforcement has indicated that implementing multiple sets of requirements, such as whole and claw-only provisions, in a single management area complicates and weakens enforcement. This is why we have historically supported one set of regulations that can be applied consistently across jurisdictions and areas. I believe the Lobster Board should



discuss and closely evaluate the potential enforcement concerns associated with a claw-only fishery.

As you know, any regulation promulgated under the Atlantic Coastal Fisheries Cooperative Management Act must be in accordance with the Magnuson-Stevens Fishery Conservation and Management Act's National Standards. Your letter referenced National Standard 4, which states in part that "Conservation and management shall not discriminate between residents of different states..." During our rulemaking process, we would formally review whether the Commission-recommended Jonah crab measures comply with National Standard 4, including whether it is a conservation measure without discriminatory intent. It may prove challenging for us to implement the claw-only exemption, as constructed in the August 2015 Jonah Crab Plan because of National Standard 4. My recollection of the August claw-only discussion is that additional development of claw-only permitting requirements and management measures would be necessary prior to implementation. Once developed and recommended, these measures would be subject to a formal review under National Standard 4.

While I remain in favor of a whole-crab fishery, I am supportive of the Commission's public process. Changes to the Jonah Crab Plan should be considered by Lobster Board through an addendum that encompasses a range of alternatives and subsequently released for public comment.

Thank you for the opportunity to provide additional comments on this important issue. If you have any questions, please contact Allison Murphy at (978) 281-9122 or [allison.murphy@noaa.gov](mailto:allison.murphy@noaa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'JKB', with a long horizontal line extending to the right.

John K. Bullard  
Regional Administrator

cc: David Borden, American Lobster Board Chairman  
Megan Ware, ASMFC Fishery Management Plan Coordinator



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** Megan Ware, FMP Coordinator  
**DATE:** January 12, 2017  
**SUBJECT:** Public Comment on Draft Addendum II to the Jonah Crab FMP

The following pages represent a summary of all public comment received by ASMFC as of January 6, 2017 at 5:00 p.m. (closing deadline) on Draft Addendum II to the Jonah Crab Fishery Management Plan.

A total of 7 written comments were received during the public comment period. 5 of those comments were from the following groups and organization: Atlantic Offshore Lobstermen's Association, Massachusetts Lobstermen's Association, Maine Lobstermen's Association, National Marine Fisheries Service, and Maine Coast Fishermen's Association. Individual written comments were submitted by two individuals. A summary of the written comment is provided (page 2) and individual comment letters follow this memo. In the heading of the summary tables, the following abbreviations are used:

- "I" stands for individuals in favor
- "G" stands for groups in favor

Eight public hearings were held in the following states: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Delaware (joint with Maryland), and Virginia. In total, approximately 40 individuals attended the public hearings or called state agencies to provide comments. A brief summary of the comments received at the public hearings is provided (page 3), followed by detailed summaries for each hearing (pages 4-9).

## **Written Comment Summary**

### ISSUE 1: CLAW HARVEST (*Section 3.1*)

<b>Option</b>	<b>I</b>	<b>G</b>	<b>Total</b>
<b>A: Status Quo</b>	1	1	2
<b>B: Coastwide Whole Crab Fishery</b>	1	2	3
<b>C: Claw Harvest Permitted Coastwide</b>	0	2	2

Two groups and 1 individual supported Option B: Coastwide Whole Crab Fishery. They noted concern with the post-release mortality associated with the claw fishery and stated that the claw fishery could undermine the primary management tools adopted in the FMP, mainly the minimum size and prohibition on egg-bearing females. One organization also noted potential enforcement challenges with a claw fishery. Two groups supported Option C: Claw Harvest Permitted Coastwide to afford fishermen along the entire Atlantic coast the opportunity to participate in the claw fishery. One group and one individual supported Option A: Status Quo. One individual did not think that fishermen in different parts of the resource should be treated the same and one group encouraged continuation of the provisions in the FMP until greater research on the claw fishery can be conducted.

### ISSUE 2: BYCATCH DEFINITION (*Section 3.2*)

<b>Option</b>	<b>I</b>	<b>G</b>	<b>Total</b>
<b>A: Status Quo</b>	0	1	1
<b>B: Bycatch Defined by Percent Composition</b>	0	3	3

Four groups commented on Issue 2 and three support Option B: Bycatch Defined by Percent Composition. Several organizations commented that a bycatch definition would minimize the development of a small-scale fishery or targeted bycatch fishery under the 1,000 crab bycatch limit. One organization supported Option A: Status Quo as they did not see a problem with the current bycatch allowance.

## **Public Hearing Summary**

### ***Issue 1: Claw Harvest***

Comments on the claw fishery were received at the New Hampshire, Massachusetts, and New York public hearings. Majority of fishermen in New York supported claw harvest coastwide (Option C). They commented that pot fishermen rely on Jonah crab claw harvest during the summer months when whole crabs do not survive without refrigeration. Others noted that gill net fishermen are unable to harvest whole crabs since it is difficult to remove the crab from the net without breaking off the claw. In Massachusetts, one individual expressed concern over the high mortality rates associated with claw harvest. Another participant recommended that claw harvest should be limited to the claw, as opposed to the full arm of the crab. In New Hampshire, several participants expressed reservations about a claw fishery. One participant recommended the fishery strictly land claws and not whole crabs. Another participant commented on the impacts that a claw fishery may have on the ecosystem function of Jonah crab.

### ***Issue 2: Bycatch Definition***

Comments on this issue were only received at the New York public hearing, where three participants were in favor of defining bycatch as a percent composition (Option B). One individual stated that the current 1,000 crab bycatch limit is too high. Another participant stated that bycatch by mobile gears should be limited by effort controls rather than a volumetric standard; he supported trawlers having a limited number of days to fish but no catch limits as a way to reduce bycatch.

## Jonah Crab Draft Addendum II Public Hearing

*Portsmouth, New Hampshire*

*December 6, 2016*

*18 Participants*

Attendees: Don Swanson (CCA NH), Aaron Kornbluth (Pew), Erica Fuller (Earthjustice), Pam Gromen (Wild Oceans), Peter Whelan, Morgan Callahan (Pew), Le Swiberg, Matthew Larkin, Fred Clews, Pete Tilton, Erik Anderson (NHCEA), Karen Alexander (U Mass Amherst), Bill L. (UNH), Mark Zankel (TNC), Mark Godfrey, Geno Marconi

Staff: Ritchie White (Commissioner), Dennis Abbott (Commissioner), Doug Grout (NH FGD), Toni Kerns (ASMFC)

### **Issue 1: Claw Harvest**

Commenters did not provide specific direction on the management measures included in the document but did provide these overall comments.

- The addendum provides an opportunity for a sustainable Jonah crab fishery.
- Several participants had reservations with a claw harvest and expressed concern that claws would not store well.
- Another commenter was in favor of just a claw fishery.
- The last commenter spoke about the value of Jonah crab as a food source for other species. The participant expressed concern that the harvest of crabs does not account for its ecosystem function. If the crab dies then it can no longer serve its ecosystem function. By taking two claws, the crab has less of a chance for survival while mortality declines when only one claw is taken.

### **Issue 2: Bycatch Definition**

*No comments received*

## **Jonah Crab Draft Addendum II Public Hearing**

*Bourne, Massachusetts*

*December 12, 2016*

*8 Participants*

Attendees: Raymond Kane, Daniel McGonaghe (MEP), Allison Murphy (NMFS), Peter Howard

Staff: Dan McKiernan (MA DMF), Derek Perry (MA DMF), Nichola Meserve (MA DMF), Megan Ware (ASMFC)

### **Issue 1: Claw Harvest**

- One individual expressed concern that claw harvest could increase mortality in the fishery.
- Another individual recommended that if there is going to be a claw fishery, only claws and not the full arm should be harvested.

### **Issue 2: Bycatch Definition**

*No comments received*

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## Division of Marine Resources

205 North Belle Mead Road, Suite 1, East Setauket, NY 11733  
P: (631) 444-0430 | F: (631) 444-0434 | FW.Marine@dec.ny.gov  
www.dec.ny.gov

## MEMORANDUM

**To:** Megan Ware  
**From:** Kim McKown  
**Subject:** ASMFC NY Jonah Crab Addendum II Public Hearing Summary of Comments  
**Date:** December 9, 2016

NYSDEC and Cornell Cooperative Extension conducted a public hearing on ASMFC Jonah Crab Addendum II on December 5, 2016 at Cornell Cooperative Extension Office in Riverhead, NY. There was one attendee. In addition, four fishermen who couldn't attend the meeting called NYSDEC to give their comments.

ASMFC: Emerson Hasbrook (ASMFC Commissioner), Kim McKown (ASMFC Lobster TC)

Meeting Attendee: Jim King

Phone Comments: Vincent Damm, Frank DiMeglio, Anthony DiMeglio, Peter DiMeglio

### Issue 1 – Claw Harvest:

#### *Option B: Coastwide whole crab landed*

Two fishermen supported landing whole crabs. One fisherman believes the majority of the Jonah crab landings is whole crabs. The fourth fisherman would rather be allowed to land claws, but feels the rules need to be consistent for all states –either fishermen in all states can land claws or everyone must land whole crabs.

#### *Option C: Claw harvest permitted coastwide*

Two fishermen support being able to land claws.

#### *Comments on Claws at Addendum I meeting:*

The seven fishermen who attended New York's public hearing on ASMFC Jonah Crab Addendum I had comments on the claw fishery (attached is the meeting summary for Addendum 1, comments on claws are in other issues). Only one of the seven fishermen who attended the Addendum I hearing commented on Addendum II – so these are not duplicate comments. All of the Addendum I attendees supported a claw fishery. The pot fishermen rely on harvesting claws in the summer. Gillnetters are unable to harvest whole crabs, so they rely on harvesting claws throughout the year.



**Issue 2 – Bycatch Definition:**

*Option B: Bycatch defined as percent composition*

Three fishermen supported a bycatch definition. One of the fisherman who supported the bycatch definition thought 1,000 crab bycatch was too much. Another fisherman who supported the bycatch definition thought trawlers should have effort limitation and be able to keep everything they catch for a certain number of days and then not fish. He thought it would help to decrease bycatch mortality.

**Other Issues:**

There were many comments about the number of black sea bass the fishermen have been seeing. They feel they should be able to get a larger bycatch of black sea bass.

The fishermen also saw a lot of lobsters this year, particularly egg bearing females.

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife and Marine Resources, Bureau of Marine Resources  
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www.dec.ny.gov

## Jonah Crab Draft Addendum I Public Hearing Summary

*East Setauket, NY  
April 6, 2016 – 6:30 pm  
1 Attendee*

ASMFC: James Gilmore (ASMFC Commissioner), Emerson Hasbrook (ASMFC Commissioner), Kim McKown (ASMFC Lobster TC)

Attendees: John Aldridge

### **Issue 1: Bycatch by non-trap gear**

Mr. Aldridge would support any of the options.

### **Issue 2: Bycatch by non-lobster trap gear**

Mr. Aldridge would support any of the options.

### **Other Issues:**

Mr. Aldridge indicated that prohibition of landing and sale of claws would be very detrimental to his business. It's an important fishery in the summer time when the whole crabs don't survive without refrigeration. He could deal with a claw size limit. He recommended that we review how the State of Florida implements the claw size limit on the stone crab fishery. He mentioned that FL has a gauge to measure the claws, and suggested we look into it. He would like to be able to harvest both claws from the crab, which is allowed in the FL stone crab fishery.

Mr. Aldridge fishes for Jonah crab with crab pots, which have modified heads that limit the number of lobsters caught and are also not as tall as lobster pots. It's critical for his business that these pots be included in any rules for the fishery.

*Montauk, NY  
April 14, 2016 – 5:00 pm  
6 Attendees*

ASMFC: Rachel Sysak (ASMFC Jonah Crab PDT), Kim McKown (ASMFC Lobster TC)

Attendees: Chuck Mallinson, Vincent Dam, Thomas Eckardt, Brian Rade, James Auteri, Anthony Sosenski

### **Issue 1: Bycatch by non-trap gear**

The majority of the fishermen supported the status quo (200 crabs per day/ 500 crabs per trip). They felt this was an adequate amount for bycatch but would prevent non-

directed fishermen from targeting Jonah crab. If the harvest and sale of claws are permitted, they would support a 400 claw per day or 1,000 per trip bycatch limit (2 claws per crab).

One fisherman supported 1,000 crabs per day. He felt this was a reasonable amount of bycatch for a fisherman to make a living.

### **Issue 2: Bycatch by non-lobster trap gear**

All the fishermen supported Option B - 200 crabs per day/ 500 crabs per trip. In general they felt this was adequate amount for bycatch but would prevent non-directed fishermen from targeting Jonah crab.

### **Other Issues:**

All the fishermen rely on the harvest and sale of claws. Both directed pot fishermen and gillnetters have difficulty keeping whole crabs alive in the summer, and rely on the harvest of claws. In addition, many crabs have recently molted in the summer and are not readily salable, but the claws are.

Gillnetters are unable to harvest whole crabs. Jonah crab clamp down on gill nets, making it difficult to impossible to remove them without removing their claws. Gillnet fishermen remove the claws from the crabs and throw the live crabs back in the water. The gillnetters feel there should be a 400 claw per day/1,000 claw per trip bycatch limit.

Most of the Jonah crab fishery takes place in Federal waters. There was some concern/questions about how the Federal and State permitting would be worked out.

There was a lot of discussion about the number of black sea bass the fishermen have been seeing. They feel they should be able to get a larger bycatch of black sea bass to make up for the fact the lobster stock has declined.



## ATLANTIC OFFSHORE LOBSTERMEN'S ASSOCIATION

Grant Moore, President  
[exec@offshorelobster.org](mailto:exec@offshorelobster.org)

David Borden, Executive Director  
[dborden@offshorelobster.org](mailto:dborden@offshorelobster.org)

November 21, 2016

Megan Ware  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St. Suite 200A-N  
Arlington, VA 22201

Dear Megan,

I'm writing on behalf of the Atlantic Offshore Lobstermen's Association to provide comments toward the Draft Addendum II to the Interstate Fishery Management Plan for Jonah Crab.

The Association agrees with NOAA Fisheries' assessment that the limited claw only provision, as currently written in the FMP, likely violates National Standard 4. Therefore, we oppose a geographically limited claw fishery as defined by the status quo option (Section 3.1., Option 1).

Further, the Association is concerned that permitting coastwide claw landings would provide an avenue around minimum size regulations. Without a better understanding of the jonah crab stock, post-release survivability of claw excised animals, and the relationship of crab width to claw length, we feel a claw only fishery has the potential to undermine the FMP's primary management tools. Therefore, the Association supports a coastwide *whole crab only* fishery (3.1, Option B) or an option that permits only limited coastwide landings of claws for personal use, based on a volumetric standard.

Finally, the Association supports a bycatch definition as defined in Section 3.2 Option B. This definition is consistent with the Lobster Board's stated goal of allowing for historic levels of incidental catch, while limiting proliferation of the fishery.

I appreciate the opportunity to comment.

Sincerely,

J. Grant Moore  
President



Jan 5, 2017

Megan Ware  
Fishery Management Plan Coordinator  
Atlantic States Marine Fisheries Commission  
1050 North Highland Street, Suite 200 A-N  
Arlington, VA 22201

Dear Ms. Ware,

Please accept these comments on behalf of the Maine Coast Fishermen's Association regarding Draft Addendum II to the Interstate Fishery Management Plan for Jonah Crab.

The Maine Coast Fishermen's Association (MCFA) is an industry-based nonprofit which identifies and fosters ways to restore the fisheries of the Gulf of Maine and sustain Maine's historic fishing communities for future generations. Established and run by Maine fishermen, the objectives of the Association are: to provide a voice for our fishing communities; to rebuild the Gulf of Maine ecosystem; and to help build viable fishing businesses on our coast. With members living in communities from Kittery to Mount Desert Island, our members represent a diverse range of fisheries but have come together as one voice to weigh in on important management issues facing Maine fishermen. As such, we are extremely interested in allowing Maine fishermen to have access to a robust and sustainable Jonah crab fishery in the Gulf of Maine, and we hope that the ASMFC will work with us towards that goal.

In Public Information Document (PID) section 3.1 on Claw Harvest, we encourage the ASMFC to support Option C, which would permit claw harvest coastwide. This would allow all fishermen in various fisheries to participate in the Jonah Crab claw harvest, not just those in mid-Atlantic states who can prove a history of claw harvest.



In PID section 3.2 on Bycatch Definition, we support Option A, or the status quo in which there is no definition of bycatch in the Jonah Crab fishery. We do not see a problem with allowing fishermen to possess amounts of Jonah Crab up to the bycatch limit on their vessels without having a larger amount of another species onboard.

Thank you very much for your attention to this important issue.

Sincerely,



Ben Martens  
Executive Director





## Massachusetts Lobstermen's Association, Inc.

8 Otis Place ~ Scituate, MA 02066

Bus. (781) 545-6984 Fax. (781) 545-7837

December 29, 2016

Megan Ware, Fishery Management Plan Coordinator,  
1050 N. Highland St, Suite A-N,  
Arlington, VA 22201

Via email: [mware@asmfc.org](mailto:mware@asmfc.org)

RE: Comments Jonah Crab Draft Addendum II

Dear Ms. Ware,

On behalf of its 1800 members, the Massachusetts Lobstermen's Association (MLA) respectfully submits this letter of comment on the Jonah Crab Draft Addendum II to the Atlantic States Marine Fisheries Commission's (ASMFC) Interstate Fishery Management Plan (FMP) for Jonah Crab.

Currently under the Jonah Crab FMP, Draft Addendum I which established a bycatch allowance of 1,000 crabs per trip for non-trap gears and non-lobster trap gears (i.e., fish pots, crab pots, whelk traps) has inadvertently created a small scale directed fishery on the resource. We are extremely troubled about the increased exploitation on the Jonah Crab resource as a "targeted bycatch" and are encouraged and support the establishment of a definition of bycatch. The *"Addendum also considers establishing a definition of bycatch, based on a percent composition of catch, in order to minimize the expansion of a small-scale fishery under the bycatch allowance."* The bycatch of any species should not be the major harvest of the day.

Established in 1963, the MLA is a member-driven organization that accepts and supports the interdependence of species conservation and the members' collective economic interests. Whereas, many of our members are currently fishing for Jonah Crabs and scores more are landing them as a legitimate bycatch. The MLA continues to work conscientiously through the management process with the MA Division of Marine Fisheries and the Atlantic States Marine Fisheries to ensure the continued sustainability and profitability of all the resources in which our fishermen are engaged in.

The MLA supports the FMP which has established a whole crab fishery with the exception of fishermen from NJ, DE, MD, and VA who have a history of claw landings prior to June 2, 2015. Subsequently claw fishermen from NY and ME were identified in the FMP and at this time the fishermen are required to land whole crabs. The MLA encourages more research be done on the impact of the claw only fishery on the species/resource to look at the good, the bad and indifferent impacts.

We sincerely hope and trust that you, the Atlantic States Marine Fisheries Commission, will consider our comments and concerns and will continue to make informed and pragmatic recommendations allowing the continued success of the newly emerging Jonah Crab fishery. We look forward to continuing to work with the Commissions Jonah Crab Section through the management process.

Sincerely,

*Beth Casoni*

Executive Director



# MAINE

## Lobstermen's Association, Inc.

2 Storer St, Ste 203 \* Kennebunk, ME 04043  
207-967-4555 \* 866-407-3770 \* [www.maine lobstermen.org](http://www.maine lobstermen.org)

Megan Ware  
ASMFC  
1050 North Highland St, Suite 200A-N  
Arlington, VA 22201

January 5, 2017

Dear Ms. Ware:

The Maine Lobstermen's Association (MLA) has reviewed draft Addendum II to the Jonah Crab Plan. Maine lobstermen have long harvested Jonah crab as a side fishery for both commercial and recreational purposes. While crabs can be very cyclical in Maine, many lobstermen consider this crab harvest to be a part of their traditional fishery.

The passage of the ASMFC Jonah Crab Plan hurt many Maine lobstermen by making it illegal to harvest Jonah crab claws. While some lobstermen will harvest whole crabs, many have traditionally snapped off the claws and returned the crabs to the sea. The passage of the Jonah Crab Plan has made this practice illegal.

The MLA strongly supports Section 3.1, Option C, to allow claws to be detached and harvested at sea, without a minimum size, if the volume of claws is less than 5 gallons. This would allow a long standing tradition for Maine lobstermen to continue legally.

Thank you for consideration of these comments.

Sincerely,

Patrice McCarron  
Executive Director





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

DEC 20 2016

Robert Beal  
Executive Director  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St, Suite 200 A-N  
Arlington, VA 22201

Dear Bob:

Thank you for accepting our comments on draft Addendum II to the Interstate Fishery Management Plan for Jonah Crab. During the development of the addendum, we have and continue to support a whole crab fishery for Jonah crabs. Recall that we wrote a letter on February 29, 2016, raising several concerns with the proposed claw fishery described in the Jonah Crab Plan:

- **Biological concerns:** Preliminary study results indicate limited survivability of clawless crabs. It is true that some percentage of clawless crabs will survive and may regenerate harvested claws. However, there appears to be a high post-release mortality on clawless crabs that results in waste that could be avoided if the whole crabs were landed. This would not preclude marketing claws separate from leg and body meat or even ancillary products, such as fertilizer, derived from processing remainder of the whole crab.
- **Enforcement concerns:** A claw fishery weakens enforcement of minimum carapace width size. Differing whole-crab and claw-only fishery standards (minimum sizes, counts, etc.) will complicate enforcement requirements to monitor and inspect this fishery.
- **National Standard 4 concerns:** The Jonah Crab Plan did not provide adequate justification for including measures that varied by state and may prove to be discriminatory.

We appreciate that the Lobster Board attempted to address National Standard 4 concerns by developing a coastwide measure in Addendum II. That said, we do not support the option that would allow an unlimited, coastwide claw fishery. It would allow an expansion of the claw fishery, which goes against the Lobster Board's intent of capturing the small-scale claw fishery practices that pre-dated adoptions of the Jonah Crab Plan. The minimum claw size included in this option may help to address undersized crabs from entering the market, but it does not address the enforcement concern of minimizing complication.

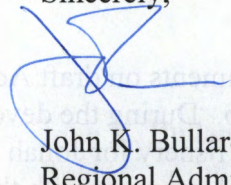
While we prefer a whole-crab fishery, allowing the retention of a small, specified amount of claws may be a good compromise. A previous draft of Addendum II included an option that would allow a small, volumetric limit (i.e., one 5-gallon bucket) on claw harvest. A limit such as this prevents expansion of the claw fishery, captures historic claw harvesting practices, and helps minimize complication for enforcement.



ADDENDUM II also includes a measure that would define incidental catch. NOAA's Office of Law Enforcement supports developing such a definition. They believe that the definition will minimize targeting of Jonah crab and decrease gear conflicts. I look forward to receiving input from the Law Enforcement Committee and hope that the Lobster Board will carefully evaluate its recommendations to ensure that robust, enforceable measures are developed for the Jonah crab fishery.

Thank you for the opportunity to provide additional comments on Addendum II. If you have any questions, please contact Allison Murphy at (978) 281-9122 or [allison.murphy@noaa.gov](mailto:allison.murphy@noaa.gov).

Sincerely,



John K. Bullard  
Regional Administrator

cc: David Borden, American Lobster Board Chairman  
Megan Ware, ASMFC Fishery Management Plan Coordinator

## Megan Ware

---

**From:** Thomas Biesiadecki <tomymarlin@gmail.com>  
**Sent:** Wednesday, December 07, 2016 4:46 PM  
**To:** Megan Ware  
**Subject:** Jonah Crab addendum II

To Whom It may concern;

My name is Thomas Biesiadecki and I am the owner and operator of the F/V Marielle Renee. Fed permit# 241238. I have been in the lobster fishing industry for 17 years as the owner. I have over the years landed many a Jonahs crab both whole and claws. Most for sale and a lot for personal consumption. I feel that some of the proposed options have some definite down sides to them. As far as being allowed to land a whole crab and then declawing it at the dock only to discard the rest of the crab kind of defeats the purpose of conservation, when the crab can be returned to the ocean to be allowed to regenerate new claws to be harvested some time down the road. Trap fisherman should be exempt from having to qualify for either claw or whole crab harvest on the grounds that it is a natural occurrence to catch crabs in traps while lobster fishing. There should be rules implemented to restrict the entry into the Jonah crab fishery based on either historical participation or landings that would eliminate the threat of small scale fisheries. I am currently restricted to closures in my fishery. Currently I can harvest lobster in the area(4)&(5) for about 6 months in New Jersey, with the May closure and the fact that there is no fishing to speak of in the months of February and March I have to live with the fact that my season has been all but taken away from me, I feel that making the Addendum read so that all states should be on a level playing field when it comes to the way Jonah crabs are harvested is ridiculous. New York and Mass should be held to the laws that there state has implemented. I would hope that consideration of harvest techniques would direct the panel to implement the proper management measures to ensure a sustainable fishery going forward.

on for Dear Life!

Biesiadecki

Hanging

Thomas

## Megan Ware

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**From:** Peter Howard <fishycaptain@yahoo.com>  
**Sent:** Thursday, December 15, 2016 11:53 AM  
**To:** Megan Ware  
**Cc:** Peter Howard  
**Subject:** Jonah Crab Draft Addendum II

Megan, I was at the meeting on December 12th in Bourne Ma. I felt it was a good albeit short meeting.

Prior to this meeting I had no idea that some fishermen had historical data indicating they had been involved in a claw only jonah crab fishery.

During the meeting slides were shown with mortality rates for whole crabs along with crabs with one or both claws removed. The data set shown wasn't promising. These crabs have a very high mortality rate when claws are removed. While I understand that crabs can regenerate claws, this happens usually when a crab drops a claw either during molting or when fighting. They have the ability like lobsters to just let a claw drop and later in that crab's life start to regenerate that claw.

There is some physiological trait in these creatures that prevents them from bleeding to death when the claw is dropped.

Having said that, it is my opinion that removing claws from live crabs is the same thing as finning sharks. In the U.S. finning is illegal.

My opinion is that a claw only fishery should be discouraged coastwide. The practice of declawing live crabs and tossing the rest away is wasteful and inhumane.

I don't even think fishermen who have been doing this should be allowed to continue to do this.

However, recognizing that those fishermen who have prosecuted this type of fishery may be hurt, I suppose grandfathering those with historical landings should be allowed to continue.

My vote is for a whole crab fishery all up and down the coast. Thanks, Peter Howard 18 Ninth Rd. Marshfield, Ma. 02050 781-837-8198



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

December 21, 2016

**To: American Lobster Management Board**  
**From: Law Enforcement Committee**  
**RE: Comments on Jonah Crab Draft Addendum II**

The Law Enforcement Committee (LEC) of the Atlantic States Marine Fisheries Commission (ASMFC) has reviewed the proposed management options in Draft Addendum II to the Interstate Fishery Management Plan for Jonah Crab (Public Comment Document). The LEC has provided written comments regarding aspects of the developing management plan for Jonah crab in memoranda dated July 24, 2015; January 15, 2016; and April 10, 2016.

Eleven members responded with written comments and offer the following recommendations for the proposed management measures:

### CLAW HARVEST

All responding members supported **OPTION B: Coastwide Whole Crab Fishery.**

This recommendation is consistent with previous positions regarding a claw harvest allowance and the LEC continues to believe that this is clearly the most enforceable option. It eliminates what would be cumbersome and potentially confusing measurement standards. It would ensure that all crabs harvested would meet the minimum carapace size designed to protect egg-bearing females. It would be clear regarding what is able to be sold. It would make regulations consistent among the states and among all fishermen. The LEC has consistently recommended this approach and believes it meets multiple standards as elucidated in the *Guidelines for Resource Managers on the Enforceability of Fishery Management Measures, Second Ed., 2015.*

### BYCATCH DEFINITION

Ten of 11 members supported **OPTION B: Bycatch Defined as Percent Composition.**

Although bycatch limits are generally a low-ranked management measure with regard to enforceability, this proposed measure is considered a reasonable approach that can be understood and verified by fishermen and officers. Several comments recognized that Option A may be inherently simpler but would require a low bycatch limit to be distinguishable from directed fishing operations. The LEC has previously supported bycatch limits of 200 crabs per calendar day and up to 500 crabs per trip for all gear types.

The LEC appreciates the opportunity to provide advice in the continued development of a Jonah Crab fishery.

January 3, 2017

Kim McKown

[kim.mckown@DEC.ny.gov](mailto:kim.mckown@DEC.ny.gov)

Dear Ms. McKown

I apologize for responding so late in the process. It is difficult to get comments from the LCMT members who are still interested in the ASMFC's agenda. This is largely because area six (6) Lobstermen have moved on to other fisheries. Also I'm sorry to say that area six (6) Lobstermen have no faith in the ASMFC stock assessment, its interpretation and suggested management tools. We have gone from over fishing, lack of egg production, recruitment failure, pesticides, global warming and now "environmental factors". We have had gauge increases, vent increases, maximum size restrictions, trap reductions, banning pesticides, and seasonal closures. The computers have suggested a cure for everything at the expense of the fishermen.

Now you want to increase egg production by 20 to 60% so that **IF** "environmental conditions become favorable". Right now the bulk of the lobsters are caught between Maine, Nova Scotia and New Brunswick. I suppose the environmental conditions are favorable there.

The habitat might be shifting north but the species is not going extinct. Increasing egg production in area six (6) may be like planting corn in the desert.

We have seen more lobsters in area six (6) then we have seen in years, both legal and sub-legal. Apparently your stock assessment does not agree with our stock assessment. Our position as usual is status quo. Give what we have now a chance to work. Of course you could make all the fishermen happy for a change and let us harvest some Black Sea Bass which is a known predator of lobster.

Sincerely,

George J. Doll Jr.

NY Chair of LCMT area 6.

Cc. Megan Ware [mware@ASMFC.org](mailto:mware@ASMFC.org)  
Tina Berger [tberger@ASMFC.org](mailto:tberger@ASMFC.org)  
Emerson Hasbrook [ECH12@cornell.edu](mailto:ECH12@cornell.edu)

# Atlantic States Marine Fisheries Commission

## American Eel Management Board

*January 31, 2017  
4:45 – 5:15 p.m.  
Alexandria, 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. Clark*) 4:45 p.m.
2. Board Consent 4:45 p.m.
  - Approval of Agenda
  - Approval of Proceedings from August 2016
3. Public Comment 4:50 p.m.
4. Review 2017 Stock Assessment Update Schedule (*K. Anstead*) 5:00 p.m.
5. Review Technical Committee Report (*K. Rootes-Murdy*) 5:10 p.m.
  - Review YOY surveys and Maine Life Cycle Survey
6. Other Business/Adjourn 5:15 p.m.

The meeting will be held at The Westin Alexandria, 400 Courthouse Square, Alexandria, Virginia; 703.253.8600

*Vision: Sustainably Managing Atlantic Coastal Fisheries*

# **Atlantic States Marine Fisheries Commission**

## **MEETING OVERVIEW**

### **American Eel Management Board Meeting**

**January 31, 2017**

**4:45 – 5:15 p.m.**

**Alexandria, Virginia**

Chair: John Clark Assumed Chairmanship: 8/15	Technical Committee Chair: Tim Wildman (CT)	Law Enforcement Committee Representative: Cornish
Vice Chair: Martin Gary	Advisory Panel Chair: Mari-Beth Delucia	Previous Board Meeting: August 4, 2016

**Voting Members:** ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, VA, NC, SC, GA, FL, D.C., PRFC, USFWS, NMFS (19 votes)

#### **2. Board Consent:**

- Approval of Agenda
- Approval of Proceedings from August 2016 Board Meeting

#### **3. Public Comment:**

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

#### **4. Review 2017 Stock Assessment Update Schedule (5:00 – 5:10 p.m.)**

##### **Background**

- In Spring 2016, the Technical Committee (TC) recommended that a stock assessment update be completed in 2017. The TC recommended a stock assessment update over a benchmark stock assessment due to the lack of progress in eel research since the last benchmark stock assessment in 2012.
- In November 2016, staff requested nominees to populate the Stock Assessment Subcommittee. The subcommittee was finalized in December 2016 and met via conference call earlier this month to begin planning calls and meetings to complete the Stock Assessment Update by fall 2017.

##### **Presentation**

- 2017 Stock Assessment Update by K. Anstead

##### **Board Actions for Consideration**

- None



**5. Review Technical Committee Report (5:10 – 5:15 p.m.)**

**Background**

- The Technical Committee met in September 2016 to review a number of items including young-of-year (YOY) surveys, discuss the upcoming stock assessment update scheduled for 2017, landings versus harvester reports for quota tracking, the Maine life-cycle study, and current research items. (**Briefing Materials**)

**Presentation**

- Technical Committee Report by K. Rootes-Murdy

**Board Actions for Consideration**

- None

**6. Other Business/ Adjourn**

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

**The Westin Alexandria**  
Alexandria, Virginia  
**August 4, 2016**

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

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1. **Approval of Agenda by Consent** (Page 1).
2. **Approval of Proceedings of May, 2016** by Consent (Page 1).
3. **Tabled motion from the May 2016 meeting: To initiate an addendum to reconsider the coastal cap and the commercial yellow eel state-by-state allocation.**  
  
**Move to postpone the proposal indefinitely** (Page 6). Motion by Steve Heins; second by Pat Keliher. Motion carried (Page 6).
4. **Move to approve the proposed North Carolina Glass Eel Aquaculture Plan for 2017 and the Technical Committee recommendations** (Page 14). Motion by Bob Ballou; second by Bill Adler. Motion carried unanimously (Page 16).
5. **Move to adjourn** by consent (Page 17).

**ATTENDANCE**

**Board Members**

Pat Keliher, ME (AA)	Tom Fote, NJ (GA)
Steve Train, ME (GA)	J. Thomas Moore, PA, proxy for Rep. Vereb (LA)
Rep. Jeffrey Pierce, ME, proxy for Sen. Langley (LA)	Loren Lustig, PA (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Andrew Shiels, PA, proxy for J. Arway (AA)
Cheri Patterson, NH, proxy for D. Grout (AA)	John Clark, DE, proxy for D. Saveikis (AA)
G. Ritchie White, NH (GA)	Roy Miller, DE (GA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Rachel Dean, MD (GA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Ed O'Brien, MD, proxy for Del. Stein (LA)
William Adler, MA (GA)	David Blazer, MD (AA)
Robert Ballou, RI, proxy for J. Coit (AA)	Rob O'Reilly, VA, proxy for J. Bull (AA)
David Borden, RI (GA)	Doug Brady, NC (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Michelle Duval, NC, proxy for B. Davis (AA)
Rep. Melissa Ziobron, CT, proxy for Rep. Miner (LA)	Ross Self, SC, proxy for R. Boyles, Jr. (AA)
Dave Simpson, CT (AA)	Malcolm Rhodes, SC (GA)
Steve Heins, NY, proxy for J. Gilmore (AA)	Pat Geer, GA, proxy for Rep. Nimmer (LA)
Emerson Hasbrouck, NY (GA)	Jim Estes, FL, proxy for J. McCawley (AA)
John McMurray, NY, proxy for Sen. Boyle (LA)	Sherry White, USFWS
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)	Chris Wright, NMFS
Russ Allen, NJ, proxy for D. Chanda (AA)	Martin Gary, PRFC

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

**Ex-Officio Members**

Tim Wildman, Technical Committee Chair

**Staff**

Bob Beal	Kirby Rootes-Murdy
Toni Kerns	Max Appelman
Mark Robson	

**Guests**

Chip Lynch, NOAA	Justin Davis, CT DEEP
Deborah Lambert, NOAA	Peter Aarrestad, CT DEEP
Mike Millard, USFWS	Doug Christel, MA Dept. Fish & Game
Wilson Laney, USFWS	Mike Luisi, MD DNR
Lynn Fegley, MD DNR	Brandon Muffley, NJ DFW
Jack Travelstead, CCA	Darrel Young, MEFA
Abden Simmons, MEFA	Arnold Leo, E. Hampton, NY
Angela Young, MEFA	Raymond Kane, CHOIR
Deborah Hahn, Assn. of Fish & Wildlife Agency	

The American Eel Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, August 4, 2016, and was called to order at 8:00 o'clock a.m. by Chairman John Clark.

**CALL TO ORDER**

CHAIRMAN JOHN CLARK: Good morning, everybody. This is the American Eel Management Board; starting here on the last day of the Summer Meeting. I'm John Clark, the Chair from Delaware.

**APPROVAL OF AGENDA**

CHAIRMAN CLARK: Let's get right into this here. Everybody has an agenda. Are there any additions to the agenda? Seeing none; the agenda is accepted as written.

**APPROVAL OF PROCEEDINGS**

CHAIRMAN CLARK: Everybody has had a chance to look at the proceedings from the Spring Meeting, are there any changes to the proceedings? Seeing none; those are accepted.

**DISCUSSION TO CONSIDER CHANGES TO  
ADDENDUM IV YELLOW EEL ALLOCATIONS**

CHAIRMAN CLARK: We've had no sign ups for public comment; so we will go right into Agenda Item 4, which is Discussion to Consider Changes to addendum IV Yellow Eel Allocations, and I'll turn it over to Kirby.

MR. KIRBY ROOTES-MURDY: I'm going to walk through a presentation that you all received back in the spring of 2016, so it is going to be pretty quick, in terms of covering material. There will be a couple of new slides, just for your consideration; but I would ask that you hold any questions until after we get done with the Technical Committee report.

Just as some background, Addendum IV implemented a coastwide cap of 907,671 pounds for the yellow eel commercial fishery starting in 2015. There are two management triggers associated with this cap. If the coastwide quota is exceeded by more than 10 percent in a given year, or if the quota is exceeded by any amount in two consecutive years, this triggers state-by-state quotas.

Moving forward, the coastwide quota the states work under is 907,669 pounds. Addendum IV commercial yellow eel allocations use basically the average landings from 2011 to 2013, with a fixed quota of 200,000 pounds. If you had no landings in your state, you automatically were bumped up to 2,000 pounds.

Additionally, quota could not exceed 2,000 pounds above the 2010 landings, so prior to 2011, 2010 was set as the base year. The minimum quota change had to be within 15 percent of the 2010 landings. After this filtering process was applied, there was about 13,762 pounds that were leftover. They were then divided among the states that have been negatively impacted by this process of filtering.

I've got up here on this slide, a table that's in Addendum IV, it is in the appendix section, and it basically walks through what each of the states landings were in 2010, what the 2011 through 2013 average was, the initial allocation they would receive based on that; then their quota, and after a filtering method that was applied, what their final quota was. Again, for today, this meeting we're considering New York's proposal. The second slide here really highlights what New York's quota is. While they had approximately 4.26 percent of the harvest, based on that average harvest from 2011 to 2013, because it was much higher than what their 2010 landings were, they were bumped back down to 15,220 pounds.

At the May ASMFC Spring Meeting Board, New York proposed to reconsider the coastwide cap and state-by-state yellow eel allocation as specified in Addendum IV, and that motion was tabled. After I go through this PowerPoint and we hear the Technical Committee report, the board will consider that tabled motion.

New York's proposal highlights a number of points in which they think that allocation should be reconsidered. In particular, incomplete landings in New York were attributed during the allocation years. New York and other states now have several years of more accurate landings data, and the ASMFC operating principal to use the most accurate data for management is what carries most of the states through the fishery management plans.

Addendum IV does not have an allocation revisiting provision, and New York submitted a proposal for the board to discuss the highlighted four points, which was documenting why New York's landings were incomplete, documenting how much of an increase in the quota New York was seeking, reconsidering the commercial yellow eel state-by-state allocation and reconsidering the timeframe for revisiting that allocation moving forward.

In this slide, New York has pulled together their landings, relative to those that are reported out by federal dealer reports. Prior to 2011, data that was queried from NOAA National Marine Fisheries Service commercial fishing statistics database reported yellow eels to ASMFC via the annual compliance reports.

New York later determined that NOAA's data did not include confidential landings, or data from fishermen and dealers who had state but not federal licensing permits. The NOAA database also did not include landings from inland waters, such as the Hudson and Delaware River, and it

did not always include landings that were sold by fishermen for cash or for bait.

New York then concentrated their effort on getting more accurate data into the ACCSP database that is currently now available. When walking through the New York proposal, New York's 2011 to 2015 harvest ranged from a low of 32,000 pounds to a high of 56,000 pounds. The average harvest from 2013 to 2015 was 40,000 pounds.

Average harvest from 2011 to 2015 was 45,000 pounds. If New York's quota was increased by 24,815 pounds, it would achieve its 2013 to 2015 harvest. If the quota was increased by approximately 29,900 pounds, it would achieve its 2011 through 2015 average harvest. This table here is highlighted in the New York proposal as what the scenario would play out if in 2015, state-by-state quotas were implemented based on 2014 harvest.

It shows that overall the overage could not be compensated by transfers among states. In the proposal New York circulated and was included in your supplemental materials for this meeting, they put forward two points in terms of consideration; the first is reconsidering the Addendum IV allocation. There are four options in that A, B, C and D. Option A would be to stay at status quo, B would be to change the allocation based on the most recent three years of data. Option C would be to change that allocation based on the most recent five years worth of data, and Option D would be a mix of recent five years of data as a partial percentage and some historical landings timeframe, as another partial percentage. Now this Option D was not included in the proposal, so Options B and C are what folks may have tables that they can reference and look at.

The next slide here walks through what the Options B and C are, in terms of looking at either

a 2013 to 2015 average or a 2011 to 2015 average. The second decision point that New York brought up was the time table for revisiting the allocation, so there are three options here, Options A, B and C.

A would be to stay at status quo, B would be to revisit allocation every three years, and Option C would be to revisit allocation every five years. New York's recommendation, they circulated the proposal to the board for consideration today and initiation of an addendum at the August, 2016 board meeting, so that is the tabled motion that the board will take up.

One other point that was raised by Virginia, regarding reconciling differences in landings information, when it comes to looking at the yellow eel fishery, there are at least two types of reporting that need to be considered. There are harvester reports and there are dealer reports. Harvest reports account for eels that are sent out of state, so they're sold to dealers out of state, eels that are sold to dealers in state, as well as eels that are used for either personal consumption or bait.

Dealer reports account for eels that are sold to in-state dealers, and at the October, 2015 TC meeting, the TC recommended that moving forward all states should use harvester reporting to track quota to eliminate concerns about double counting and to resolve any issues associated with personal bait. Those are some things to consider when looking at reallocation, as well.

Again, the motion that was put forward at the May meeting was to initiate an addendum to reconsider the coastal cap and the commercial yellow eel state-by-state allocation. The motion was by Mr. Gilmore and seconded by Mr. Borden. I'll take any question at this point, if there is any confusion; but hopefully, this is

pretty straightforward to what was presented back in May.

CHAIRMAN CLARK: Okay questions, we have Tom Fote.

MR. THOMAS P. FOTE: If I'm understanding this right, it is similar to what happened in summer flounder. When you start getting a better estimate of what you're actually landing, or in the recreational sector what you're actually catching; all of a sudden your quota exceeds your needs, because that is really what you're catching.

Instead of basically changing the allocations, would it be possible just to say, we under reported the landings. It means the stock was big, because we were catching more eels than we thought were out there. Wouldn't it just be easier to increase the quota to handle those adjustments, because we underestimated a stock by not having those landings in the first place?

This is the argument I made in 2003, to try to help New York through the summer flounder situation. Well, we couldn't do that because it was tied with the Mid-Atlantic Council. Here at the Atlantic States Marine Fisheries Commission, we try to help our partners and the other states involved; and couldn't we do something like that, which means we don't have to get into this allocation thing, just adjust it according to what they were actually landing, as we figure out that NMFS wasn't recording what they were landing.

MR. ROOTES-MURDY: I'll take a stab at answering that. As was pointed out at the last meeting, to make an adjustment to the coastwide cap or the state-by-state allocations would require an addendum. Regarding accounting for inaccurate landings, this gets to a point that we're going to get into it, the TC report in just a couple minutes, and there is a



recommendation for them on how to deal with that; in terms of accounting for all states that may have under reported or have inaccuracies with their data.

CHAIRMAN CLARK: Next question is Rob O'Reilly.

MR. ROB O'REILLY: I just wanted to respond a little bit. I don't want to take away from the process that we're going to look at now with the addendum. It is simpler than what Kirby had indicated for the case that Virginia has been making for several meetings. We've had a mandatory harvest reporting system since 1993.

What was placed into the addendum, which could turn out to be an active quota, is our harvest just from Virginia waters. We may not be unique, but a lot of states have a little bit of overlap where they have harvest from their own waters and harvest from neighboring state waters as landings.

We just have the harvest. What is the impact of that? The impact of that is anywhere from 2 to 20,000 pounds a year, if we had landings. Now unfortunately, the landings include the Potomac River Fishery Commission; because they don't have landings sites, so they're either landing in Virginia or Maryland. I'm not sure how that gets taken care of, or if it can, but that is really the situation.

CHAIRMAN CLARK: The next question is from Dan McKiernan.

MR. DAN MCKIERNAN: Just to clarify, is one of the options or the proposals in the proposed addendum to shift to harvested data to monitor quotas? Is that actually going to be proposed?

MR. ROOTES-MURDY: In the New York proposal that is not a specific option or recommendation.

CHAIRMAN CLARK: Seeing no further questions, oh Lynn Fegley.

MS. LYNNE FEGLEY: This isn't so much of a question. I just wanted to put on the record that the Maryland landings are incorrect in Table 2 of the New York proposal. They are slightly off for 2013 and 2015. In 2013 the landings were 539,775 pounds. That is what is in the table. In actuality, those landings were 568,199; and in 2015 the landings should be 493,043 pounds as opposed to 470,532. I just wanted to get that on the record, thank you.

CHAIRMAN CLARK: Okay, we're going to have the Technical Committee report.

#### **TECHNICAL COMMITTEE REPORT**

MR. TIM WILDMAN: Good morning, everyone. Back in July, the TC met and reviewed a proposal from New York to address the quota allocation in Addendum IV. The harvest records that determine New York's quota were based on incomplete data, resulting in potentially inequality in allocation to the state. Concerns were expressed from several TC members regarding the reporting of landings from all the states, and it was reiterated that the TC members need to confirm reference period landings in the Addendum IV table.

Additionally, there was concern that New York's revised landings could include silver eels from the Delaware River weir fishery, thus over inflating their need for yellow eel allocation. There are no current datasets to address this historical data correctly, but New York is working on parsing out the numbers of silver eels from annual landings moving forward.

In the meantime, the state-by-state landings data will be updated, and then revised if need be during the 2017 stock assessment update. Therefore, the TC concluded that a discussion of

expanding the coastwide cap, in light of the New York situation, should be set aside until the update is performed.

CHAIRMAN CLARK: Thank you, Tim; I'm sorry I forgot to introduce Tim. Tim Wildman is the TC Chair from the state of Connecticut. Any questions for Tim about the TC report? Roy.

MR. ROY W. MILLER: It is not a question so much for Tim, but perhaps, Steve. Steve, how would you answer the question of whether the silver eel landings were perhaps included in those yellow eel landings?

MR. STEVE HEINS: Well, I think that New York is going to be held accountable for our Delaware River eel fishery. We're going to have to count those landings, unless we're being held harmless for harvesting those eels. Are they separate from our yellow eel fishery? I don't know. If we're going to be held responsible for those landings, I don't know why they wouldn't be part of the equation.

Certainly, some of them are silver eels, and some of them are yellow eels; and we're working on that right now, trying to determine. But as you might imagine, it is difficult unless the fish are metamorphosed to determine whether they're – even if they're out migrating – I mean they may enter the traps just inadvertently in the weirs. I just think that we have to look at this Delaware River eel fishery and include the eel fishery in the Hudson River along with our landings on the coast. That's the whole equation. That would be my response.

CHAIRMAN CLARK: Follow up, Roy, and I would just like to point out that in Addendum IV, the silver eel harvest is just limited by number of permits in New York. From my recollection, there is no reporting requirement for those silver eels in the poundage.

MR. MILLER: I take it, Steve, at this point we can't really parse out from the new landings attributed to New York for 2011 to 2013, we can't really parse any silver eels out of that. Is that what you're saying, that they are part of those landings?

CHAIRMAN CLARK: Go ahead, Steve.

MR. HEINS: Right, whatever landings we have from the Delaware River are accounted for as Delaware River. In other words those fishermen report to us. We can tell you what those weir landings were, but I cannot tell you what proportion of them were silver eels. If you want to assume that they're all silver eels, that's fine, but we can't determine that at this point. We are collecting data, and we do have people that are sampling. We have some idea, but at this point, we don't.

MR. PATRICK C. KELIHER: If you recall at the last meeting, I made a big swing and a miss about trying to include elvers into this conversation, and to me there is a little bit of a fairness question. The state of Maine has invested thousands and thousands of dollars into a swipe card reporting system; very robust system to be able to track our catch. We've already made some changes to allow silver eel harvest within New York, where the rest of us have given up our silver eel fisheries. I just think this is premature, and I support, at this time, the TCs recommendation.

CHAIRMAN CLARK: All these questions would require an addendum, as Pat pointed out, so that could be the direction we go. But at this point, are there any further questions for Tim or for Kirby? Seeing none; I guess at this point we'll bring back the question that was tabled. Let me turn it over to Steve, for New York to fill us in on their position on this now.

MR. HEINS: I think that there is sufficient concern around the table for improvement of the states records on the landings. We heard concerns about the elver fishery. New York's biggest concern at this point is that all the work that we put into trying to improve our reporting and get better information into our system, is not going to punish us in this situation in this fishery, in menhaden and other fisheries.

We're very interested in moving forward with changes to our quota. At the same time, I think that maybe all the states need a chance to take a crack at this; and we're not going to be able to do that until after we get the next stock assessment update in 2017. **I would move to postpone indefinitely, unless there are other thoughts on the matter.**

CHAIRMAN CLARK: This is a new motion, is there a second? We have a second from Pat Keliher, any discussion of the motion, seeing none; why don't we take a second to caucus and then we'll vote. A question from Jim.

MR. JIM ESTES: I am a little bit confused by what this motion will do. If I could get a further explanation so I could know what to do here?

CHAIRMAN CLARK: I believe what we're doing is postponing consideration of the main motion indefinitely, which I guess means until after we've gotten the next assessment and have started the next addendum process. I think it essentially kills it. Is everybody ready to vote? Do we have any objections to the motion? **Seeing none; the motion passes and the proposal is postponed indefinitely.**

At this point then, we will move on to Agenda Item 5, which is to consider the North Carolina Glass Eel Aquaculture Plan for 2017. Kirby has a report to start.

### **CONSIDER THE NORTH CAROLINA GLASS EEL AQUACULTURE PLAN FOR 2017**

MR. ROOTES-MURDY: Similar to, I believe, the February meeting, I'm actually going to walk through North Carolina's proposal as it was presented to the Technical Committee in July. Then I will turn it over to Tim to provide the TC report; and if there are any further questions on the proposal, I might direct those questions towards Dr. Duval to be able to answer. North Carolina has put forward a revised aquaculture plan for 2017. Just again, some background. At the February meeting the board approved the North Carolina aquaculture plan for 2016; allowing up to 200 pounds of glass eels to be harvested for aquaculture purposes. The board's approval was contingent on two issues, that exports of glass eels would be prohibited, and that the second year of the plan would be conducted as a pilot program; where the TC would try to determine sampling protocols to get at estimates of abundance and possibly develop a young-of-year survey off of it.

In February of this year, North Carolina Marine Fisheries Commission approved declaration ruling, allowing the American Eel Farm to possess American eels less than nine inches from North Carolina waters. As of March 18, they were notified they would be able to start fishing on March 21st. They officially started that day and the following day they had an official declaration from the state.

In looking at the results, the American eel farm was able to fish for about three weeks, from the last week of March through the middle of April. They fished five of 13 sites and caught zero glass eels. Two elvers were captured and released, and it was confirmed that it was difficult to catch glass eels with fyke nets in coastal waters.

In May of this year, North Carolina DMF informed the American Eel Board of its intent to

submit a new aquaculture plan for a second year program, due to the late start and zero harvest. On May 31st, North Carolina submitted a plan to ASMFC staff, which was then circulated to the Technical Committee.

I'm going to walk through next the major changes that have happened; just outlining from what the 2016 plan that the board considered and approved in February, and what the 2017 plan offers. Currently, the difference in the 2017 plan is that instead of starting harvest on February 22, in 2017, harvest would begin January 1 and go through April 30th.

Regarding the fish time, during the months of January 1st through February 28th, the fish nets would be done once every 24 hours, and then from March 1st through April 30th, fish nets would be fished every two hours before sunset through two hours after sunrise. This was different in that previously, the two hours before sunset through two hours after sunrise applied throughout the entire period. This will only apply from March 1st through April 30<sup>th</sup>; whereas, January 1 through February 28th is once every 24 hours.

Additionally, in the 2017 plan, there would be one individual on the permit and allowed for two mates to help; whereas, in the 2016 plan there were three individuals who were allowed to fish under the permit and allowed for one mate each; so a total of three mates total. In the 2017 plan there is an additional site, which includes the White Oak River; whereas, in 2016 there were ten primary sites, so it increases it by one. There are 11 sites in the 2017 plan.

This map here demonstrates the area of the North Carolina coast in which the additional site would take place in the White Oak River. This offers kind of a land use breakdown of what the watershed looks like. It is mixed use in terms of

residential, further up there is more vegetative cover, but it is an impaired water body.

As just noted, the White Oak meets the criteria of a Category 4 and 5, impaired water body. Shellfish collection is prohibited from the area, and it is a relatively small river located outside of the Albemarle and Pamlico Sound along central North Carolina coast. Some of the benefits is that it would not need to use alternate sites located near the mouth of the Neuse River, and that it had been a data poor area previously; in terms of sampling of American eel, and that there was greater freshwater influence in this area, which would hopefully increase the likelihood of encountering glass eels.

In terms of the new plan, I'm going to walk through the monitoring components that differ in this version versus the last. For the 2017 plan, glass eel harvest at each net would be recorded out as actual weight; whereas, in the 2016 plan it was estimated weight. For this revised plan, the total glass eel harvest reported before returning to the landing site would be actual weight; whereas, in the 2016 plan it was estimated weight.

In the 2017 plan, elver weight would be recorded at each net; whereas, there was no elver work up in the 2016 plan. There would be a change in terms of calculating the CPUE from going to a monthly calculation as opposed to doing it at the end of the harvest season. An important other point to note is that in terms of the monitoring program, there was a change to the permit requirement; which was that instead of allowing for warrantless inspections, they now will not have that provision on it.

Warrantless inspections and searches of gear and vessel and persons will not be allowed. There will also be less phone calls to the communications center reporting out on harvest, and a shift in the time when the gear will

be inoperable on weekends. This, again, just shows where, in terms of the likely harvest boundary for glass eels on the White Oak River is.

This last slide just provides a full summary of the changes between the 2016 plan and the 2017 plan. Just to tee up Tim's presentation and then Mark Robson, our LEC representative's report. This report was submitted to the TC, they considered it, the LEC also had time to review it, and that will be for the board to consider after those two reports. I'll turn it over to Tim, unless there are any questions at this point.

#### **TECHNICAL COMMITTEE REPORT**

MR. WILDMAN: During our last meeting we met and discussed this proposal, obviously. The TC felt that the addition of the White Oak Cove as an additional site, we received that favorably since there has been some previous research in this site; and that could complement the dataset from the aquaculture plan. It could additionally serve as a permanent young-of-year survey site.

The other changes were also accepted by the TC, contingent on the following recommendations: that a YOY survey site should be developed at one of the sites, in conjunction with the aquaculture plan going out in year three, which is 2018. Due to the 24 hour soak times, fyke net mortality should be addressed during the months of January and February.

CHAIRMAN CLARK: Now, we'll have a report from the Law Enforcement Committee from Mark Robson.

#### **LAW ENFORCEMENT COMMITTEE REPORT**

MR. MARK ROBSON: The Law Enforcement Committee had an opportunity to review this revised aquaculture plan proposal during its teleconference call on July 8th. We had good attendance for that meeting. During the call we

were briefed on the substantive changes to the permit, and the permit conditions from last year's implementation. If you recall, the LEC had commented on that original proposal in a memo, January 15, 2016. During our recent teleconference call, our North Carolina law enforcement representative did report on the shared learning experiences of the enforcement officers and the vendor in this new program. As a result of our discussions, there really were no significant concerns or questions raised regarding the proposed changes to the aquaculture collection program as it is being revised or requested to be revised; and the LEC continues to support the plan as one that has taken reasonable steps to ensure adequate enforcement and monitoring of collection activity. That concludes my report, Mr. Chairman.

CHAIRMAN CLARK: Do we have any questions for Kirby, Tim or Mark? Bob Ballou, Tom Fote.

MR. BOB BALLOU: Mark, I'm just curious. The proposal to drop the warrantless search provision, how did the LEC review that; and apparently why were there no concerns about dropping that provision from the plan?

MR. ROBSON: That was mentioned of course as a change, and there was some question as to why that was done. The general response was that it was something that North Carolina felt they needed to do, and as a result of the discussions there were no more questions about that issue. There didn't seem to be any major concerns about that change.

MR. FOTE: My question was going along the same line. I mean, in New Jersey, you don't need a warrant to check anybody operating, the fisheries are onboard. Do you need a warrant in North Carolina to basically search any boat that is actively fishing? That is what's confusing to

me. Are your laws different than the ones in New Jersey – through the Chair?

CHAIRMAN CLARK: Michelle, can you answer that?

DR. MICHELLE DUVAL: I'll do my best, Mr. Chairman. There were some recent legislative changes as a result of last session that significantly, I think, reduced the ability of law enforcement to be able to board a boat and inspect coolers or anyone's fishing catch. It was something that we're actually trying to get modified in a future session.

I think it was aimed more at wildlife inspections. Unfortunately, the way the legislation was written, it also incorporated marine patrol. But because it is statutory language, it has significantly reduced our ability to do that. That is why this request was made by marine patrol, so as not to be in conflict with statute.

CHAIRMAN CLARK: Follow up, Tom.

MR. FOTE: Yes, but if it was part of the contract and they agreed to sign the contract, then they're waving their right to a warrant, and why not leave that in there? The only thing that is a concern to me is this is a fishery that can be ripe for poaching, for basically because of the price per pound; and that's one of my concerns here.

We have these problems going on in Jersey where we catch people doing it. It happens in numerous states. I always thought that this was a good deterrent. There is no reason for a person to give up, they can give up their rights to do that and all they have to do is keep it in the proposal. That is what I'm trying to figure out, why they can't voluntarily say, because we're actively involved in this fishery that needs to be monitored a certain way; that we support being able to be searched.

CHAIRMAN CLARK: Michelle, would you like to respond to that?

DR. DUVAL: Again Tom, it is a concern that anything that would be in there that would be inconsistent with the statutory language could put us, the Division, at risk, and we didn't want to do that.

CHAIRMAN CLARK: Do we have any other questions?

MS. CHERI PATTERSON: My question as a follow up would be, what does North Carolina have in its arsenal to safeguard these rules that we are anticipating to be followed?

CHAIRMAN CLARK: Looks like that's another one for you, Michelle.

DR. DUVAL: We do have license suspension and revocation rules, just like I think most of the states do, so those would certainly apply. It's a matter of the statutory language to read; that has reduced our ability to board and inspect without permission. None of the other tools that we have in our toolbox that would allow for license suspension and revocation if a licensee fails to meet the requirements, would prevent us from revoking a license or permit, it is just the inspection thing.

CHAIRMAN CLARK: Follow up from Cheri.

MS. PATTERSON: Again, how would you get to that point? How would you know that they were doing anything illegal if they can't?

CHAIRMAN CLARK: I'll let you take that again, Michelle.

DR. DUVAL: We can go to a facility and – Cheri, where is your question coming from? I guess I'm just trying to understand that – because I think I've tried to outline the discrepancy between

statutory language and our ability to inspect without permission. I guess I am a little bit confused by the question.

MS. PATTERSON: Okay, maybe I misunderstood. How can you inspect without authority?

DR. DUVAL: We can show up and we can try to inspect, but the way the statutory language is written is that if a person says no, then our officers are not allowed to open a cooler or something like that.

CHAIRMAN CLARK: Rob O'Reilly is next.

MR. ROB O'REILLY: I guess what I'm wondering is their points of landing, and do the North Carolina changes apply to the points of landing where a lot of the law enforcement activity occurs, anyway?

CHAIRMAN CLARK: Michelle, do you want to --?  
DR. DUVAL: It is pretty broad, Rob, this statutory change. Again, if I were to come to you and say, hey, do you mind if I look in your cooler? If you say yes, there is no problem. The way the statutory language is written is there has to be obvious evidence of violation for the officer to do something.

I don't have the statutory language in front of me, so I'm really reluctant to go into it much further. I'm happy to look it up and provide it to the board, if you guys are interested. As I said, it is something that I think was inadvertently inclusive of our marine patrol when the statutory language went through; and the intent was really for wildlife inspectors. That is something that we're actively working to modify.

CHAIRMAN CLARK: This issue has obviously gotten a lot of interest. Mark, could you maybe expound a little more on why the Law Enforcement Committee did not feel that North

Carolina would be hampered in doing inspections because of this clause?

MR. ROBSON: Well, the general discussion I think revolved around the fact that there was still adequate safeguards and conditions in the permit itself, as far as notifications and monitoring of harvest collection sites; that they would be able to keep up with the activities in that way.

CHAIRMAN CLARK: Next, we have Ritchie White.

MR. G. RITCHIE WHITE: I guess I'm still struggling with this some, because part of our approval of this plan was assurances on keeping track of this process through the harvesting and through the development at the aquaculture site. It seems to me that this has clearly opened the door for some potential problems.

I guess I'm not comfortable that law enforcement thinks that they have the issue covered; where it doesn't sound like they can do any inspections if the person says no. We're not going to know what's going on there. I'm not sure what the next step is, but it makes me uncomfortable that we've approved this on a certain basis, and now that basis is no longer available.

CHAIRMAN CLARK: Kirby would like to make a comment on this.

MR. ROOTES-MURDY: Just one other point for the board's consideration, as I was going through the changes in the 2017 plan relative to the 2016 plan. There is, again, a change in the number of Permittees. There is now only one person who is operating with a permit, as opposed to three before with three possible mates, so there is one permit person with two mates. It actually is reducing the number of people that would be potentially looked at to be searched or considered for this.

CHAIRMAN CLARK: Follow up, Ritchie.

MR. WHITE: But what about at the aquaculture site, what about at the plant? What if they just say no, not allowed in anymore?

CHAIRMAN CLARK: Michelle, would you like to respond to that?

DR. DUVAL: Yes. Ritchie, I think if there is evidence, and I think officers would be looking quite closely to see if there is obvious evidence of potential violation that they can note. That gives them enough grounds to move further. This operation has to have an aquaculture collection permit; it has to have an aquaculture operation permit.

There are conditions associated with that that would allow the revocation of those permits, as well as the suspension of the license that allows for harvesting; no different than any other state. I'm a little concerned about this type of questioning at this hour, quite frankly.

CHAIRMAN CLARK: Next question is Dave Simpson.

MR. DAVID G. SIMPSON: Thinking well beyond eels, it seems there is a difference in North Carolina now that makes fisheries enforcement much more like general law enforcement on roads, cars, private property and so forth that is different from the standard that I think there is universally.

I wonder if it wouldn't be helpful for us for all of our plans to ask the Law Enforcement Committee to kind of do a review from NOAA Fisheries down through all the states, in terms of the ability to effectively enforce, ACFCMA mandated measures. I don't think it is fair to grill Michelle on state law and the details and the nuance differences.

But I would like to hear from Law Enforcement generally how much consistency we have and if there are some important areas. I mean, North Carolina lands a third of some of our species. If that is also occurring elsewhere, I think we would need to know where we stand for that effective enforcement of our ACFCMA- based regulations.

CHAIRMAN CLARK: Mark would like to respond.

MR. ROBSON: We would be happy to comply with that request, and I think that would be helpful to get the entire LEC involved in reviewing their current policies and statutes and provisions; and we can provide a report to you.

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CHAIRMAN CLARK: Next on the list, I have Tom Fote.

MR. FOTE: I hate to belabor the point, but it is really a serious concern for me. I mean, one of the good options that we have in Law Enforcement, especially in New Jersey, is that you can go in and search a cooler, whether it's summer flounder, striped bass and everything else. Now if the person refuses your permission to go in there, you could still, if I'm not completely wrong, you can still give them a citation on the fish, because you didn't get his permission.

But you can't give him a citation like in Island Beach State Park where you're not allowed to have beer, if you've got beer, you're all right, because he can't do anything about the beer in your cooler. That is one of those rules. This is actually more stringent than a traffic cop.

CHAIRMAN CLARK: Tom, do you have a question?

MR. FOTE: Yes. I make a recommendation that we write a letter of concern, because this affects, not only as Dave pointed out, but in my



estimation, the enforcement of any of the rules, whether it is striped bass, summer flounder or anything else. If a law enforcement officer can't go in to check a cooler without permission, especially when it's a fish thing, I'm really concerned over it.

CHAIRMAN CLARK: Next question is Dennis Abbott.

MR. DENNIS ABBOTT: Another thing that I surely didn't expect to talk about this morning. However, I would say that the Law Enforcement position raises much concern with me. I can't believe that Law Enforcement wouldn't be opposed to this issue. I really want a better answer from Law Enforcement of why they should agree that they don't have the right to look without a search warrant. It seemed like that is normal practice for a fisheries person. Second to Michelle, I know you may be concerned with the questioning, but this raises a lot of questions in people's eyes.

It is curious to me, Michelle. I know you're having problem answering the question, but the legislative person in your delegation, maybe they could go back and find out from the legislature why they would enact statutory language to protect one harvester. It seems so contrary. Maybe I'm not understanding, but it just really raises a lot of questions with, I'm sure, everyone around the table at this point. I think maybe we should be looking at whether this permit should be revoked.

CHAIRMAN CLARK: Okay, Dennis, I am going to let Michelle respond to that.

DR. DUVAL: I think that is Dennis, definitely misunderstanding. This is statutory language that applies broadly to -- this is not specific to the American Eel Farm. This applies across all of our fisheries, all marine patrol officers, all wildlife inspectors. It is very broad-reaching legislation.

I regret that Representative Steinburg was unable to be here at this meeting. But this was just as much of a surprise to the Division when we saw this at the end of last session. I think if folks want to advocate to our legislature on behalf of making some changes; that would be wonderful, but that is something out of my control right now.

CHAIRMAN CLARK: Follow up, Dennis?

MR. ABBOTT: I apologize, Michelle, it's my misunderstanding. But it even seems like a broader problem for you and the state of North Carolina.

CHAIRMAN CLARK: Mr. Brady, would you like to respond further on that?

MR. DOUG BRADY: Just some perspective, but this was a law or regulation, or a law that was written on a bill that basically said that wildlife officers and others could not search a cooler without permission. The practicality of it, and especially dealing with one Permittee owner, is if a law enforcement officer was to probably come up to this individual and say, I want to search your cooler and he said I'm not going to let you.

That would send off red flags. They can, there is a mechanism to go get permission to go search the facilities, go search coolers. But it is just another step. I don't see that this person would be in business, refuse to let officers go in the coolers, and think that there is not going to be further action taken to look at their facility and really ratchet up inspection. I think this is a little bit of a red herring in this particular case. It is an issue that I think needs to be addressed on a larger level that maybe the commission wants to write a letter, because it does pose some issues in terms of enforcement.

But in this particular case, I think this conversation is getting kind of way outside the bounds. I don't see an individual trying to conduct business with all these permits and telling the enforcement people they can't search their facilities or their coolers.

CHAIRMAN CLARK: We have a few more questions, and then maybe we can move on to making a motion here. But the next question we have is Pat Keliher.

MR. KELIHER: I know everybody is wrapped up around the enforcement piece and consent to search, I mean, every state probably has a little bit of a nuance here. If you don't mind, Mr. Chairman, if I can direct a question to Michelle. Michelle, just from a practical standpoint when you issue aquaculture permits, can't non-law enforcement staff inspect any aquaculture facilities to ensure they are compliant with any other environmental rules and laws associated with those facilities?

DR. DUVAL: Yes, we have had staff go out to the American Eel Farm's facility to ensure that it is operational; that it would meet all the requirements of ensuring that the critters are going to be able to survive and be cared for appropriately. We have had non-law-enforcement staff go out there and do that. My understanding is that law enforcement was concerned about the constitutionality, in addition to this statutory language change that occurred. That resulted in this request to remove the warrantless piece of the searching.

CHAIRMAN CLARK: A quick follow up from Pat.

MR. KELIHER: It would seem to me in a case like this, and we do this all the time with facilities in the state of Maine; that a contractual agreement could be made between the applicant and the state of Maine. I know the concern is regarding an agreement that is not consistent with law.

But if it's a contractual agreement in this to ensure you're allowing inspections, I'd be surprised if their state's attorney general wouldn't allow that type of practice to happen.

CHAIRMAN CLARK: Next question is Bill Adler.

MR. WILLIAM ADLER: I think Pat pretty much covered it. I was just trying to figure out why the conditions on a permit wouldn't say, you must be ready to open your cooler, basically; and have that as part of the permit. I'm not sure; Michelle may have said that well that would go against the law. That might be the case, but I just thought that would be the simple way is, write on your permit you've got to open the cooler. They couldn't say no.

CHAIRMAN CLARK: Next question is Steve Train.

MR. STEPHEN TRAIN: Maybe I'm just not as cynical, maybe I'm too trusting. But we're talking about the 2017 season, one person, two months. I'm assuming he's been vetted. I'm assuming we don't think he's a criminal genius who is going to smuggle 20,000 pounds of elver eels out; and they've got a legislative problem. This goes away in a year. How bad could this get? I don't mean we should let people get away with whatever, but I just think that if there is no violation history and we say look, this won't happen again; we need a better plan. You need this. But this is for every species in North Carolina, and we're holding up one facility that wants to try to do something, because their legislature messed it up, over one person for two months. It just seems a little extreme.

CHAIRMAN CLARK: Next questioner is Lynn Fegley.

MS. FEGLEY: It's actually more of a comment, and I'm sort of right there with Mr. Train. They were talking about 200 pounds. This is a 2017 plan. It doesn't strike me that it is in the best

interest of these individuals to conduct a lot of shenanigans, because they are going to have to come back in 2018. Just trying to keep it in perspective that I sympathize and empathize with North Carolina's legislative issues, we've certainly had our own share of those in the state of Maryland.

MR. BALLOU: I would like to make a comment and then offer a motion. My comment is that I concur with the last two comments made by Steve and Lynn, and I'm reading from the plan and it says that; this is under enforcement capabilities and penalties for violations. Random inspections will be taking place at the harvest and landing sites to ensure the conditions of the permit and all applicable rules and regulations are being followed.

Random inspections will also be performed at the aquaculture facility to ensure the proper records are being kept to account for all eels. Clearly, there is accountability built into this proposal. The proof is in the pudding that it will be back before us a year from now, when we hear back as to how the Permittee responded to the state's request for random inspections.

If the Permittee denied those requests, and we do not feel that we had good accountability, to me the permit would very unlikely be continued, or the program would very likely be discontinued for the very reasons that I'm going to express today. For a one-year proposal with good accountability measures built in, and accordance with North Carolina's laws, which is all they can do. I feel very comfortable supporting this, and I would make a motion to approve at the appropriate time.

CHAIRMAN CLARK: I think we have gone through and the questions have moved more into discussion; so please go ahead and make a motion.

MR. BALLOU: Sorry, if I jumped the gun. **I would move to approve the proposed North Carolina Glass Eel Aquaculture Plan for 2017**, and if there is a second, I would like to make one additional comment.

CHAIRMAN CLARK: Bill Adler seconds.

MR. BALLOU: My one additional comment is to Dr. Duval. Is there going to be an opportunity for you on behalf of the state to report back to us, not only on these accountability issues, but just on the overall efficacy of the program? If it's working, which of course we're all interested in finding out; because we might want to be pursuing similar ventures in our own states. Is the information going to be shareable, or is there a proprietary interest here where we really won't be able to know if it's working or not; and if so, why?

CHAIRMAN CLARK: Do you want to respond to that, Michelle?

DR. DUVAL: I would expect that I would be able to share that information. I think, in the briefing materials and from Kirby's presentation you've seen. I mean we've certainly shared the applicant's lack of ability to have been able to harvest eels this year, simply because of logistical conditions.

I would expect that we would be more than willing to share the lessons learned, I guess, from this upcoming year; where hopefully, there will be a little bit more success for the applicant, in terms of harvest and anything that we have found out. I would be happy to ask our Law Enforcement Staff to put together a short report; based on their experiences with their inspection.

Perhaps inspection is the wrong word here, but their visits to the facility as well as inspections at landing sites and their experience with the call-in -- some of those conditions have changed,

both at the request of marine patrol as well as at the request of the permittee. I think that is a long winded way of saying yes.

I would hope that we would be able to provide you a report. Probably nothing that would be proprietary, obviously. I'm thinking off the top of my head here. There is a 200 pound quota, so you know that there won't be more than 200 pounds of glass eels that are harvested. In terms of exact numbers I'm not sure that we would be able to give that out, but it is going to be 0 to 200.

MR. BALLOU: Quick follow up.

CHAIRMAN CLARK: Go ahead, Bob.

MR. BALLOU: I'm sorry; I was just as interested in what you just responded to as I am in the efficacy of the grow-out facility. That is the potentially proprietary area that I was wondering about. Because this is a state proposal, I'm hoping that the state of North Carolina is going to be very interested in knowing how well this facility performs, whether the grow-out is successful or not.

Then to report back on that; as essentially a trial that you're undertaking, an experiment, whatever you want to call it. Obviously, there are proprietary interests in terms of the facility. But I think the board would very much want to know about the success of the grow-out, and that is the kind of information I am looking for, as well.

CHAIRMAN CLARK: Before we discuss the motion, Bob. We're going to ask for a point of clarification as to whether your motion includes the Technical Committee recommendations.

MR. BALLOU: Oh yes, I'm sorry, I think it should and I was hoping that maybe Dr. Duval would acknowledge their willingness to go along with those. Yes, I would like to have that motion

amended to include, I think, at least two TC recommendations. Thank you.

CHAIRMAN CLARK: Do you want to just review those recommendations again?

MR. ROOTES-MURDY: Just for the board's consideration again. We put these up before. The two recommendations from the Technical Committee were that a young-of-the-year survey be developed at one of the sites in conjunction with the aquaculture plan in 2018, and that would be based on how well the facility performed in being able to catch and grow out eels.

The second was to address fyke net mortality during the months of January and February when the nets will only be fished once every 24 hour period. There was a recommendation for the possible use of a live car by the Delaware Technical Committee representative, and I believe Chairman Clark could maybe speak to that if board members have any confusion or need clarification on what that recommendation is.

CHAIRMAN CLARK: I think, because it is just a recommendation and it's not specifying how this be addressed, the concern that came up was based on some fyke net situations we've had, where we have huge numbers of glass eels in the net. I don't believe that they are probably having that same situation at some of the sites that they are planning to use in North Carolina, just from observation of those areas. In the general terms that it is, if it does become a problem, I think that the motion is hopefully worded broad enough that they can come up with some solutions to that; if that would be satisfactory. Yes, Michelle.

DR. DUVAL: Definitely our staff has worked with the applicant. He is well aware that a young-of-the-year survey would need to be developed for 2018, so yes, we accept that condition. Then in

terms of the potential for mortality during the months of January and February, I would just note that the applicant is required to leave the caught ends open for a 48-hour period on the weekend.

There is escapement and follow through there. As the Chairman has indicated, just based on where these sites are located, it is unlikely that we'll have the same issues with mortality. But we do have the example that was provided of a live car that we could work with the applicant on, should that become a problem in the future.

CHAIRMAN CLARK: Can I get a show of hands of those who would like to speak for the motion. Anybody want to speak against the motion? Not seeing any; I am assuming we're ready to vote. Does anybody need time to caucus on this? No. **In that case, are there any objections to the motion as written here? No seeing any; the motion passes unanimously.**

#### OTHER BUSINESS

That concludes our agenda Item 5, and now we are just on to other business. Is there any other business? Dan McKiernan.

MR. MCKIERNAN: I was listening to the New York proposal earlier and the discussion about out-of-state dealers, and it really piqued my interest. I'm wondering, since the Law Enforcement Committee has agreed to look at a report of the ability to do warrantless searches around the various states, if we could task them with a second task.

That would be to compare state rules regarding out-of-state dealers purchasing quota-managed species from fishermen; and the challenges this creates for tracking state-by-state quotas. In my state, we tell folks, you have to sell to a Massachusetts dealer, and we force out-of-state dealers to set up kind of an office in Massachusetts so the records are there. But if

fish are leaving the state and going to another state, I don't think it is as traceable.

If that state where it's going isn't a member of this commission and doesn't comply with all of the rules of the various management plans, then that fish is lost. Would it be possible to ask the Law Enforcement Committee to do that as well, with an eye on the eel quotas? Should we institute state-by-state quotas with transfers? I think that is going to be a challenge.

CHAIRMAN CLARK: Mark, is that something the Law Enforcement Committee can look into?

MR. ROBSON: I believe so, although this may get into areas within each state or jurisdiction, of how commercial harvest and dealer records are kept. It may go a little beyond the Law Enforcement Division's areas of expertise. But we can certainly ask if that is something that LEC members can do.

CHAIRMAN CLARK: Any other business to come before the board?

MR. BALLOU: I just wanted to acknowledge receipt of a letter from the Maine Elver Fishermen, and my question to the Maine delegation is whether there is intent to propose an increase in the glass eel harvest at some point in the future; I'm sorry, in the glass eel quota in the near future. Is that where the state is going? I'm just curious as to Maine's response to the letter that the board has been provided from the elver fishermen, thank you.

CHAIRMAN CLARK: Before I turn it over to Pat. That would have to be done through an addendum process. But I'll let you respond to that, Pat.

MR. KELIHER: This is the first I've ever seen this letter.

**ADJOURNMENT**

CHAIRMAN CLARK: Anything else? Seeing nothing; are there any objections to adjourning? Seeing none; we are adjourned. Thank you.

(Whereupon the meeting was adjourned at 9:11 o'clock a.m. on August 4, 2016.)

# Atlantic States Marine Fisheries Commission

## American Eel Technical Committee Meeting

### Meeting Summary

*September 14-15, 2016*

*The Hotel at Arundel Preserve*

#### **Attendees**

Tim Wildman (chair; CT DEEP), Jordan Zimmerman (vice-chair; DE DNREC), Carol Hoffman (NYSDEC), Allan Hazel (SC DNR), Sean Doyle (DC DEE), Todd Mathes (NC DMF), Jennifer Pyle (NJ DFW), Lindsay Aubart (GA), Patrick McGee (RI DEM), Bradford Chase (MA DMF), Sheila Eyler (US FWS), Ellen Crosby (PRFC), Troy Tuckey (VIMS), Kim Bonvechio (FL FWC), Keith Whiteford (MD DNR), Gail Wippelhauser (ME DNR), Laura Lee (SAS chair; NC DMF)

ASMFC Staff: Kirby Rootes-Murdy, Kristen Anstead

Members of the Public: Desmond Kahn and Zoemma Warshafsky (VIMS)

Members of the American eel technical committee (TC) met during TC meeting week to:

1. Review the methods and results of the coastwide young of year (YOY) surveys and evaluate differences, challenges, and future considerations,
2. Discuss the upcoming stock assessment update scheduled for 2017,
3. Get updates on nematode research, the Maine life cycle study, and otolith exchange,
4. Discuss landings versus harvester reports, and
5. Discuss research items needed to be completed ahead of the next Benchmark stock assessment and potential timing.

#### **Review of state YOY surveys**

Each state presented their methods, results, challenges, and status of their YOY surveys, with the exception of Georgia since it recently switched from a YOY survey to a yellow eel pot survey. States discussed their site locations, timing of sampling, gear type, and biological sampling protocol and results. More information on each state's survey can be found on the spreadsheet and combined presentations pdf document.

After each state presented, the TC discussed how to determine if a site should be discontinued and how a new site should be developed to replace it. Consensus was that many of these sites were chosen opportunistically due to logistics (limited staff, restricted options for other locations, gear, etc.) and if a YOY survey was going to be discontinued in a state, another survey should replace it – YOY, yellow, or silver eel – to be decided on a case by case basis and discussed with the TC. Some exploratory analysis should be done to see if a single YOY survey in a region could be tracking the whole region, and thus have the supporting surveys altered to

measure a different population (yellow or silver). Additionally, many states are using different gear types and the TC discussed the preferred gears while recognizing that many of these are not options in other locations and some states may have restrictions that cannot accommodate them. Specifically, the group recommended that if a state switches to new site or gear type, all the same environmental data (dissolved oxygen, temperature, etc.), and flow attractant (additional possible rain gauge if possible) should be recorded. Additionally, eel mops are not a good replacement gear type for other conventional YOY gears (fyke net, eel ramp, etc.) because of area covered and difficulties in standardizing across river systems and sites.

Brad Chase and Laura Lee outlined their previously developed analysis on YOY surveys. They pursued publishing this work, but there were issues with data ownership and the need for official permissions from member states. In seeking to better understand the significance of YOY surveys and their trends (at the state, regional, and coastwide level) there has been difficulty in quantifying which are tracking overall stock abundance trends. The group has discussed the standardization of YOY surveys since 2006, but there has not been much process. Kirby highlights that there was a data and survey standardization meeting last fall for river herring. The river herring group summarized the main conclusions of survey standardization were: 1) identifying the goal of the survey at the beginning is important- whether for state purposes or for assessment purposes, and revisiting it to make sure its continually useful for that goal 2) to try and have minimum biosampling requirements by gear type 3) when switching gear types, or sites, to consult with other states/agencies that implemented the same survey to ensure Best Management Practices are being used. Some of these considerations could be kept in mind for further evaluating eel YOY surveys in the future.

The TC discussed that not all YOY surveys equally provide information to the stock assessment and that some track a signal better than others. Sheila Eyler pointed out this has been a problem in trying to provide the Board with guidance on whether to fund YOY surveys or continue to require them as part of FMP compliance. As part of the publication's analysis, Brad and Laura were looking at a power analysis that would demonstrate which YOY surveys best track overall coastwide abundance and that correlate with environmental factors. The concluding notion from the group was that this analysis may help inform the Board in how to treat different regions of the coast that may not have good YOY surveys 'signals'/lack structure/and/or would be better suited to a different life stage survey. **Brad and Laura are interested in continuing to pursue this work, the TC is in agreement that it should be done, and Troy Tuckey is willing to contribute.**

### **Stock Assessment Update Planning**

A stock assessment update - which consists of adding the most recent years of data to existing models from the 2012 benchmark - is scheduled for next year. The life history and habitat sections will be updated with any new research or published literature and the description of the fisheries will be reviewed and changed by each member state to reflect the current status. Because both the DB-SRA and TLA models were not recommended for management use and would require additional work that would need a peer-review, only the trend (Mann-Kendall, Manly, and ARIMA) and growth analyses will be updated. The TC discussed when states could



have their data available and submitted to the stock assessment subcommittee. **All surveys and biological data that was previously used in the trend or growth analyses will need to be updated through the terminal year of 2016- the group agreed to the deadline of submitting updated survey information from 2016 by March 1<sup>st</sup> 2017.** Landings and harvester data will also be updated, but only through 2015 because of the timing of the update.

On the end of the first day, Des Kahn asked the group to consider revisiting recreational MRIP data for the Assessment update. The group was generally indicated there are significant caveats with the MRIP data and that drawing conclusions from the data regarding stock condition is not advised, although this data will be revisited during the next benchmark assessment.

### **Presentation & Discussion on Nematode Research**

Zoemma Warshafsky, a graduate student at VIMS, presented her thesis work regarding the effect of the parasitic nematode *A. Crassus* on the American eel. This research addresses one of the research recommendations in the benchmark (2012) and could potential adjust mortality rates for the next benchmark assessment. Each state previously submitted their methods for evaluating the nematode's presence/absence to Warshafsky and these differed along the Atlantic coast. **Warshafsky will present her finalized results next year to the TC, but in the meantime she hopes to develop a standardized methodology for TC members to identify the nematode and stage of infection.**

### **Update from Maine on Life Cycle Monitoring program**

The TC received an update on Maine's life cycle study. Due to staffing, gear, and construction issues at the site, as well as a drought, sampling did not go smoothly this year and the beginning of the YOY run was missed and only one yellow eel was caught. With a new dedicated staff member for the project and lessons learned from this past year, Maine is confident that the second year will be more productive.

### **Otolith Exchange for American Eel**

Many states along the coast have provided otolith samples and are participating in an ageing exchange that is currently underway. Samples represent rivers from Maine to Florida and the goal is to develop a standardized protocol for processing and reading samples, compare ageing accuracy in and between ageing labs, and identify any persisting issues along the coast. Participants will review the results after the hard part exchange and decide at a later time if an in-person workshop is needed. **In the future there may be an ageing workshop that in addition to the ageing data could include sexing as well as incorporating information from Zoemma's research.**

### **Discuss Landings vs Harvester Reports**

The TC revisited the issue of how some states use harvester reports and others use landings for yellow eel. These terms are often used interchangeably but measure different things and have implications for quota monitoring and allocation. Kirby highlighted that making sense of the best data will be important for both the Stock Assessment Update and possible management response the assessment in terms of revisiting quota & allocation (items laid out in Addendum

**IV). The TC agreed that states should be using harvester reports, but that they should also look at landings data (if available) to evaluate discrepancies and improve their data. Right now, the standard approach is to take the higher of two numbers- ahead of the Assessment Update, folks should ensure their data as up to date and as accurate as possible.**

Next, the group revisited outstanding questions that were raised during the workshop on 1) downstream fish passage mortality at hydropower dams 2) where to transport eels when moving them upstream and 3) the question of how best to decipher when to classify an eel YOY or glass eel. While there was good discussion on each questions, the only clear consensus was to transport eels over dams that eels should be deposited within the same watershed when moving them upstream. For the other two questions, there was not clear consensus on how to move forward. **The group was in agreement that these questions should be addressed as research recommendations. An additional research recommendation that was discussed was evaluating the effectiveness of 1/8 sieve (something like a soil sieve) for collecting and counting eels.**

#### **Review TC reporting out & Future Assessment Planning**

Lastly, the group discussed the hurdles to be overcome to complete the next benchmark stock assessment. The group provided information in May 2016 on a number of items that had been identified as needing to be improved based on the 2012 Benchmark stock assessment. The group was in agreement that seeking to engage scientists and managers outside of the ASMFC's process- specifically Canada DFO and Gulf of Mexico (specifically Robby Maxwell)- are important for addressing the research recommendation of moving the stock assessment to a 'continental' stock assessment. **Kirby will work to re-establish communication again with interested parties from both regions.**

#### **Next Steps**

- The states will get their survey information updated through 2016 and submit them to Kirby and Kristen no later than March 1, 2017
- The Board is not meeting at the Annual Meeting, so the TC report will be submitted if needed ahead of the next Board Meeting in 2017
- States should continue to track their eel landings with harvester reports.