



# Atlantic Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201

703.842.0740 • 703.842.0741 (fax) • [www.asmfc.org](http://www.asmfc.org)

*Douglas E. Grout (NH), Chair*

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

*Robert E. Beal, Executive Director*

*Vision: Sustainably Managing Atlantic Coastal Fisheries*

## MEMORANDUM

April 20, 2016

**TO:** Commissioners; Proxies; American Eel Management Board; American Lobster Management Board; Atlantic Coastal Cooperative Statistics Program (ACCSP) Coordinating Council; ACCSP Executive Committee; Atlantic Menhaden Management Board; Coastal Sharks Management Board; Executive Committee; Horseshoe Crab Management Board; ISFMP Policy Board; Law Enforcement Committee; Northern Shrimp Section; Shad and River Herring Management Board; South Atlantic State/Federal Fisheries Management Board; Weakfish Management Board

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

Handwritten signature of Robert E. Beal in blue ink.

**RE:** ASMFC Spring Meeting: May 2-5, 2016 (TA # 16-036)

The Atlantic States Marine Fisheries Commission's Winter Meeting will be May 2-5, 2016 at **The Westin Alexandria** (Telephone: 703.253.8600) located at 400 Courthouse Square, Alexandria, VA. Meeting materials are available on the Commission website at <http://www.asmfc.org/home/2016-spring-meeting>. Supplemental materials will be posted to the website on Wednesday, April 27, 2016. CDs containing all meeting materials will also be available at the meeting in limited quantities.

Please note the following agenda changes: The Weakfish Board meeting has been rescheduled from May 4<sup>th</sup> to May 5<sup>th</sup>; the Atlantic Menhaden Board meeting, originally scheduled for May 5<sup>th</sup> is now being held on May 4<sup>th</sup>. Both meetings are being held in their original time slots. A Northern Shrimp Section meeting has been added to the agenda in a separate meeting space within the hotel and can be accessed via a conference call line (888.394.8197; passcode 815277) and different webinar link at <https://attendee.gotowebinar.com/register/7449292807203785220>. Also meeting separately is the ACCSP For-Hire Inventory Workshop on May 5<sup>th</sup>. This workshop is included in the agenda for informational purposes and not a part of the ASMFSP Spring Meeting.

Board/Section meeting proceedings will be broadcast daily via webinar beginning at 9:00 a.m. on May 2<sup>nd</sup> and continuing daily until the conclusion of the meeting (expected to be 2:30 p.m.) on May 5<sup>th</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/8950745204164174338> to register.

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

Attachments: Final Agenda, Hotel Directions, TA#16-036, and Travel Reimbursement Guidelines



# Atlantic States Marine Fisheries Commission

## Spring Meeting

May 2-5, 2016

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 **April 26, 2016**) 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, **April 26, 2016 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, May 2, 2016**

9:00 a.m. – 3:30 p.m.

## **American Lobster Management Board**

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

*Other Members:* NMFS, NEFMC

*Chair:* Borden

*Other Participants:* Cornish, Glenn, Moore, Gwin,

*Staff:* Ware

1. Welcome/Call to Order (*D. Borden*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. Discuss Next Steps for Management of the Southern New England American Lobster Stock

### **Possible Action**

- Technical Committee Report (*B. Glenn*)
- Plan Development Team Report (*M. Ware*)
- Consider Tabled Motion to Initiate an Addendum to Address the Declining Stock Conditions
  - *Motion to begin a new addendum to address the declining lobster stock conditions in Southern New England/Mid-Atlantic (SNE/MA). The Plan Development Team with input from the Lobster Conservation Management Teams is instructed to explore the following alternatives:*
    - a. *Analyzing the plans rebuilding targets and thresholds to account for current environmental conditions;*
    - b. *Work to stabilize and increase spawning stock biomass through changes in management measures*
    - c. *Improve permitting and accountability of SNE/MA lobster fisheries by requesting the National Marine Fisheries Service consider permit endorsement for Area 3 vessels fishing in SNE (west of 70 longitude);*
    - d. *Improve current management and compliance with lowered trap limits of nearshore trap fisheries by proposing a uniform closed season and new trap tag deadlines;*
    - e. *Accelerate trap allocation cuts that are already codified for the next 5 years in Areas 2 and 3; and*
    - f. *Recognize the SNE/MA trap fishery as a bona fide mixed crustacean fishery and develop strategies and policies that recognizes the multispecies nature of the catch.*

5. Discuss Next Steps for Management of Gulf of Maine/Georges Bank American Lobster Stock (*P. Kelihier*) **Possible Action**
6. Draft Addendum I to the Jonah Crab FMP for Final Approval **Final Action**
  - Review Options (*M. Ware*)
  - Public Comment Summary (*M. Ware*)
  - Advisory Panel Report (*E. Gwin*)
  - Law Enforcement Committee Report (*M. Robson*)
  - Consider Final Approval of Addendum I
7. Discuss Need to Create a Coastwide Standard for Claw Landings in the Jonah Crab Fishery **Possible Action**
  - NOAA Letter on Current Claw Exemption (*A. Murphy*)
8. Update on New England Fishery Management Council Deep Sea Coral Habitat Amendment and ASMFC Survey to Area 3 Fishermen (*M. Ware*) **Possible Action**
9. Discuss Offshore Monuments Proposal and Board Response (*D. Grout*) **Possible Action**
10. Other Business/Adjourn

2:30 – 3:30 p.m.

**Atlantic Coastal Cooperative Statistics Program (ACCSP) Executive Committee**

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

*Members:* Beal, Boyles, Carmichael, Colvin, Cyr, Detlor, Fegley, Laney, Patterson

*Chair:* Boyles, Jr.

*Staff:* Cahall

1. Welcome/Introductions (*Coordinating Council Chair R. Boyles, Jr.*)
2. Public Comment\* (*R. Boyles, Jr.*)
3. Committee Consent (*R. Boyles, Jr.*) **Action**
  - Approval of Agenda
  - Approval of Proceedings from April 2016
4. ACCSP Program Status Updates (*M. Cahall*)
  - Program Status
  - Committee Updates
    - APAIS Update
5. Standard Operating Procedures Approval **Action**
  - PM – 02-06 ACCSP’s Value to Congressional Delegations
  - PM – 13 Collaboration ASMFC
6. Independent Program Review Update
  - Governance Discussion (if needed)
7. Other Business
8. Executive Session (Closed)
9. Adjourn

\*See Public Comment Guidelines: [http://www.accsp.org/documents/ACCSP\\_PublicCommentPolicyOct2013](http://www.accsp.org/documents/ACCSP_PublicCommentPolicyOct2013)

3:45 – 4:45 p.m.

**ACCSP Coordinating Council**

Members: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, PRFC, Virginia, North Carolina, South Carolina, Georgia, Florida, ASMFC, NOAA Fisheries, NEFSC, GARFO, SEFSC, SERO, USFWS, NEFMC, MAFMC, SAFMC

*Chair:* R. Boyles, Jr.

*Staff:* Cahall

1. Welcome/Introductions (*R. Boyles, Jr.*)
2. Public Comment\* (*R. Boyles, Jr.*)
3. Council Consent (*R. Boyles, Jr.*) **Action**
  - Approval of Agenda
  - Approval of Proceedings from February 2016
4. ACCSP Status Report
  - Program Update (*M. Cahall*)
  - Committee Updates (*P. Campfield*)
5. Governance Program Decision (*C. Patterson*) **Action**
  - Executive Committee Recommendation
6. Consider Acceptance of Independent Program Review Package (*R. Boyles, Jr.*) **Action**
  - Standard Operating Procedures
  - Governance Decision
  - Outreach Strategic Plan
  - Long-term Funding Strategy
7. Review and Consider Approval of 2016 Request for Proposals **Action**
8. Other Business
9. Adjourn

\*See Public Comment Guidelines: [http://www.accsp.org/documents/ACCSP\\_PublicCommentPolicyOct2013](http://www.accsp.org/documents/ACCSP_PublicCommentPolicyOct2013)

**Tuesday, May 3, 2016**

8:00 – 10:00 a.m.

*Breakfast to be served*

**Executive Committee**

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

*Members:* Abbott, Blazer, Boyles, Bull, Chanda, Clark, Estes, Gilmore, Grout, Keliher, Kelley, McNamee, Miller, Pierce, Shiels, Simpson, Woodward

*Chair:* Grout

*Staff:* Leach

1. Welcome/Call to Order (*D. Grout*)
2. Committee Consent
  - Approval of Agenda
  - Approval of Meeting Summary from February 2016
3. Public Comment

4. Report of the Administrative Oversight Committee (*J. Gilmore*) **Action**
  - Presentation of the FY17 Budget
5. Discuss State Assessments
  - Level Funded in 2016
  - Confidential vs. Non-confidential Data
6. Discuss Black Sea Bass Management in Maine
7. Discuss Priorities for Saltonstall/Kennedy Research
8. Discuss Plan Development Team Membership
9. Discuss Conservation Equivalency
10. Discuss Offshore Monuments Proposal and Potential Commission Response (*D. Grout*)
11. Future Annual Meetings Update (*L. Leach*)
  - October 23-27, 2016 Bar Harbor, Maine
  - 2017-Virginia
  - 2018-New York
  - 2019-New Hampshire
12. Closed Session
  - Discuss ACCSP Governance
  - Executive Director Performance Review
13. Other Business/Adjourn

10:15 – 11:15 a.m.

**Horseshoe Crab Management Board**

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

*Other Members:* PRFC, NMFS, USFWS

*Chair:* Gilmore

*Other Participants:* Doctor, Cooper, Messeck, Lyons

*Staff:* Rootes-Murdy

1. Welcome/Call to Order (*J. Gilmore*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. Update on Adaptive Resource Management Framework Review (*J. Lyons*)
5. Discuss Biomedical Data Confidentiality and Stock Assessment Planning (*K. Anstead*)
6. Review of Alternative Bait Cost Comparison (*K. Rootes-Murdy*)
7. Other Business/Adjourn

11:30 a.m. – 12:15 p.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:* Goldsborough

*Staff:* Rootes-Murdy

1. Welcome/Call to Order (*B. Goldsborough*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2015
3. Public Comment
4. Timetable for American Shad and River Herring Stock Assessments (*J. Kipp*) **Action**
5. Report from the Data Standardization Collection Workshop (*K. Rootes-Murdy*)
6. Update on Activities of the River Herring Technical Expert Work Group (*K. Rootes-Murdy*)
7. Consider Approval of 2015 Shad and River Herring FMP Review and State Compliance (*K. Rootes-Murdy*) **Action**
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

1:00 – 5:30 p.m.

**Law Enforcement Committee (LEC)**

***(A portion of this meeting will be a closed session for Law Enforcement Committee members only to discuss ongoing enforcement activities)***

*Members:* Anthony, Blanchard, Cornish, Eastman, Frampton, Furlong, Gordon, Green, Gregory, Hettenbach, Hogan, Huss, Jordan, Kersey, King, Lauderman, Lynn, Messeck, Moore, Moran, Overturf, Santiago, Schlaht, Shuster, Snellbaker

*Chair:* Eastman

*Staff:* Robson

1. Call to Order/Roll Call of the LEC Representatives (*M. Eastman*)
2. Approval of Agenda and Minutes from November 2015
3. Public Comment
4. Review Jonah Crab Addendum I LEC Comments and Follow-Up
5. Presentation of Maine's Lobster Trap Tag Transferability Program
6. American Lobster Enforcement Subcommittee Update
7. Discuss Other ISFMP Species (tentative)
8. Review and Discuss Ongoing Enforcement Activities (**Closed Session**)
9. Joint Enforcement Agreement Update/Federal Agency Reports
10. Review and Update of Dual Landings Allowances
11. Review and Discuss 2016 Action Plan Tasks for the LEC
12. Report of Other Enforcement Committees and LEC Coordination

13. Other Business/Recess

1:15 – 3:45 p.m.

**Climate Change Workshop**

1. Review and Discuss Northeast Fish and Shellfish Climate Vulnerability Assessment (*J. Hare*)
2. Review and Discuss NOAA Climate Science Action Plans
  - North East Climate Science Action Plan (*J. Hare*)
  - South East (Atlantic) Climate Science Action Plan (*H. Lovett*)
3. Begin Discussion of Next Steps for Commission Action in Response to the Climate

4:00 – 5:00 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:* NMFS, DC, PRFC, USFWS

*Other Participants:* Cornish, Wildman

*Chair:* Clark

*Staff:* Waine

1. Welcome/Call to Order (*J. Clark*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. Discuss Timing of 2017 Stock Assessment for American Eel (*M. Waine*)
5. Discussion to Consider Changes to Addendum IV Yellow Eel Allocations (*J. Gilmore*) **Possible Action**
6. Progress Report on North Carolina's Approved Glass Eel Aquaculture Plan (*M. Duval*)
7. Other Business/Adjourn

6:00 – 8:00 p.m.

**Annual Awards of Excellence Reception**

**Wednesday, May 4, 2016**

8:00 – 10:00 a.m.

**Atlantic Menhaden Management Board**

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

*Other Members:* NMFS, PRFC, USFWS

*Chair:* Boyles, Jr.

*Other Participants:* Kersey, McNamee

*Staff:* Waine

1. Welcome/Call to Order (*R. Ballou*)
2. Board Consent
  - Approval of Agenda



- Approval of Proceedings from February 2016
3. Public Comment
  4. Consider Extension and Revision to Episodic Event Set Aside Program (*R. Ballou*) **Final Action**
  5. Consider Draft Addendum I for Public Comment (*M. Waine*) **Action**
  6. Provide Guidance to the Technical Committee Regarding Stock Projections (*R. Ballou*)
    - Review Stock Projection Methodology (*J. McNamee*)
  7. Biological Ecological Reference Points (BERP) Working Group Progress Report (*S. Madsen*)
  8. Consider Approval of 2016 FMP Review and State Compliance (*M. Waine*) **Action**
  9. Elect Vice-Chair **Action**
  10. Other Business/Adjourn

8:30 – 11:30 a.m. **Law Enforcement Committee (continued)**

14. Social (Open to Commissioners and Staff)
15. Aerial Enforcement Issues and Subcommittee Formation
16. State Agency Reports
17. Review and Update of Safe Harbor Issues
18. Tautog Tagging Program Update and Subcommittee Review
19. Review Other ISFMP Species (as needed)
20. LEC Webpage Review and Discussion
21. Information Exchange on Enforcement Grants and Funding Opportunities
22. New Business
23. Adjourn

10:15 – 11:45 a.m. **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 February 2016
3. Public Comment
4. Executive Committee Report (*D. Grout*)
5. Discuss Request from South Atlantic Fishery Management Council to Consider a Cobia Interstate Fishery Management Plan (*G. Waugh*) **Possible Action**
6. Discuss Recommended Changes to the Conservation Equivalency Guidance Document (*T. Kerns*)
7. Joint Management and Science and Assessment Science Committee Reports (*S. Madsen*) **Action**
  - Review and Approve the Stock Assessment Schedule
8. Discuss Next Steps for Commission Action in Response to the Climate Change Workshop

(D. Grout)

9. Update on the Sturgeon Stock Assessment (*K. Drew*)
10. Law Enforcement Committee Report (*M. Robson*)
11. Other Business/Adjourn

11:45 a.m. – 1:00 p.m.

**Northern Shrimp Section**

*Member States:* Maine, New Hampshire, Massachusetts

*Chair:* Abbott

*Other Participants:* Whitmore, Eastman

*Staff:* Appelman

Webinar: <https://attendee.gotowebinar.com/register/7449292807203785220>;

Conference Call: [888-394-8197](tel:888-394-8197); passcode [8157277](tel:8157277)

1. Welcome/Call to Order (*D. Abbott*)
2. Board Consent
  - Approval of Agenda
3. Public Comment
4. Review Summary of Maine's Industry Meetings Held in March (*T. Stockwell*)
5. Resume Development of Draft Amendment 3 for Public Comment (*D. Abbott*)
6. Other Business/Adjourn

1:00 – 5:00 p.m.

**Commissioner Parliamentary Workshop**

**Thursday, May 5, 2016**

8:00 – 10:00 a.m.

**Weakfish Management Board**

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

*Other Members:* NMFS, PRFC, USFWS

*Chair:* Allen

*Other Participants:* Anthony, Cimino, Brust

*Staff:* Ware

1. Welcome/Call to Order (*R. Allen*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from November 2015
3. Public Comment
4. 2016 Weakfish Benchmark Stock Assessment **Action**
  - Presentation of Stock Assessment Report (*J. Brust*)
  - Presentation of Peer Review Panel Report (*P. Campfield*)
  - Consider Acceptance of Benchmark Stock Assessment and Peer Review Report for Management Use
5. Discuss Next Steps for Management of Weakfish (*R. Allen*) **Possible Action**

6. Other Business/Adjourn

8:00 a.m. – 4:30 p.m.

**ACCSP For-Hire Inventory Workshop**

*Lunch to be served*

1. Welcome/Introductions (*G. White*)
2. Review Results of Updated “Atlantic and Gulf Coast Inventory of For-Hire Data Collection Programs” (*E. Wyatt*)
3. Set Up Focus Questions (*A. Loftus*)
  - Discuss Survey Results and Means to Identify and Reduce Duplicate Reporting
4. Focus Questions
  - Identify Preferred Timeliness of Reporting For-Hire Data Collection Programs
  - Identify Core Common data Elements Necessary for For-Hire Reporting
  - Discuss the Capabilities of Existing Programs Moving to Electronic Reporting
  - Identify Opportunities for Reducing Duplicate Reporting for State and Federal Permitted Vessels, all Charter Boats and Head Boats
  - Develop Recommended Measures to Modify Existing Reporting Mechanisms to Develop Greater Convergence Between For-Hire Reporting on the Atlantic and Gulf Coasts
5. Status of Related Projects
  - South Carolina For-Hire Logbook Validation Methodology (*B. Floyd*)
  - SAFMC and MAFMC Mandatory For-Hire Reporting (*G. Waugh; J. Didden*)
6. Adjourn

10:15 – 11:00 a.m.

**Coastal Sharks Management Board**

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

*Other Members:* NMFS, USFWS

*Chair:* Nowalsky

*Other Participants:* Belcher, Frampton

*Staff:* Harp

1. Welcome/Call to Order (*A. Nowalsky*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. Review and Consider Approval of Addendum IV for Public Comment (*A. Harp*) **Action**
5. Other Business/Adjourn

11:15 a.m. – 2:00 p.m.

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

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

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

*Other Participants:* Lynn, McDonough, Rickabaugh, Murphy, Brust

*Chair:* Estes

*Staff:* Ware

1. Welcome/Call to Order (*J. Estes*)

2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. 2016 Red Drum Benchmark Stock Assessment **Action**
  - Presentation of Stock Assessment Report (*J. Kipp; M. Murphy*)
  - Presentation of Peer Review Panel Report (*J. Brust*)
  - Consider Acceptance of Benchmark Stock Assessment and Peer Review Report for Management Use
5. Discuss Next Steps for Management of Red Drum (*J. Estes*) **Possible Action**
6. Progress Report on the Spot and Atlantic Croaker Benchmark Stock Assessments (*J. Kipp*)
7. Review North Carolina Report on Spanish Mackerel Commercial Pound Net Landings as Required by the FMP (*C. Batsavage*)
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

2:00 – 2:30 p.m.

**Business Session (if necessary)**

*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

1. Welcome/Introductions (*D. Grout*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2016
3. Public Comment
4. Review Non-compliance Findings (if necessary)
5. Other Business/Adjourn



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1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmfcr.org

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** American Lobster Technical Committee  
**DATE:** April 25, 2016  
**SUBJECT:** TC Follow-Up to February Lobster Board Meeting

The American Lobster Technical Committee (TC) met on March 14<sup>th</sup> to complete tasks assigned by the American Lobster Management Board (Board) in November 2015 and to address follow-up questions from the February 2016 Board meeting. These included impacts to the stock from gauge size changes, comparative sources of mortality, stock-recruit relationships, the costs and benefits of standardizing regulations in Southern New England (SNE), the attainability of recalculated reference points, and the need for a new comprehensive tagging study. The following report investigates these questions and is organized by issue.

### 1. Impacts to Stock from Gauge Size Changes

The Lobster Technical Committee was asked to analyze the potential effects of alternative minimum legal sizes on the SNE lobster fishery. Such analyses are highly sensitive to the growth and natural mortality rates of unfished lobsters because the outcomes are based on the net difference between the rate of increase in biomass-at-size due to growth and the rate of loss of biomass-at-size due to natural mortality. Unfortunately, available data on the natural mortality and growth rate of larger lobsters are too sparse to estimate these parameters with confidence. This is particularly true for females whose growth slows after sexual maturity. To address this uncertainty, we ran simulations under varying growth and natural mortality rates and estimated the equilibrium spawning stock biomass and landings under different minimum sizes. The goals of these simulations were to examine the potential effects of changing minimum legal sizes on lobster spawning biomass and landings, and to see if these results were robust to different assumptions about growth and natural mortality.

#### Simulation configuration

For the population simulations, we used the new stock assessment projection model to examine all combinations of three different growth rates, 11 levels of natural mortality, and different minimum legal sizes between 78 and 108 mm. The three different growth scenarios were selected to encompass reasonable upper and lower growth scenarios and included:

- 1) The basecase growth model used in the last assessment which is based on tagging data but grows small lobsters faster than is probable, particularly for females, with growth slowing to a 20% annual molt probability at 108 mm (Figures 1 and 2).

2) An intermediate growth model with the same male molt probability curve except the annual molt probability never drops below 33% (Figures 1 and 3). For the female molt probability curve, we examined the proportion of sublegal females that are egg-bearing, as calculated from the biosamples data for the last assessment. Assuming that these females would alternate years between molting and carrying a clutch, we directly calculated molt probabilities for these sublegal females to set the upper end of the curve. The lower end of the curve was set with the assumption that female molt probabilities were stable at 33% starting at 108 mm (ie: after 108 mm, a female should molt roughly once every three years).

3) A slow-growth model based on an assumption that 100% of females had reached sexual maturity (thus molt probability=50%) at 75 mm CL and minimum molt probabilities stabilized at 25% upon reaching 90 mm CL (Figures 1 and 4). Again, the basecase male growth model was used except that annual molt probabilities never dropped below 25%.

A total of 11 natural mortality rates were examined, ranging from  $M=0.15$  to 0.4. Recall that  $M$  is assumed to be 0.15 for lobsters under normal circumstances but was increased to 0.285 in the latter years for the SNE stock in the last assessment. Updated likelihood profiles on the assessment model support natural mortality rates in these recent years between 0.24 and 0.27.

Across all simulations, we assumed random variation around a fixed recruitment rate based on the terminal years of the assessment. We used a constant fishery exploitation rate, also calculated from the terminal years of the assessment, but distributed across all legal lobsters. As a result, in situations where sex ratios skew to a higher abundance of males, the fishery compensates by increasing exploitation on males.

For each simulation scenario (combination of growth rate, natural mortality, and minimum legal size), the simulation was allowed to run forward for 20 years under the new growth, natural mortality, and minimum legal size, which allowed the population to reach a new equilibrium. Then the simulation recorded the spawning biomass and landings rate for each sex and converted biomass and landings to a relative measure based on the biomass and landings from simulations with the current minimum legal size for inshore LMAs of 86 mm. Each scenario was repeated 100 times and the results averaged within scenarios.

Results of the simulations are shown relative to current status; a value less than one represents a decrease while a value higher than one indicates an increase. The advantage of plotting results on relative scales is that the resulting patterns are not confounded by differences in magnitude resulting from different growth models and mortality rates and are robust to assumptions of future recruitment rates.

Finally, as an exploratory exercise, we used simulations to examine how changing the minimum legal size temporarily affects landings and spawning stock biomass (SSB). For this, we assume the basecase growth model, fishing mortalities, a range of natural mortality

rates and a shift in legal size from 86 to 95 mm (3 3/8" to 3 3/4") with three different implementation schedules: changing the legal size by 3/8" in the first year, changing by 1/8" each year for three successive years, and changing by 1/16" per year for six successive years. We allowed the model to run for 10 years under the current legal size, then implemented the new legal size and tracked the landings and population SSB over the next 15 years. Each simulation was repeated 100 times with representative random recruitment levels and averaged together.

### Simulation results

Under all scenarios, increasing the minimum legal size resulted in increases in the biomass of mature lobsters (Figures 5 and 6). This is expected since, barring density dependent effects, allowing a lobster to stay in the water and grow to a larger size will always result in an increase in the population's biomass. The analyses also illustrated that slowing the growth rates or increasing natural mortality results in smaller increases in biomass with increasing legal size as natural mortality removes more individuals before they reach legal size. Changes in biomass are roughly linear with increasing legal size, approximately doubling at 93 mm, 96 mm, and 108 mm for the basecase, biosamples-based, and slow growth models, respectively (Figures 6, 9).

The general effect of increasing the legal size on catch varied across the scenarios, sometimes increasing or decreasing the net catch (Figures 7 and 8). At the lowest natural mortality rates ( $M < 0.2$ ), the basecase and biosample-based growth scenarios suggest that moderate (<10%) increases in landings are possible at larger minimum legal sizes. Landings are fairly stable for moderate increases in legal size around assumed current mortality rates ( $M \sim 0.275$ ), dropping by 20% only at legal sizes >98 mm for all growth scenarios (Figures 8 and 9).

Figure 10 illustrates the potential short term and long term impacts on biomass and catch that may result from different implementation schedules for increasing minimum legal size from 86 mm to 95 mm at varying levels of natural mortality. For example, an immediate implementation of the increase, at roughly the current level of natural mortality ( $M = 0.275$ ), would cause landings to immediately decrease by approximately 50%, then require around 6 years for landings to stabilize at a new equilibrium of approximately 80% of current landings. At this same level of  $M$ , biomass would increase by slightly less than 50% of current values after 3-4 years. Under the slow implementation schedule, landings decrease slowly over six years, eventually having dropped by 25% in the sixth year, then rebound to the new equilibrium within three years. While the timing and magnitude of short term changes may vary with the different implementation schedules, increasing the minimum legal size would eventually result in new biomass and landings settling into a common trajectory in the long term.

### Conclusions

The simulation results suggest that, relative to the continuation of the current gauge size, an increase in minimum size on the order of 5 – 10 mm may result in increased biomass

over time. It is important to note that the projected biomass and landings presented in these figures reflect a long-term equilibrium reached after a 20 year period and the short-term effects resulting from a change in the gauge size may be more dramatic. Specifically, a sudden change in regulations will likely result in sudden changes in both biomass and landings, followed by an eventual stabilization (see Figure 10). Furthermore, it is important to highlight that the relative magnitude of biomass increase depends on both the growth scenario and natural mortality.

We note that the simulation does not account for any shifts in the spatial availability of the resource to the fleet or the effects this may have on the fleet as these larger lobsters tend to migrate further offshore at larger sizes.

The TC also highlights that while these simulations predict increases in biomass as a result of changes in the minimum gauge size, these increases are relative to biomass that would result from no change to the current minimum size. Large reductions in fishing mortality are still required to stabilize the population and any increase in the adult population is dependent on favorable environmental conditions that allow for improved recruitment. Changes in the gauge size must be combined with other management measures to realize substantial improvements to the stock.

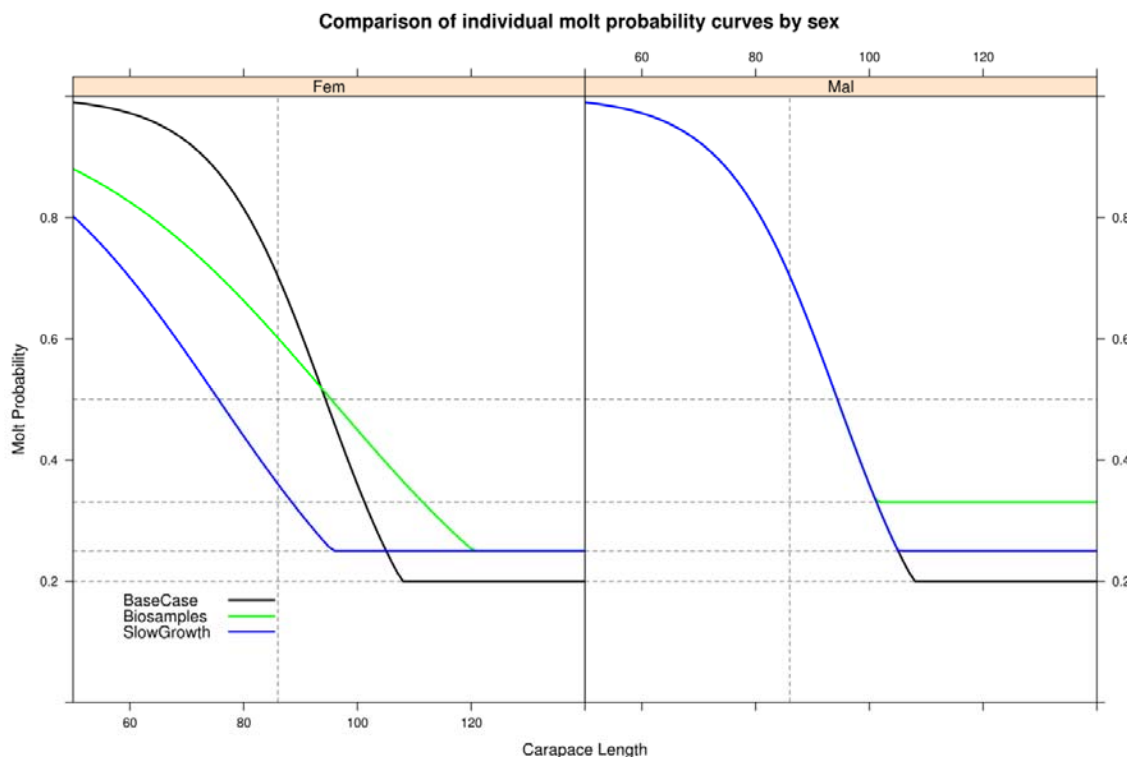


Figure 1. Annual molt probability at-size used in the three different growth scenarios. Dotted vertical line at 86 mm indicates the current minimum legal size for inshore LMA's.



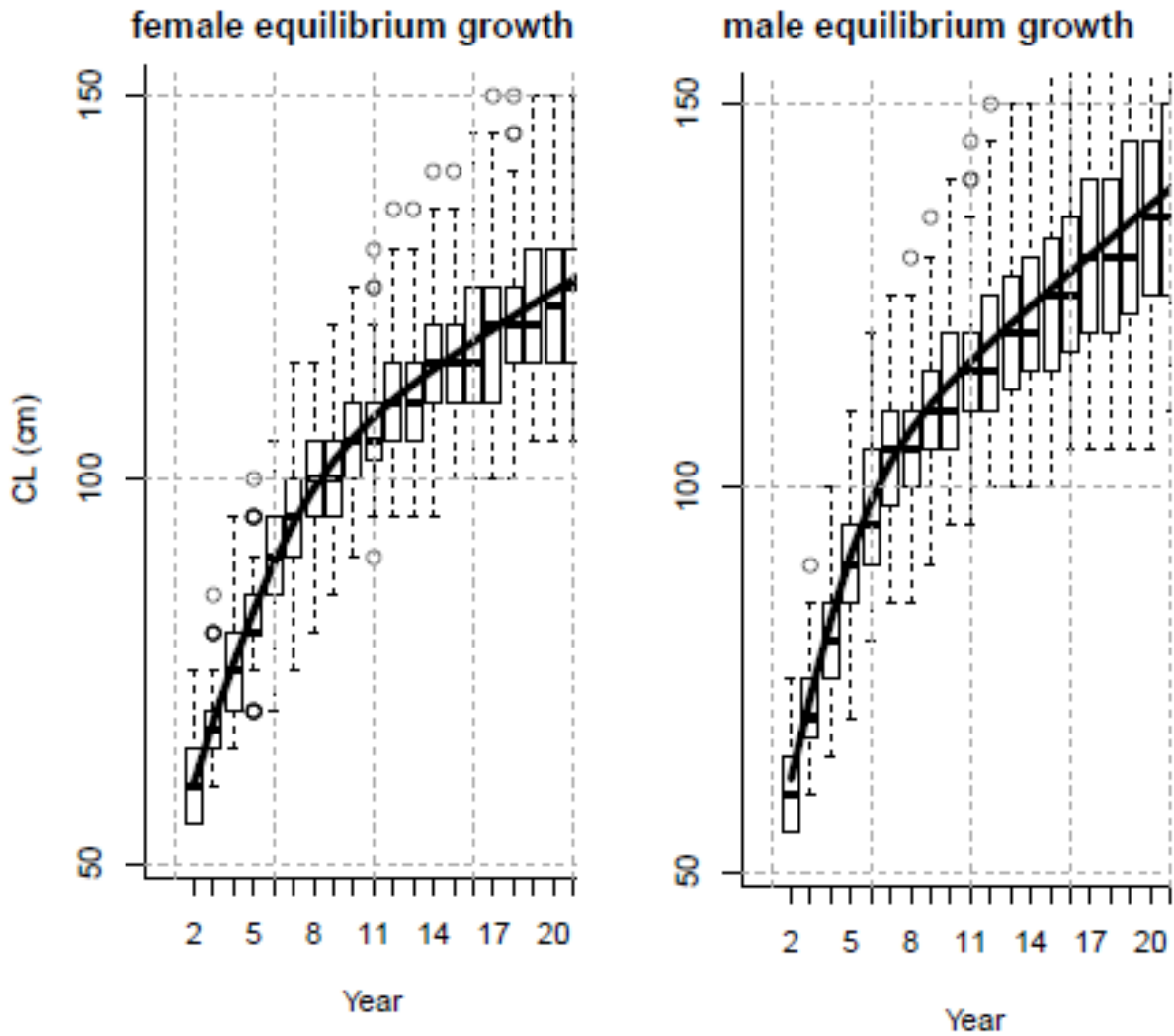


Figure 2. Equilibrium growth curves (length at age in the assessment model) assuming no fishing for the **basecase growth model**. Females reach 100 mm CL after ~ seven to eight years in the model (true age ~ 10-11 years).

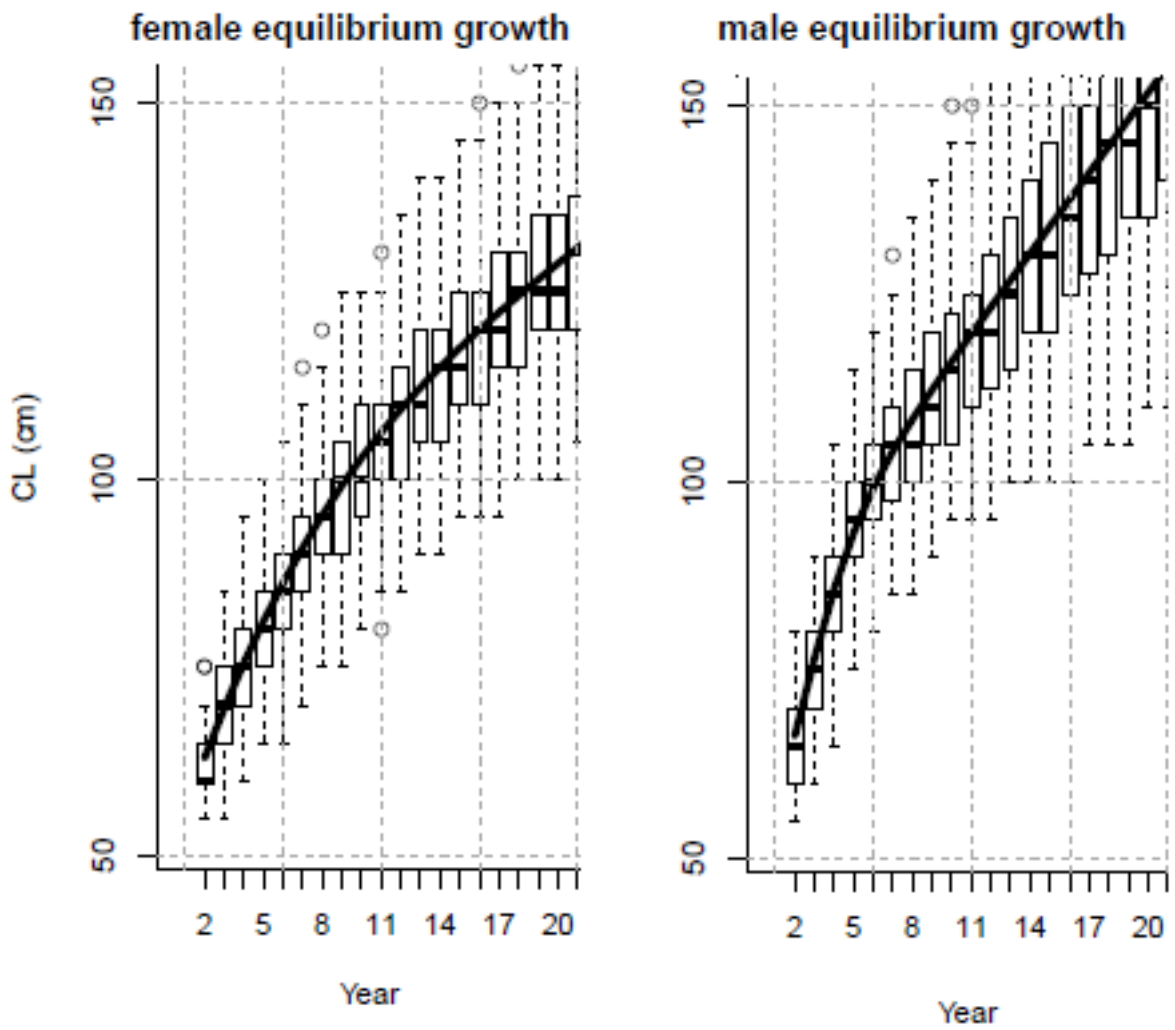


Figure 3. Equilibrium growth curves (length at age in the assessment model) assuming no fishing for the **biosamples growth model**. Females reach 100 mm CL after ~ eight to nine years in the model (true age ~ 11-12 years).

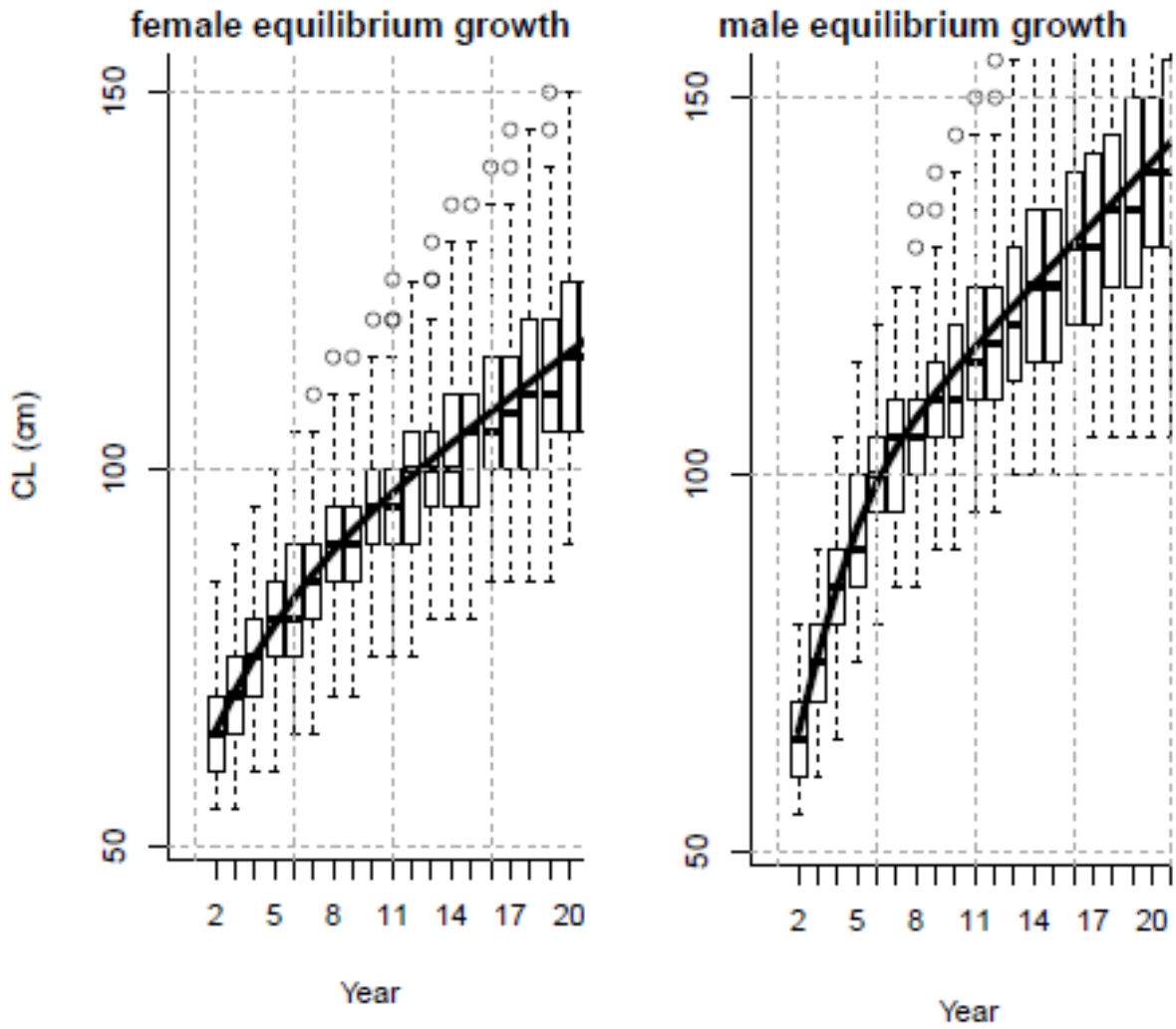


Figure 4. Equilibrium growth curves (length at age in the assessment model) assuming no fishing for the **slow growth model**. Females reach 100 mm CL after ~ 11 to 13 years in the model (true age ~ 14-16 years).

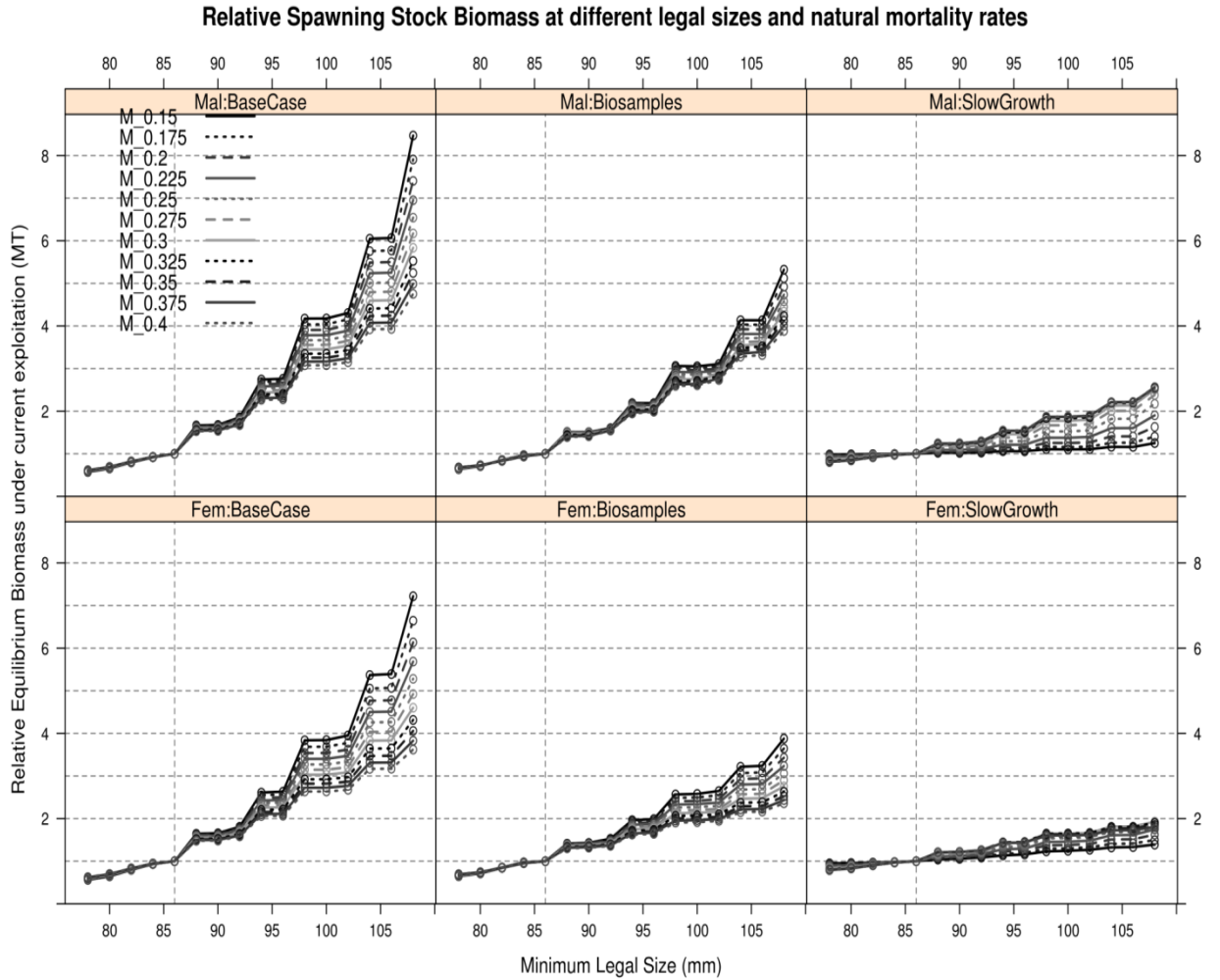


Figure 5. Changes in mature biomass by sex with increasing minimum legal size under different growth and natural mortality scenarios. Growth rates decrease in the panels from left to right with males on the top row and females on the bottom and each line within a panel indicating a given natural mortality rate. Values are relative to the current legal size of 86 mm. For interpretation, values less than one represent a decrease in biomass while values greater than one represent an increase in biomass.

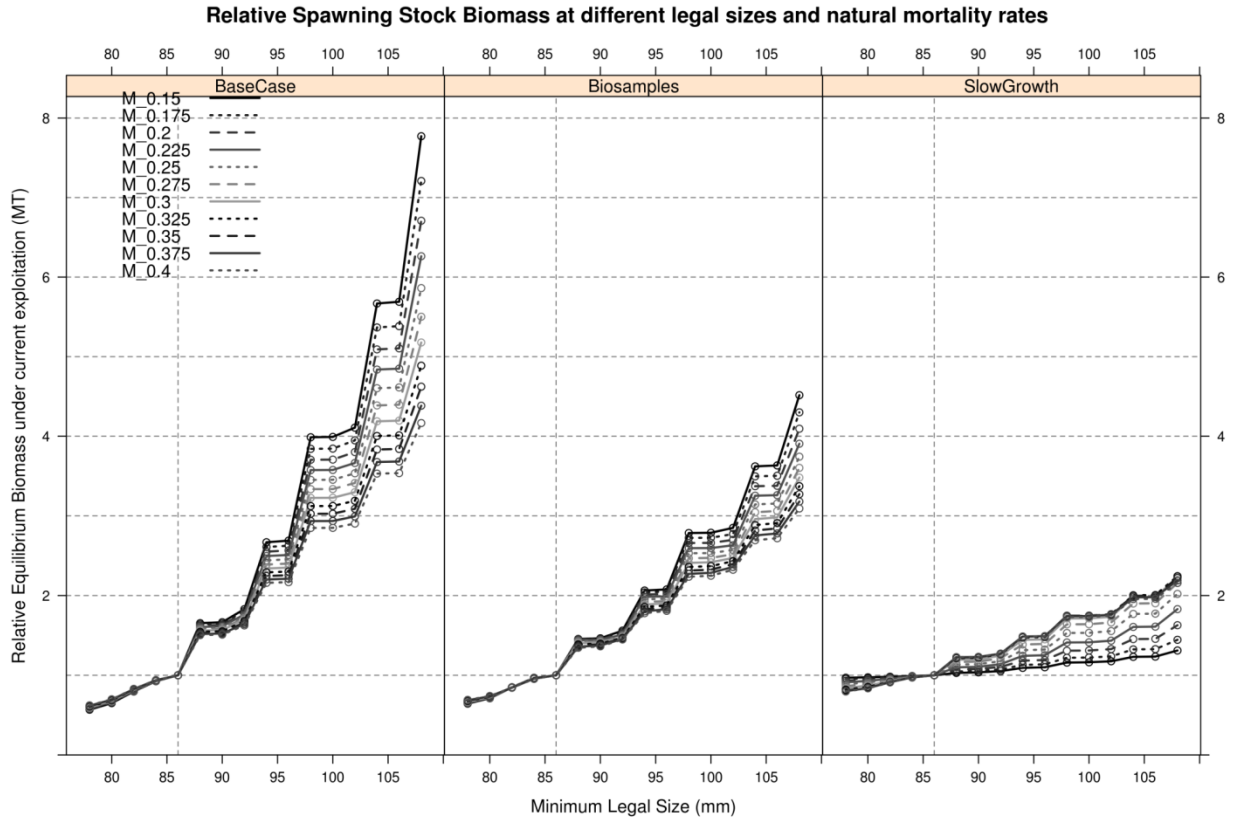


Figure 6. Changes in total biomass (sexes combined) with increasing minimum legal size under different growth and natural mortality scenarios. Growth rates decrease in the panels from left to right with each line within a panel indicating a given natural mortality rate. Values are relative to the current legal size of 86 mm. For interpretation, values less than one represent a decrease in biomass while values greater than one represent an increase in biomass.

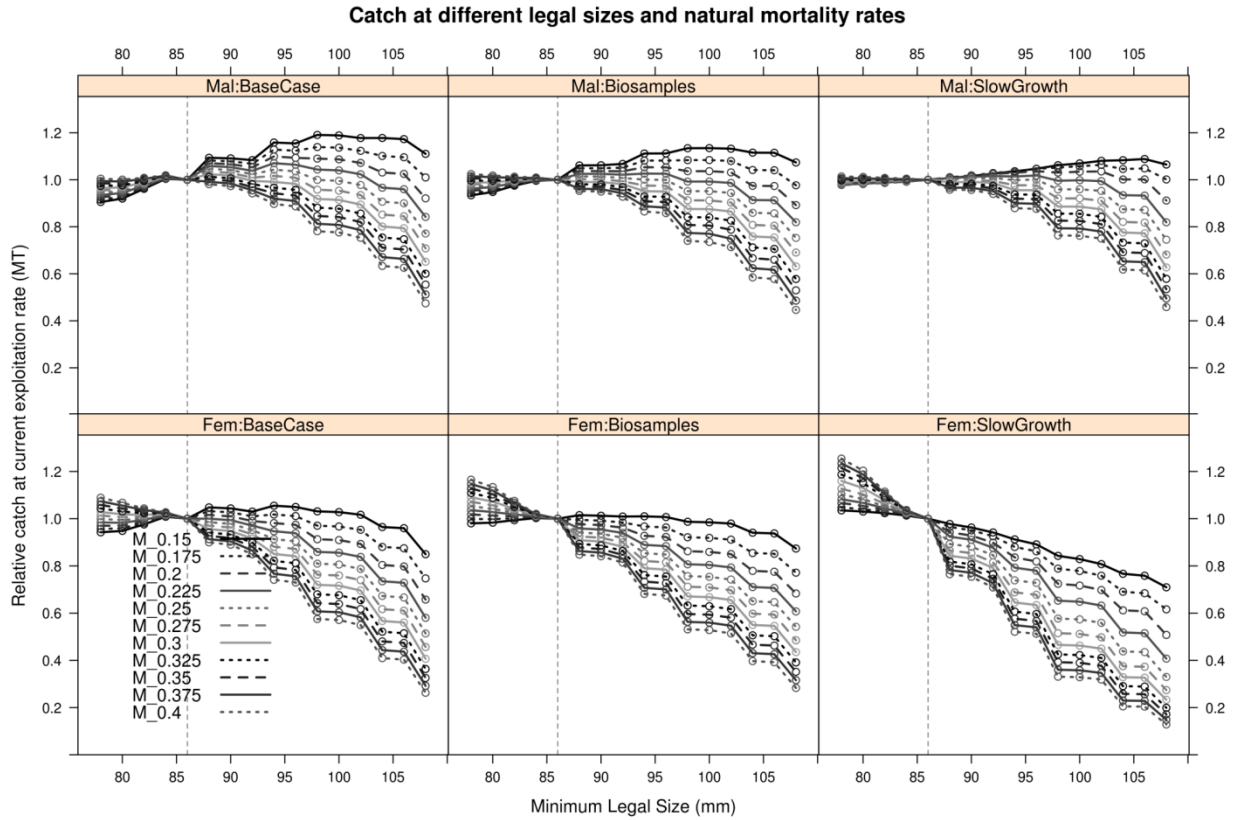


Figure 7. Effects of changing legal size on projected landings by sex for different growth and natural mortality rates. Growth rates decrease in the panels from left to right with males on the top row and females on the bottom and each line indicating a given natural mortality rate. Values are relative to projected landings for a legal size of 86 mm.

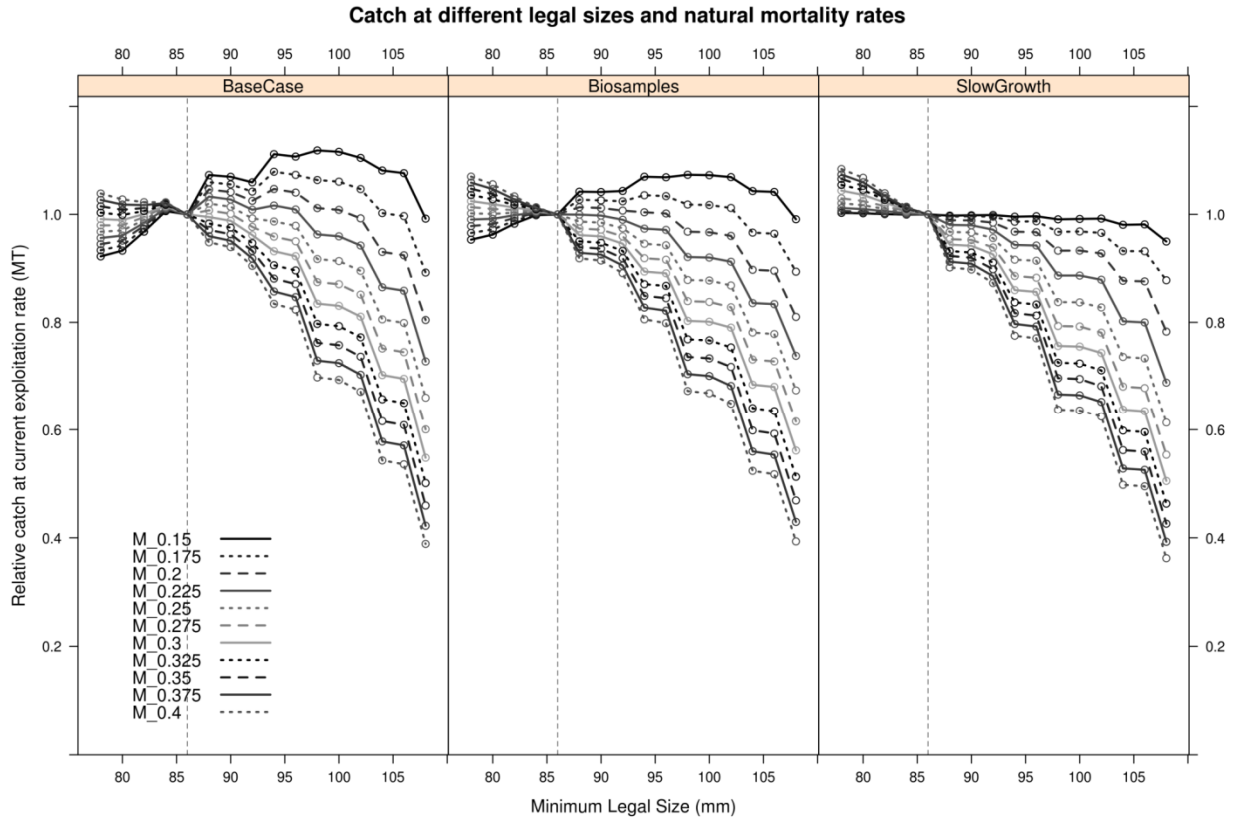
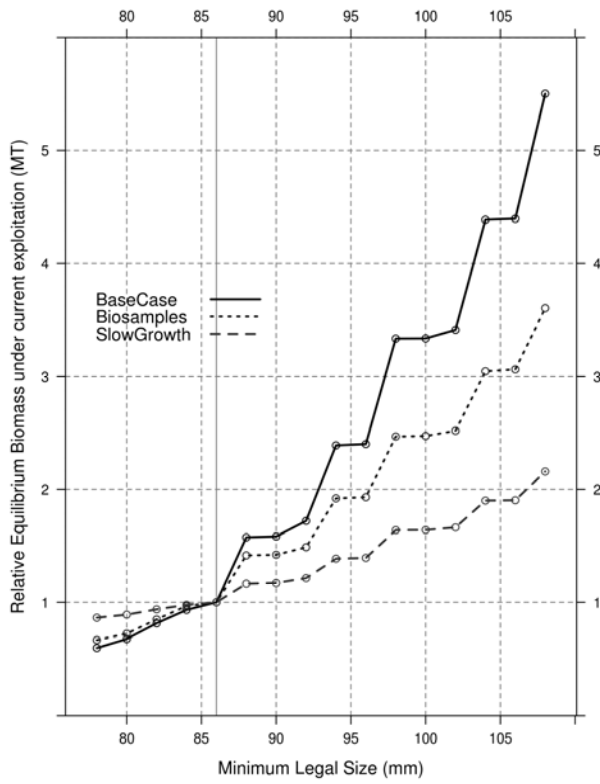


Figure 8. Effects of changing legal size on total projected landings (sexes combined). Growth rates decrease in the panels from left to right with each line indicating a given natural mortality rate. Values are relative to projected landings for a legal size of 86 mm.

Relative Spawning Stock Biomass at different legal sizes at M=0.275



Relative Catch at different legal sizes at M=0.275

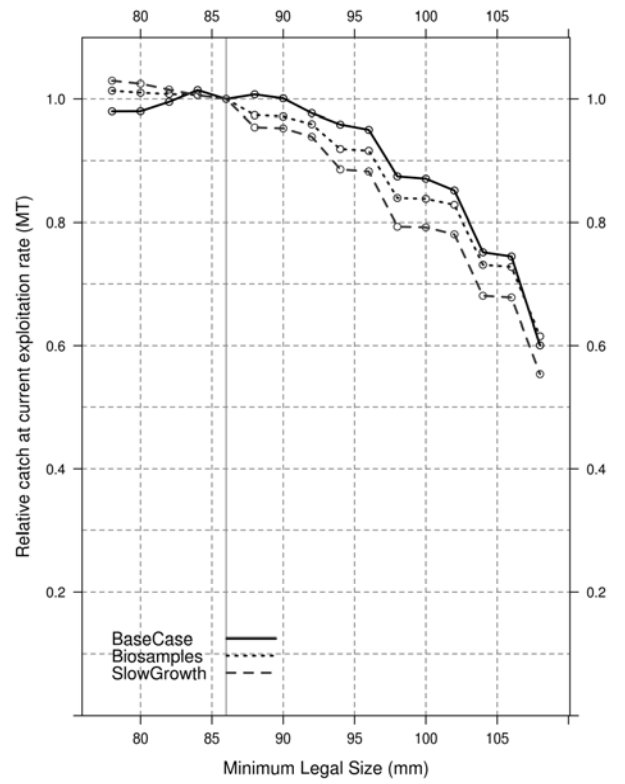


Figure 9. Comparison of changes in total biomass (left) and landings (right) across different growth models assuming a natural mortality of 0.275.



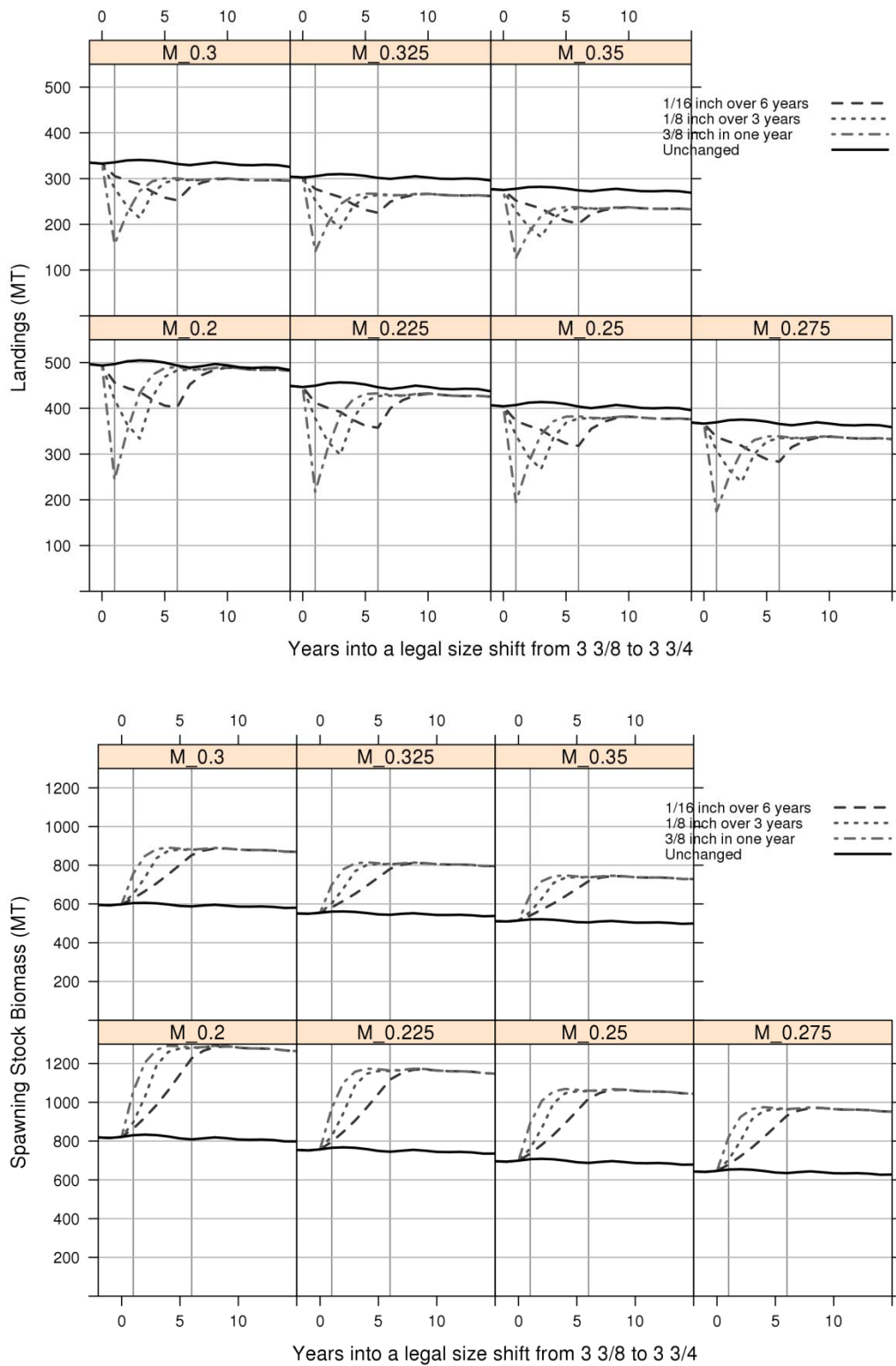


Figure 10. Simulation results illustrating effects of changing minimum legal size on landings and SSB at varying levels of  $M$ . Minimum legal size was shifted from 86 mm to 95 mm under three different implementation schedules. Vertical gray lines denote the first and sixth years after initial implementation.

## 2. SNE Sources of Mortality and Survival Rates

We first calculated the relative importance of natural mortality (M) and fishery extraction (F) on the population SSB (males and females included) using the assessment model output. Loss of SSB from natural mortality was calculated by applying the assumed M to the estimated quarterly length composition to get the numbers of removals by size. We then applied a length-based maturity schedule and length-weight relationship to the removals and summed across lengths and quarters to get annual removal of SSB by weight. For catch effect on SSB, we take the model-predicted quarterly catch-at-size, apply the same maturity schedule and length-weight relationship and sum across size and quarter to get annual removal of SSB. Finally, we calculate surviving SSB using the model-estimated population size and length composition at the end of each year, applying the same maturity schedule and length-weight composition.

Natural mortality has a very consistent impact on SSB within modeled regimes, removing 9% of SSB in the early part of the time series and 17% after the regime shift in the late '90's (Figure 11). Loss of SSB to the fishery varies interannually without trend within modeled regimes (with a slight time lag), accounting for 39% and 35% of SSB in the early and late regimes respectively. The difference in mortality between fishing and natural sources suggests the fishery is currently removing about twice as much SSB from the population annually than natural mortality. This is encouraging as it further suggests that, even at elevated natural mortality rates, management action can still have real effects on spawning stock and egg production.

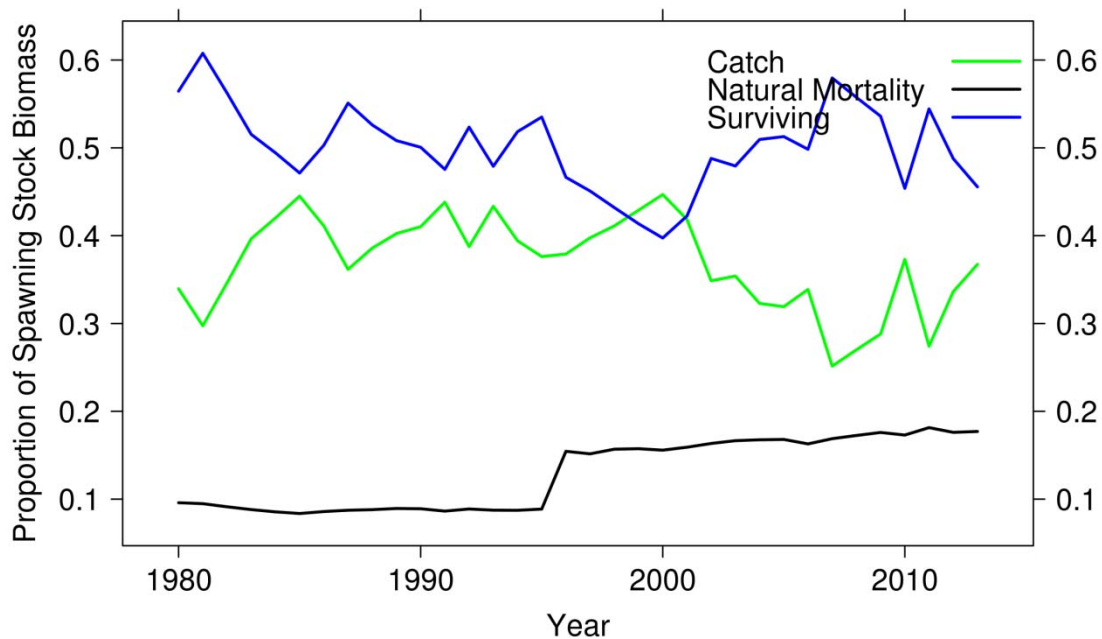


Figure 11. Proportion of SSB surviving or removed by fishing and natural mortality annually.

### 3. Stock-Recruit History

In the January 19<sup>th</sup> memo to the Board (re: *Report on TC Tasks from the Nov. 2015 Board Meeting*), the TC presented the model-estimated trajectories of spawning stock biomass and recruitment from 1995 to 2011. Figure 12 shows this same trajectory over an extended time period, from 1979-2011. Analysis of the relationship between SSB and recruits shows recruitment has plummeted over the past decade while SSB remained fairly constant. This suggests depensatory mechanisms may be at play in the SNE lobster stock, such that recruitment drops to very low levels well before SSB reaches zero. Moreover, the resulting rate of recruitment appears to be decoupled from SSB, potentially as a result of reduced mating success, environmentally-mediated changes in survivorship of early life history stages, and/or increased predation.

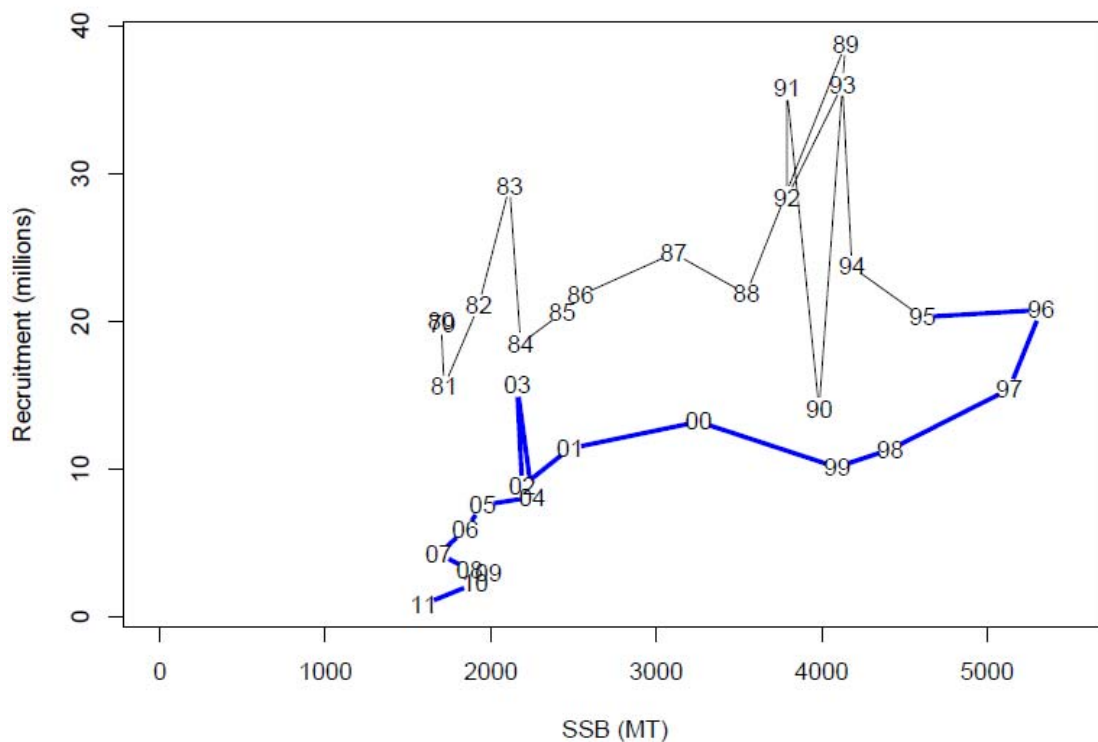


Figure 12: The relationship between model-based spawning stock biomass and recruits from 1979 to 2011. The blue line denotes the trajectory from 1995 – 2011 (recruiting to the model from 1998 to 2014).

### 4. Costs and Benefits of Standardizing Regulations in SNE

The TC was asked to review the costs and benefits of standardizing regulations across Lobster Conservation Management Areas (LCMAs) in SNE. Overall, the TC felt standardizing regulations would benefit the stock and improve the assessment process but would negatively impact the industry. Furthermore, the TC felt standardizing regulations would create clear winners and losers in the fishery, especially in regards to changes in the minimum and maximum gauge size.

The TC identified three primary benefits to standardizing regulations in SNE. These would largely result in benefits to the stock.

- A. Standardizing regulations would decrease the competitive effects of disparate management measures among LCMAs and would minimize the impacts of management related to size selectivity on the population. Moreover, standardizing regulations would ensure lobsters are equally susceptible to fishing pressure regardless of where they are located in SNE.
- B. Standardizing biological measures would simplify the current regulations, leading to enhanced enforcement and compliance.
- C. Standardizing regulations would improve future analysis on the stock condition as scientists would be better able to estimate the effects of the fishery on the lobster population. Currently, the Stock Assessment Subcommittee must estimate the impact of disparate regulations on the stock by pooling landings from statistical areas to estimate the effects in each LCMA. This introduces uncertainty since the boundaries of the LCMAs and statistical areas do not align. Standardized regulations would eliminate this source of uncertainty and the need to weight the effect of different management measures in future stock assessments.

The TC also identified three costs to standardizing regulations in SNE. These largely result in costs to the fishery.

- A. Standardizing biological measures ignores the existing population demographics, including spatial trends in size and sex. This would create inequities between LCMAs, some of which may be long term due to ontogenetic shifts in lobster habitat use (ie: the movement of lobsters offshore from coastal nursery areas as they get bigger).
- B. Standardizing regulations, namely gauge size, would result in portions of the fleet having to make gear modifications, especially to their escape vent size.
- C. As the LCMAs are currently defined, standardizing regulations in SNE would have impacts throughout Area 3, including Gulf of Maine and Georges Bank (GOM/GB). Should the Board consider standardizing regulations, it may be necessary to separate the SNE portion of Area 3 from that in GOM/GB.

There were also two consequences identified by the TC which could result in a mixture of costs and benefits for different sectors of the fishery.

- A. Increases in the minimum gauge size would disproportionately impact inshore fishermen who primarily rely on lobsters which have recently recruited into the fishery. In contrast, a decrease in the maximum gauge size would primarily impact Area 3 fishermen whose catch is comprised of larger lobsters.
- B. Standardizing biological measures would eliminate the need for permit holders with multi-LCMA trap allocations to declare which Area(s) will be fished. Assuming a fisherman is not limited by his or her trap allocation, uniform regulations (including uniform trap caps) would remove the necessity of the most restrictive rule. This would benefit dual permit holders since they would have greater flexibility in where to fish but

it could be a cost to single area permit holders who may experience increased effort moving into their fishing grounds.

## **5. Attainability of Recalculated Reference Points**

As a follow-up to the analysis presented at the February Board meeting, the TC was asked whether the recalculated reference point of 22.5 million lobsters for the SNE stock is attainable given current environmental conditions (see: TC memo to Board dated January 19, 2016; re: *Report on TC Tasks from the Nov. 2015 Board Meeting*). Given none of the projections which use the current natural mortality of  $M=0.285$  show the stock reaching an abundance of 22.5 million lobsters, the TC feels it is very unlikely this reference point will be achieved under present environmental conditions.

## **6. Inshore/Offshore Tagging Studies**

The TC was asked whether a new tagging study would better illuminate connectivity between the inshore and offshore lobster stocks in SNE. Overall, the TC feels previous studies show strong evidence of a migration in which adult lobsters make directed seasonal migrations offshore in the fall and return inshore in the spring (see: TC memo to Board dated January 19, 2016; re: *Report on TC Tasks from the Nov. 2015 Board Meeting*). As a result, the benefit from an additional tagging study may be minimal in increasing our knowledge on stock connectivity. The TC does note a lack of information on growth and size-specific natural mortality in the lobster fishery and believes a tagging study would be useful to address these data gaps. As a result, it may be more fruitful to allocate resources towards a tagging study focused on growth, maturity, molt increments by area, and molt frequency by size. Hurdles to implementing a tagging study include cost and need for significant industry participation. A potential budget for a tagging study is included on page 18 of this report.

A proposal for a tagging study in GOM/GB can be found on page 20 of this report. Following the recommendation of the 2015 American Lobster Benchmark Stock Assessment, the Board combined the GOM and GB stock areas into one biological unit. This boundary revision was based on survey data which showed seasonal fluctuations in the abundance of large female lobster between the GOM and GB. While these data suggest the migration of ovigerous females between the two regions, the specific movement patterns of lobster are poorly understood. The proposal seeks to tag 10,000 lobsters between May 2016 and April 2017 in the nearshore and offshore regions of the GOM/GB stock and is an extension of a tagging study that was conducted in 2015. The goals of the project are to improve knowledge on the movement of lobsters in GOM/GB and to collect growth data using experimental and traditional methods. The project would include participation from New Hampshire Fish & Game, Maine Department of Marine Resources, the Atlantic Offshore Lobstermen's Association, MRAG federal lobster observers, and commercial lobstermen. The total budget for this tagging study is \$107,251.29.

## Draft Budget for a Southern New England Tagging Study

**Goal:**

To document the inshore/offshore movement of lobsters in one comprehensive study under current climatic conditions.

**Overview:**

This tagging study would take place over the course of a year, with leadership and heavy participation by MADMF and AOLA. Inshore tagging would take place in the spring and summer while offshore tagging would occur in the late fall and winter. A total of 9,000 lobsters would be tagged in the following locations:

- Inshore LCMA2 MA: 1500 tags
- Inshore LCMA2 RI: 1500 tags
- Mid-Shelf/Dumping Grounds: 1500 tags
- Hudson Canyon: 1500 tags
- Block Canyon: 1500 tags
- Atlantis Canyon: 1500 tags

**Industry Compensation:**

Participating boats would get \$250/\$1000 (inshore/offshore) to take a biologist onboard. In addition, the fishermen would be paid for every legal lobster that was tagged and released at \$6.00/lb based on the length-weight relationship from the data.

**Budget:**

<b>Salaries</b>	<b>Category</b>	<b>Annual Total</b>
MADMF Fisheries Technician 1 (1 year)	<i>Salary</i>	\$31,200.00
	<i>Fringe</i>	
	<i>Indirect</i>	\$10,077.60
MADMF Fisheries Technician 2 (7 months)	<i>Salary</i>	\$16,800.00
	<i>Fringe</i>	
	<i>Indirect</i>	\$5,426.40
AOLA Staff (salaries for assistance with coordinating project)	<i>Placeholder</i>	\$50,000.00
	<b>Total Salary</b>	\$98,000.00
	<b>Total Fringe</b>	\$0.00
	<b>Total Indirect</b>	\$15,504.00
	<b>Total Salaries</b>	\$113,504.00

<b>Equipment &amp; Supplies</b>		
Tags		\$15,000.00
Laptop, digital cameras		\$2,500.00
Supplies		\$1,500.00
	<i>Total</i>	\$19,000.00
<b>Travel</b>		
Symposia/Conferences		\$2,500.00
Mileage Reimbursements		\$750.00
	<i>Total</i>	\$3,250.00
<b>Contracts</b>		
Legal Lobsters (3500*2lbs*\$6.00)		\$60,000.00
Inshore Tagging Sea Days (30 days @ \$250.00)		\$7,500.00
Offshore Tagging Trips (20 trips @ \$1000 per trip)		\$20,000.00
Tagging Incentives		\$25,000.00
	<i>Total</i>	\$112,500.00
	<b>Total Direct</b>	\$232,750.00
	Total Indirect & Fringe	\$15,504.00
	<b>Grand Total</b>	\$248,254.00

Lobster Migration and Growth:  
Continuation and Expansion of 2015 Tagging Effort on Georges Bank

New Hampshire Fish &  
Game

Maine Department of Marine  
Resources

&

Atlantic Offshore Lobstermen's  
Association

SUMMARY OF PRIOR WORK

In 2015, New Hampshire Fish and Game (NHFG) and the Atlantic Offshore Lobstermen's Association (AOLA) were awarded funds from the Atlantic Coastal Cooperative Statistics Program for a project titled: "Improving American Lobster Biological & Catch/Effort Data for Georges Bank, and Characterizing Seasonal Egger Aggregation in Closed Area II (Statistical Areas 561 & 562)" (NA15NMF4740253). The goal of that project was to document a persistent seasonal aggregation of ovigerous female lobsters in eastern portions of Georges Bank, while gathering fishery dependent biological data in the stock region.

Specific Objectives were to:

1. Deploy NOAA certified observers on randomly selected federal lobster vessels to collect biological, catch, effort and bycatch data in SA 561 and 562 on board multi-day trips.
2. Characterize the catch per unit effort and spatial distribution of ovigerous females in SA 561 and 562 via logbooks given to lobster harvesters.
3. Tag large female lobsters as a cost effective way to understand the distribution and movement of mature female lobsters on Georges Bank.

Project Outcomes:

Industry participation: Logbooks were completed by five vessels, who documented trip data from June through December 2015 during a total of 13,047 trap hauls (368 trawl hauls) in the offshore regions of the Georges Bank/Gulf of Maine stock area (henceforth called GBK/GOM). A total of 48,342 lobsters were counted, of which 19,051 were egg-bearing females. Logbooks were reported from statistical areas 464, 465, 512, 561, 562, 522, and 525 (Figure 1).

Observer trips: MRAG Americas (MRAG) was contracted to sea sample and NOAA Fisheries Northeast Fisheries Science Center (NEFSC) agreed to manage the collected data. Five trips were completed between July and October, for a total deployment of 45.6 seadays. MRAG technicians utilized NOAA Standardized Bycatch Reduction Methodology (SBRM) data



collection protocols ([www.nefsc.noaa.gov/fsb/SBRM/](http://www.nefsc.noaa.gov/fsb/SBRM/)). These data will permanently reside in the NOAA SBRM database, which is readily available to members of the Atlantic States Marine Fisheries Commission's (ASMFC) Lobster Technical Committee. NHF&G, AOLA, and staff from NEFSC are currently analyzing these data in preparation for a final report due in May of 2016.

Tagging: MRAG technicians tagged 2,674 female lobsters (ovigerous, vnotched, and/or larger than the maximum gauge) during five trips between August and October, 2015. Coonamesett Farm Foundation (CFF) researchers tagged 409 lobsters between August 2015 and March 2016, during Georges Bank scallop dredge bycatch surveys. CFF and AOLA have entered into an agreement to continue this effort during the 2016 fishing year using surplus tags.

Tag returns and outreach: To date, 67 tag recapture records have been reported by industry members, MRAG, and NEFSC NEFOP. We expect fishermen will report additional recaptures in 2016 as fishing pressure within the tagging area increases.

Data analysis: Project participants are currently working on data analysis and final reporting. Analyses and data will be available to the ASMFC's Lobster Technical Committee by June 2016.

#### NEED FOR ADDITIONAL FUNDING:

The ASMFC's 2015 peer-reviewed American Lobster Stock Assessment proposed revising stock boundaries to combine Georges Bank (GBK) and Gulf of Maine (GOM). This revision was approved by the Lobster Management Board at their fall 2015 meeting. This recommendation was made by the stock assessment committee based primarily on NOAA trawl data analyses that demonstrated seasonal fluctuations of large animal abundances between GOM and GBK, suggesting migration of animals throughout the region. Additionally, model results performed better when the two areas were run as a single broad stock. This newly defined stock area represents greater than 95% of annual lobster landings, valued at more than \$500 million per year.

While these findings were sufficient to warrant revision of the stock boundaries, the movement patterns between GBK and GOM are poorly understood. There has been only limited research on migration and connectivity between inshore and offshore areas in this region (see literature review in Appendix A). Gaining a better understanding of movement patterns of lobsters in the GBK/GOM stock is particularly germane given the apparent shift in distribution to areas farther away from the coast, and the fact that settlement has been below average in areas of the GOM for the past three to four years. With rapid warming in the region it is imperative that we better understand population dynamics and growth; both questions are at the foundation of the assessment and paramount to making informed management decisions on a fishery with landings in excess of 150 million pounds.

The 2015 Stock Assessment notes the following items as priority research needs:

1. "There is a need for a comprehensive large scale tagging study to examine stock connectivity between the Gulf of Maine and Georges Bank...What is lacking is a tagging study of lobster in the fall/winter on Georges Bank proper, prior to seasonal migration which occur in the spring."
2. "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"

We are seeking \$107,251.29 to tag up to 10,000 additional lobsters during the period of May 2016 to April 2017 in nearshore and offshore regions of the newly identified GBK/GOM stock. An additional year of tagging will not only allow for replication and comparison to 2015 findings, but will also bolster the total number of tags deployed and expand tagging efforts to nearshore Gulf of Maine. Tag returns across both 2015 and 2016 projects will allow for documentation of migration activity in both spring and fall as animals move from winter to summer grounds. Recapture rates with this type of tag are inherently low, especially in offshore areas where fishing pressure is low. Past studies in this area show recapture rates that range from seven to 14 percent (Campbell et al., 1984 and Cooper and Uzmann, 1971). The questions that we hope to answer from this study will require a robust tagging effort as recapture rates are known to be low in this area.

The 2015 tagging effort depended on commercial sampling trips with observers in a target area known for a seasonal aggregation of ovigerous females. Only the ovigerous, v-notched, or oversized female lobsters were tagged and the regions of tagging activity were limited to locations of the commercial fleet on Georges Bank. With the combined GBK/GOM stock, we want to address the questions of where the lobsters are migrating to and from throughout the region. In 2016-2017, we will expand tagging efforts on ovigerous, v-notched, and oversized females to include sublegals of both sexes and oversized males. This will be accomplished through dedicated tagging trips in offshore waters and opportunistic tagging by Maine DMR samplers on day trips in nearshore waters of GOM (outside of three miles). The majority of this effort will be fishery dependent, with the exemption of one study area managed by ME DMR that will be targeted using a fishery independent approach.

To conduct fishery independent tagging, ME DMR will charter an eastern Maine vessel to set gear in an area and at a time of year with low commercial fishing pressure. ME DMR staff will tend this gear via day trips from an eastern Maine port. All hauled lobsters, sublegal and legal, will be tagged and discarded. This effort will allow us to target an area outside of the lobster fishing grounds, providing the released tagged lobsters more time and space to migrate before being recaptured in commercial gear.

In addition to tagging, growth information will be gathered on recaptured lobsters. The American Lobster Stock Assessment utilizes a statistical catch at length model. At the heart of this model is a growth matrix, which is based on a set of probabilities that lobsters of a certain length molt into a larger size bin. Our current knowledge of lobster growth, particularly in the

larger size range (> 90 mm carapace length) is severely limited and could lead to inaccurate estimates. In order to accurately model these populations and to better understand the effects of changing regulations (e.g. minimum and maximum gauge size) it's imperative that we attempt to collect accurate growth data that represents the current environment.

This expanded tagging effort provides the opportunity to collect valuable growth information. In nearshore waters it is unrealistic to distribute calipers and logsheets to the entire fleet. Instead, we will request that fishermen take a picture of recaptured tagged lobsters and use image analysis software, such as ImagePro, to estimate carapace length (CL) (Harbiz, 2007 and Rycroft et. al, 2013). Offshore, where the fleet is smaller, fishermen will be given calipers and asked to both measure and photograph recaptured lobsters. Use of both modalities offshore will allow us to compare the image analysis method to direct measurements and estimate measurement error. It is possible that measurement error will be high, therefore a high sample size of recapture measurements is required in order to collect accurate growth information. This is further justification for the large number of tags requested in this proposal.

Finally, we plan to replicate the industry data collection effort conducted in 2015. We feel it is important to gather a second year of data on the spatial distribution and abundance of ovigerous females in and around statistical areas 561 and 562 to compare to 2015 findings and start to evaluate the spatial and temporal persistence of aggregating ovigerous lobsters.

#### SPECIFIC OBJECTIVES:

1. Tag 10,000 lobsters in the GBK/GOM broad stock during the period of May – November 2016. Tagging will be conducted by ME DMR and MRAG technicians deployed on federally permitted lobster vessels.
2. Involve the lobster industry in collecting growth data via imaging technology and direct measurements.
3. Replicate industry's 2015 ovigerous lobster data collection effort via logbooks given to lobster harvesters in offshore regions of eastern GOM and GBK.

#### METHODS:

MRAG Tasks: As was the case for the 2015 field work, MRAG will be sub-contracted to provide fully insured and previously trained technicians to tag lobsters on three multi-day offshore lobster trips into GBK and GOM (30 seadays). MRAG Americas is currently the only company certified by NOAA fisheries to conduct sea sampling on federal lobster vessels. They employ four experienced sea samplers who will participate in this project; these are the same individuals that collected biological data and conducted tagging during our previous project. NHF&G will provide MRAG staff with another round of tagging training before tagging trips.

Technicians will be tasked solely with tagging lobsters and collecting associated biological information, with the goal of applying 6,000 tags. The expectation is that technicians will tag 300-350 lobsters per active fishing day (~7 days during a 10 day fishing trip). In 2015, while collecting a full suite of operational and biological data according to the NOAA SBRM protocol,

technicians were able to tag an average of 100 lobsters per day (min = 21, max = 290). The previous tagging was limited to female broodstock, while 2016 tagging will cover all cohorts of discarded catch, including sublegals and oversized males and females.

ME DMR Tasks: ME DMR will deploy technicians to conduct tagging on federally permitted Maine lobster vessels fishing outside of three miles. This effort will be a combination of fishery dependent tagging during sampling trips and fishery independent tagging. The ME DMR staff will complete at least 10 sampling day trips tagging lobsters on federally permitted vessels outside the 3 mile line with a preference for trips furthest from shore. ME DMR will aim to apply 1,000-2,000 tags; only discards will be tagged, as described above.

The fishery independent tagging project will contract one Maine vessel to set up to 200-300 traps in an offshore region of eastern Maine in June 2016 for 4 weeks. The target area will be selected for low seasonal commercial fishing effort, proximity to the port (so day trips can be conducted), and likelihood of catching lobsters of all sizes. The area of interest is located in a nearshore area off of eastern Maine at depths ranging from 95 – 140 fm. The study area will not conflict with whale migration at this time of year (Erin Summers, ME DMR, Personal communications April 1, 2016). The gear will be configured in trawls of at least 20 traps and each trawl will have two end lines. All gear will comply with whale safe regulations. The traps will be hauled 4-6 times on day trips and all lobsters caught will be tagged and discarded. The goal will be to tag 2,000-3,000 lobsters.

Tagging Procedure: Conspicuously colored t-bar tags will be inserted at the dorsal intersection of the abdomen and tail. These tags are capable of remaining intact after a molt, providing growth information as well as movement data. Printed on each tag will be a unique sequential identification number, a phone number, and "AOLA". For each animal tagged the following data will be collected: date, location, lobster size (CL), sex, egg presence, egg maturity, and v-notch presence. Tagging data will be reported to AOLA for storage.

Growth: To collect growth data, we will use both experimental and traditional methods. We will test the utility of measuring tagged lobster size using image analysis by calibrating CL to a standardized lobster gauge included in photos of recaptured lobsters. We will depend on pictures to estimate CL for recaptures in the nearshore regions. In the offshore areas, volunteers will be outfitted with calipers and asked to both measure and photograph tagged lobsters. Use of both modalities offshore will allow us to estimate measurement error for the image analysis method.

Reward raffles will be used to incentivize industry to report recapture and growth measurements. Each time a fishermen reports a recapture their name will be included in one of two raffles with prizes given out at the end of the project. Recapture reports including growth information will be entered into a higher value raffle than recapture reports alone.

Approximately 16 vessels already have calipers as part of ongoing projects by other parties (primarily in SNE). Recently, MA DMF and AOLA were awarded funds for a 2016 Jonah crab

tagging project which also includes a growth component with industry participation. That project will distribute an additional 22 calipers, although they may be modified for measuring crabs. Given that AOLA is involved in both projects and overlap between the lobster and crab industries, we will leverage the crab project to the extent possible to increase lobster growth reports.

Outreach: To encourage tag returns, AOLA will conduct outreach to all area fishing associations, governmental bodies, and academic researchers via emails, social media sites, Association publications and regional fishing publications, such as Commercial Fisheries News. These efforts will be in conjunction with outreach efforts for the above mentioned Jonah crab tagging project planned for 2016- 2017. The lobster/crab industry has expressed support of these projects and is expected to be active in consistently reporting tag returns, which is vital to the success of a tagging program. Fishermen will be asked to discard animals with tags intact. AOLA will maintain a hotline for tag recapture reports.

COLLABORATIVE APPROACH: NHF&G will provide general Project Supervision and will be the lead on communications with the ASMFC. ME DMR will organize nearshore tagging efforts. AOLA will coordinate offshore tagging and will serve as Project Coordinator, in charge of maintaining the tagging database and recapture hotline.

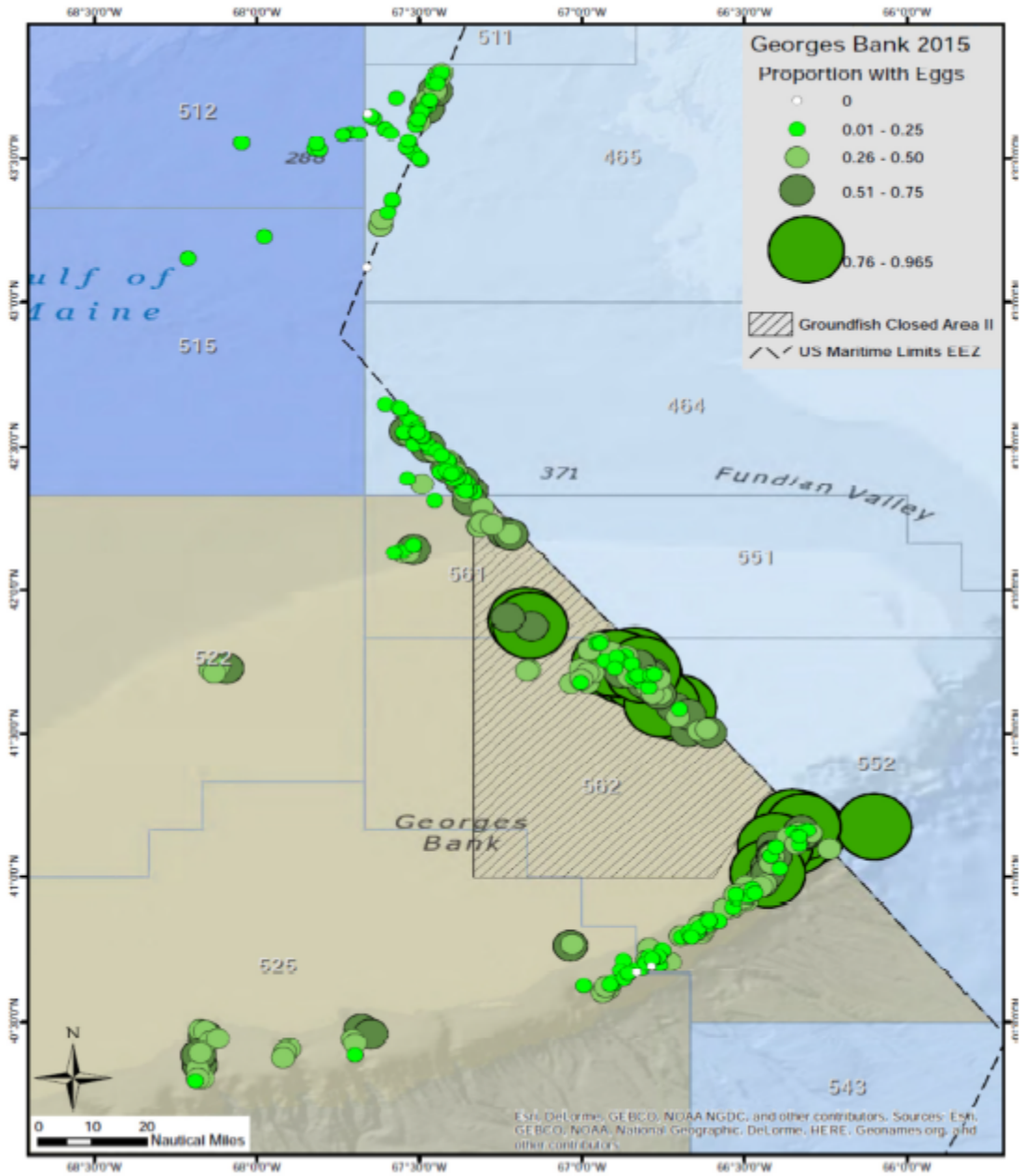
PERIOD OF PERFORMANCE: Tentatively, May 1, 2016 – April 31, 2017 or one year from when the project funds become available.

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**BUDGET:** \$107,251.29

	Amount	Rate	Total	In Kind
<b>PERSONNEL</b>				
Supervisor, NHF&G	117	\$53.67	\$6,279.39	
Supervisor, AOLA	30	50		\$1,500.00
Coordinator, AOLA	450	\$30.00	\$12,750.00	
<b>CONTRACTUAL – sea day rates</b>				
MRAG Americas	30	\$725.00	\$21,750.00	
ME chartered Vessel	8	\$6,250.00	\$50,000.00	
<b>SUPPLIES</b>				
Anchor T-Bar Tags	10,000	\$0.64	\$6,400.00	
Tagging Guns and needles	3	\$100.00	\$300.00	
Carrera Digital Calipers – 8”	15	\$30.00	\$450.00	
Shipping Handling			\$100.00	
<b>INDUSTRY</b>				
Raffle rewards			\$8,000.00	
<b>TRAVEL</b>				
Hotel	6	\$70.00	\$420.00	
Per Diem	6	\$74.00	\$444.00	
Mileage	258	\$0.44	\$113.52	
ME Indirect			\$244.38	
<b>TOTAL</b>			<b>\$107,251.29</b>	<b>\$1,500.00</b>



**Figure 1.** Proportion of total catch that were egg bearing lobsters reported from industry logbooks in Statistical Areas 464, 465, 512, 561, 562, 522, and 525 in 2015.

Appendix A – Literature Review - originally included in ASSCP grant proposal for 2015 funded research

Closed Area II hosts a seasonal lobster fishing fleet of approximately 20-25 large fixed gear vessels (generally 70+ feet in length), fishing 20,000 to 30,000 traps annually and worth over \$4 million. The CA II fleet represents close to one third of the active Lobster Conservation Management Area 3 (LCMA 3) vessels, with approximately one half of the fleet home ported in New Hampshire, the balance split between Massachusetts and Rhode Island. This fleet has been active on Georges Bank for over 30 years. During the last 20 years, there has been very limited mobile gear fishing in large portions of CA II. Lobster harvesters have made substantial investments during this period in vessels, gear, and permits to access the area.

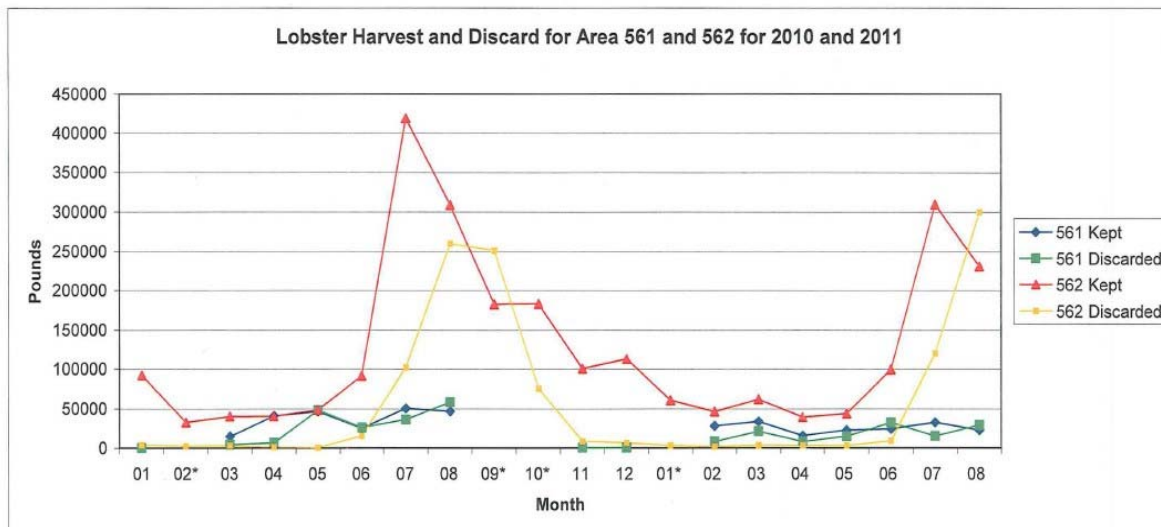
The lobster fleet has historically fished in the study area from June through October, which coincides with the period when the lobster migrate to the shoal waters of Georges Bank. As noted in the NEFMC's Draft Habitat Omnibus Amendment II environmental impact statement (HOA2 DEIS), ovigerous females are present in this area in high numbers, as high as 80% of the haul, July-December of each year (HOA2 DEIS, Volume 3, page 622). These data are supported by the Vessel Trip Reports, with high discard rates reported by offshore lobster vessels in CA II July through September (Figure 1). Most of these females are large (3-8 lbs.), have large egg masses, and would be expected to release their eggs in late fall. These are some of the most fecund individuals in the lobster population, possessing large eggs, which should generally improve larval survival (Attard and Hudon, 1987). Work done by Smith and Howell (1987) showed that monthly incidence of major damage or immediate mortality on lobster from the trawl fishery varied seasonally with values as high as 14% were observed.

In addition to the lack of knowledge regarding the spatial distribution of egg bearing females in offshore waters, there's also a lack of biological sampling in this area for American lobster. The current level of biological sampling in offshore waters is inadequate and the lobster SAS is forced to characterize landings from a very large area on a limited number of samples. This is specifically worrying in the Georges Bank stock area, given its high proportion of offshore waters/offshore fishing compared to the other stock areas. Furthermore, the ACCSP Biological Review Panel ranked lobster in the upper 25 percentile based on sampling priority and sampling adequacy. Increased biological sampling for lobster received the highest priority ranking (5 out of 5) from ASFMC, and a high ranking (3 out of 5) from NOAA NMFS, with current sampling levels marked as inadequate. These data will be used in future stock assessments and all the biological data will be uploaded into the ACCSP data warehouse.

If a resource of this geographical size and magnitude is to be managed as a sustainable fishery, then it is imperative that regional populations are closely monitored and that we gain a better understanding of the distribution of egg bearing females. Protection of egg bearing females is at the foundation of the lobster management pyramid (ASMFC, 2006; ASMFC, 2009), and it's critical to provide protection to areas with known aggregations of these animals. Data collected under this proposal will provide important biological and catch per unit effort (CPUE) data for an offshore fishery that's currently under sampled. Furthermore, the proposed work will



provide a better picture of the spatial distribution of egg bearing females within SA 561 and 562. The proposed work will provide managers with baseline data to properly assess the impacts of opening CA II to mobile gear, as well as providing much needed data to the stock assessment in an area that is currently deficient.



\*Removed to protect confidentiality.

Figure 1. Kept and discarded lobster from federal vessel trip reports for Statistical Areas 561 and 562, January 2010 - August 2011. Figure from NH FG’s letter to NEFMC dated January 26, 2012.

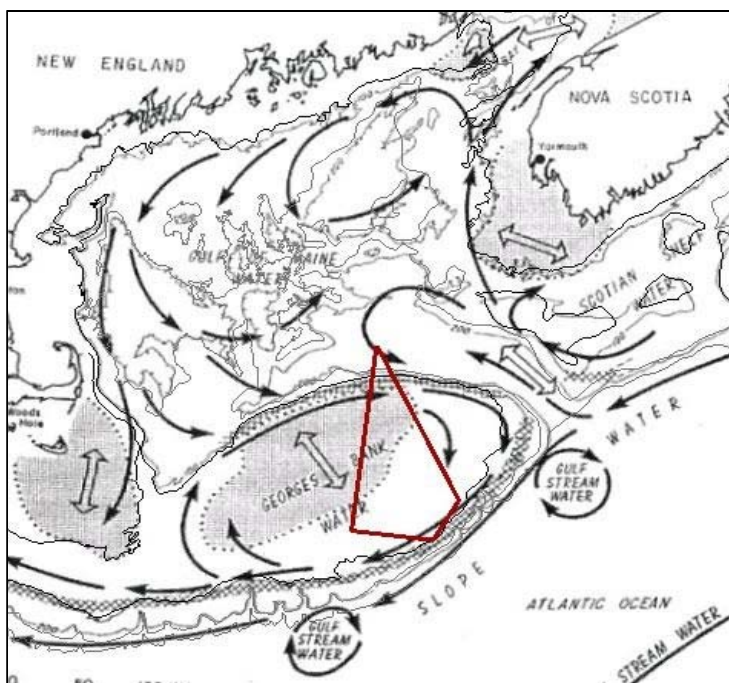


Figure 2. Map taken from NEFMC HOA2 draft environmental impact statement, with Closed Area II superimposed.

Connectivity: The density and persistence of ovigerous females in this area occurs annually, suggesting importance of this area to egg brooding and/or egg release. Given the location of this area and the circular currents that persist in the Gulf of Maine, lobster in this area could be supplying larvae to Georges Bank, as well as inshore fisheries in the Gulf of Maine and/or Southern New England (Figure 2). In view of the declining settlement rates in inshore areas (Wahle et. al, 2013; Figure 3), it is extremely important to characterize location, size composition, and catch rates of egg bearing lobster in the CA II, which will prompt a greater understanding of their potential recruitment contribution to inshore fisheries.

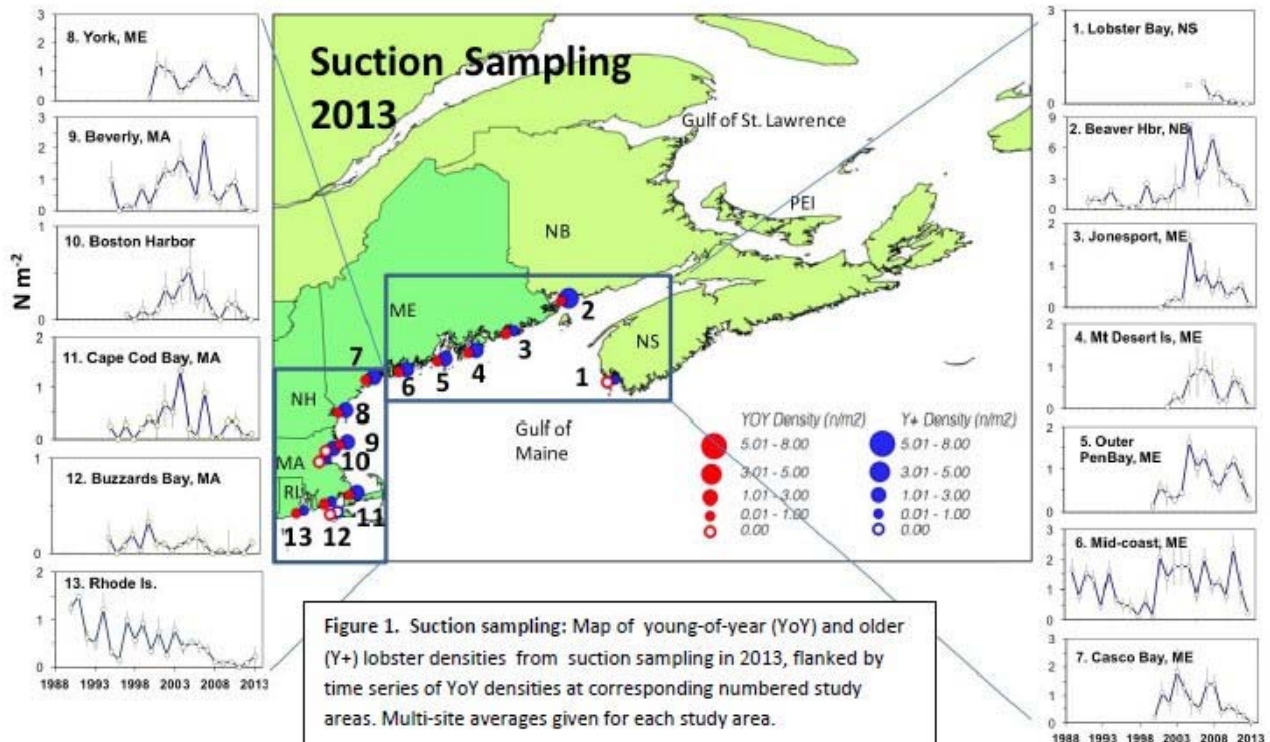


Figure 3. Atlantic Lobster Sustainability Index (ALSI) data, originally published in the 2013 ALSI Annual Report, courtesy of Rick Wahle.

While the scientific community has yet to definitively conclude the interconnectivity of inshore and offshore lobster populations, the body of literature does support the hypothesis that migration and larval transport connect regional lobster populations. We note the following papers and conclusions, as example. Cowan and Watson (2007) show that ovigerous lobster, particularly large females, move offshore to optimize temperature degree days and reduce temperature variability when brooding eggs. Tagging studies show that inshore ovigerous lobster migrate to deeper water in the winter (Campbell, 1986) and offshore lobster migrate inshore in the summer (Cooper and Uzmann 1971). Watson (unpublished, 2007) in collaboration with AOLA did related tagging work showing that ovigerous lobster reside in deep water in the winter and move to shallower water in the summer. He found that offshore eggers move more than inshore and that larger lobster (>90mm CL) moved much farther than

smaller ones. Data collected by AOLA members since 2001, show that most of the female egg bearing lobster within CA II are greater than 90 mm carapace length (CL). Watson (unpublished, 2009) also found evidence for brooding-site fidelity, although this work was not done on Georges Bank. He also tracked lobster movement from inshore New Hampshire to offshore Gulf of Maine.

In regard to larval transport, a number of studies potentially link the inshore and offshore lobster stocks. Work by Canadians in the 1980s and 1990s document larval lobster in the waters above Georges and Browns Bank in the summer and suggest that ovigerous females release larvae from shoal areas (Harding, et. Al, 2003 review). From drifter work they inferred that larvae released offshore would be transported inshore (as described by Hare, 2005). Harding and colleagues (1983) found that oceanographic data (wind, tidal forces, seasonal surface circulations and occasional plumes escaping the northern edge of Georges Bank) and the ability of later stage larvae to conduct directional swimming support a high level of offshore to inshore connectivity and suggest that the Gulf of Maine, inclusive of Georges Bank, could be considered a single lobster recruitment system with larvae expected to move counterclockwise. Lawrence and Trites (1983) modeling surface oil from Georges/Brown Bank region in the summer found frequent impacts on coastlines of southwestern Nova Scotia and Bay of Fundy.

Incze, Xie and colleagues have published a series of papers related to modeling larval dispersal and population connectivity in the Gulf of Maine (Incze and Naime, 2000; Incze, et al., 2006, Xue et al., 2008; Incze, et. al, 2010). Their work suggests that recruitment can be a very local event, but there is potential for long distance dispersal, especially when females hatch eggs farther from shore. Modeling work by Fogarty (1998) of the NOAA Fisheries Northeast Fisheries Science Center found that even relatively low levels of larval transport from offshore to inshore could explain resilience of the inshore population despite high levels of fishing mortality. Hare (2005) of the NOAA's National Ocean Service, advocates for the "precautionary approach", noting that offshore larval supply need be considered when managing inshore lobster fisheries.

South of Cape Cod, Katz et al. (1994) sampled larvae along an offshore-inshore transect (Hydrographers Canyon to Rhode Island waters) and found a gradient of stages with a greater proportion of earlier stage lobster larvae offshore and later stage lobster larvae inshore, suggesting hatching offshore and transport inshore. Further, Crivello et al. (2005) used genetic methods to link Long Island Sound larval lobster to female lobster from Hudson Canyon, suggesting that up to 45% of the larvae in Long Island Sound came from Hudson Canyon females. There is also morphometric evidence from throughout the region supporting mixing of inshore and offshore stocks (Harding et al., 1993; Cadrin, 1995). Documenting aggregations of egg bearing females is a critical step in understanding the eventual location of settlement.

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# **Southern New England Lobster Analyses**

**RI Department of Environmental Management – Marine Fisheries**

**Conor McManus, Principle Marine Biologist  
Scott Olszewski, Supervising Marine Biologist  
Mark Gibson, Deputy Chief Marine Fisheries  
Jason McNamee, Chief Marine Resource Management**

**April 25, 2016**

## **Introduction**

Based on the last stock assessment, it is apparent that reduction measures will be needed for the Southern New England (SNE) lobster stock area. The following analysis is meant to define some potential tools and methodologies that can be used to quantify harvest reductions based on various measures such as the existing effort control plan as well as potential changes to minimum and maximum gauge sizes. In addition to the harvest reduction methodologies, Rhode Island Department of Environmental Management (RIDEM) has conducted analyses looking at potential spawner-recruit analyses. These analyses can be used as an alternate view on population dynamics, and could conceivably be used in alternate projections of population responses to management efforts. The RIDEM report is broken into 3 main categories: Effort control measures quantified through the relationship between traps fished and realized exploitation rate, gauge size change analyses proposed as technical management measures to reduce exploitation and preserve remaining SSB (with a link towards increasing egg production), and alternate stock recruitment relationships.

## **Effort Control Analysis**

The use of lobster trap reductions are the centerpiece of the existing Area 2 effort control plan. To this point the potential effect of this plan has not been quantified as to its relationship to exploitation rates in the lobster fishery. Based on information available on number of traps fished through time versus estimated exploitation rate through time in SNE, a model was built to define this relationship (exploitation vs effort). The model can then be used to predict exploitation rates across different trap reduction scenarios.

The model created is a curve that was fit using a non-linear Michaelis-Menten (MM) function. The model in our context is defined as:

$$Expl = \frac{a * Traps_i}{b + Traps_i}$$

Where Expl = exploitation rate, a = asymptotic maximum exploitation rate, b = half maximum rate, and Traps<sub>i</sub> = traps fished in year i.

This is an attractive model to use for this exercise because the model is parsimonious and its parameters are meaningful by way of the information needed to use the model as a tool for management. The MM curve was fit under two procedures to test the robustness of the parameter estimates. It was fit with both maximum likelihood estimation and Bayesian techniques using R statistical software (R Core Team 2016).

The data used for the analysis was taken directly from the benchmark stock assessment document (ASMFC 2015). The data on traps fished by year can be found in Table 3.2.3.2 of the assessment document. A total of 33 years were used in the analysis. In some of these years, there is no RI data available, so a regression analysis was used to determine the additional traps that would be contributed by RI relative to the other states, and the total traps fished represented in the table was increased by this amount in years with missing RI data. The exploitation rate by year data was taken from Table 6.3.4.1 from the assessment document. For the Bayesian portion of the analysis, the prior information used can be found in Table 1. The Bayesian analysis was also run in R, but also used BUGS software (through the r2openbugs package) for the gibbs sampling. For the Bayesian procedure, two chains were run, one starting from low initial parameter values and one starting high, the gibbs sampler was run for 50,000

iterations with a 5,000 iteration burn in, and also used a thinning interval of 5 to correct for autocorrelation.

The model was fit and successfully converged on a solution for both versions tested. Parameter estimates can be found in Table 2 and model diagnostics can be found in Figures 1 and 2 for both procedures. The results of both models can be found in Figures 3 and 4.

The model results indicate that there is a reasonable relationship between traps fished and the resultant exploitation. We also see that the current number of traps fished is entering the area of accelerated exploitation rate reduction, so additional trap reductions based on the effort control plan will begin to decrease the exploitation rate being experienced by this stock, according to this model. Table 2b shows some examples of model predicted results in exploitation levels versus trap levels.

There are important comments and caveats associated with this exercise. Some questions were raised about the “traps fished” data and its usefulness for this analysis. Alternate trap metrics may be found that might better represent the intent of this analysis. This can be extended if further exploration of this analysis is desired, but there is still some value contained in the existing analysis. If the assumption that not all traps are fished equally by fishermen remains distributed across the fishery in the same way as it has been historically, this analysis can still be a useful predictor of exploitation for a given trap level. Another important assumption for the predictive portion of the analysis is that trap fishing behavior doesn’t change through time but remains constant moving forward. There are some external drivers behind these assumptions like the economics of the fishery that may validate these assumptions, but factors like these are very difficult to test given the data collected from the fishery.

Another important way to think about this analysis is that it does not need to be taken as the sole tool to achieve all of the needed reductions in the fishery. Reduction calculations from trap reductions can be used in combination with other measures to achieve needed harvest reductions, thereby spreading the mechanisms to achieve goals in the fishery across multiple techniques.

Table 1 – Prior information used for the Bayesian version of the Michaelis-Menten model. Note: Distribution arguments per BUGS software specification, not R software specification.

Parameter	Prior
A	Normal (0.44, 0.01)
B	Normal (97, 0.01)
tau*	Gamma (0.001, 0.001)

\* error parameter for the exploitation information. Normal distribution arguments are mean and precision and the gamma distribution arguments are shape and rate.



Table 2 – Mean parameter estimates for the maximum likelihood (MLE) and Bayesian estimation procedures.

Parameter	MLE	Bayesian
a	0.4404	0.4402
b	97.41	97.27

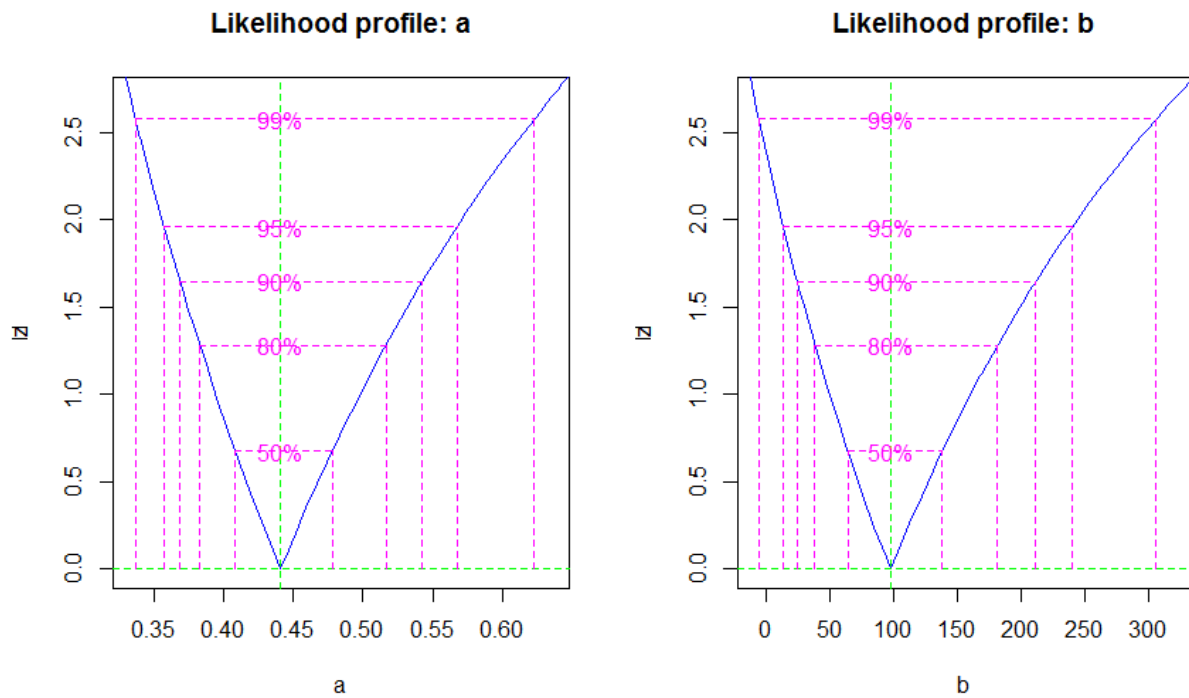


Figure 1 – Model diagnostics by parameter for the MLE MM model showing good convergence on a solution.

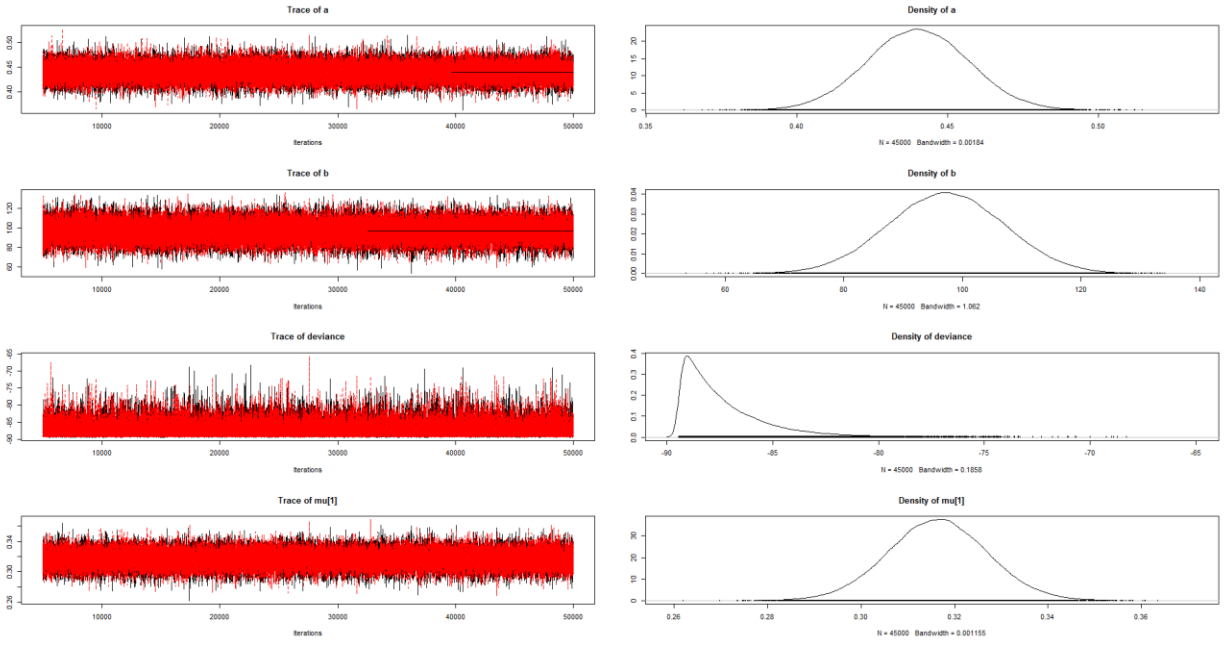


Figure 2a – Sample of model diagnostics by estimated parameter for the Bayesian MM model showing good convergence on a solution. The above are trace and density plots for each estimated parameter. Full diagnostics can be produced upon request, shortened for report purposes. Note:  $\mu[1]$  = first estimated exploitation rate.

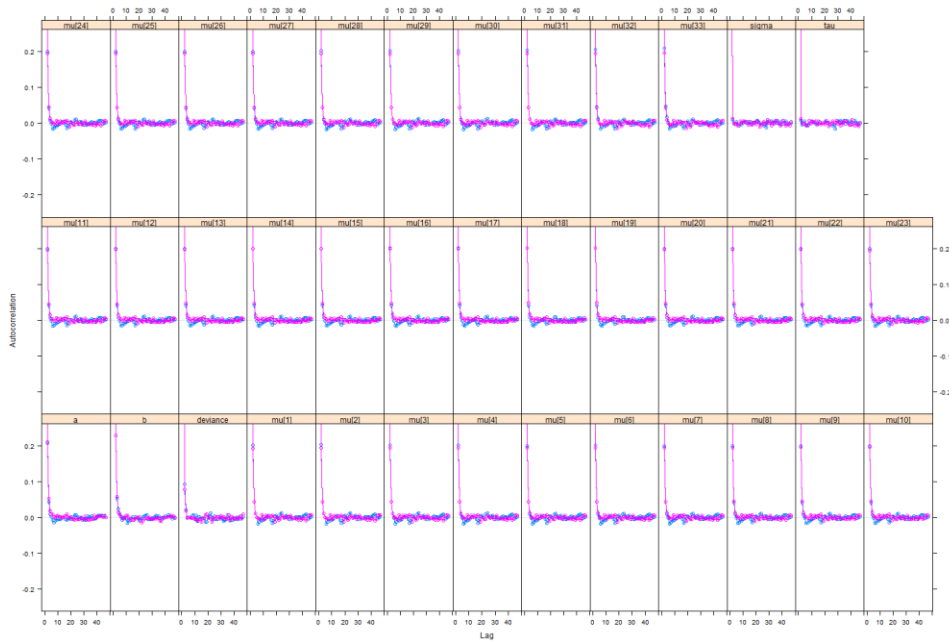


Figure 2b – Sample of model diagnostics by estimated parameter for the Bayesian MM model showing lack of autocorrelation in samples.

**SNE Exploitation Rate vs. Traps - Michaelis-Menten Relationship**

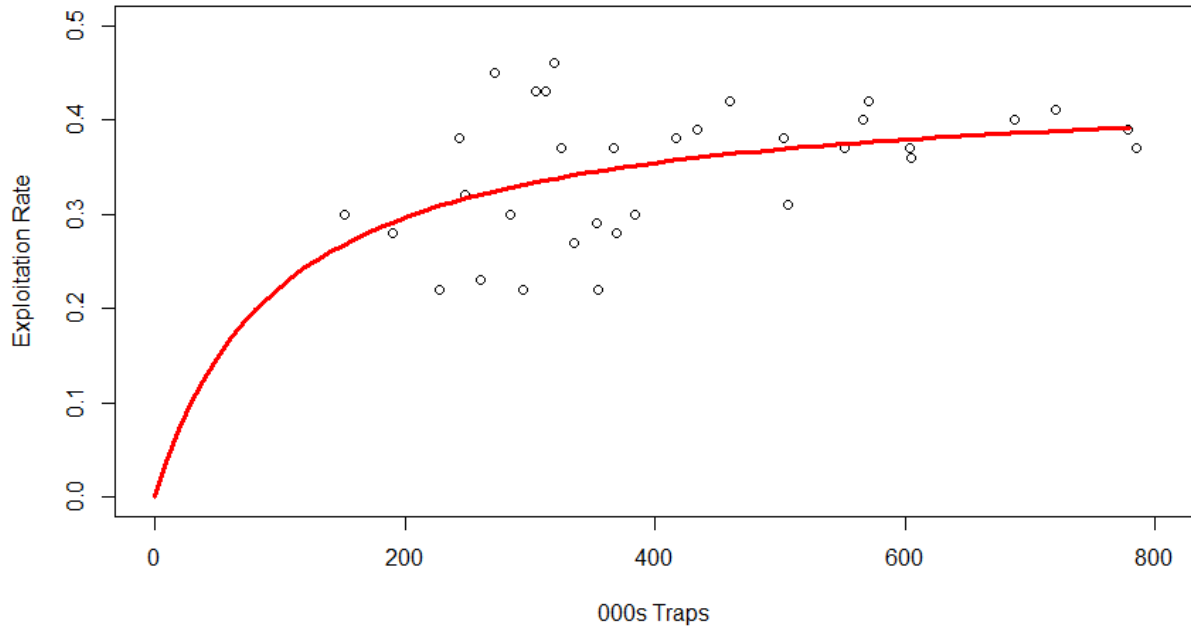


Figure 3 – Model estimated (red line) versus observed values (open circles) for the MLE procedure.

**SNE Exploitation Rate vs. Traps - Bayesian Michaelis-Menten Relationship**

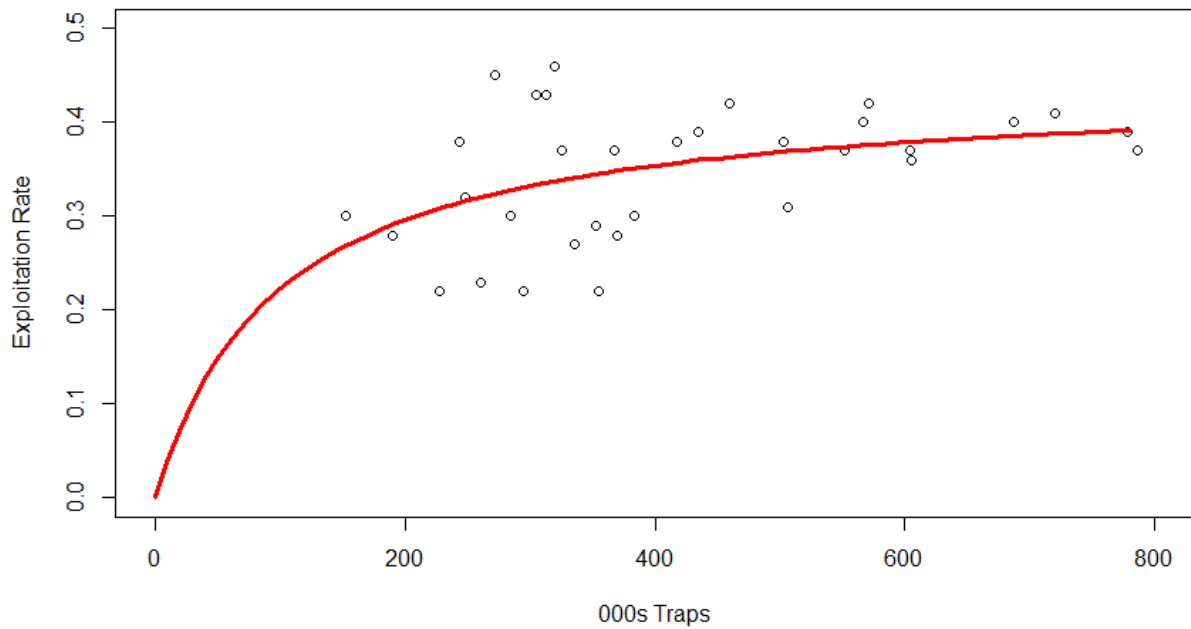


Figure 4 – Model estimated (red line) versus observed values (open circles) for the Bayesian procedure.

### **Gauge Size Change Analysis**

In addition to the existing effort control plan, the analysis was also extended to look at instituting gauge size changes on the fishery. This was accomplished by using available biosample data from sea and port sampling from SNE from the years of 2010 – 2012. The data set used was a combined set of state, federal, and Atlantic Offshore Lobsterman’s Association biosample data. This biosample data was stratified into inshore and offshore areas by stat areas (inshore areas = 538, 539, 611, 612, 614; offshore areas = 533, 537, 613, 615, 616, 621, 622, 623, 626, 632). This stratification was done to recognize that these two strata have been under significantly different gauge sizes for a number of years and therefore most likely have differing population size characteristics.

From the biosample data a set of length frequency distributions were generated. These distributions were assumed to represent the population of lobsters that are in the inshore and offshore areas, and that the proportions at length were the same as that existing in the overall population in these areas. Using this data under these assumptions, options for gauge size changes were examined. In other words, if a new gauge size were applied to the population in the inshore and offshore areas, it is assumed that this could be simulated by removing the length frequency distribution below this new minimum size, and the difference between the existing distribution and the new distribution would represent lobsters that were now protected from harvest. An important consideration for this analysis is that it represents a snapshot of a reduction in a single year and does not recognize the dynamics in subsequent years such as protected lobsters growing in to the new minimum gauge size or the compounding of lobsters above a new maximum gauge size. As a result, estimated decreases in catch from an increase in the minimum legal size represent an upper bound on actual landings decreases.

The first set of analyses examined minimum gauge size increases inshore and offshore. The existing minimum gauge sizes were examined and only data greater than the existing minimum gauge size was used in the analysis (inshore > 85.6 mm carapace length; offshore > 88.9 mm carapace length). The results of two 1/32 inch gauge increases from the current minimum gauge size in each area is shown in Table 3. For the inshore area there are significant harvest reductions achieved from these minimum gauge increases. Significant reductions are also achieved for the offshore areas, however the magnitude of the reductions in harvest are lower relative to the inshore areas.

The next set of analyses examined maximum gauge sizes inshore and offshore. As above, the existing minimum gauge sizes were examined and only data greater than the existing minimum gauge size was used in the analysis (inshore > 85.6 mm carapace length; offshore > 88.9 mm carapace length). The distributions in these two areas were examined to determine the maximum size at which lobsters are observed in the biosample data, and different maximum gauge sizes beginning at these observed maximum sizes were examined. The results of four maximum gauge decreases in each area are shown in Table 4. For the inshore area there are harvest reductions achieved from these maximum gauge sizes as you approach 110 mm. Reductions in harvest are also achieved for the offshore areas, and the magnitude of the reductions in harvest are higher relative to the inshore areas at higher maximum gauge sizes.

Regarding the analysis above, minimum size changes can be temporary in nature as the lobsters will eventually grow into the new minimum gauge size range and therefore become susceptible to harvest again, and they also can migrate into areas with differing gauge sizes and so can become susceptible to harvest even within a single season. Despite these temporary aspects, they can produce protections for sub legal lobsters. If these approaches are needed, they should be done cautiously and in a phased approach. Maximum size changes could have lasting protections if set in a meaningful way. If the gauge is set to protect a significant part of the population this portion of the population remains protected and can compound through time as new lobsters grow in to this protected size range. Including these types of protection measures with the existing trap reductions scheduled could have a meaningful impact on harvest reductions and could set the stage for improving the lobster population if favorable recruitment conditions occur. One important note for this analysis is that it was using available biosample data that is dated at this point. The analysis should be updated with more contemporary data before quantifying reductions. Additionally, accounting for the dynamics over time is also an important extension of this analysis to show the short term and long term ramifications of instituting one or more of these gauge size change measures.

As an extension of the gauge size methods, the population that becomes protected can be quantified and scaled up to the full population size based on the stock assessment information (ASMFC 2015). Once the population is scaled up, the number of these lobsters that are female can be determined, and using a length egg relationship (i.e. Estrella and Cadrin 1995), the additional number of eggs that can be produced due to these protections can be calculated. The underlying assumption with this type of analysis would be to maximize the number of eggs produced so that when recruitment conditions were favorable, a large recruitment event could occur which could lead to the rebuilding of the population. Without favorable recruitment conditions however, rebuilding could be stalled or delayed.

A cursory example was produced for the TC illustrating this analysis. The TC identified numerous areas where this analysis could be improved. These were items such as adding in the maturity schedule in to the analysis, accounting for the fact that larger females do not produce eggs in each year, and to better account for the population dynamics of this strategy over time. These perfections to the original analysis will be produced for a subsequent document, and could be distributed to the TC at a later date for review.

Table 3 – Minimum gauge size reductions in harvest calculations for inshore and offshore areas. Note: current gauge sizes in inshore areas is 85.6 mm carapace length, and in offshore areas is 88.9 mm carapace length.

<b>Area</b>	<b>Increase from current gauge by 0.8 mm (1/32")</b>	<b>Increase from current gauge by 1.6 mm (1/16")</b>
Inshore	13% decrease in harvest	25% decrease in harvest
Offshore	8% decrease in harvest	15% decrease in harvest

Table 4 – Maximum gauge size reductions in harvest for inshore and offshore areas. Note: current min gauge sizes in inshore areas is 85.6 mm carapace length, and in offshore areas is 88.9 mm carapace length. Current maximum gauge sizes are 133.4 mm inshore and 171.5 mm offshore.

Maximum gauge size	Inshore	Offshore
110 mm	1%	7%
125 mm	0.1%	2%
130 mm	0%	1%
140 mm	0%	0.5%

### **Recruitment Analyses**

In recent years, southern New England (SNE) American lobster recruitment has begun to decouple from spawning stock biomass estimates, indicating that external factors are contributing to the decline in recruit abundances. For further details regarding the decoupling, please refer to the January 19, 2016 American Lobster Technical Committee (TC) memorandum. To investigate potential influences on the stock-recruitment relationship for SNE, the TC has incorporated a number of environmental variables into the traditional stock recruitment functions. Given the influence of spatial scale on lobster stock-recruitment relationships (Chang et al. 2015), analyses were performed on both a fine scale using Rhode Island data, and over the larger SNE region with information from the 2015 ASMFC Peer Reviewed Stock Assessment (ASMFC 2015).

#### **A. Fine Scale Analysis**

The fine scale analysis examined the relationship between mature (males and females  $\geq 73\text{mm}$ ) lobster abundance, representing spawning stock biomass (SSB) and settler (young of the year) information, used to represent recruitment. SSB data was used from the Rhode Island Department of Environmental Management (RI DEM) Fish and Wildlife Spring Trawl survey. Settler density information was obtained from the American Lobster Settlement Index (ALSI) sampling program. A log-transformed Ricker model was used to describe the relationship between SSB and settlers, with parameters estimated using linear least squares. The model was tested with both the original function and including the North Atlantic Oscillation (NAO) Index. The NAO represents the pressure difference between the Icelandic Low and the Azores High pressure systems. The NAO has been found to correlate with changes in the oceanographic environment and marine species prevalence in the North Atlantic (Drinkwater et al. 2003), and specifically lobster recruitment (Ehrhardt and Fitchett, 2010). We incorporated the NAO to test the hypothesis of the prevailing phase of the NAO influencing the strength of the westerly winds of the northeast U.S. continental shelf (Oviatt et al. 2015), and ultimately impacting larval transport and survival to the settler

stage (Katz et al. 1994). The original and environmentally explicit Ricker functions, respectively, were:

$$\ln\left(\frac{R_t}{S_t}\right) = \ln(\alpha) - \beta S_t$$

$$\ln\left(\frac{R_t}{S_t}\right) = \ln(\alpha) - \beta S_t + \gamma C$$

where S represents SSB, R represents settler densities, C indicates the NAO index, and  $\alpha$ ,  $\beta$ , and  $\gamma$  are estimated parameters. The  $\alpha$  parameter represents recruitment productivity,  $\beta$  indicates the degree of density-dependent or compensatory response, and  $\gamma$  is the coefficient associated with the environmental parameter. In the fine scale analysis, including the NAO index improved model fitness ( $R^2=0.78$ ), compared to the traditional function without an environmental component ( $R^2=0.47$ ). In the environmentally-explicit Ricker model, positive NAO years (stronger westerly winds) resulted in increased settler recruitment at given SSB levels, whereas during the negative phase years (weaker westerlies), recruitment levels decreased.

**Relationship Between RI Lobster Settlement, Spawner Abundance and the NAO**

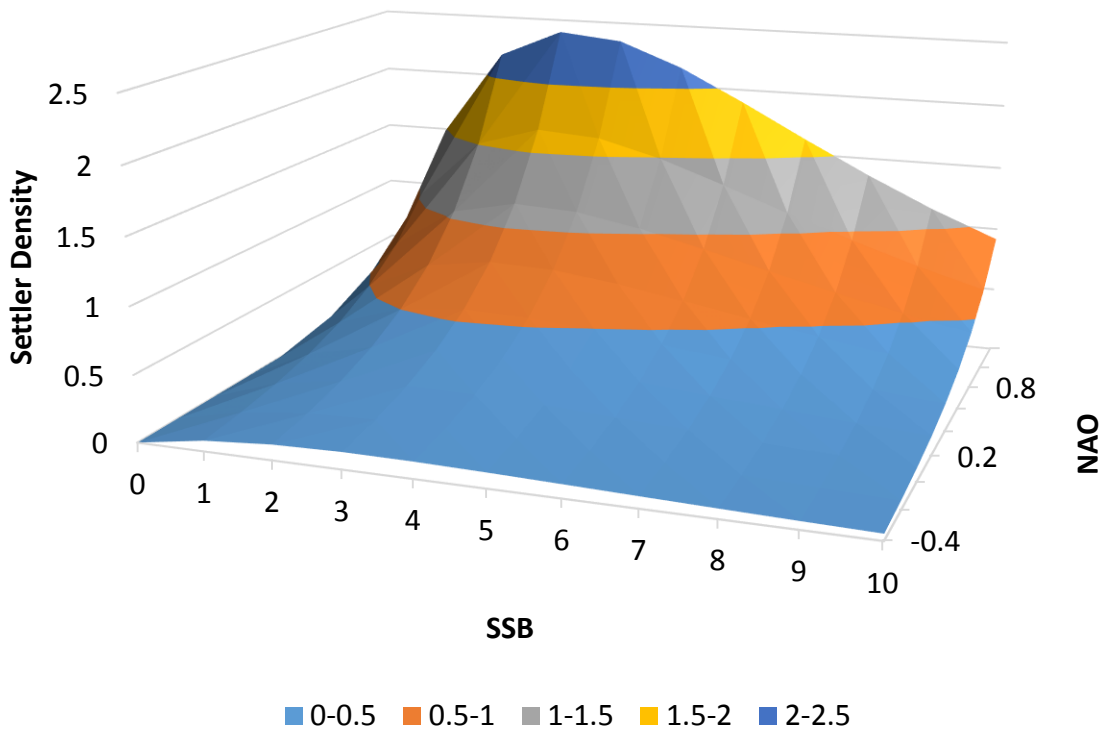


Figure 5 - Fine Scale (RI) stock-recruitment relationship with the NAO incorporated. Coloration indicates 0.5 intervals of settler density.

B. Fine Scale Analysis

Stock-recruitment functions with environmental components were also constructed for the overall SNE region to provide a more holistic view of the environment’s influence on SNE recruitment. Recruitment and SSB data were obtained from the 2015 ASMFC Stock Assessment (ASMFC 2015, Table 6.3.4.1). SSB was represented as the predicted female biomass (mt) from the assessment model, and the sum of male and female recruit abundance represented total recruitment. Prior to environmental analyses, stock-recruitment functions were tested to identify the influence of lagged recruitment. Recruitment lags were tested from 0 to 4 years using both the traditional Ricker and Beverton-Holt models:

$$\text{Ricker: } R = \alpha S e^{-\beta S}$$

$$\text{Beverton- Holt: } R = \frac{\alpha S}{1 + \beta S}$$

where parameters are as indicated in the fine scale analysis. For the broad scale analysis, models were fit with maximum likelihood estimation assuming a Gamma-distributed error structure,  $R \sim \text{Gamma}(\text{shape}, \text{mean}/\text{shape})$ . Using the relative scoring system Akaike information criterion (AIC), varying the lag in recruitment changed model fitness, with a lag of 4 years having the best fit (Figure 6). Additionally, within a given lag test, the Ricker and Beverton-Holt models fit equally well.

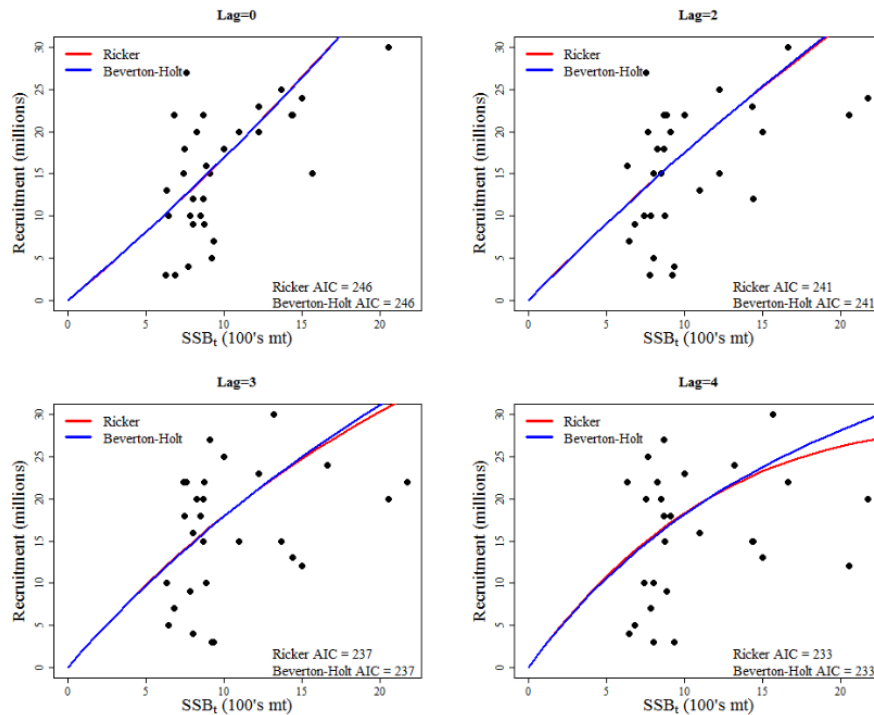


Figure 6 - Ricker and Beverton-Holt models tested on SNE SSB and recruitment data with varying recruitment lags (0-4 years).

While a 4-year lag on recruitment was the best fitting for both Ricker and Beverton Holt models, a 3-year recruitment lag was used for the environmental component of this work to



maintain consistency with work performed previously by Wahle et al. (2009). The environmental Ricker and Beverton-Holt models were:

$$R_{t+3} = \alpha S_t e^{-\beta S_t + \gamma E_t}$$

$$R_{t+3} = \frac{\alpha S_t e^{-\gamma E_t}}{1 + \beta S_t}$$

with parameters as defined in previous sections. Temperature was tested to see if warm/cool water provided unfavorable/favorable SSB conditions and successful recruitment. Sea temperature data were used from the University of Rhode Island Graduate School of Oceanography Fish Trawl Survey. Surface and bottom mean temperatures were derived for both August and September to represent temperature during the larval stage. Winter NAO indices were obtained from NCAR Hurrell calculations to test the same hypothesis as presented in the fine scale analysis. Winter months were used because these months often represent the year’s prevailing phase (Marshall et al. 2001). The Atlantic Multidecadal Oscillation (AMO) index was tested using similar theory as with the GSO Trawl temperature data: to see if such temperature influences are linked to the North Atlantic Ocean’s temperature signal (Nye et al. 2014). Percent of lobster catch with shell disease was used to see if diseased adults correlated with poor recruitment. Shell disease information was incorporated from the observations during Rhode Island Sea and Port Sampling. When testing these covariates, there was little difference between the Ricker and Beverton-Holt models; however, shell disease prevalence improved model fitness the most (Table 5). Incorporating shell disease into S-R function revealed that increased prevalence decreased recruitment per SSB (Figure 7).

Table 5 - AIC values for SNE S-R models using different environmental covariates. Lower values indicate better fitting models.

<u>Environmental Covariate</u>	<u>Ricker</u>	<u>Beverton-Holt</u>
Surface Temperature - August	237.5	238.1
Surface Temperature - September	238.3	238.4
Bottom Temperature - August	236.7	236.9
Bottom Temperature - September	238.9	238.9
Winter (DJF) NAO	238.0	238.1
AMO	224.1	224.3
<b>Shell Disease Prevalence</b>	<b>217.1</b>	<b>217.4</b>

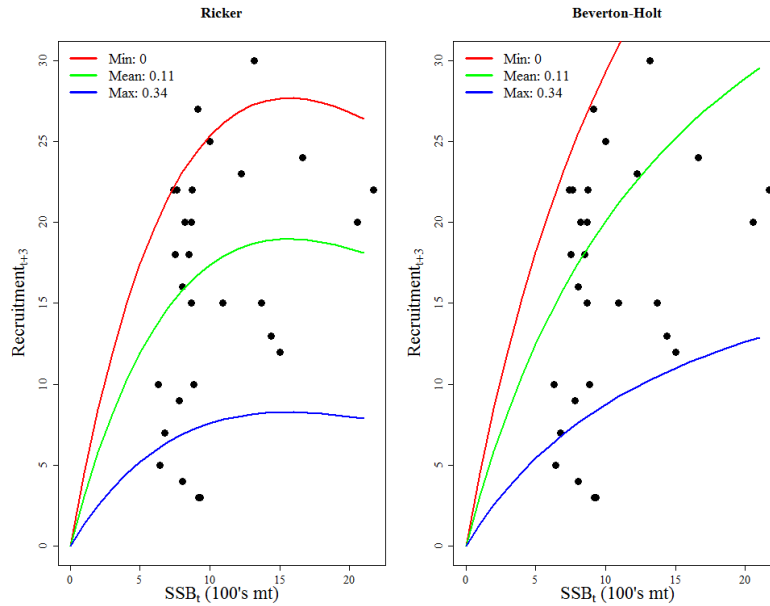


Figure 7 - Spawning stock biomass (SSB) and lagged Recruitment fitted with Ricker and Beverton-Holt functions incorporating shell disease. The projected fits use the minimum (red), mean (green), and maximum (blue) annual shell disease prevalence values over the time series.

### C. Summary and Future Work

Including environmental variables appears to enhance model fitness and prediction capabilities for recruitment. However, the environmental covariates must be further investigated to avoid autocorrelation between ecologically unrelated time series that lack a strong hypothesis or underlying mechanism linking the two. Thus, the hypotheses for environmental influences on the stock recruitment relationship will be further developed *a priori* to analyses. Additionally, the correlations and model residuals between SSB and recruitment and the covariates, as well as the lobster and environmental time series data themselves (Table 6, Figure 8) will be deeply examined to avoid identifying spurious ecological relations.

Table 6 - Correlation coefficients ( $r$ ), between the environment covariates and both SSB and lagged recruitment. Stars (\*) indicate significant correlations ( $p < 0.05$ ).

Covariate <sub>t</sub>	SSB <sub>t</sub>	Recruitment <sub>t+3</sub>
Surface Temperature - August	-0.01	-0.18
Surface Temperature - September	-0.02	-0.18
Bottom Temperature - August	0.28	0.44
Bottom Temperature - September	0.03	-0.06
Winter (DJF) NAO	0.18	0.35
AMO	-0.16	-0.62*
Shell Disease Prevalence	-0.47*	-0.74*

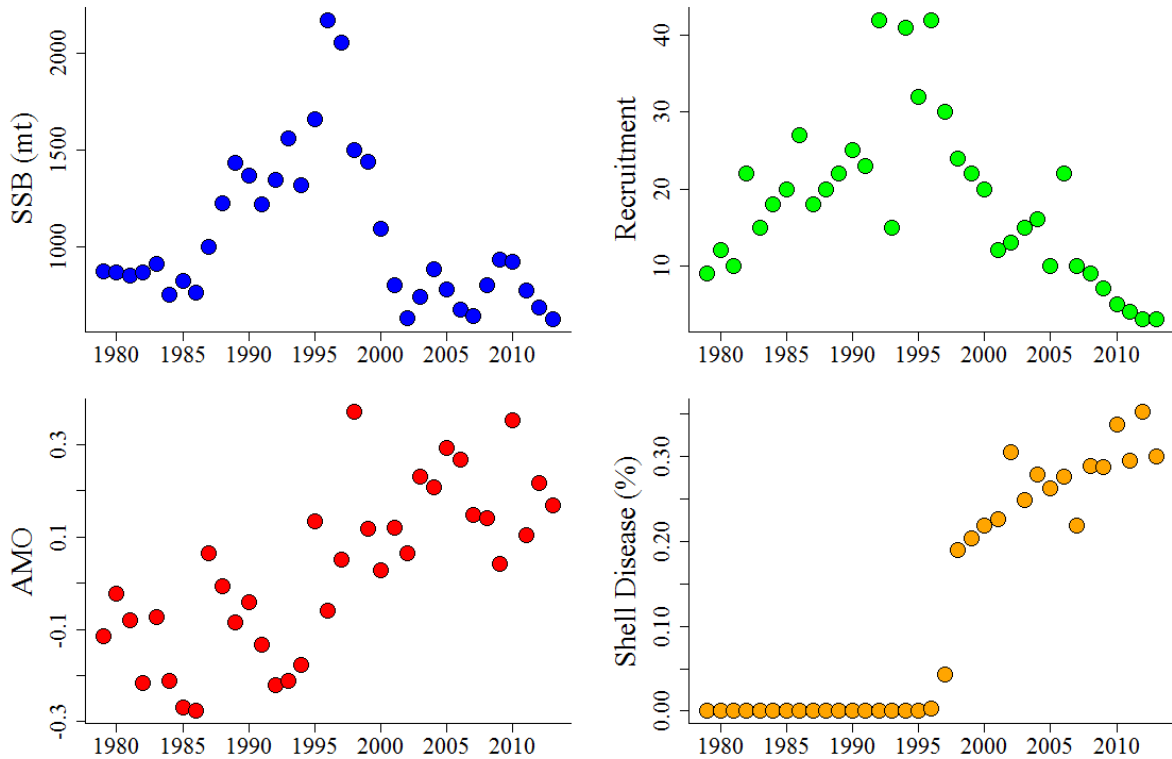


Figure 8 - Time series of SSB and recruitment (top left and right, respectively) compared to the AMO Index (bottom left) and Shell Disease Prevalence (bottom right).

Some of the covariates chosen must be further investigated to properly identify the mechanistic link. For example, while incorporating the NAO improved the model fitness and suggests large scale climate forces influencing lobster recruitment processes, additional tests need to be conducted to verify the NAO-lobster settlement hypothesis by examining wind speeds and directions (either from buoy data or modeled data sources) during the

months of larval presence. Similarly, the stock-recruitment models will be tested with other data that may better represent the environments influence on recruitment (e.g., days of the year with temperature exceeding lethal limits).

The scale of the analysis and life stages chosen to represent recruitment have significant influences on model fitness and outcomes. Models regarding the SNE region as a whole will be further developed in hopes of providing tools for management at the stock level and identifying broad scale oceanographic impacts on stock-recruitment dynamics. The stock-recruitment models themselves will be evaluated to determine if other components, such as a non-zero origin intercept, should be incorporated. Such model adjustments would allow for testing impacts of population depensation and possible external sources of recruitment from adjacent areas, such as Georges Bank (e.g., positive y-intercept).

### **Conclusion**

There appears to be a reasonable relationship between traps fished and exploitation rate given the analysis done for this report. Since there is already a trap reduction schedule, this relationship could be used along with the projected trap reductions to quantify the effect of trap reductions for use in harvest reduction strategies. It also appears that minimum and maximum size changes can produce reductions in harvest which could lead to increased egg production. These approaches can be combined to achieve a robust reduction in harvest in an effort to protect the lobster population, and set up the conditions conducive for population rebuilding. It will be important to account for interactions of combining multiple management measures together. This technique is done routinely in ASMFC strategies used for finfish, and the interaction of multiple approaches can be accounted for by adding a simple interaction term when combining approaches. An example of this would be to combine a maximum gauge size with trap reductions. Here we state that:

Maximum size = red1; Trap reduction = red2; and these two reductions can be combined through the equation:

Full reduction =  $(red1 + red2) - (red1 * red2)$

As is evident from this analysis and as seen in the Gulf of Maine, the spatial scale of recruitment analyses impacts the results of relationships between spawners and recruits. This analysis shows that environmental or additional covariates can improve spawner – recruit relationships, but these covariates must be selected *a priori* and should be chosen so that a plausible mechanistic link can be identified as to why this covariate influences recruitment. Using this strategy will prevent the perception of data mining and the development of spurious relationships. The spawner – recruit work performed in this report does not impact harvest reductions per se, but can be useful for alternate projection information or for direct estimation of biological reference points consistent with the assessment model and reflective of current stock productivity.

These approaches have been reviewed by the ASMFC Lobster Technical Committee and some improvements to, and alternative data sources for, these analyses have been identified. If warranted and desired by the ASMFC Lobster Board (Board), the RIDEM commits to continuing to work on these approaches with the Lobster TC and perfect where possible as the Board looks to construct a management strategy for SNE lobsters. Some work to strengthen the egg production portions of the work has already begun, as well as methods to incorporate dynamics

into minimum and maximum gauge size changes. This work will continue, and additional elements can be added to help the Board moving forward.

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# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmfmc.org

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** Megan Ware, FMP Coordinator  
**DATE:** April 25, 2016  
**SUBJECT:** Public Comment on Draft Addendum I to the Jonah Crab FMP

The following pages represent a summary of all public comment received by ASMFC by April 18, 2016 at 5:00 p.m. (closing deadline) on Draft Addendum I to the Jonah Crab Fishery Management Plan.

A total of 7 written comments were received during the public comment period. 4 of those comments were from the following groups and organization: Atlantic Offshore Lobstermen's Association, Massachusetts Lobstermen's Association, National Marine Fisheries Service, and New England Fishery Management Council. Individual written comments were submitted by Mid-Atlantic commercial fishermen. 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

Seven public hearings were held in the following states: Maine, Massachusetts (New Bedford and Gloucester), Rhode Island, New York (East Setauket and Montauk), and Maryland. In total, approximately 55 individuals attended the public hearings. A brief summary of the comments received at the public hearings is provided (page 3), followed by detailed summaries for each hearing (pages 4-10). Summaries of the public hearings were also included in the Briefing materials. The only change to the public hearing summary has been a clarification to the NEFMC comment on Issue 2.

## **Written Comment Summary**

### ISSUE 1: INCIDENTAL BYCATCH BY NON-TRAP GEAR (*Section 3.0*)

<b>Option</b>	<b>Description</b>	<b>I</b>	<b>G</b>	<b>Total</b>
<b>A</b>	Status Quo	0	2	2
<b>B</b>	Incidental Bycatch Limit of 1,000 Crab per Trip	0	3	3
<b>C</b>	Remove the Incidental Bycatch Limit for Non-Trap Gear	0	1	1

Four groups and zero individuals commented on Issue 1. One group preferred Options A and B, reasoning that it does not support an unlimited amount of incidental Jonah crab catch. Another group chose Option A, concerned about a potential increase in Jonah crab exploitation as a “targeted bycatch.” A third group commented that concerns for the potential proliferation of fishing effort by non-trap permit holders are unsupported in Draft Addendum 1, and chose to support Options B and C. Lastly, a group noted that they preferred Option B with the addition of a 200 crab daily limit. They reasoned that this modification, coupled with Issue 2 Option C, would allow for a consistent bycatch limit across gear types to reduce enforcement burden and promote equitability.

### ISSUE 2: INCIDENTAL BYCATCH LIMIT FOR NON-LOBSTER TRAPS (*Section 3.0*)

<b>Option</b>	<b>Description</b>	<b>I</b>	<b>G</b>	<b>Total</b>
<b>A</b>	Status Quo	2	0	2
<b>B</b>	Incidental Bycatch Limit of 200 Crab per Day, 500 Crab per Trip	0	2	2
<b>C</b>	Incidental Bycatch Limit of 200 Crab per Day, 1,000 Crab per Trip	0	2	2
<b>D</b>	Incidental Bycatch Limit of 1,000 Crab per Trip	0	1	1

Three groups and two individuals commented on Issue 2. One group preferred Options B, C, and D, unsupportive of unlimited incidental Jonah crab catch. Concerned over a potential increase in exploitation, another group chose Option B. The third group chose Option C coupled with a modified Issue 1 Option B, supporting a consistent bycatch limit regulation across gear types.

Both individuals commented in favor of Option A, supporting no incidental bycatch limit for non-lobster trap gear.

#### GENERAL COMMENTS:

- A claw fishery should be allowed, especially in the southern states.
- A claw fishery may jeopardize the health of the resource, confuse the mortality estimate, and make the minimum size limit difficult to enforce.
- The existing catch limit for non-trap permit holders may conflict with the Atlantic Coastal Fisheries Cooperative Management Act, placing unnecessary regulatory and enforcement burdens on some permit holders (Magnuson-Stevens standards 6 and 7).
- There should be no differential treatment of lobster trap and non-trap permit holders in the Jonah crab fishery.
- The Jonah Crab FMP should be paused until a coastwide stock assessment has been completed.
- Delaware fishermen do not believe that managing Jonah crab with lobster is in their best interest, due to the small lobster fishery in Delaware denying its fishermen full utilization of the Jonah crab resource.
- Jonah crab and lobster harvest are highly correlated.
- Full time permits should only be issued to existing lobstermen.
- This amendment is eliminating small fishermen so the fishery can be controlled by larger corporations.



## **Public Hearing Summary**

### ***Issue 1: Incidental Bycatch for Non-Trap Gear***

Comments were split between maintaining the current bycatch allowance of 200 crab per day, 500 crab per trip (Option A) and eliminating the bycatch limit for non-trap gear (Option C). Individuals from Rhode Island and Maryland supported eliminating the bycatch limit for non-trap gear highlighting that landings from these gears represent less than 1% of total harvest in the fishery. Several individuals commented there is no need to limit a portion of the fishery that makes up such a small percentage of total harvest when landings by the majority of the fishery (lobster permit holders) are not limited. The majority of New York fishermen supported the current bycatch limit, commenting that this is an adequate level of bycatch and would prevent non-directed fishermen from targeting Jonah crab. One NY fishermen supported the 1,000 crab limit per trip (Option B), stating it is a reasonable allowance for a fishermen to make a living. Comments at the Massachusetts public hearings were split between all three options, with fishermen giving similar justifications as stated above.

### ***Issue 2: Incidental Bycatch Limit for Non-Lobster Traps***

Comments were split between maintaining no bycatch limit for non-lobster traps (Option A) and establishing a bycatch allowance of 200 crab per day, 500 crab per trip (Option B). Individuals from Rhode Island and Maryland supported no bycatch limit for non-lobster trap gear, citing the small portion of landings from these gears. Maryland fishermen also did not feel that the stock was in decline and in need of restrictive management measures. New York fishermen supported the establishment of a 200 crab per day, 500 crab per trip bycatch limit as they felt this was an adequate level of bycatch which would prevent increased effort in the fishery. Comments from Massachusetts were again split between the various options, with similar justifications given as described above. A common theme among all public hearings was the fact that, whatever the bycatch limit, it should be consistent among non-trap gear and non-lobster trap gear. Moreover, people were not in favor of different bycatch limits for non-trap gear and non-lobster trap gear.

Jonah Crab Draft Addendum I Public Hearing

*Portland, ME  
March 17, 2016  
6 Participants*

ASMFC: Megan Ware (staff), Terry Stockwell (ME Commissioner)

Attendees: Peter Roberts (lobsterman), Maria Jacob (NEFMC), Kathleen Reardon (ME DMR), Katherine Thompson (ME DMR)

**Issue 1: Non-Trap Bycatch Limit**

Participants did not have any comments on this issue.

**Issue 2: Non-Lobster Trap Bycatch Limit**

Participants did not have any comments on this issue.

**Other Comments:**

One participant noted the confusion between Jonah crab and rock crab in Maine as the local name for *Cancer borealis* is rock crab. He highlighted the need for education in Maine so fishermen know which species is being impacted.

Jonah Crab Draft Addendum I Public Hearing

*Gloucester, MA*

*March 15, 2016; 6:00 pm*

*6 Participants*

ASMFC: Megan Ware (staff)

Attendees: Arthur Sawyer (MLA), Tom Nies (NEFMC), Alli Murphy (NOAA), Tracy Pugh (MA DMF), Michelle Bachman (NEFMC)

**Issue 1: Non-Trap Bycatch Limit**

- One participant was in favor of maintaining the current bycatch limit of 200 crab per day, 500 crab per trip (Option A). He stated that he was not in favor of an expansion of the Jonah crab fishery since the large increase in the number of boats landing Jonah crab is likely not sustainable. He noted that down the road, a stock assessment may put limits on the fishery so there should be no increase in the bycatch limit at the present time.
- NEFMC supports bycatch options that allow all current catch rates. NEFMC does not support the status quo as it constrains trips by current fishermen. NEFMC does not believe that fishing by non-trap permit holders will jeopardize the Jonah crab stock. Likewise, NEFMC does not believe that a large increase in fishing effort is likely given significant gear changes are required to catch crab (ie: bait and a holding tank). The Council is concerned that Draft Addendum I does not meet the requirements of ACFCMA, specifically Standards 6 and 7, as they believe management actions are not needed in the non-trap fishery since it is such a small portion of Jonah crab landings and effort is not increasing.

**Issue 2: Non-Lobster Trap Bycatch Limit**

- One participant was in favor of a bycatch limit of 200 crab per day, 500 crab per trip (Option B). He was not in favor of options that allowed expansion in the Jonah crab fishery.
- NEFMC does not support the differential treatment of non-trap and trap fisheries.

**Other Comments:**

- NEFMC is concerned that the Jonah crab claw fishery will jeopardize the resource. The Council supports landing Jonah crabs whole and is concerned that the claw fishery compromises the 4 ¾ minimum size.

## Jonah Crab Draft Addendum I Public Hearing

*New Bedford, MA*

*March 14, 2015*

*22 Participants*

ASMFC: Megan Ware (Staff), Dan McKiernan (Commissioner), Bill Adler (Commissioner), Bob Glenn (TC Chair), David Borden (Lobster Board Chair)

Attendees: Grant Moore (AOLA), Alan Dean (Claws RNC), Ali Murphy (NMFS), Pete Burns (NMFS), Jan Horecky (NBCC), David Soares (NBCC), Michelle Bachman (NEFMC), Marc Palomdo (fisherman), Quinn RW (AOLA), Peter Wakam (Palomdo Fisher Corp), Ron Swolomo (FSF), Craig Weedon (MD DNR), Bill Dub (NOAA), Theresa Burnham (MA DMF), Noelle Olsen (UMES), Derek Perry (MA DMF), Captain Pat Moran (MA LEC)

### **Issue 1: Non-Trap Bycatch Limit**

- Two participants were in favor of eliminating the Jonah crab bycatch limit for non-trap gear (Option C). Participants cited the low Jonah crab catch by non-trap gear (0.07% of total pounds landed in the fishery) as evidence that there is no need for a bycatch limit. They felt a limit would just add burden to enforcement officers on the docks. One participant noted that while scallop dredges do not land Jonah crab, their current catch rates are higher than the 200/500 limit. He is in favor of fishermen being able to land as many Jonah crab as they can.
- Two fishermen were in favor of a 1000 crab bycatch limit (Option B).
- One participant expressed concern that without a bycatch limit, there is the possibility for increased directed effort.

### **Issue 2: Non-Lobster Trap Bycatch Limit**

- Two participants were in favor of a bycatch limit of 200 crab per day, 500 crab per trip (Option B).
- One participant was in favor on maintaining no bycatch limit for non-lobster trap gear (Option A). He cited the low catch levels as evidence that there is currently no need for a bycatch limit. He also stated that in order to make a profit on Jonah crab you need volume and these small traps do not have that capacity.

### **Other Comments:**

- One participant asked for clarification in the document to highlight the addendum applies to bycatch landings and not a catch or possession limit.

Jonah Crab Draft Addendum I Public Hearing

*Rhode Island*

*March 16, 2016; 6:00 pm*

*6 Participants*

ASMFC: Megan Ware (staff), David Borden (Lobster Board Chair)

Attendees: John Moran (Athearn Marine), Jerry C. (RIFA), Scott Olszewski (RI DEM), Conor McManus (RI DEM)

**Issue 1: Non-Trap Bycatch Limit**

- One participant was in favor of eliminating the bycatch limit for non-trap gear (Option C) since landings are such a small portion of the fishery. He stated that until landings by non-trap gear exceed 10% of total landings in the fishery, there should be no limits on their harvest or on the number of participants. He does not think it is appropriate for 99% of people who land Jonah crabs (ie: those with lobster permits) to have no limit imposed on them and for the Board to state that they are trying to cap effort in the fishery. He noted that the number of lobster trap tags available and the amount fished are considerably different and this could allow for expansion in the Jonah crab fishery.

**Issue 2: Non-Lobster Trap Bycatch Limit**

- One participant was in favor of maintaining no bycatch limit for non-lobster trap gear (Option A). He stated that until landings by non-lobster trap gear exceed 10% of total landings in the fishery, there should be no limits on their harvest or on the number of participants.

## Jonah Crab Draft Addendum I Public Hearing Summary

*East Setauket, NY  
April 6, 2016 – 6:30 pm  
4 Attendees*

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.

## Jonah Crab Draft Addendum I Public Hearing Summary

*Montauk, NY  
April 14, 2016 – 5:00 pm  
8 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 crab per day/ 500 crab 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 crab 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 crab per day/ 500 crab 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.

## Jonah Crab Draft Addendum I Public Hearing

*Ocean City, MD*

*April 4, 2016; 2:00 pm*

*9 Participants*

ASMFC: Megan Ware (staff)

Attendees: JC Banks (commercial-fishing.org), Craig Weedon (MDNR), Stephen Yunns (fishermen), Mark Hill (fishermen), Noelle Olsen (UMES), Brad Steven (UMES), Jimmy Holm (fishermen), Steve Ellis (NOAA)

### **Issue 1: Non-Trap Bycatch Limit**

- Three participants were in favor of eliminating the Jonah crab bycatch limit for non-trap gear (Option C). The participants stated that there is no need to limit a portion of the fishery that makes up less than 1% of total landings when landings by the majority of the fishery (lobster permit holders) are not limited.

### **Issue 2: Non-Lobster Trap Bycatch Limit**

- Three participants were in favor of maintaining no bycatch limit for non-lobster trap gear (Option A). They again felt that there was no need to limit a portion of the fishery that only makes up 1% of total landings. They also did not feel that there was any concern about the stock status which would precipitate the need to limit bycatch landings. If the stock was in trouble, the participants felt measures to limit catch by lobster permit holders would be more effective.
- One participant felt the term 'bycatch' is not appropriate to this category as he targets Jonah crab with conch pots. If his catch were limited by this addendum, he would be required to obtain a lobster permit to continue harvesting Jonah crabs at his current rates. The current price of a MD lobster permit is \$25,000 which is cost prohibitive.

### **Other Comments**

- Participants stated they are concerned that Jonah crab effort from New England will migrate down to Maryland and suggested the Jonah crab fishery adopt the Management Areas in the lobster fishery. They also felt that since Maryland fishermen land such a small portion of Jonah crab catch, the regulations should be focused on states such as Massachusetts and Rhode Island, who are the primary contributors to harvest.
- Attendees noted the continued confusion between rock crabs and Jonah crabs and the need for clarification between the two species.





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

MAR 31 2016

Mr. Robert Beal  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St, Suite A-N  
Arlington, VA 22201

Dear Bob:

Thank you for accepting comment on draft Addendum I to the Interstate Fishery Management Plan for Jonah Crab. The clear and concise addendum contains options for non-trap gear and non-lobster trap gear ranging from a small daily/trip limit up to an unlimited amount of incidental catch.

I do not support allowing an unlimited amount of incidental Jonah crab catch. I contend that specifying incidental catch limits at appropriate levels will ensure that incidental fisheries can continue their current practices while providing some protection for the stock. The draft Addendum contains several alternatives for non-trap and non-lobster trap gear that are consistent with the goals and objectives of the Jonah Crab Plan and that are supported by the data in the document. I look forward to the discussion of this issue at the May Commission Meeting and am interested in comments from our state partners and the public on this issue.

Thank you for the opportunity to comment on draft Addendum I. 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 blue ink, appearing to read "John K. Bullard", written over a light blue rectangular background.

John K. Bullard  
Regional Administrator

cc: David Borden, ASMFC Lobster Board Chair  
Megan Ware, ASMFC Fishery Management Plan Coordinator





## 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)

March 30, 2016

Megan Ware  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St. Suite 200 A-N  
Arlington, VA 22201

Dear Megan,

I write as representative of the Atlantic Offshore Lobstermen's Association (AOLA) to provide comments toward "Draft Addendum I to the Jonah Crab Fishery Management Plan for Public Comment."

The Association supports an incidental bycatch limit of 200 crab per day, 1000 crab per multiday trip for both mobile (non-trap) and non-lobster trap gear categories. This support is in line with Draft Addendum I Issue 1, Option B with the addition of 200 count daily limit and Issue 2, Option C as written.

The Association feels this limit will effectively cap landings of Jonah crab while ensuring that current participants across all gear type can retain crabs at or above their historic incidental landings amounts, as evidenced by the data provide by NOAA NMFS GARFO and NEFMC. Further, having a bycatch limit that is consistent across gear types will simplify and reduce enforcement burden and promote equitability.

Thank you for the opportunity to comment.

Sincerely,

David Borden  
Executive Director



## Massachusetts Lobstermen's Association, Inc.

8 Otis Place ~ Scituate, MA 02066  
Bus. (781) 545-6984 Fax. (781) 545-7837

April 4, 2016

Megan Ware  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St. Suite 200A-N  
Arlington, VA 22201

Via - Email: [mware@asmfc.org](mailto:mware@asmfc.org)

RE: Jonah Crab Draft Addendum I

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 I to the Atlantic States Marine Fisheries Commission's (ASMFC) Interstate Fishery Management Plan (FMP) for Jonah Crab.

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. 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.

Currently under the Jonah Crab Fisheries Management Plan there is a 200 crab per calendar day, 500 crab per trip incidental bycatch limit for non-trap gear, which the MLA supported. We are extremely concerned about the potential for an increase in the exploitation of the Jonah Crab as a "targeted bycatch" which after the data sets were reviewed indicated as highly probable.

The MLA submits the follow options as preferred on the two issues at hand.

**ISSUE 1: INCIDENTAL BYCATCH BY NON-TRAP GEAR** This section proposes to replace the "Incidental Bycatch limit for non-trap gear" in Section 5.1 of the Jonah Crab FMP.

**Option A:** Status Quo Under this option, the incidental bycatch limit for non-trap gear would remain at 200 crab per calendar day, up to 500 crab per trip.

**ISSUE 2: INCIDENTAL BYCATCH LIMIT FOR NON-LOBSTER TRAPS** The following options would apply to trips by all vessels hauling traps which do not have a valid lobster tag. These include, but are not limited to, fish pots, whelk pots, and crab pots.

**Option B:** Incidental Bycatch Limit of 200 Crab per Day, 500 Crab per Trip Under this option, the incidental bycatch limit by all vessels hauling traps that do not have a valid lobster tag would be 200 crab per day, up to 500 crab per trip, for trips three days or longer.

We sincerely hope and trust that you, the Atlantic States Marine Fisheries Commission, will weigh all the alternatives and options and will make informed and pragmatic recommendations to continue to allow the continued success of the newly emerging Jonah Crab fishery. The commercial lobstermen have supplemented the incomes in areas where the lobster stocks have declined due to environmental issues and in others where there is an abundance of crabs. We look forward to continuing to work with the Commission's Jonah Crab Section through the management process.

Sincerely,

*Beth Casoni*

Executive Director



New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116  
E.F. "Terry" Stockwell III, *Chairman* | Thomas A. Nies, *Executive Director*

April 18, 2016

Mr. Robert E. Beal  
Executive Director  
Atlantic States Marine Fisheries Commission  
1050 North Highland St., Suite 200 A-N  
Arlington, VA 22201

**RE: Comment on Draft Addendum I to the Jonah Crab FMP**

Dear Bob:

I am writing to address the options within Draft Addendum I to the Jonah Crab FMP that pertain to non-trap permit holders using fixed and mobile gear to harvest Jonah crab. The New England Fishery Management Council (NEFMC, Council) prefers the options that allow non-trap permit holders to harvest an incidental catch of Jonah crab with catch limits that are not lower than the existing catch rates. The rationale provided for catch limits is the potential for a proliferation of fishing effort by non-trap permit holders. There is no information provided in Draft Addendum I to support this concern. At the Lobster Board meeting in November 2015, Council representative Terry Stockwell voted to support the addition of Options B and C to Draft Addendum I. These options would increase or remove the existing catch limit for non-trap permit holders. Options B and C are under consideration based on concerns raised by the Council representative that the current limit of 200 crabs per calendar day, up to 500 crabs per trip would constrain some vessels (Refer to Table 17).

Recent dealer-reported landings information indicate that non-trap permit holders harvest only a small percentage of the total Jonah crab landings on average from 2010 to 2014 (Refer to Tables 2, 6, 9, 12, and 15). Therefore, it is extremely unlikely that fishing effort by non-trap permit holders would jeopardize the health of the Jonah crab resource through incidental harvest. These non-trap permit holders are primarily targeting groundfish and other NEFMC-managed species, and Jonah crab landings do not constitute the larger portions of their catch (Refer to Tables 1, 5, 8, 11, and 14). This further suggests that a large increase in fishing effort by non-trap permit holders is unlikely, because it would require a drastic change in fishing behavior.

In addition, the market demand for live Jonah crabs makes it operationally infeasible for non-trap permit holders to successfully target Jonah crabs and produce landings higher than the existing catch rates for two reasons. First, Jonah crabs harvested in large quantities require bait. Second, Jonah crabs must be landed live and therefore must be kept in a holding tank, which would require extensive vessel modifications.

Furthermore, the Council does not support differential treatment between trap and non-trap permit holders. To be clear, the NEFMC recognizes the value of a precautionary cap on fishing effort before it becomes excessive. This should be done consistently for all segments of the fishery based on evidence of the relative risk they impose. A precautionary cap should not

jeopardize the viability of existing fisheries that are not excessive and where the evidence indicates a low likelihood of effort increasing. While fishing effort of lobster trap permit holders increased sharply prior to the August 2015 Jonah Crab FMP, effort of non-trap permit holders did not. Indeed, perhaps we are mistaken, but it is our understanding that some states are not currently regulating the use of lobster traps to catch Jonah crab by fishermen that do not possess lobster permits. Therefore, the NEFMC does not support restrictions that constrain the non-trap permit holders, while there are no explicit measures constraining the lobster trap fishery.

The Council remains concerned that the existing catch limit for non-trap permit holders may conflict with the Atlantic Coastal Fisheries Cooperative Management Act. This statute requires regulations in Federal waters to be consistent with the ten national standards established in the Magnuson-Stevens Fishery Conservation and Management Act. This includes National Standards 6 and 7, which require that management measures consider impacts to all permit holders that harvest Jonah crab and minimize cost by avoiding unnecessary regulatory and enforcement burdens. The information provided indicates that management actions are not necessary (Refer to tables 1-17) for the non-trap fishery, since it constitutes only a small part of the catch and there is no evidence that effort is increasing substantially.

Additionally, the NEFMC would like to take this opportunity to provide feedback on the Jonah crab claw fishery, also discussed during the Lobster Board meeting on February 2, 2016. The Council is concerned that a claw fishery for Jonah crab may jeopardize the health of the Jonah crab resource and may not align with the Jonah Crab FMP's stated goals to promote conservation and reduce the likelihood of recruitment failure of Jonah crabs.

Since there is insufficient information on the biology and abundance of Jonah crab, the NEFMC supports landing Jonah crabs whole and, if practical, with the claws removed at the dock. If Jonah crab is landed whole, the fishing mortality estimate would be more precise given that resource assessments would assume 100 percent mortality for all crabs harvested. If not landed whole, an assumption on fishing mortality will apply to the claw fishery. The Council is also concerned that the Jonah crab minimum size limit, a biological measure to reduce the likelihood of recruitment failure, may be difficult to enforce if only claws are landed. The same may be true of establishing a claw size limit, since there seems to be little if any information available that establishes a quantifiable correlation between claw length and carapace length.

The New England Council appreciates this opportunity to submit comments on ASMFC's Draft Addendum I to the Jonah Crab FMP. Please let me know if you have questions.

Sincerely,



Thomas A. Nies  
Executive Director

Attachment

## Attachment

### Jonah Crab Data (dealer data, and permit data used to verify unknown gear types)

The information provided below has been revised from the preliminary data submitted to the ASMFC at its November 2015 Lobster Board Meeting. The revisions are minor, but improve upon the data provided; these revisions are highlighted in the footnotes section of the document.

**Table 1: Species Landed on non-trap trips that landed Jonah crab (2014)**

NESPP3	Species Name	Landings (lbs)	Value of Landings (\$)
12	Monkfish, tails	46,749	98,915
81	Cod	32,409	63,866
120	Winter Fl.	28,747	38,741
367	Winter Skate	27,462	24,009
123	Yellowtail Fl.	26,416	31,351
147	Haddock	23,331	37,641
153	White Hake	19,335	28,288
240	Redfish	19,275	13,071
269	Pollock	18,715	17,648
727	Lobster	18,713	87,813
711	Jonah Crab	13,221	5,290
124	Am. Plaice Fl.	9,885	16,240
121	Summer Fl.	9,003	25,592
366	Little Skate	9,000	810
11	Monkfish	6,236	4,586
122	Witch Fl.	6,192	14,719
365	Skates (not specified)	4,490	5,736
801	Loligo Squid	2,087	2,088
152	Red Hake	943	161
329	Scup	816	286
509	Silver Hake	708	545
188	John Dory	650	715
96	Cusk	545	616
352	Spiny Dogfish	385	113
127	Other Species Landed	1,210	2,813
	Total	326,523 <sup>1</sup>	521,653 <sup>1</sup>

<sup>1</sup> One record believed to be misreported as hook and line was included as an unknown gear type (999/020) in the previous data provided in November 2015 to the ASMFC. This record was likely was not hook and line and is believed to be trap activity, so it was removed from the revised table. Total landings for this record made up less than 100 pounds of the Jonah crab landings by non-trap permit holders.

**Table 2: 2014 Jonah Crab Landings for Non-Trap Vessels, by State**

State	Number of Permits <sup>2</sup>	Number of Trips	Jonah Crab Landings (lbs)	Value of Landings (\$)
MA	5	18	5,433	1,107
CT, NJ, and NY	6	24	442	536
RI	6	70	7,346	3,647
Total	17	113	13,221	5,290
<b>Total Landings (trap and non-trap)<sup>3</sup></b>			<b>17,148,496</b>	<b>13,406,007</b>
<b>Percentage of Total Landings</b>			<b>0.077%</b>	<b>0.039%</b>

**Table 3: Number of non-trap vessels landing Jonah crab in 2014**

Gear Code	Gear Type	Number of Permits <sup>2</sup>	Jonah Crab Landings (lbs)	Value of Landings
50	Bottom Otter Trawl	11	6,187	1,629
100	Gillnets	3	233	258
999	Unknown Gear Type <sup>1</sup>	3	6,801	3,403
Total			13,221 <sup>1</sup>	5,290 <sup>1</sup>

Note (Table 3): Gear code 999 (unknown gear) are landings by permit holders with non-trap and trap lobster permits, along with other permits. The landings from those trips are shown below in Table 4. These values are included in the tables above, because in other years (i.e. 2013, the permits landing with gear code 999 also have permits that include bluefish, herring, dogfish, fluke, tilefish, squid, mackerel, and other species confirmed in the landings), the landings include groundfish, which is not permitted on lobster trap trips. This information is used to make the inference that gear code 999 is non-trap gear when the permit data indicates that the permit holder holds non-trap permit, or non-trap lobster and trap lobster permits.

**Table 4: Species Landed on trips with lobster trap and gear code 999/Unknown (2014)**

Species	Landings (lbs)	Value of Landings (\$)
Jonah Crab	6801	3403
Lobster	191	1146
Grand Total	6992	4549

<sup>2</sup> The previous data provided in November 2015 to the ASMFC has been revised. A higher number of permits for 2010-2014 was provided, which included duplicative permit numbers in the records. This information was corrected to report on the number of distinct permit number that landed Jonah crabs from 2010-2014. The landings by weight and value of those landings are accurate and remain unchanged.

<sup>3</sup> This information is new, and was not provided in the previous version of the data to the ASMFC in November 2015.



**Table 5: Species Landed on non-trap trips that landed Jonah crab (2013)**

<b>NESPP3</b>	<b>Species Name</b>	<b>Landings (lbs)</b>	<b>Value of Landings (\$)</b>
12	Monkfish, tails	75,964	130,601
121	Summer Flounder	28,143	81,639
367	Winter Skate	26,228	13,710
509	Silver Hake	22,203	21,600
365	Skates (not specified)	18,045	11,558
153	White Hake	15,719	26,770
269	Pollock	13,630	23,698
11	Monkfish	11,472	5,911
240	Redfish	11,419	7,813
123	Yellowtail Fl.	10,111	16,393
124	Am. Plaice Fl.	9,838	15,019
711	Jonah Crab	6,081	3,828
727	Lobster	4,588	16,198
352	Spiny Dogfish	3,430	636
329	Scup	2,678	2,181
122	Witch Fl.	2,153	5,956
81	Cod	2,145	6,212
366	Little Skate	1,560	1,560
152	Red Hake	1,509	976
147	Haddock	1,506	3,180
51	Butterfish	1,115	879
801	Loligo Squid	1,072	1,984
351	Smooth Dogfish	976	723
800	Sea Scallops	475	4,867
335	Black Sea Bass	414	1,643
188	John Dory	349	417
341	Sea Robin	306	68
23	Bluefish	242	156
120	Winter Fl.	175	354
	Other Species Landed <sup>4</sup>	416	734
	<b>Total</b>	<b>273,962</b>	<b>407,264</b>

<sup>4</sup> Smaller landings are grouped together as “other species landed” in this revised table.

**Table 6: 2013 Jonah Crab Landings for Non-Trap Vessels, by State**

State	Number of Permits	Number of Trips	Jonah Crab Landings (lbs)	Value of Landings (\$)
MA	5	17	1,880	887
NJ&NY	7	36	529	696
CT&RI	10	36	3,672	2,245
Total	22	89	6,081	3,828
<b>Total Landings (trap+non-trap)</b>			<b>16,252,001</b>	<b>13,090,878</b>
<b>Percentage of Total Landings</b>			<b>0.037%</b>	<b>0.029%</b>

**Table 7: Number of non-trap vessels landing Jonah crab in 2013**

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings (\$)
50	Bottom Otter Trawl	16	2,604	1,720
100&999	Gillnets & Unknown Gear	7	3,477	2,108
		Total	6,081	3,828

**Table 8: Species Landed on non-trap trips that landed Jonah crab (2012)**

NESPP3	Species Name	Landings (lbs)	Value of Landings (\$)
269	Pollock	104,171	89,090
153	White Hake	59,708	90,262
221	Menhaden	47,950	4,795
12	Monkfish, tails	46,241	127,497
240	Redfish	38,310	24,933
329	Scup	21,579	13,397
124	Am. Plaice Fl.	20,074	27,040
121	Summer Fl.	17,916	47,273
727	Lobster	10,798	45,101
152	Red Hake	10,260	5,752
122	Witch Fl.	5,800	9,118
367	Winter Skate	5,411	4,266
123	Yellowtail Fl.	4,297	5,011
352	Spiny Dogfish	4,250	728
711	Jonah Crab	4,099	2,959
81	Cod	3,701	10,883
509	Silver Hake	3,052	2,209
23	Bluefish	2,826	2,796
11	Monkfish	1,774	2,278
147	Haddock	1,542	3,685
365	Skates (not specified)	1,278	861
801	Loligo Squid	607	995
366	Little Skate	600	48
335	Black Sea Bass	549	2,004
188	John Dory	525	546
712	Rock Crab	445	312
51	Butterfish	314	409
344	Other Species Landed <sup>3</sup>	742	1,488
	Total	418,819	526,206

**Table 9: 2012 Jonah Crab Landings for Non-Trap Vessels, by State**

State	Number of Permits	Number of Trips	Jonah Crab Landings (lbs)	Value of Landings (\$)
MA	4	18	2,119	1,297
NJ	3	7	98	151
NY	4	15	545	550
RI	3	5	1,337	961
Total	14	45	4,099	2,959
<b>Total Landings (trap and non-trap)</b>			<b>12,051,457</b>	<b>8,510,600</b>
<b>Percentage of Total Landings</b>			<b>0.034%</b>	<b>0.035%</b>

**Table 10: Number of non-trap vessels landing Jonah crab in 2012**

<b>Gear Code</b>	<b>Gear Type</b>	<b>Number of Permits</b>	<b>Jonah Crab Landings (lbs)</b>	<b>Value of Landings (\$)</b>
050	Bottom Otter Trawl	10	2,838	1,869
	Gillnets, Seine, and Unknown Gear	4	1,261	1,090
<b>Total</b>		<b>14</b>	<b>4,099</b>	<b>2,959</b>

**Table 11: Species Landed on non-trap trips that landed Jonah crab (2011)**

<b>NESPP3</b>	<b>Species Name</b>	<b>Landings (lbs)</b>	<b>Value of Landings (\$)</b>
121	Summer Fl.	63,475	135,329
12	Monkfish, tails	61,877	182,829
120	Winter Fl.	47,670	94,253
352	Spiny Dogfish	30,735	7,122
329	Scup	22,804	12,488
23	Bluefish	19,226	10,024
366	Little Skate	17,933	1,829
122	Witch Fl.	17,241	27,893
147	Haddock	16,569	24,581
81	Cod	16,272	28,043
365	Skates (not specified)	15,787	12,941
153	White Hake	15,087	19,235
124	Am. Plaice Fl.	14,047	18,772
123	Yellowtail Fl.	12,090	15,859
269	Pollock	11,583	8,745
240	Redfish	6,975	4,389
351	Smooth Dogfish	6,690	2,004
367	Winter Skate	6,561	7,842
727	Lobster	4,599	18,887
800	Sea Scallop	3,624	36,479
711	Jonah Crab	2,986	2,056
509	Silver Hake	1,656	1,265
335	Black Sea Bass	1,111	5,781
801	Loligo Squid	814	1,238
	Other Species Landed	2,251	2,206
<b>Total</b>		<b>419,663</b>	<b>682,090</b>

**Table 12: 2011 Jonah Crab Landings for Non-Trap Vessels, by State**

State	Number of Permits	Number of Trips	Jonah Crab Landings (lbs)	Value of Landings (\$)
CT, RI & NY	11	30	1,590	1,041
MA	6	15	884	438
NJ	6	17	512	577
Total	23	62	2,986	2,056
<b>Total Landings (trap and non-trap)</b>			<b>9,439,984</b>	<b>5,795,899</b>
<b>Percent of Total Landings</b>			<b>0.03%</b>	<b>0.04%</b>

**Table 13: Number of non-trap vessels landing Jonah crab in 2011**

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings (\$)
50	Bottom Otter Trawl	20	2,609	1,625
52	Scallop Otter Trawl	1	44	56
100	Gillnets	2	333	375
Total		23	2,986	2,056

**Table 14: Species Landed on non-trap trips that landed Jonah crab (2010)**

<b>NESPP3</b>	<b>Species Name</b>	<b>Landings (lbs)</b>	<b>Value of Landings (\$)</b>
366	Little Skate	320,650	29,305
801	Loligo Squid	91,784	93,124
121	Summer Fl.	64,840	134,775
12	Monkfish, tail	47,978	148,266
509	Silver Hake	43,193	20,506
124	Am. Plaice Fl.	33,709	39,487
81	Cod	33,328	61,199
153	White Hake	28,858	43,615
329	Scup	28,550	16,724
367	Winter Skate	19,230	18,260
123	Yellowtail Fl.	17,202	24,061
710	Red Crab	15,204	459
147	Haddock	13,839	14,028
365	Skates (not specified)	13,509	6,878
269	Pollock	12,165	14,716
711	Jonah Crab	10,815	3,822
240	Redfish	9,916	5,542
122	Witch Fl.	8,856	22,607
51	Butterfish	6,510	4,837
152	Red Hake	4,719	1,495
120	Winter Fl.	4,423	8,034
727	Lobster	4,266	17,402
352	Spiny Dogfish	2,812	422
446	Golden Tilefish	1,423	2,507
212	Atl. Mackerel	1,004	535
23	Bluefish	855	571
335	Black Sea Bass	557	1,611
800	Sea Scallop	234	1,711
341	Sea Robin	215	52
116	Congor Eel	210	115
188	John Dory	188	190
159	Atl. Halibut	179	1,052
96	Cusk	172	168
125	Sand Dab Fl.	138	60
	Other Species Landed	253	323
	<b>Total</b>	<b>841,784</b>	<b>738,459</b>

**Table 15: 2010 Jonah Crab Landings for Non-Trap Vessels, by State**

State	Number of Permits	Number of trips	Jonah Crab Landings (lbs)	Value of Landings (\$)
ME & MA	5	13	5,228	998
NJ & NY	4	8	100	61
RI	12	66	5,487	2,763
Total	21	87	10,815	3,822
<b>Total Landings (trap+non-trap)</b>			<b>10,115,808</b>	<b>5,332,742</b>
<b>Percentage of Total Landings</b>			<b>0.11%</b>	<b>0.07%</b>

**Table 16: Number of non-trap vessels landing Jonah crab in 2010**

Gear Code	Gear Type	Number of Permits	Jonah Crab Landings (lbs)	Value of Landings (\$)
50	Bottom Otter Trawl	18	8,845	2,831
54	Ruhle Trawl (bottom)	1	52	26
100	Gillnets	1	12	12
999	Unknown Gear	1	1,906	953
Total			10,815	3,822

**Table 17: Number of trips affected by the ASMFC crab limit for non-trap gear, based on number of days fished in prior years (2010-2014)**

Year	Minimum # of days fished	Maximum Number of days fished	Average Number of days fished	Number of Trips Constrained by Atlantic States Marine Fisheries Commission trip limit	Percentage of trips constrained by crab limit
2010	0.1	9.54	1.15	0/293	0.00%
2011	0.04	9.6	1.18	0/324	0.00%
2012	0.04	9.4	1.27	0/192	0.00%
2013	0.1	8.83	1.18	4/170	2.35%
2014	0.13	10.48	1.23	4/140	2.86%

Note (Table 17): This spreadsheet is based on data provided by NOAA Fisheries. This is also based on the assumption that one crab = 1 pound (same assumption used by the ASMFC).

Delaware Fisherman do not believe that managing the Jonah Crab, in a manner that is geared toward compatibility with the lobster industry, is in our best interest. The state of Delaware has a very small lobster fishery. The Interstate Fishery Management Plan for Jonah Crabs denies full utilization of the resource to DE and the United States Industry.

In Delaware we feel that if the New England States, such as Mass. or R.I. are overfishing Jonah Crabs, then it is their responsibility to correct their management practices in state. Delaware, without question, does not have a problem with overfishing Jonah Crabs, nor do we have a problem with too many lobster pots in our state waters. DNREC is completely capable of managing Jonah Crabs, and all crab (Cancer) fisheries within our state waters in a positive and sustainable manner.

As it stands, our only way to keep from being nearly eliminated from the fishery is to support option A: status quo of the incidental bycatch limit for non-lobster traps. The Mid-Atlantic states, especially those of the Delmarva Peninsula, should not be lumped into a Fishery Management Plan for Jonah Crab with the New England states. The IFMP for Jonah crabs should be put on hold until a completed stock assessment has been done for all states.

Stuart Potter

DE Fisherman



## Comments on Jonah Crab

My husband has harvested Jonah crab claws from the Mid-Atlantic canyons since 1974. Jonah crabs are a by-catch in the lobster fishery. They only sell claws as there is no room on the boats for whole live crabs with lobsters. Plus many of the crabs survive.

We believe only lobstermen have caught Jonah crabs. My husband has conched and gillnetted. He has seen rock and calicoe crabs, but not Jonah crabs in that gear. Any Mid-Atlantic fisherman reporting Jonah crabs anywhere but the canyons is mistaken.

Full time permits should only go to existing lobstermen. Otherwise, people who probably have caught some other species will rig up to go after Jonah crabs.

We want only a claw fishery, not whole crabs. We want to preserve this resource and the small boat fishermen who harvest them.

-Beverly Lynch

To asmfc I want to first say that what you are doing is completely wrong and will have no affect on the fishery. putting controls on 2% of the catch effort is stupid. If you were really worried about fishery controls would be put in place across the whole fishery.

I do not have a lobster permit but I

I have been recording my catches for a couple years but have been catching Jonahs for many years with pots and scallops dredges. The only reason I started reporting because nmfs enforcement wrote me a ticket for not reporting in my vtr logs.

This started as a bycatch fishery for me the same as it did for everyone else. Over the years I've developed a very good market and a way how to catch them with pots but not lobster pots. I made a trawl pot that catches Jonah's and very few lobsters. My pots have escape vents.

I qualified for the control date but don't not have a federal lobster permit. I have a state lobster permit. I was told that asmfc want to limit the number of crabs that I can catch. I have no problem with that as long as everyone has same catch limits. I think they should limit the number of pots for all fishermen.

I have invested alot of money in pots since I was told that I qualified for control date. I have restaurants and fish houses that are need crabs. This has turned into a real fishery for me not just a bycatch.

The southern areas need to be allowed to claw the crabs since we have been doing it that was for ever. We don't have pickers set up yet may be down the road. I think this is being put in place to keep smaller boat out of fishery. It does not make sense to kill a crab and throw it away, when you can take claws off and they grow back

I do not have a federal lobster permit. I'm have to spend \$25000.00, To buy a lobster permit to stay in fishery. I would not mind spending money if lobster population were in good shape and no being treated to be shut down and more trap limits.

Would you spend \$25000.00 plus for a permit to catch lobster when you only want to catch Jonah crabs?????

All This amendments is doing is pushing the small fishermen out of a fishery, so it can be controlled by a few larger corporations the same way the small fishermen in the scallop fishery were pushed out.

Please let me go to work and be on the same playing field as everyone else. Controlling 2% of catch effort is not going to anything to help fishery

This amendment is discriminating against the smaller boat without a lobster permit. I don't want to catch lobsters

I vote for unlimited catch quotas for boats that qualified and don't have a lobster permit.

Thank you

Fv Allison

Permit# 149870

Oceancity md

James Hahn

Po box 124

Vienna MD 21869  
4103104296

# Characterization of the offshore American lobster and Jonah crab trap fishery in Lobster Management Area 3 in and around the Southern New England and Georges Bank canyons

Kelly Whitmore<sup>1</sup>, Elizabeth Morrissey<sup>1</sup>, Megan Ware<sup>3</sup>, and Robert Glenn<sup>2</sup>

*Massachusetts Division of Marine Fisheries*

<sup>1</sup>30 Emerson Avenue, Gloucester, MA 01938

<sup>2</sup>1213 Purchase Street, New Bedford, MA 02740

<sup>3</sup>*Atlantic State Marine Fisheries Commission*

1050 N. Highland Street, Suite 200A-N, Arlington, VA 22201

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## Background

The Atlantic States Marine Fisheries (ASMFC) initiated a mail survey to collect information on the extent and value of the offshore American lobster and Jonah crab trap fishery occurring in and around the deep-water canyons in Southern New England (Lobster Conservation Management Area 3). The purpose of this survey was to characterize the canyon fishery, as current lobster and Jonah crab trip reports include data only to the broad level of NMFS statistical area. Information on the distribution of effort, fishing patterns, and value of harvest in and around the canyons was requested by the New England Fishery Management Council (NEFMC) as they draft an Omnibus Deep-Sea Coral Amendment to modify several Fishery Management Plans. The Amendment may establish discrete deep-sea coral protective zones, as well as broad deep-sea coral regions along the edge of the continental shelf from the Alvin canyon to the Exclusive Economic Zone (i.e. Hague Line). A region identified as the NEFMC Area of Interest encompasses 21 Southern New England/Georges Bank canyons (Figure 1). The NEFMC is expected to debate potential gear restrictions within the Area of Interest. As such, the comprehensive data collected through this survey provided an important context on the American lobster and Jonah crab trap fisheries occurring in this unique region.

## **Methods**

In February 2016, a cover letter and survey (Appendix A), and postage-paid self-addressed return envelope were mailed to all 97 commercial lobster 2015 permit holders who designated fishing Lobster Conservation and Management Area (LCMA) 3. Generally, the survey inquired about fishing locations, effort, and value of lobster and Jonah crab landings within the NEFMC Area of Interest in and around the canyons from 2014 to 2015. Fishermen were asked to specify canyons, depths, and seasons fished and how effort and revenue were allocated across those variables. Nautical charts identifying the proposed NEFMC Area of Interest and discrete canyons within it were included with the survey for clarification. Respondents were informed that confidential data would be protected and an individual fisherman's data would not be shared. Optional demographic data were collected at the end of the survey including vessel name, permit, and homeport. Respondents were also asked to share comments about the survey and/or topic.

## **Results**

A total of 34 surveys were returned within five weeks of the mailing date, for an overall response rate of 35%. Response rates were favorable across states (by state on permit) (Table 1). Of the 34 surveys returned, 19 (56%) represented vessels that fished traps in the NEFMC Area of Interest in 2014-2015 (Table 1). After removal of vessels that reported having fished only Area 2 (n=2), fished Area 3 but not near the canyons (n=11), or did not fish traps (n=2) the response rate for vessels fishing traps within the Area of Interest was 20% of the total mailed (19 of 97), or 23% of the pertinent fishermen pool (19 of 82).

The 19 respondents that fished traps within the Area of Interest for lobster and/or Jonah crab in 2014-2015 hailed from the states of Massachusetts, New Hampshire, or Rhode Island (Table 1). Each of these respondents provided detailed information on fishing practices and revenue generated from within the LCMA 3 canyons region. Nearly all (95%) of those fishing within the Area of Interest reported trips and catches using the NMFS Fishing Vessel Trip Reports (VTR) (n=19). At the time of the survey, 79% of individuals fishing the Area of Interest were aware that

the NEFMC was considering development of an Amendment to several Fishery Management Plans to protect deep sea corals in the region.

**Table 1.** ASMFC survey response rates by state.

State on Permit	Response Rate	n Mailed	n Returned	n Applicable
ME	25%	8	2	0
NH	33%	12	4	1
MA	31%	36	11	10
RI	50%	28	14	8
CT	0%	1	0	0
NY	25%	4	1	0
NJ	25%	8	2	0
Total		97	34	19

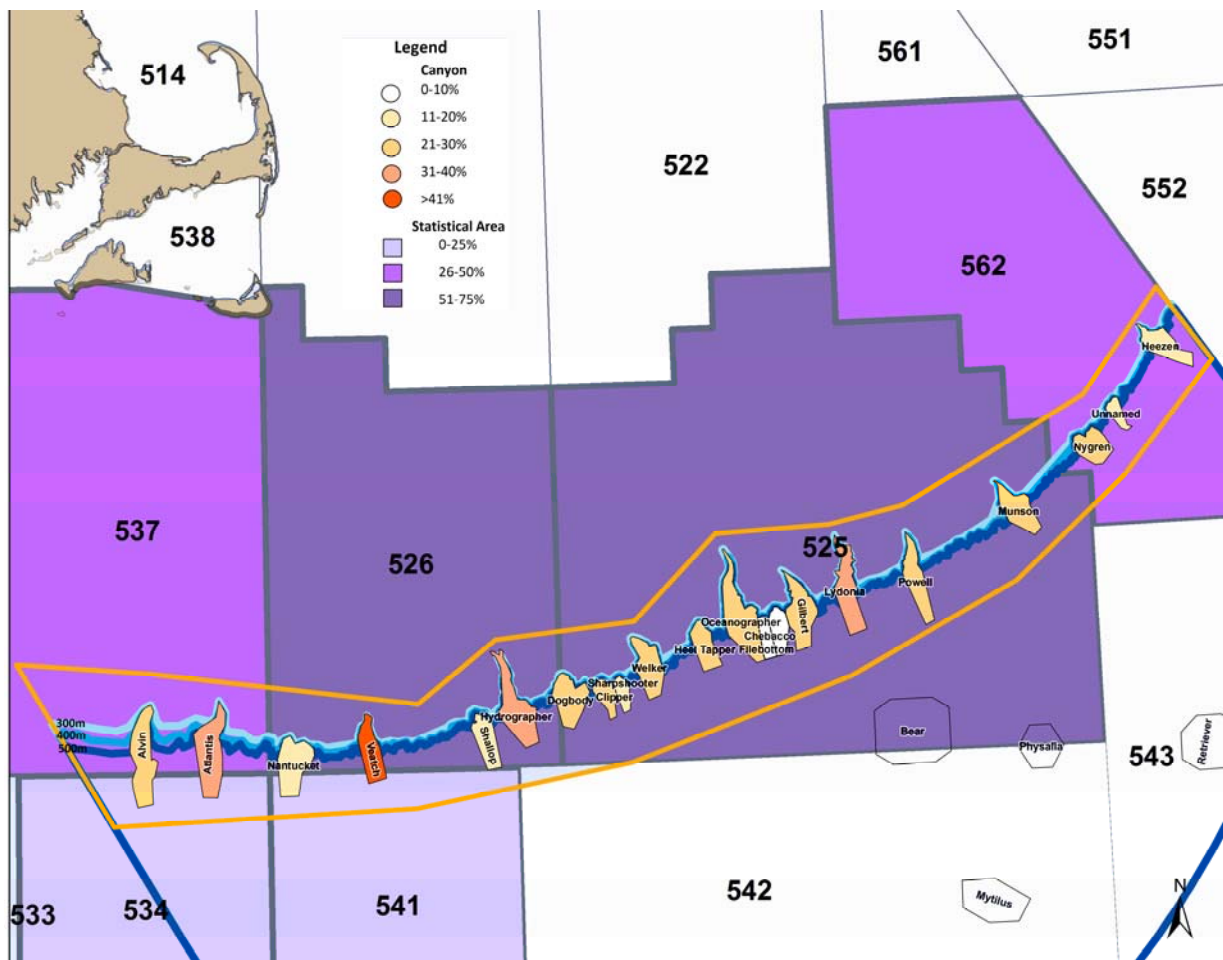
Locations Fished

All six of the NMFS statistical reporting areas (SRAs 525, 526, 534, 537, 541, and 562) that span the NEFMC Area of Interest were fished in 2014-2015 (Figure 1). A majority of fishermen (74%, n=19) fished in SRA 525, which encompassed the highest number of canyons (12 of 21 canyons), and SRA 526 (63%, n=19), which encompassed Veatch Canyon, the canyon fished by most respondents (see text below, and Figure 1). Fewer fishermen (16%) reported fishing in SRAs 534 and 541, the only statistical areas that do not overlap entire canyons (or canyon heads) (Figure 1). Fishermen often fished in more than one statistical area *per trip*; 68% reported this at least once in 2014-2015 (n=19). Additionally, differences in statistical areas fished by home port were noted. Vessels from Massachusetts fished in all six statistical areas within the NEFMC Area of Interest, while those from Rhode Island fished in three (SRAs 525, 526 and 537), and New Hampshire in two (SRAs 525 and 526) (Figure 2).

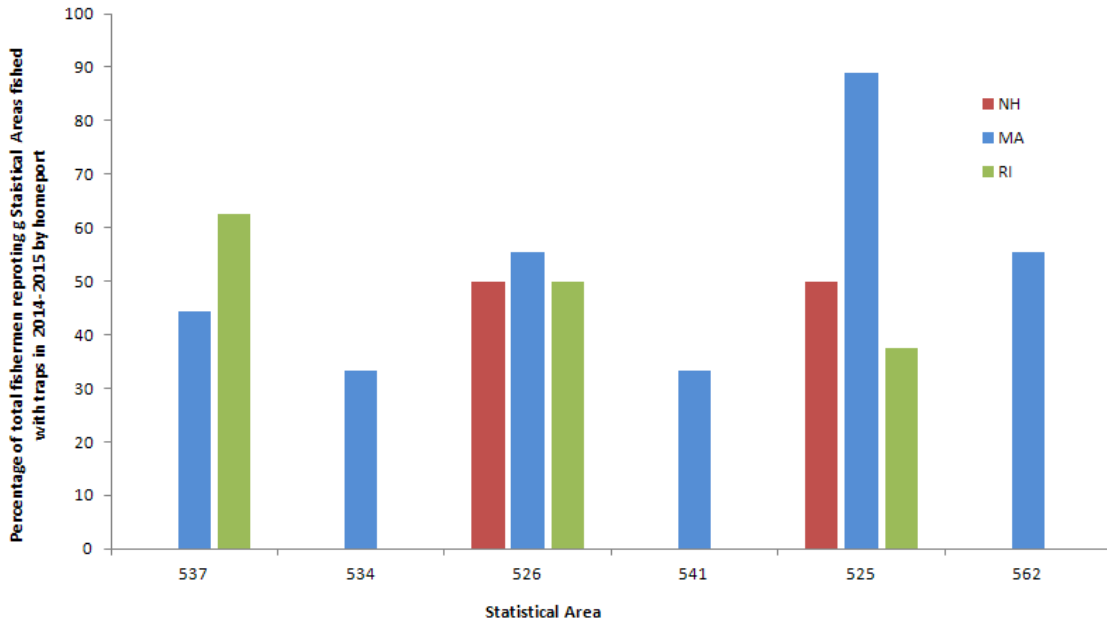
All but two of the 21 canyons situated within the NEFMC Area of Interest were fished in 2014-2015 by respondents (Figure 1 and Figure 3). Individual fishermen set traps in anywhere from two to ten discrete canyons (average  $4.4 \pm 0.5$  SE canyons) in 2014-2015. Veatch canyon was fished by the most (42%) respondents, followed by Hydrographer (37%), Atlantis (32%), Alvin, Gilbert, Lydonia, Oceanographer (each 26%), and Clipper, Dogbody, Heel Tapper, Munson, Nygren, Powell, and Welker (each 21%). Fewer reported fishing Heezen, Nantucket, Shallop,

Sharpshooter, and Unnamed canyons (each 16%) (Figure 1 and Figure 3). Chebacco and Filebottom canyons were the only canyons not fished by those who responded (Figure 1 and Figure 3). Most canyons were fished by several fishermen regardless of vessel origin and the only evident regional difference was that Rhode Island fishermen were less likely to transit to the canyons furthest east (Nygren, Unnamed, and Heezen) (Figure 3).

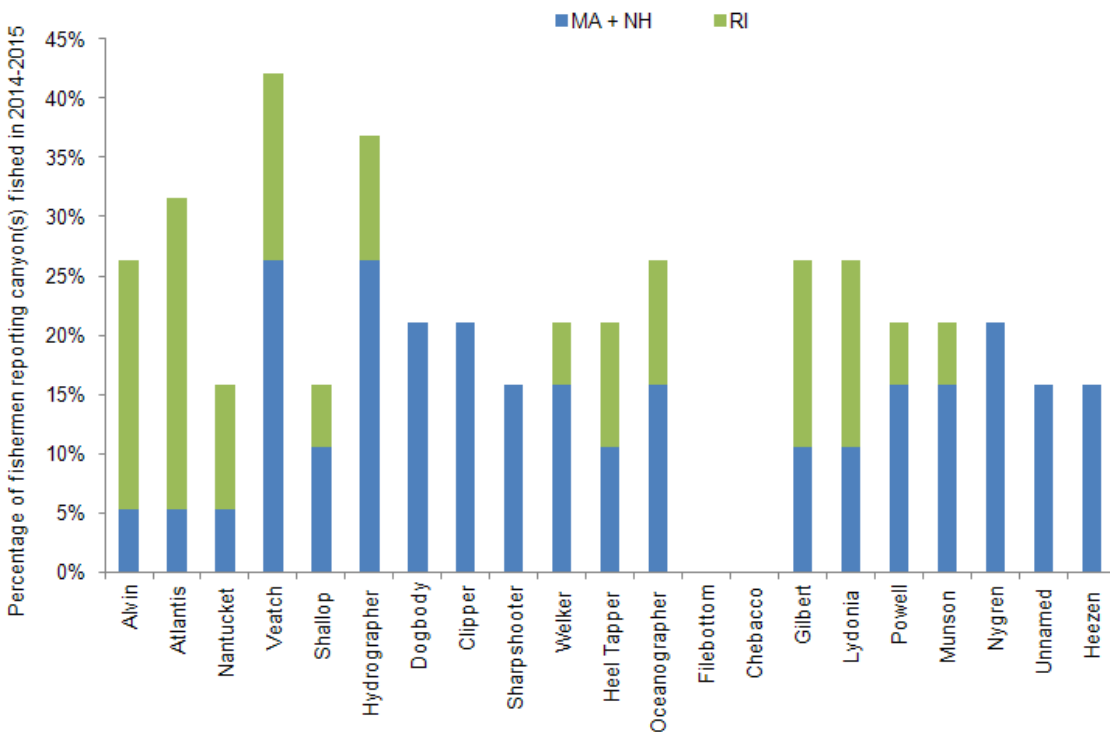
All fishermen reported fishing between canyons as well in and around them (n=19). A majority (84%) reported that they most often set traps both at the heads of canyons and between canyons, while the remaining 16% were split evenly as to whether they most often fish at the heads of the canyons, between canyons, or neither (i.e. set on a loran line).



**Figure 1.** Comparative fishing effort by canyon and by NMFS statistical reporting area within the NEFMC Area of Interest (orange line) as the percentage of respondents citing the canyon(s) or statistical area(s) fished for lobster and/or Jonah crab in 2014-2015. For canyons, the darker the color orange, the more frequently the canyon was named. For statistical area, the darker the color purple, the more frequently the statistical area was named. Depth contours at 200 m, 400 m, and 500 m within the NEFMC Area of Interest are indicated in shades of blue.



**Figure 2.** Percentage of fishermen reporting NMFS statistical area fished (within the NEFMC Area of Interest) in 2014-2015 by state/homeport. Statistical areas are listed in west to east orientation (L-R).



**Figure 3.** Percentage of fishermen reporting individual canyon(s) fished (within the NEFMC Area of Interest) in 2014-2015 by state/homeport. Massachusetts and New Hampshire fishermen were combined to preserve confidentiality (NH <3 respondents). Canyons are listed in west to east orientation (L-R).



### Depth Fished

All canyon fishermen reported the maximum depth at which they fished traps (for lobster and/or Jonah crab) in 2014-2015. This was an open-ended response and consistently reported in fathoms, which were converted to meters. Maximum depth fished per fisherman ranged from 220 to 549 meters (120 to 300 fathoms), with an average of 406 meters  $\pm$  22 SE (222 fathoms). Cumulatively, 100% of fishermen set their deepest traps in water 200+ meters deep, 76% in 300+ meters, and 48% 400+ meters of water (n=19) (Table 2). Of the 48% of fishermen with traps set in over 400 meters of water, 14% of them set traps deeper than 500 meters.

Nearly half of (47%) respondents fished traps in deepest waters across two or more seasons, with all seasons represented (n=19). Winter (January to March) was the season most commonly named for deep trap sets (74% of responses), followed by spring (April to June; 42%), and fall (September to December; 32%). Traps were least likely to be set in the deepest waters during the summer (July to August) (named in 11% of responses).

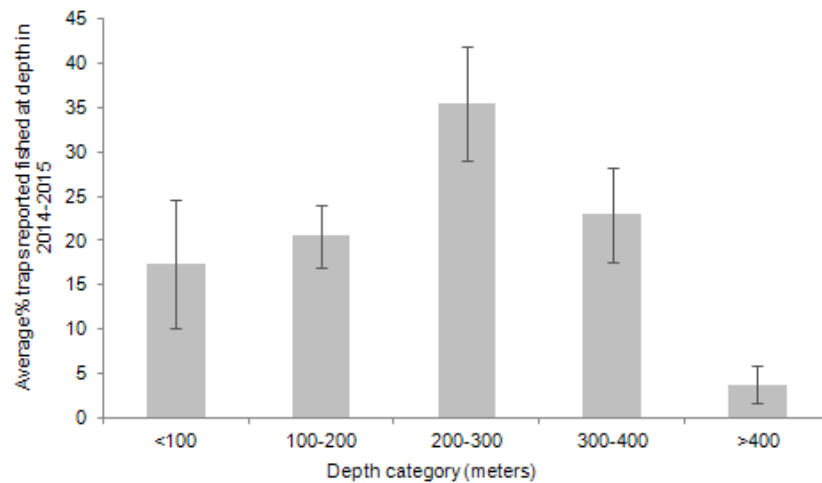
Fishermen also indicated how trap allocation varied by depth within the NEFMC Area of Interest. On average, 96% of an individual's traps were fished from 0 to 400 meters (0 to 219 fathoms) (Table 2 and Figure 4). Of the five depth categories provided, the most traps (35%) were allocated to 200-300 meters (109-164 fathoms). Only 4% of an individual's traps were set deeper than 400 meters (Table 2). Although fewer traps were apportioned to this deepest stratum, over a quarter (27%) of fishermen reported fishing traps over 400 meters depth (Table 2), thus the overall total traps fished in this stratum may be considerable (n=15).

Fishermen reported variable fishing patterns when asked to explain (open-ended response) their trawl configurations by depth during a single trip, e.g. whether they fished a consistent depth along the shelf or if depth fished varied across canyons. A majority of fishermen (42%) described setting traps at both consistent and varied depths along the shelf and across canyons within a trip (n=19). Patterns were often broadly illustrated and changed with areas fished but area was not well specified. Several fishermen (21%) indicated that fishing patterns changed seasonally, and as a result were unable to specify practices made during a single trip. Another 26% of fishermen reported fishing a range of depths, but did not indicate within canyons or

along the shelf. A small percentage (11%) reported fishing on specific depth contour lines, or on a specific loran line across many depths (5%). As reported earlier, a majority of fishermen set traps both in and between canyons. Several comments indicated that individuals fish in proximity to each other, and that they maintain organization of trap sets in and around the canyons by working with each other's fishing patterns.

**Table 2.** Allocation of fishing effort and revenue in the NEFMC Area of Interest in 2014-2015 by depth category.

Depth category (meters)	Max. depth fished by % fishermen	Ave. % traps allocated by depth	% Fishermen fishing at depth	Ave % revenue by depth	% Fishermen with revenue at depth
<100	0	17	47	23	67
100-200	0	21	87	33	87
200-300	26	35	93	23	67
300-400	32	23	73	18	53
>400	42	4	27	3	13
n Respondents	19	15	15	15	15



**Figure 4.** Average allocation of total traps fished per depth category per fisherman, within the Area of Interest in 2014-2015 (n = 15).

Effort: Trips and Traps

The average annual number of trips made by each fisherman to the NEFMC Area of Interest in 2014-2015 was  $30 \pm \text{SE } 1.3$  (2014-2015 median = 29, n=19) with a fairly wide range of trips per year, from 15 to 49 (Table 3). Total number of trips to the Area of Interest in 2014-2015 for the 19 vessels was 1,124. The average number of traps hauled *per trip* in 2014-2015 was  $1,779 \pm \text{SE}$

106 (median 1,614; range of 1,100 to 2,600 traps, n=18) and did not differ by homeport state (unpaired t-test  $p = 0.26$ ) (Table 3). The total number of traps hauled *per trip* among the 18 respondents/vessels was over 32,000, with three individuals noting that their reported trap hauls did not include re-hauls per trip. Individual traps tended to be set at least twice within a single trip for 86% of respondents. Over the next five years, the majority (76%) of fishermen expect that their fishing effort in the NEFMC Area of Interest will not change significantly (n=19). Some (19%) expect their effort to increase, and one (5%) anticipates that it will decrease over the next five years.

Most (74%) fishermen stated that there was no seasonal difference as to when they had the highest number of traps in the water in the NEFMC Area of Interest (n=19). Of the 26% whose trap totals varied by season, most reported setting the highest number of traps across several seasons. Trap totals were commonly higher in summer (July to September), followed by fall (October to December), and spring (January to March). No one reported having the highest number of traps in the water in winter (January to March), which is also when traps were reported to be set deepest. It is expected that this pattern will persist as the majority (74%) of fishermen did not expect their fishing effort in the NEFMC Area of Interest to change substantially over the next five years (n=19). Of the minority, 21% expected their fishing effort to increase substantially, and 5% expected it to decrease over the next five year.

### Revenue

There was a high dependence on the NEFMC Area of Interest for revenue for all who fished within the Area. In 2014,  $77\% \pm 5$  SE (median = 82%, range 35-100%) of an individual's lobster and Jonah crab revenue came from the Area of Interest, and in 2015 that figure increased to  $79\% \pm 5$  SE (median = 85%, range 37-100%, n=18) (Table 3). The average combined revenue *per trip* from lobster and Jonah crab harvest within the NEFMC Area of Interest in 2014-2015 was \$32,514 (median \$31,841, n=19) with a range of \$9,000 to \$85,000 reported per trip per fisherman (Table 3). There was an overall 8%, or \$2,595, increase in combined revenue per trip from 2014 to 2015 (Table 3).

Revenues for 2014-2015 were described as typical (63%) or higher (16%) than normal for the majority of fishermen (n=19). Several (21%) stated they did not have a characteristic earning with which to compare. No one reported that revenues in 2014-2015 were lower than normal. Accordingly, revenues generated from lobster and Jonah crab catches in and around the canyons over the past five years have steadily increased (37%) or remained constant (32%) for most. Others noted that combined revenue changed without pattern (26%) over that time frame, or for one, steadily decreased (5%) (n=19).

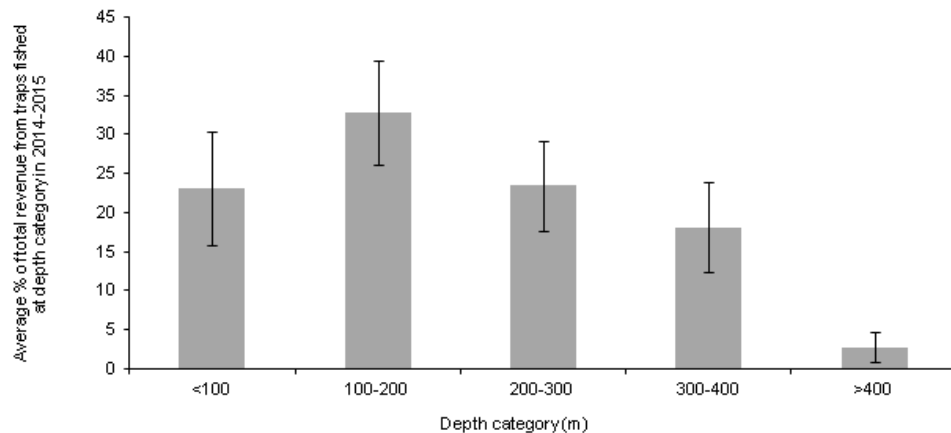
When breaking down earnings within the NEFMC Area of Interest by fishery, 88% of fishermen reported higher revenue from lobster than from Jonah crab (n=17). For these individuals, the value of lobster was on average six (in 2014) to eight (in 2015) times higher than for Jonah crab. For the two vessels (12%) reporting higher Jonah crab revenue than lobster, Jonah crab value was about three times that of lobster in 2014 and 2015 (figures not disclosed, <3 respondents). The average *annual* revenue from **lobster** fishing in the NEFMC Area of Interest in 2014-2015 was \$717,284 ± SE \$106,491 (median \$665,400, range \$75,000 to \$1.8 million, n=17). Annual earnings from lobster increased by an average of 10% or \$66,370 from 2014 to 2015 (Table 3). Total lobster revenue from the NEFMC Area of Interest for the fourteen individuals who responded to the survey was \$11.6 million in 2014 and \$12.8 million in 2015 (Table 3).

The average *annual* revenue from **Jonah crab** fishing in the NEFMC Area of Interest in 2014-2015 was \$182,784 ± SE \$55,868 (median \$97,000, range \$0 to \$825,000, n=17). Earnings from Jonah crab were highly variable among respondents but similar from year to year within respondents. Total average annual revenue from Jonah crab decreased by 15% or \$28,360 from 2014 to 2015 (Table 3). Total Jonah crab revenue from the NEFMC Area of Interest for the 17 individuals who responded was \$3.3 million in 2014 and \$2.9 million in 2015 (Table 3).

**Table 3.** Effort and revenue statistics for lobster and Jonah crab fishing within the NEFMC Area of Interest in 2014 and 2015, reported by fishermen.

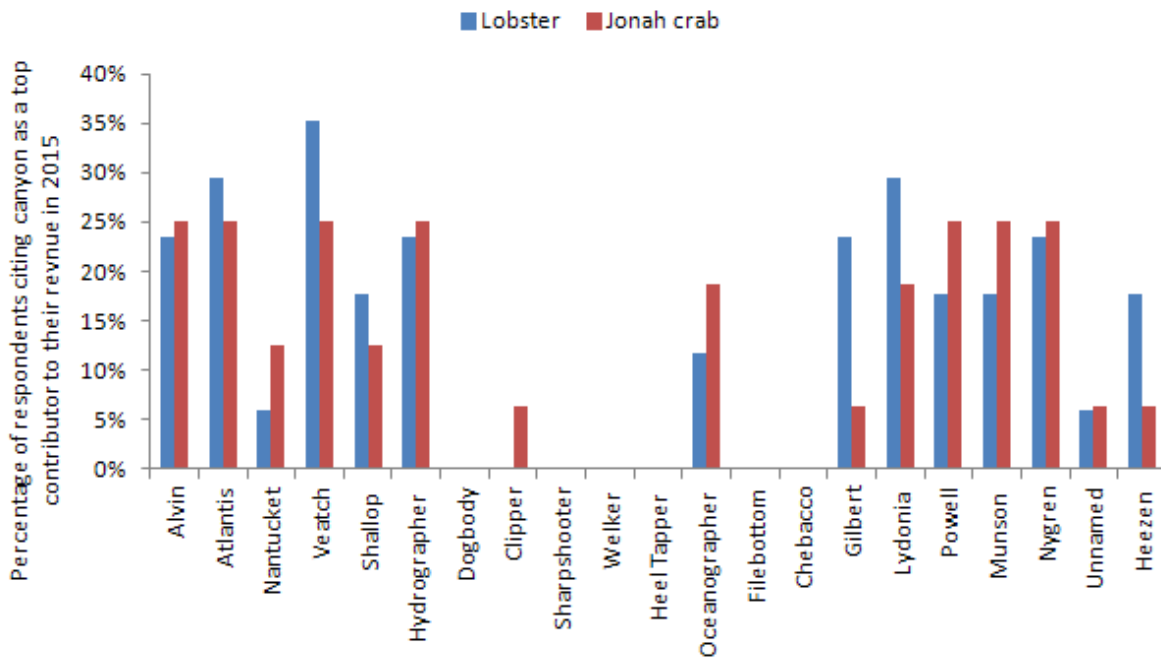
	Trap hauls per trip	Total Number Trips to Area		% Revenue from Area of Interest		Per Trip Revenue (USD)		Annual Revenue (USD) Lobster		Annual Revenue (USD) Jonah Crab	
	2014-2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Average	1,779	30	29	77	79	\$ 31,251	\$ 33,846	\$ 684,099	\$ 750,469	\$ 195,964	\$ 167,605
SE	106	2.0	1.8	5.1	4.9	\$ 3,549	\$ 4,121	\$ 99,733	\$ 115,348	\$ 63,418	\$ 52,541
Median	1,614	28	30	82	85	\$ 31,841	\$ 31,650	\$ 628,289	\$ 734,468	\$ 100,000	\$ 94,830
Min	1,100	20	15	35	37	\$ 10,000	\$ 9,000	\$ 120,000	\$ 75,000	\$ -	\$ -
Max	2,600	49	45	100	100	\$ 75,000	\$ 85,000	\$ 1,500,000	\$ 1,800,000	\$ 825,000	\$ 650,000
n Respondents	18	19	19	18	18	19	18	17	17	17	17
Sum of Reported	32,023	570	554					\$11,629,691	\$12,757,974	\$3,328,664	\$2,845,774

Fishermen identified how revenue from lobster and Jonah crab varied by depth within the NEFMC Area of Interest. On average, 97% of an individual’s revenue came from traps fished from 0 to 400 meters (0 to 219 fathoms; n=15) (Figure 5). Of the five depth categories provided, the highest average revenue (33% of total) came from 100-200 meters, which differed from where the most traps were allocated (200-300 meters) (Table 2, Figure 4, and Figure 5). On average, only 3% of an individual’s revenue came from traps fished deeper than 400 meters (Table 2, Figure 5). Individual fishermen reported anywhere from one to four depth categories (average =  $3 \pm 0.3$  SE) that contributed to their combined revenue (n=15). Overall, 87% of fisherman reported that revenue came from traps fished in the 100-200 meter range, and only 13% reported revenue coming from the deepest depth stratum (>400 meters) (Table 2).

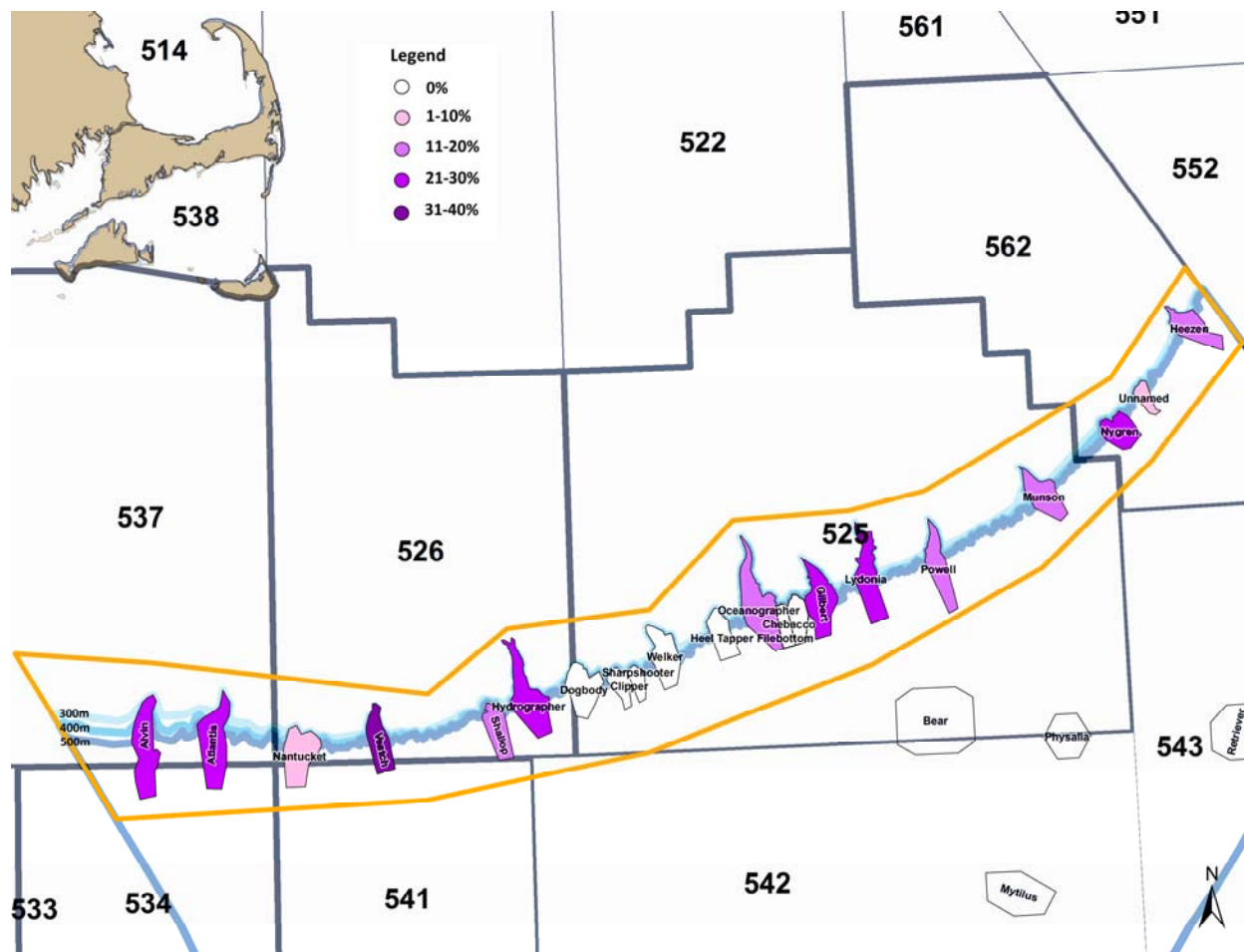


**Figure 5.** Average allocation of revenue of lobster and crab per depth category per fisherman, within the Area of Interest in 2014-2015 (n = 15).

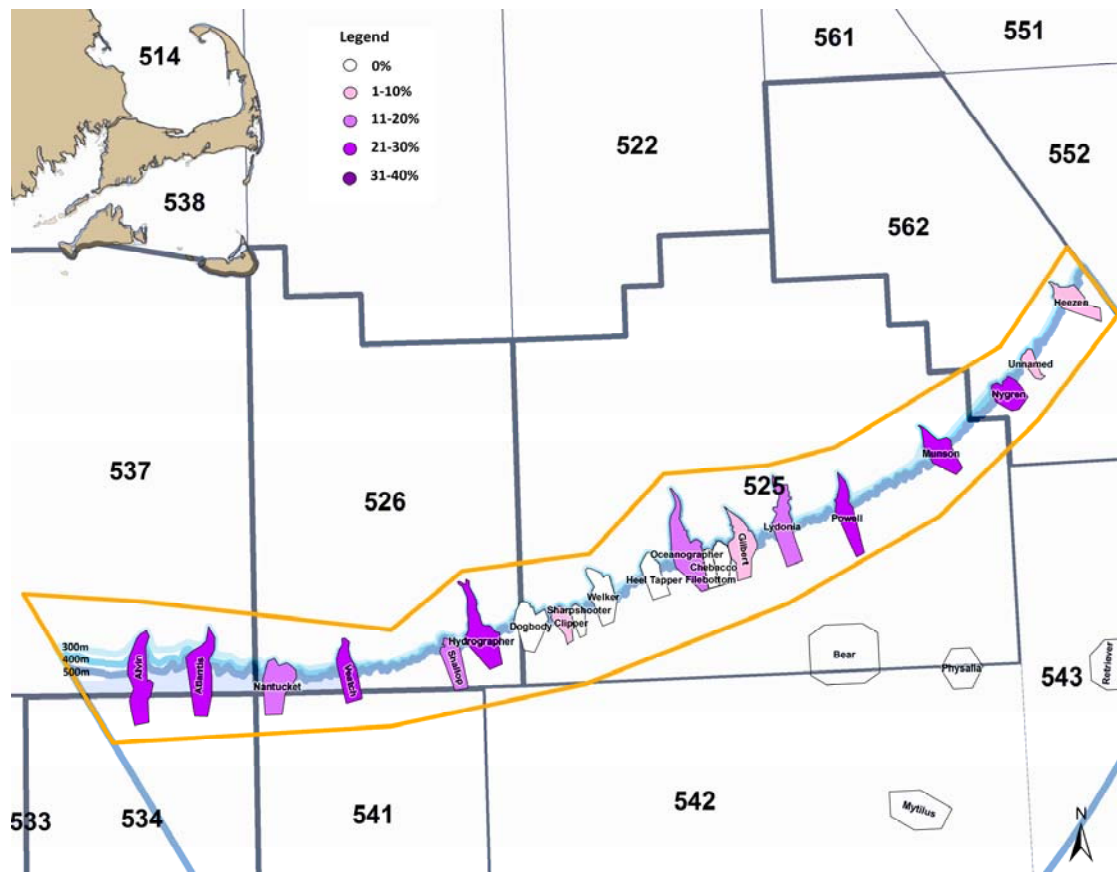
The top three individual canyons that contributed most to fishermen’s **lobster** revenue from within the NEFMC Area of Interest were Veatch (35%), Lydonia (29%), and Atlantis (29%) canyons (n=17) (Figure 6 and Figure 7). For Jonah crab, seven individual canyons were named equally as top contributors to fishermen’s **Jonah crab** revenue. These included Alvin, Atlantis, Veatch, Hydrographer, Powell, Munson, and Nygren canyons (n=16) (Figure 6 and Figure 8). The two vessels that reported greater revenue from Jonah crab than lobster named all canyons as most important to their combined revenues. For both lobster and Jonah crab, canyons distributed to the west and east were generally identified as important contributors more frequently than those centered in the NEFMC Area of Interest (Figure 6, Figure 7, and Figure 8).



**Figure 6.** Importance of individual canyons as reported by the percentage of fishermen (lobster n=17; Jonah crab n=16) citing each of the top three that contributed most to their revenue from catches of lobster (blue) and Jonah crab (red) within the NEFMC Area of Interest in 2015. Canyons are listed in west to east orientation (L-R).



**Figure 7.** Importance of individual canyons to fishermen's revenue from **American lobster**, reported as the percentage of fishermen citing each as one of the top three that contributed most to their earnings from within the NEFMC Area of Interest in 2015. Canyons are listed in west to east orientation (L-R).

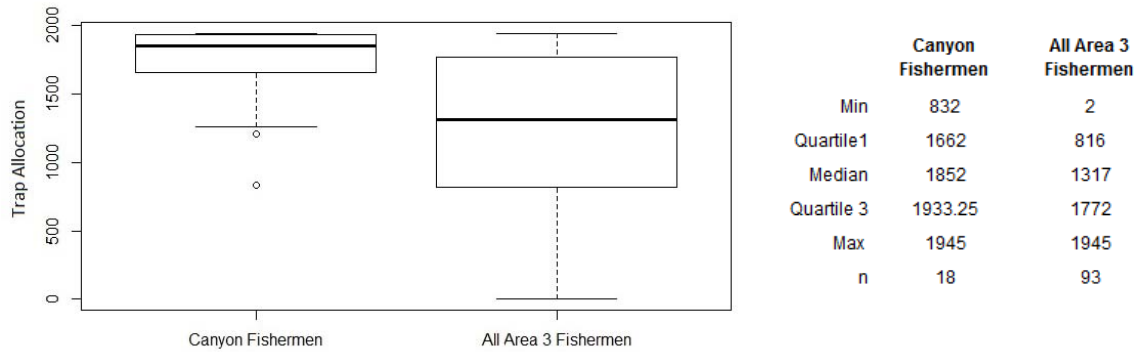


**Figure 8.** Importance of individual canyons to fishermen’s revenue from **Jonah crab**, reported as the percentage of fishermen citing each as one of the top three that contributed most to their earnings from within the NEFMC Area of Interest in 2015. Canyons are listed in west to east orientation (L-R).

## Conclusions

Nineteen lobstermen provided unique and comprehensive descriptions of trap fishing practices in and around the Georges Bank and Southern New England canyons in Lobster Conservation Management Area 3. Trap allocations for the 19 survey respondents that fished the NEFMC Area of Interest were around 40% higher than trap allocations for the LCMA 3 non-respondents (Figure 9). This indicated that fishing practices characterized by respondents were representative of those who utilize the area most, and considered ‘high-liners’ of the LCMA 3 lobster fleet.





**Figure 9.** Trap allocations of (left) LCMA 3 fishermen with 2015 permits who responded to the survey and reported fishing traps within the NEFMC Area of Interest ('Canyon Fishermen'), and of (right) LCMA (Area) 3 fishermen with 2015 permits who did not respond to the survey ('All Area 3 Fishermen'). Line within the box indicates median, box indicated first and third quartiles, and error bars indicate minimum and maximum values.

The self-reported data revealed that the fishery occurs year round in and between at least 19 of the 21 canyons within the NEFMC Area of Interest, from Alvin canyon in the west to Heezen canyon in the east. Characteristics of the fleet included high effort in terms of number of trips and traps hauled per trip, wide geographic spread of canyons that are most important to overall revenue, and a range of depths that are regularly fished. Depth of fishing in and around the canyons is best characterized as variable, with the highest allocation of traps in less than 400 meters (219 fathoms) of water. However, this summation should be applied cautiously, as more than a quarter of respondents fished at least some traps in waters deeper than 400 meters. Seasonally, most traps were fished from spring to fall and were set at the deepest water depths in winter.

High earnings were a hallmark of this relatively small but active fleet. The reliance of the NEFMC Area of Interest on the fleet's bottom line was evident, as an average of 78% of an individual's total revenue came from the canyons area. Total combined value of lobster and Jonah crab landings from within the NEFMC Area of Interest for the nineteen respondents alone was \$30.6 million from 2014 to 2015.

Data on canyon-area lobster and Jonah crab fishing are unlikely to be obtained elsewhere, as effort and landings data are collected only to the course level of Lobster Management (statistical) Area, which extends well beyond the NEFMC Area of Interest. Survey respondents' submission

of highly detailed and sensitive information conveyed the importance of the NEFMC Area of Interest to individual businesses practices as well as to the Southern New England lobster industry as a whole.

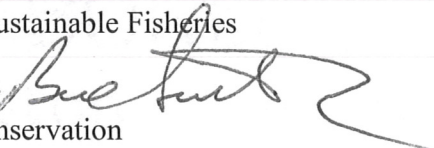
### **Acknowledgments**

The ASMFC would like to thank all survey participants for their willingness to contribute to the survey and for their submission of highly detailed fishing information.



JUN 11 2014

MEMORANDUM FOR: Executive Directors, Regional Fishery Management Councils  
Chairs, Regional Fishery Management Councils  
NMFS Regional Administrators  
Director, Office of Sustainable Fisheries

FROM: Buck Sutter, Director   
Office of Habitat Conservation

SUBJECT: Protection of Deep-Sea Corals from Physical Damage by Fishing Gear  
under the MSA Deep Sea Coral Discretionary Authority

The attached informational document was developed by the NMFS Office of Habitat Conservation and reviewed by NOAA General Counsel, the Office of Sustainable Fisheries, and the NMFS Regional Offices. The purpose of the document is to provide options and information for NMFS Regional Offices and the regional fishery management councils as they implement the discretionary provisions for deep-sea coral protection included in the Magnuson-Stevens Fishery Conservation and Management Act Section 303(b)(2). These provisions provide that any fishery management plan (FMP) which is prepared by any Council or the Secretary, with respect to any fishery, may:

- A) designate zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified types and quantities of fishing gear;
- B) designate such zones in areas where deep sea corals are identified under section 408 [the Deep Sea Coral Research and Technology Program], to protect deep sea corals from physical damage from fishing gear or to prevent loss or damage to such fishing gear from interactions with deep sea corals, after considering long-term sustainable uses of fishery resources in such areas. 16 U.S.C. § 1853(b)(2)(A)-(B).

The information included in this document is consistent with NOAA policies established in its *Strategic Plan for Deep-Sea Coral and Sponge Ecosystems*.

We hope this information is useful to you as you consider mechanisms for the protection of deep-sea corals.

Please contact Dr. Tom Hourigan ([Tom.Hourigan@noaa.gov](mailto:Tom.Hourigan@noaa.gov)) in my Office with any questions or if you would like further information about the Deep Sea Coral Research and Technology Program.

## **Protection of Deep-Sea Corals from Physical Damage by Fishing Gear under the MSA Deep Sea Coral Discretionary Authority**

### **Purpose**

The National Oceanic and Atmospheric Administration (NOAA) is a steward of the nation's living marine resources. This document will assist NOAA offices and the regional fishery management councils (Councils)<sup>1</sup> when developing protective measures for deep-sea corals under section 303(b)(2)(B) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).<sup>2</sup> Section 303(b)(2) provides that any fishery management plan (FMP) which is prepared by any Council or the Secretary, with respect to any fishery, may:

- A) designate zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified types and quantities of fishing gear;
- B) designate such zones in areas where deep sea corals are identified under section 408 [the Deep Sea Coral Research and Technology Program], to protect deep sea corals from physical damage from fishing gear or to prevent loss or damage to such fishing gear from interactions with deep sea corals, after considering long-term sustainable uses of fishery resources in such areas. 16 U.S.C. § 1853(b)(2)(A)-(B).

We encourage use of this discretionary authority to advance the agency's and Councils' conservation objectives. NOAA's Strategic Plan for Deep-Sea Coral and Sponge Ecosystems seeks to ensure that fisheries that may interact with known and likely deep-sea coral ecosystems are identified and monitored and that such ecosystems are protected from the impacts of fishing gear (see Figure 1).<sup>3</sup> This document is consistent with those policy goals.

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<sup>1</sup> Hereafter, "Council" includes NOAA's National Marine Fisheries Service (NMFS), when it prepares fishery management plans or amendments under MSA sections 304(c) (Secretarial plans) and (g) (Atlantic highly migratory species plans).

<sup>2</sup> This document supercedes NMFS Office of Habitat Conservation's Essential Fish Habitat and Deep-sea Coral Authorities White Paper (Feb. 2010).

<sup>3</sup> NOAA 2010. *NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems: Research, Management, and International Cooperation*. Silver Spring, MD: NOAA Coral Reef Conservation Program. NOAA Technical Memorandum CRCP 11. 67 pp.  
[http://coris.noaa.gov/activities/deepsea\\_coral/](http://coris.noaa.gov/activities/deepsea_coral/) Deep-sea sponge habitats can play similar ecological roles and face similar threats as deep-sea coral habitats, but they are outside the scope of the discretionary authority and thus not addressed in this document.

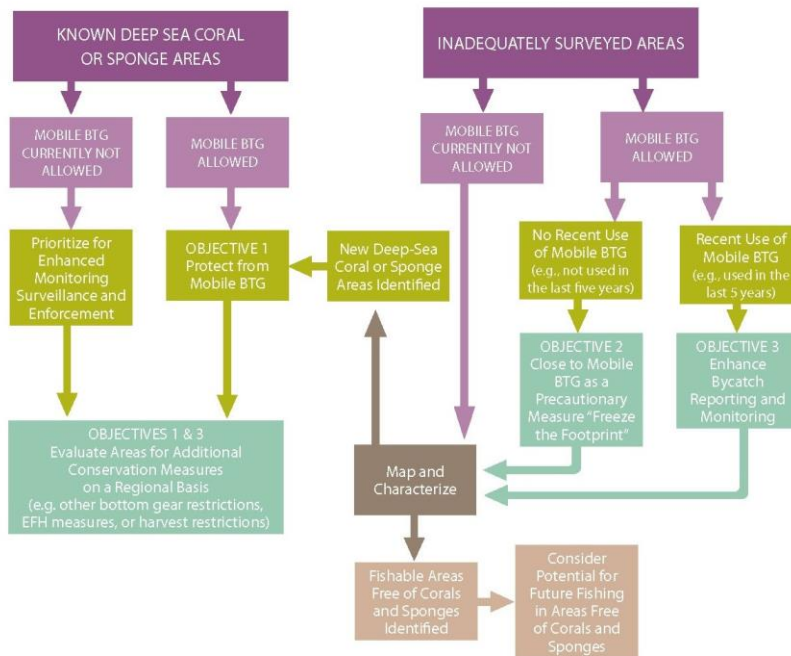


Figure 1: NOAA’s precautionary approach to manage bottom-tending gear, especially mobile bottom-tending gear and other adverse impacts of fishing on deep-sea coral and sponge ecosystems, as described in NOAA’s Strategic Plan for Deep-Sea Coral and Sponge Ecosystems.

## Scope

This document focuses on the use of MSA section 303(b)(2)(B) discretionary authority to minimize physical damage from fishing gear to deep-sea corals identified by the Deep Sea Coral Research and Technology Program. Such measures would also prevent loss or damage to gear from interactions with deep-sea corals. In addition to the discretionary authority, other MSA provisions may be relevant to deep-sea corals. *See Other MSA Provisions* (explaining mandatory requirements for essential fish habitat and bycatch).

## What are considered Deep-Sea Corals?

There is strong scientific consensus on the taxa that are considered “corals”<sup>4</sup> but less consensus on what is considered “deep sea.” For the purposes of this document and the implementation of the MSA, NOAA has defined the term “deep-sea corals” as azooxanthellate corals (i.e., corals that do not depend upon symbiotic algae and light for energy) generally occurring at depths below 50 meters.<sup>5</sup> Of particular ecological importance and conservation concern are “structure-

<sup>4</sup> Cairns, S.D. 2007. Deep-water corals: an overview with special reference to diversity and distribution of deep-water scleractinian corals. *Bulletin of Marine Science*, 81(3): 311-322.

<sup>5</sup> See NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems, *supra* note 3; 1<sup>st</sup> Report to

forming deep-sea corals,” those colonial deep-sea coral species that provide vertical structure above the seafloor that can be utilized by other species<sup>6</sup> and are most likely to be damaged by interactions with fishing gear. Structure-forming deep-sea corals include both branching stony corals that form a structural framework (e.g., *Lophelia pertusa*) as well as individual colonies of corals, such as gorgonians and other octocorals, black corals, gold corals, and lace corals (Table 1). These are often referred to as habitat-forming deep-sea, deep-water, or cold-water corals.

Class	Subclass	Order	Common Name	Additional Information
<b>Anthozoa</b> — corals, sea anemones, sea pens	Hexacorallia	Scleractinia	Stony corals	A few species form deep-water reef-like structures known as bioherms, coral banks, or lithoherms.
		Zoantharia	Gold corals	Only a few zoanthids in the family Parazoanthidae (e.g., genus <i>Kulamanamana</i> & <i>Savalia</i> ) form rigid skeletons.
		Antipatharia	Black corals	Many branching forms. Certain species harvested for jewelry in Hawaii.
	Octocorallia	Alcyonacea*	True soft corals	Most are not major structure-forming species.
		Gorgonacea	Gorgonians, sea fans, sea whips	Many branching forms. At least 12 families contain major structure-forming species.
		Pennatulacea	Sea pens	Unlike other species, sea pens are found on soft sediments. Contribution as habitat and to biodiversity is not well understood.
<b>Hydrozoa</b> — hydroids and hydromedusae	Hydroidolina	Anthoathecata (Family Stylasteridae)	Stylasterids or lace corals	Can form branching colonies. May be confused with stony corals but the resemblance is superficial.

\*Gorgonians are included by many taxonomists in the Order Alcyonacea.

**Table 1:** Major deep-sea coral groups (phylum Cnidaria)<sup>7</sup>

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*Congress on Implementation of the Deep Sea Coral Research and Technology Program, infra note 7; and The State of Deep Coral Ecosystems of the United States* (NOAA 2007).

<sup>6</sup> Lumsden SE, Hourigan TF, Bruckner AW, Dorr G (eds.) 2007. *The State of Deep Coral Ecosystems of the United States*. NOAA Technical Memorandum CRCP-3. Silver Spring MD.

<sup>7</sup> NOAA 2008. *1<sup>st</sup> Report to Congress on the Implementation of the Deep Sea Coral Research and Technology Program*. [http://www.nmfs.noaa.gov/habitat/2010\\_deepcoralreport.pdf](http://www.nmfs.noaa.gov/habitat/2010_deepcoralreport.pdf).

### ***What is the role of the Deep Sea Coral Research and Technology Program (DSCRTP)?***

The DSCRTP was established under MSA section 408 to identify and map locations of deep-sea corals, monitor activity in locations where deep-sea corals are known or likely to occur, and submit information to the Councils. Section 408 also authorizes the program to conduct research, develop technologies or methods designed to assist fishery participants in reducing interactions between gear and deep-sea corals, and engage in other activities.<sup>8</sup> The program integrates expertise and resources available across NOAA to provide scientific information needed to conserve and manage deep-sea coral ecosystems.<sup>9</sup>

Upon request, the DSCRTP has been providing available information on deep-sea corals to some Councils and Regions to assist them with management initiatives. The DSCRTP is also compiling a database of information on known deep-sea coral locations. The database and its records are undergoing peer review and then, consistent with MSA confidentiality requirements, will be made publicly available through a U.S. Geological Survey web site, OBIS-USA.gov, and through a NOAA web application. The records of deep-sea coral locations are also being used to identify areas likely to contain deep-sea corals using scientific modeling approaches coupled with new field research. In addition, the Program will continue to work with Councils and other partners to develop an updated list of known areas with major structure-forming deep-sea coral aggregations for inclusion in the Program's statutorily required biennial report to Congress on efforts to identify, monitor, and protect deep-sea corals.

The DSCRTP may present a Council with research on, and known locations of, deep-sea coral areas and areas with expected habitat suitable to support deep-sea corals. Should a Council or other organization have information on the location or bycatch of deep-sea corals, it may provide that information to the DSCRTP. If the DSCRTP concurs with that information, it may submit the information to the Council as an area that the Council could consider for protection under the deep-sea corals discretionary authority. The DSCRTP, in consultation with the appropriate Council(s), will periodically review any new information available on deep-sea coral areas and propose revisions and/or amendments to these areas as warranted. If possible, the DSCRTP will schedule such reviews to coincide with a Council's existing essential fish habitat review schedule to maximize efficiency and effectiveness.

As explained below, under the deep-sea coral discretionary authority, a Council may adopt measures that restrict or prohibit fishing or fishing gear. NOAA may provide recommendations to assist Councils in identifying deep-sea coral zones and potential protective actions. These recommendations are in line with MSA section 408, described above, which provides, among other things, that the DSCRTP develop methods designed to assist fishing industry participants in reducing interactions between fishing gear and deep sea corals. The DSCRTP may provide recommendations to a Council for the initial incorporation of deep-sea coral information into an

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<sup>8</sup> See 16 U.S.C. § 1884.

<sup>9</sup> See [http://coralreef.noaa.gov/deepseacorals/noaasrole/research\\_technology/](http://coralreef.noaa.gov/deepseacorals/noaasrole/research_technology/) for further information.

FMP and for any subsequent modification to fishery management actions. If applicable, NOAA may also provide recommendations for protection of deep-sea corals identified as EFH, including recommendations for designating deep-sea corals as habitat areas of particular concern (HAPCs). In making recommendations, the DSCRTP will coordinate with the appropriate NOAA office(s).

### **Deep-Sea Coral Discretionary Authority**

This section addresses designating deep-sea coral zones and adopting protective measures in an FMP, FMP amendment or omnibus amendment that applies to several FMPs. Such measures must be consistent with the National Standards, other MSA provisions and other applicable law. When using the discretionary authority, an FMP/amendment should clearly state the purpose, need and rationale for the action; be supported by the factual record, including environmental, economic and social impact analyses; and cite to the authority. Example citation: “The purpose of this action is to protect deep-sea corals from physical damage from fishing gear as authorized by section 303(b)(2)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.”

#### ***Designating Deep-Sea Coral Zones***

When designating deep-sea coral zones, the following parameters and considerations apply:

1. The authority may only be used for deep-sea coral areas identified by the DSCRTP.
2. Deep-sea coral zones may only be designated within the U.S. Exclusive Economic Zone (EEZ) and within the geographical range of a fishery managed under an FMP. A Council may develop protective measures for such zones that apply to any fishing, not just that managed under the applicable FMP.<sup>10</sup> Thus, measures may apply to fishing that is managed under a different federal FMP or to state-regulated fishing that is authorized in the EEZ.
3. A Council should coordinate with potentially affected Councils, state commissions, and states to ensure that it has sufficient information to support the need for its action and to analyze impacts of the action on other fisheries.<sup>11</sup>

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<sup>10</sup> There may be instances where deep-sea corals extend from the EEZ into state waters. While a Council cannot designate the state waters portion as a deep-sea coral zone under MSA section 303(b)(2)(B), it could describe the deep-sea corals in its FMP. A Council could also explore whether protective measures should be applied to federal permittees when fishing near the deep-sea corals in state waters. However, there would have to be a conservation and management need under the MSA for such action. Should this scenario arise, please consult NOAA General Counsel for further guidance.

<sup>11</sup> See 16 U.S.C. § 1853(a)(9) (requiring FMP to have a fishery impact statement addressing likely effects on and possible mitigation measures for participants in fisheries in adjacent areas under the authority of another Council, after consultation with that Council and representatives of the fisheries’ participants). Often, a Council will consult directly with other Councils when developing an action that might affect their fisheries. In addition, where a fishery extends beyond the geographical area of authority of any one Council, the Secretary may designate a Council to prepare an FMP/amendment or require that the



4. Long-term sustainable uses of fishery resources in the deep-sea coral areas must be considered. This consideration informs but does not limit the scope of protective measures that a Council may adopt.
5. Deep-sea coral zones and protective measures may be adopted even if there are no vessels currently fishing at or near the areas or there is no indication that current fishing activities are causing physical damage to deep-sea corals.
6. To ensure the effectiveness of protective measures, deep-sea coral zones may include, as necessary, additional areas beyond the exact locations of the deep-sea corals.

Areas considered as priorities for protective measures should be identified on a case-by-case basis considering the following ecological factors and other factors as appropriate:<sup>12</sup>

- the size of the reef or coral aggregation, or density of structure-forming deep-sea corals;
- the occurrence of rare species;
- the importance of the ecological function provided by the deep-sea corals as habitat;
- the extent to which the area is sensitive to human-induced environmental degradation;
- the likelihood of occurrence of deep-sea corals in unsurveyed areas based on the results of coral habitat suitability models or similar methods.

### ***Protective Measures***

Within the designated deep-sea coral zones, there are various options available for protecting the corals from physical damage from fishing gear, including but not limited to:<sup>13</sup>

1. Restrictions on the location where fishing may occur. If a closure to all fishing is being considered, it must comply with requirements at MSA section 303(b)(2)(C),<sup>14</sup> which include establishing a timetable for review of the closed area's performance. This review should be conducted in consultation with the DSCRTP. Given the additional

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FMP/amendment be jointly prepared. *Id.* § 1854(f)(1).

<sup>12</sup> See *NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems*, *supra* note 3.

<sup>13</sup> See *supra* page 1 (quoting authority for fishing and gear restrictions under 16 U.S.C. § 1853(b)(2)(A)).

<sup>14</sup> With respect to any closure of an area to all fishing, an FMP/amendment must ensure the closure: “(i) is based on the best scientific information available; (ii) includes criteria to assess the conservation benefit of the closed area; (iii) establishes a timetable for review of the closed area's performance that is consistent with the purposes of the closed area; and (iv) is based on an assessment of the benefits and impacts of the closure, including its size, in relation to other management measures (either alone or in combination with such measures), including the benefits and impacts of limiting access to: users of the area, overall fishing activity, fishery science, and fishery and marine conservation.” 16 U.S.C. § 1853(b)(2)(C).

requirements and process, a Council may want to consider whether targeted gear restrictions, as opposed to a full fishing closure, would provide sufficient protection.

2. Restrictions on fishing by specified types of vessels or vessels with specified types and quantities of gear. These could include, for example, limits on the use of specified fishing-related equipment, required equipment modifications to minimize interactions with deep-sea coral communities, prohibitions on the use of explosives and chemicals, prohibitions on anchoring or setting equipment, and prohibitions on fishing activities that cause damage to deep-sea corals.
3. Proactive protection by freezing the footprint of current fishing activities of specified types of vessels or vessels with specified types and quantities of gear to protect known or expected locations of deep-sea corals.
4. Limits on the harvest or bycatch of species of deep-sea coral that provide structural habitat for other species, assemblages, or communities.

### **Other MSA Provisions**

The deep-sea coral authority is discretionary, but there are other mandatory requirements that may be applicable, including MSA provisions on essential fish habitat and bycatch.

#### ***Essential Fish Habitat (EFH)***

MSA section 303(a)(7) requires that an FMP describe and identify EFH for the fishery, minimize to the extent practicable adverse effects caused by fishing, and identify other actions to encourage the conservation and enhancement of the EFH. Federal action agencies must consult with NOAA on activities that may adversely affect EFH, and NOAA provides non-binding conservation recommendations to the agencies through that process.<sup>15</sup> If a deep-sea coral area is EFH (e.g., essential for spawning, breeding, feeding or growth to maturity of fish managed under an FMP),<sup>16</sup> then it must be identified as such and the above requirements apply.

For deep-sea corals identified through the DSCRTP, the Council may also adopt additional measures under the deep-sea coral discretionary authority. Unlike the EFH requirements, the discretionary authority does not require a showing that corals are habitat for federally-managed fish or that current fishing activities are causing physical damage. The discretionary authority has no required consultation process for non-fishing activities that may affect deep-sea corals. However, there may be avenues for providing non-binding recommendations to conserve or protect corals through other processes under the MSA (*see e.g.*, section 305(b)(3)(A)), National Environmental Policy Act, Fish and Wildlife Coordination Act, and other authorities.

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<sup>15</sup> *See* 16 U.S.C. § 1855(b) and 50 C.F.R. § 600.905 *et seq.* (setting forth EFH consultation requirements and guidance).

<sup>16</sup> EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” 16 U.S.C. § 1802(10). *See also* EFH Guidelines at 50 C.F.R. § 600.810 *et seq.*

### ***Bycatch Requirements***

National Standard 9 of the MSA requires that conservation and management measures minimize bycatch and to the extent bycatch cannot be avoided, minimize bycatch mortality.<sup>17</sup> The MSA defines “bycatch” as fish that are harvested in a fishery but that are not sold or kept for personal use.<sup>18</sup> Because deep-sea corals fall under the statutory definition of “fish,”<sup>19</sup> the MSA bycatch provisions are applicable to them.

When analyzing proposed conservation and management measures, if a Council has information that bycatch of deep-sea corals may occur, it should address the above bycatch requirements regardless of whether the DSCRTP has identified the resources as deep-sea coral areas. For deep-sea corals identified through the DSCRTP, a Council may adopt additional measures under the deep-sea coral discretionary authority. Designation of appropriate deep-sea coral zones that prohibit the use of bottom-contact fishing gears is likely to be among the most effective approaches to minimize bycatch of deep-sea corals.

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<sup>17</sup> 16 U.S.C. § 1851(a)(9). *See also id.* § 1853(a)(11) and 50 C.F.R. § 600.350 (NS 9 Guidelines).

<sup>18</sup> 16 U.S.C. § 1802(2) and 50 C.F.R. § 600.350(a)(2)(c). *See also Managing the Nation’s Bycatch: Priorities, Programs and Actions for the National Marine Fisheries Service* (NMFS 2008) (including as “bycatch” the discarded catch of any living marine resource plus retained incidental catch and unobserved mortality due to a direct encounter with fishing gear).

<sup>19</sup> *See* 16 U.S.C. § 1802(12) (defining “fish” as “finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds”).



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

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## MEMORANDUM

**TO:** American Lobster Management Board  
**FROM:** Doug Grout, Commission Chair  
**DATE:** April 20, 2016  
**SUBJECT:** National Monument Proposal in the Atlantic Ocean

In September 2015, the Obama Administration announced it is considering protecting waters off the coast of New England, through the use of the Antiquities Act. If enacted, this would create the first national monument in the Atlantic Ocean. The proposal identifies the New England Coral Canyons and Seamounts Area as a region under consideration but does not give specifics on the exact boundaries or water depths being evaluated. Nor does the proposal provide a potential time frame on a decision. On March 25, 2016, the White House Council on Environmental Quality announced that Cashes Ledge, in the Gulf of Maine, will not be designated as a national monument; however, the area southeast of Cape Cod is still under consideration.

The Antiquities Act gives the President authority to create national monuments on federal lands which contain “historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest”<sup>1</sup>. The Act specifies that the President, in creating a national monument, reserves “the smallest area compatible with the proper care and management of the objects to be protected”<sup>2</sup>. Since 1906, roughly 130 monuments have been created on land and in the water. Critics of the Antiquities Act highlight there is no requirement for an environmental review or public participation when designating a monument<sup>3</sup>. Others contend the Act is vague on the size requirements and establishment criteria for national monuments, allowing presidents to create large monuments for areas which are not under imminent threat<sup>4</sup>. Those that support the Antiquities Act argue presidents from both parties have used the act to expeditiously preserve resources for future generations<sup>5</sup>.

It is currently unclear what fishing activities or gear types might be limited if a national monument is established off the coast of New England. Given that there is significant lobster fishing effort in the offshore canyons, the American Lobster Management Board may want to discuss how to proceed, in light of the limited information we have on the national monument proposal.

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<sup>1</sup> Antiquities Act of 1906 (P.L. 59-209, 34 Stat. 225)

<sup>2</sup> P.L. 59-209, 34 Stat. 225

<sup>3</sup> Vincent, C and K. Alexander. July 20, 2010. National Monuments and the Antiquities Act. Congressional Research Service, R41330.

<sup>4</sup> Vincent and Alexander, 2010.

<sup>5</sup> Ibid.



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

## MEMORANDUM

**TO:** American Lobster Management Board

**FROM:** David Borden, Chairman Lobster Board

**DATE:** April 25, 2016

**SUBJECT:** Commission Position on Offshore Monument

The Obama Administration is currently considering, per the request of several environmental organizations, the creation of a National Monument (Monument) in the New England Canyons and Seamounts Area via the Antiquities' Act, which may or may not eventually include Cashes Ledge in the Gulf of Maine. While little information has been provided on the specific boundaries under consideration or on what fishing activities may or may not be prohibited, the action could have significant negative impacts on the lobster and crab, fisheries managed by the Commission. Chairman Grout, has arranged for the leadership of the Commission to meet with representatives of the President's Office on Environmental Quality (CEQ) on May 4, 2016 so that we have an opportunity to comment on the issue.

Of key interest to the Commission is the offshore lobster fishery which we manage in conjunction with our partners in NOAA fisheries. There are currently 132 Area 3 lobster permit holders. Each of these fishermen could be negatively affected by the designation of a Monument, either through the direct prohibition of fishing in the area, or by the displacement of effort into adjacent fishing grounds. The economic impacts of a potential Monument designation would undoubtedly be significant, as lobster and Jonah crab revenue from the SNE area alone are estimated to be \$38 million. These economic impacts would be felt coast wide as the fishing fleets working in and around the canyons hail from ports across New England and the Mid-Atlantic (Table 1).

Table 1: Federal permit holders by state. Fishing Year 2016 NOAA GARFO permit holder information.

State	# Area 3 Permit Holders	# Area 3 Trap Allocation
ME	10	4,665
NH	19	25,514
MA	47	48,701
RI	38	41,288
CT & NY	5	5257
NJ, DE, MD, & VA	13	11,443

There is also the potential for negative impacts to the lobster stock. The 2015 Benchmark Stock Assessment found Georges Bank/Gulf of Maine (GOM/GB) stock to be healthy and at record abundance. Therefore closing any portion of GOM/GB stock area to lobster fishing could displace

effort into the Southern New England (SNE) stock, which is currently depleted and experiencing recruitment failure. This redirection of effort could cause further resource depletion in SNE and hinder management actions in the area. Given the potential for large impacts on the lobster and crab fishery and the stocks, I believe it is appropriate and important for the American Lobster Management Board to collectively take a position on the Monument issue, and offer suggestions on ways to mitigate its potential impact should the Administration choose to move forward on the issue.

Notwithstanding the points above, I believe there are other important compelling considerations at risk in this decision that may affect the States. A large number of the States represented on the Commission have major interests in finfish, pelagic longline, squid, and red crab fisheries or have sizable recreational fisheries that pursue pelagic fisheries along the edge of the shelf. Although the States do not directly manage a number of these fisheries, they do have a vital interest in the decision.

All of these fisheries could be directly affected by a closure or indirectly affected by a redirection of effort. For example, a prohibition on squid fishing in proximity of offshore canyons would most certainly result in a redirection of effort to near shore New England and Mid-Atlantic waters by the offshore squid fleet. A prohibition on red crab fishing would result in a redirection into the lobster fishery since all of the red crab vessels have lobster and Jonah crab permits. The red crab fishery alone is valued in excess of \$15 million and employs over 150 individuals in New Bedford, MA. Canyon closures could force fishermen into neighboring shallower waters that are inhabited by higher densities of endangered right whale and other protected species. A Cashes Ledge closure alone would surely displace gear into other GOM areas utilized by higher densities of Right and Humpback whales. These are just a few examples of the potential impacts on the recreational and commercial community.

In recognition of the above concerns, I recommend that the Lobster Board formalize a position/guidance on this issue, and forward the recommendation to the Executive Committee, for consideration and action. Any position adopted by the Executive Committee would therefore be communicated to the office of CEQ at the May 4, 2016 meeting as a formal Commission position.



# National Monuments and the Antiquities Act

**Carol Hardy Vincent**

Specialist in Natural Resources Policy

**Kristina Alexander**

Legislative Attorney

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## Summary

The Antiquities Act of 1906 authorizes the President to create national monuments on federal lands that contain historic landmarks, historic and prehistoric structures, or other objects of historic or scientific interest. The President is to reserve “the smallest area compatible with the proper care and management of the objects to be protected.” The act was designed to protect federal lands and resources quickly, and Presidents have proclaimed about 130 monuments. Congress has modified many of these proclamations and has abolished some monuments. Congress also has created monuments under its own authority.

Presidential establishment of monuments sometimes has been contentious—for example, President Franklin Roosevelt’s creation of the Jackson Hole National Monument in Wyoming (1943); President Carter’s massive Alaskan withdrawals (1978); and President Clinton’s establishment of 19 monuments and enlargement of three others (1996-2001). The Obama Administration’s consideration of areas for possible monument designation has renewed controversy over the Antiquities Act.

Issues have included the size of the areas and types of resources protected; the effects of monument designation on land uses; the level and types of threats to the areas; the inclusion of nonfederal lands within monument boundaries; the act’s limited process compared with the public participation and environmental review aspects of other laws; and the agency managing the monument.

Opponents have sought to revoke or limit the President’s authority to proclaim monuments. Congress is currently considering proposals to preclude the President from unilaterally creating monuments in particular states, and to impose environmental studies and public input procedures, among other changes. Monument supporters favor the act in its present form, asserting that the public and the courts have upheld monument designations and that many past designations that initially were controversial have come to be supported. They contend that the President needs continued authority to promptly protect valuable resources on federal lands that may be threatened.



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## Introduction

Presidential establishment of national monuments under the Antiquities Act of 1906 (16 U.S.C. §§ 431-433) has protected valuable sites, but also has been contentious. Litigation and legislation related to the law have been pursued throughout its history. To give one historical example, displeasure with President Franklin Roosevelt's proclaiming of the Jackson Hole National Monument in Wyoming in 1943 prompted litigation on the extent of presidential authority under the Antiquities Act, and led to a 1950 law prohibiting future establishment of national monuments in Wyoming unless Congress made the designation.<sup>1</sup> As another example, President Carter's establishment of monuments in Alaska in 1978 also was challenged in the courts and led to a statutory requirement for congressional approval of land withdrawals<sup>2</sup> in Alaska larger than 5,000 acres.<sup>3</sup> President Clinton's proclamation of the Grand Staircase-Escalante National Monument in 1996 triggered several lawsuits, a law authorizing land exchanges,<sup>4</sup> and proposals to amend or revoke presidential authority under the Antiquities Act. President George W. Bush's designation of a marine national monument in 2009 led to a legal challenge claiming that fishing rights had been lost. To date, no court challenges have succeeded. Additionally, initial opposition to some monument designations has turned to support over time. Some controversial monuments later were enlarged and redesignated as national parks by Congress, and today are popular parks with substantial economic benefit to the surrounding communities. For instance, the Grand Canyon National Monument, proclaimed in 1908 and the subject of a legal challenge, is now a world-famous national park.

Various issues regarding presidentially created monuments have generated controversy, lawsuits, and legislative proposals to limit the President's authority. Issues include the size of the areas and types of resources protected, the level and types of threats to the areas, the inclusion of nonfederal lands within monument boundaries, restrictions on land uses that may result, the manner in which the monuments were created, and the selection of the managing agency. Recent Congresses have considered, but not enacted, bills to restrict the President's authority to create monuments and to establish a process for input into monument decisions. Monument supporters assert that changes to the Antiquities Act are neither warranted nor desirable. They believe that the act serves an important purpose in preserving resources for future generations. Additionally, courts have supported presidential actions. The Obama Administration's interest in exploring areas for national monument designation has renewed controversies and legislative efforts in the 111<sup>th</sup> Congress to restrict the President's authority to proclaim national monuments.

## The Antiquities Act of 1906

The Antiquities Act of 1906 authorizes the President to proclaim national monuments on federal lands that contain "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest." The President is to reserve "the smallest area compatible with the

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<sup>1</sup> 16 U.S.C. § 431a.

<sup>2</sup> A withdrawal is an action that restricts the use or disposition of public lands.

<sup>3</sup> This provision was enacted as part of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), P.L. 96-487; see 16 U.S.C. § 3213.

<sup>4</sup> P.L. 105-335.

proper care and management of the objects to be protected.”<sup>5</sup> Congress subsequently limited the President’s authority by requiring congressional authorization for extensions or establishment of monuments in Wyoming,<sup>6</sup> and by making withdrawals in Alaska exceeding 5,000 acres subject to congressional approval.<sup>7</sup>

The Antiquities Act was a response to concerns over theft from and destruction of archaeological sites and was designed to provide an expeditious means to protect federal lands and resources. President Theodore Roosevelt used the authority in 1906 to establish Devil’s Tower in Wyoming as the first national monument. Fifteen of the 19 Presidents<sup>8</sup> since 1906 have created 128 monuments in total, including the Grand Canyon, Grand Teton, Zion, Olympic, the Statue of Liberty, and the Chesapeake and Ohio Canal.<sup>9</sup> President Franklin Roosevelt used his authority the most often—on 28 occasions. President George W. Bush proclaimed the most monument acreage, virtually all in marine areas. Many areas initially designated as national monuments were later made into national parks.

Monuments vary widely in size. While about half of the presidential monument proclamations involved less than 5,000 acres, they have ranged from less than 1 to about 89 million acres.<sup>10</sup>

Congress, too, may create national monuments on federal lands, and has done so on many occasions. Supporters of congressional, rather than presidential, action note that Congress has unlimited authority to craft legislation to suit a particular area, and is not restricted by the Antiquities Act. For instance, Congress could allow more land uses than are typical for national monuments created by the President, such as by allowing new commercial development, and could choose to provide additional protections. Some observers believe that legislation (as opposed to presidential action) is more likely to involve the input of local and other citizens.

Congress also has modified monuments (including those created by the President), for instance, by changing their boundaries. Congress has abolished some monuments outright and converted others into different protective designations, such as national parks. Almost half of the current national parks were first designated as national monuments.<sup>11</sup>

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<sup>5</sup> 16 U.S.C. § 431.

<sup>6</sup> 16 U.S.C. § 431a.

<sup>7</sup> 16 U.S.C. § 3213.

<sup>8</sup> Since 1906, the Presidents who have not used this authority are Richard M. Nixon, Ronald Reagan, George H. W. Bush, and Barack Obama.

<sup>9</sup> Monuments created by Presidents from 1906 through 2006 are listed chronologically on the website of the National Park Service at <http://www.nps.gov/archeology/sites/antiquities/MonumentsList.htm>.

<sup>10</sup> The African Burial Ground National Monument, established by President George W. Bush in 2006 in New York City, is 0.345 acres. The Papahānaumokuākea Marine National Monument, proclaimed by President George W. Bush, is approximately 89 million acres in the Pacific Ocean. The largest national monument proclaimed on land was the Wrangell-St. Elias National Monument in Alaska, with 10.95 million acres. It was redesignated as a national park and national preserve two years after it was proclaimed.

<sup>11</sup> See the list of monuments created by Presidents from 1906 through 2006 on the website of the National Park Service at <http://www.nps.gov/archeology/sites/antiquities/MonumentsList.htm>.

## Monument Issues and Controversies

Presidential authority to create monuments has generated concern among some Members of Congress, state and local officials, user groups, and others. Controversies in Congress are focused on a perceived lack of consistency between the Antiquities Act and the policies established in other laws, especially the land withdrawal provisions of the Federal Land Policy and Management Act of 1976 (FLPMA),<sup>12</sup> the environmental reviews required by the National Environmental Policy Act (NEPA),<sup>13</sup> and the public participation requirements of NEPA, FLPMA, and other laws. Criticism also has been expressed by those who oppose restrictions on land uses, both extractive (e.g., mining) and recreational (e.g., off-road vehicle use), as a result of monument proclamations. Critics also have challenged the size of the areas and types of resources that would be protected.

Among the monument measures considered during recent Congresses were bills to impose restrictions on presidential authority, such as those to limit the size or duration of withdrawals; to prohibit or restrict withdrawals in particular states; to encourage public participation in the monument designation process; to revoke the President's authority to designate monuments or require congressional approval of some or all monument designations; or to promote presidential creation of monuments in accordance with certain federal land management and environmental laws. Measures also were introduced to change land uses within monuments and to alter monument boundaries.

Supporters of the Antiquities Act assert that changes to the act are neither warranted nor desirable. They contend that previous Congresses that focused on this issue were correct in not repealing the Antiquities Act. They note that Presidents of both parties have used the authority for over a century to protect valuable federal lands and resources expeditiously, and they defend the President's ability to take prompt action to protect areas that may be vulnerable to looting, vandalism, commercial development, and other permanent changes. While the Secretary of the Interior can make temporary emergency withdrawals of BLM lands,<sup>14</sup> there is no comparable authority with respect to national forest lands or other federal lands. Defenders also note that some past designations that initially were contentious have come to be widely supported over time. They contend that large segments of the public support land protection, such as through monument designations, for the recreational, preservation, and economic benefits that such designations often bring.

A primary objection to national monuments is that the declaration changes the property from being federal land available for multiple uses to being a national monument with possible restricted uses. The legal challenge to the Grand Teton National Monument was premised on the state's loss of revenue from taxes and grazing fees.<sup>15</sup> Courts have found that, for monuments established under the Antiquities Act, agencies are afforded broad rights to protect the resources of the site, and that the loss of income is not a legal basis to reject a monument designation.<sup>16</sup> The

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<sup>12</sup> 43 U.S.C. § 1701 *et seq.* This law applies primarily to the lands managed by the Bureau of Land Management and actions taken by the Secretary of the Interior, although some provisions also apply to the lands managed by the Forest Service and the Secretary of Agriculture.

<sup>13</sup> 42 U.S.C. § 4321 *et seq.*

<sup>14</sup> 43 U.S.C. § 1714.

<sup>15</sup> *Wyoming v. Franke*, 58 F. Supp. 890 (D. Wyo. 1945).

<sup>16</sup> *Wyoming v. Franke*, 58 F. Supp. 890 (D. Wyo. 1945).

broad rights to protect monument resources at the time of creation can include obtaining water rights.<sup>17</sup>

## Monument Size

In establishing a national monument, the President is required by the Antiquities Act to reserve “the smallest area compatible with the proper care and management of the objects to be protected.”<sup>18</sup> Many monuments have been quite small, but several Presidents have established large monuments. Examples of large monuments include Katmai, established in 1918 with 1.1 million acres; Glacier Bay, created in 1925 with 1.4 million acres; most of the Alaska monuments proclaimed in 1978, the largest being Wrangell-St. Elias, with nearly 11 million acres; and Grand Staircase-Escalante, established in 1996 with 1.7 million acres. Most recently, President George W. Bush established large marine monuments, namely the Papahānaumokuākea Marine National Monument, with approximately 89 million acres; the Marianas Trench Marine National Monument, with 60.9 million acres; the Pacific Remote Islands Marine National Monument, with 55.6 million acres; and the Rose Atoll Marine National Monument, with 8.6 million acres.<sup>19</sup> The Bush Administration claimed that the latter three areas formed the largest protected ocean area in the world.<sup>20</sup>

Critics assert that large monuments violate the Antiquities Act, in that the President’s authority regarding size was intended to be narrow and limited. They charge that Congress intended the act to protect specific items of interest, especially archaeological sites and the small areas surrounding them. They support this view with the legislative history of the act, in which proposals to limit a withdrawal to 320 or 640 acres were mentioned but not enacted. They contend that some of the monument designations were greater than needed to protect particular objects of value, and that the law was not intended to protect large swaths of land or ocean.

Defenders observe that the Antiquities Act gives the President discretion to determine the acreage necessary to ensure protection of the resources in question, which can be a particular archaeological site or larger features or resources. The Grand Canyon, for example, originally was a national monument measuring 0.8 million acres; President Theodore Roosevelt determined that this large size was necessary to protect the “object” in question—the canyon. Defenders also note that after considering the issue in the early 1900s, Congress deliberately rejected proposals to restrict the President’s authority to set the size of the withdrawal. Further, they assert that preserving objects of interest may require withdrawal of sizeable tracts of surrounding land to preserve the integrity of the objects and the interactions and relationships among them.

The courts have deferred to the President’s judgment as to the proper size for a monument. For example, the lawsuit challenging the Grand Sequoia National Monument was based in part on the

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<sup>17</sup> *Cappaert v. United States*, 426 U.S. 128 (1976) (regarding Death Valley National Monument); *High Country Citizens’ Alliance v. Norton*, 448 F. Supp. 2d 1235 (D. Colo. 2006) (referring to Black Canyon of the Gunnison National Monument).

<sup>18</sup> 16 U.S.C. § 431.

<sup>19</sup> All monument sizes listed are approximate. Also, the sizes of marine monuments typically have been identified in square miles, rather than acres. A square mile is equal to 640 acres.

<sup>20</sup> For information on protection of ocean areas, including current issues, programs, and administrative and congressional action, see CRS Report RL32154, *Marine Protected Areas: An Overview*, by Harold F. Upton and Eugene H. Buck.

monument's size (327,769 acres) not being "the smallest area compatible with proper care and management," as required by the act.<sup>21</sup> The court found no factual basis for the argument that the size did not meet the standards of the act.

## **Establishment Criteria**

Under the Antiquities Act, the President can establish monuments on federal land containing "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest."<sup>22</sup> Some proclamations have identified particular objects needing protection, while others have referred more generally to scenic, scientific, or educational features of interest.

Presidents sometimes have cited threats to resources (e.g., natural and cultural) to support establishing monuments, although imminent threat is not expressly required by the Antiquities Act. In his remarks designating the Grand Staircase-Escalante National Monument, for instance, President Clinton expressed concern about work underway for a large coal mining operation that, he asserted, could damage resources in the area. Sometimes the noted threats appear less immediate, as for the lands included in the Grand Canyon-Parashant Monument (proclaimed January 11, 2000) which "could be increasingly threatened by potential mineral development," according to the Administration.<sup>23</sup> In other cases, threats were reported by the press or private organizations. For instance, the National Trust for Historic Preservation had identified the (subsequently proclaimed) President Lincoln and Soldiers' Home National Monument as one of the country's most endangered historic properties.

Presidential creation of monuments in the absence of immediate threats to resources troubles those who believe that the law is intended to protect objects that are in immediate peril of permanent harm. They contend that Presidents have established monuments to support environmental causes, limit development, and score political gains, among other reasons. Those who contest those charges note that the Antiquities Act lacks a requirement that objects be immediately threatened or endangered. Others cite the pervasive dangers of development and growth, looting, and vandalism as sufficient grounds for contemporary presidential action.

Some critics charge that, because the original purpose of the act was to protect specific objects, particularly objects of antiquity such as cliff dwellings, pueblos, and other archeological ruins (hence the name "Antiquities Act"), Presidents have used the act for excessively broad purposes, such as general conservation, recreation, scenic protection, or protection of living organisms. These purposes, they contend, are more appropriate for a national park or other designation established by Congress. Supporters of current presidential authority counter that the act does not limit the President to protecting ancient relics, and maintain that "other objects of historic or scientific interest" is broad wording that grants considerable discretion to the President.

Courts, including the U.S. Supreme Court, have upheld under the Antiquities Act both the designation of particular monuments and the President's authority to create monuments. In a decision addressing one of the first national monuments proclaimed—the Grand Canyon—the Supreme Court upheld the President's authority under Antiquities Act.<sup>24</sup> The Court found that the

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<sup>21</sup> *Tulare County v. Bush*, 306 F.3d 1138, 1142 (D.C. Cir. 2002).

<sup>22</sup> 16 U.S.C. § 431.

<sup>23</sup> The White House, Office of the Press Secretary, *Grand Canyon-Parashant National Monument*, January 11, 2000.

<sup>24</sup> *Cameron v. United States*, 252 U.S. 450 (1920).

act gave the President the authority to preserve lands with cultural or scientific interest.<sup>25</sup> Since then, courts have given great deference to this presidential authority, holding that courts have only a limited review of a presidential proclamation provided that it states the natural or historic interest and that the area is the minimum amount needed to protect those interests.<sup>26</sup> The courts also have ruled that the act may protect natural wonders and wilderness values.<sup>27</sup>

## **Inclusion of Nonfederal Lands**

It is an unresolved issue whether the Antiquities Act allows the President to declare a national monument on lands not owned by the federal government. To date, no presidential declaration of a monument has converted private property to federal property. However, some private inholdings occur within national monuments.

The Antiquities Act initially states that it applies to lands *owned or controlled* by the federal government. However, it also states that, where the objects to be preserved are on privately owned lands, the property “may be relinquished to the Government.”<sup>28</sup> It is not clear whether relinquishment is voluntary or may include condemnation. Courts have only discussed the issue as a side matter to the dispute they were resolving. In two such cases, the courts have indicated that relinquishment should be interpreted as a voluntary surrender of property. The more recent decision, in 2008, stated that the Antiquities Act “does not authorize government officials forcibly to take private property to provide such care or to enter private land.”<sup>29</sup> In 1978, the Supreme Court described the Antiquities Act as applying solely to federal property: “A reservation under the Antiquities Act thus means no more than that the land is shifted from one federal use, and perhaps from one federal managing agency, to another.”<sup>30</sup>

In some cases, nonfederal lands are contained within the outer boundaries of a monument, although the ownership does not change by the monument designation. This inclusion is a source of controversy. The Clinton Administration indicated that the monument designation does not apply to nonfederal lands. The Solicitor of the Department of the Interior (DOI) asserted this view in 1999 testimony before Congress, stating that the Antiquities Act applies only to federal lands and that monument designations cannot bring state or private lands into federal ownership.<sup>31</sup> Some monument proclamations have stated that nonfederal lands will become part of the monument if the federal government acquires title to the lands from the current owners.<sup>32</sup>

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<sup>25</sup> *Ibid.*, p. 455.

<sup>26</sup> *Tulare County v. Bush*, 306 F.3d 1138, 1142 (D.C. Cir. 2002) (regarding Giant Sequoia National Monument).

<sup>27</sup> *Mountain States Legal Foundation v. Bush*, 306 F.3d 1132, 1138 (D.C. Cir. 2002) (regarding six monuments in four states).

<sup>28</sup> 16 U.S.C. § 431.

<sup>29</sup> *Buono v. Kempthorne*, 527 F.3d 758 (9<sup>th</sup> Cir. 2008).

<sup>30</sup> *California v. U.S.*, 436 U.S. 32, 40 (1978) (regarding Channel Islands National Monument).

<sup>31</sup> Testimony of John D. Leshy, at House Committee on Resources, Subcommittee on National Parks and Public Lands, hearings on *H.R. 1487, The National Monument NEPA Compliance Act*, 106<sup>th</sup> Cong., 1<sup>st</sup> sess., June 17, 1999, p. 53 and p. 55.

<sup>32</sup> Nearly all of President Clinton’s monument proclamations had such a provision. See, for example, the monument proclamations for the Agua Fria, Canyons of the Ancients, Sonoran Desert, and Upper Missouri River Breaks National Monuments. These monument proclamations are on the website of the BLM, under the respective monument listings, at [http://www.blm.gov/wo/st/en/prog/blm\\_special\\_areas/NLCS/monuments.html](http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/monuments.html).

Some, however, note that, while private or state-owned lands are technically not part of the monument, development of such land located within monuments is difficult because such development might be incompatible with the purposes for which the monument was created or constrained by management of the surrounding federal lands.<sup>33</sup> Monument supporters note that if state or private landowners within a monument fear or experience difficulties, they can pursue land exchanges with the federal government. Some monument proclamations have authorized land exchanges to further the protective purposes of the monument.<sup>34</sup>

## Effects on Land Use

The overriding management goal for all monuments is protection of the objects described in the proclamations. Monument designation can limit or prohibit land uses, such as development or recreational uses. Limitations or prohibitions may be included in the proclamations themselves, accompanying administration statements, management plans developed by the agencies to govern monument lands, agency policies, or other sources. Some use issues may not arise for particular monuments given their distinctive characteristics, for instance, their small size or water-based nature. In general, existing uses of the land that are not precluded by the proclamations, and do not conflict with the purposes of the monument, may continue.

Monument proclamations since 1996 typically have had protections for valid existing rights<sup>35</sup> for land uses, but the extent to which designations may affect existing rights is not always clear. A common concern is that monument designation potentially could result in new constraints on development of existing mineral and energy leases, claims, and permits. There are fears that mineral activities may have to adhere to a higher standard of environmental review, and will have a higher cost of mitigation, to ensure compatibility with the monument designation.

Most of these monument proclamations have barred *new* mineral leases, mining claims, prospecting or exploration activities, and oil, gas, and geothermal leases, subject to valid existing rights. This has been accomplished by language to withdraw the lands within the monuments from entry, location, selection, sale, leasing, or other disposition under the public land laws, mining laws, and mineral and geothermal leasing laws.

Another concern is whether commercial timber cutting will be restricted as a result of designation. For instance, future timber production was expressly precluded in the Giant Sequoia National Monument proclaimed by President Clinton in 2000, although certain current logging contracts could be implemented. In many other cases, the proclamations have implied, through a general prohibition against removing any “feature” of the monuments, that timber cutting is precluded.<sup>36</sup> Some assert that restrictions are needed to protect the environmental, scenic, and

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<sup>33</sup> See, for example, *Wilkenson v. Department of the Interior*, 634 F. Supp. 1265 (D. Col. 1986) (federal government could not completely restrict travel on a pre-existing right of way through a national monument).

<sup>34</sup> President Clinton’s monument proclamations typically contained such a provision. See, for example, the monument proclamations for the Agua Fria, Canyons of the Ancients, Sonoran Desert, and Upper Missouri River Breaks National Monuments. These monument proclamations are on the website of the BLM, under the respective monument listings, at [http://www.blm.gov/wo/st/en/prog/blm\\_special\\_areas/NLCS/monuments.html](http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/monuments.html).

<sup>35</sup> The term *valid* has been interpreted by the Supreme Court in the context of a mine within a national monument as meaning there were valuable, workable deposits of ore present. *Cameron v. United States*, 252 U.S. 450 (1920).

<sup>36</sup> President Clinton’s monument proclamations typically contained such a provision. See, for example, the monument proclamations for the Agua Fria, Canyons of the Ancients, Sonoran Desert, and Upper Missouri River Breaks National Monuments. These monument proclamations are on the website of the BLM, under the respective monument listings, (continued...)



recreational attributes of forests. Logging supporters assert that forests can be used sustainably and that concerns raised by environmentalists as grounds for limiting commercial timber operations do not reflect modern forestry practices.

Using motorized and mechanized vehicles off-road, except for emergency or authorized purposes, is prohibited under the proclamations for many newer monuments, particularly those issued by President Clinton. Whether to allow vehicular travel on designated routes or in designated areas, or to close routes or areas to vehicular use in those monuments where such use is not expressly prohibited, typically is addressed when drafting the management plan for each monument. In some cases, off-road vehicle use was prohibited before the monument designations; some of the prohibitions may not have been fully implemented. In other areas that have become monuments, off-road vehicles had been allowed, at least in some places.

Other concerns have included the possible effects of monument designation on hunting, fishing, and grazing. Some proclamations have restricted such activities to protect monument resources, and monument management plans may result in additional restrictions. For instance, proclamations for some marine monuments established by President George W. Bush have restricted or prohibited commercial and recreational fishing. Provisions on grazing have been controversial in some cases, with some asserting that grazing has been unnecessarily curtailed while others claim that grazing has not been sufficiently limited to prevent ecological damage.

States and counties frequently have viewed restrictions on federal lands in their jurisdictions as threats to economic development. They maintain that local communities are hurt by the loss of jobs and tax revenues that result from prohibiting/restricting future mineral exploration, timber development, or other activities. Some believe that limitations on energy exploration could leave the United States more dependent on foreign oil.

Advocates of creating monuments claim that economic benefits resulting from designation, including increased tourism, recreation, and the relocation of businesses and people, may exceed the benefits of traditional economic development. Others allege that the public interest value of continued environmental protection outweighs any temporary economic benefit that could have resulted from development. Some maintain that development is insufficiently limited by monument designation, through the preservation of valid existing rights for particular uses, such as mining, and that the restrictions on future use should be tighter. Areas need to be left intact for future generations, they contend.

## **“Consistency” of Antiquities Act with NEPA and FLPMA**

The Federal Land Policy and Management Act of 1976 (FLPMA) authorizes the Secretary of the Interior to make certain land withdrawals under specified procedures. In enacting FLPMA, Congress not only limited the ability of the Interior Secretary to make withdrawals, but repealed much of the express and implied withdrawal authority previously granted to the President by several earlier laws.

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(...continued)

at [http://www.blm.gov/wo/st/en/prog/blm\\_special\\_areas/NLCS/monuments.html](http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/monuments.html).

Critics of the Antiquities Act maintain that the act is inconsistent with FLPMA's intent of restoring control of public land withdrawals to Congress. They assert that Congress is the appropriate body to make and implement land withdrawal policy and that Congress intended to review and retain veto control over all executive withdrawals exceeding 5,000 acres. On the other hand, in enacting FLPMA, Congress did not explicitly repeal or amend the Antiquities Act, despite extensive consideration of all executive withdrawal authorities. Supporters of the act assert that it was the clear intent of Congress to retain presidential withdrawal authority under the Antiquities Act.

Similarly, critics note that monuments have been proclaimed without the environmental studies required of agencies for "major federal actions" under NEPA, or the review of a public purpose and opportunity for public participation that FLPMA provides. However, neither NEPA<sup>37</sup> nor FLPMA applies to the actions of a President (as opposed to an action of an agency), and the Antiquities Act is silent as to the procedures a President must follow to proclaim a new monument. Some want to add procedures for environmental review and public participation to the monument designation process so that significant withdrawals (with resulting effects on existing uses) would not be made without scientific, economic, and public input.

Others counter that such changes would impair the ability of the President to take action quickly to protect objects and lands, thereby avoiding possible damage to the resources.<sup>38</sup> They assert that participation requirements are not needed in law because Presidents typically consult with government officials and the public before establishing monuments. Some believe that NEPA requirements are unnecessary for monument designation because once monuments are created, detailed management plans are developed in accordance with NEPA.

## **Monument Management**

Although most monuments are managed by the National Park Service (NPS), both Congress and the President have created monuments managed by other agencies. For example, in 1996 President Clinton created the Grand Staircase-Escalante National Monument and assigned its management to BLM, the first such area administered by BLM. President Clinton subsequently established additional monuments under BLM or other agency management. Also, President George W. Bush selected the Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration in the Department of Commerce, and other agencies to manage marine monuments. In most cases, the monuments were assigned to be managed by the agency that had responsibility for the area before the designation, although that was not always the case. For example, although the area within the Minidoka Internment National Monument was managed by the Bureau of Reclamation before designation, the proclamation designating the monument changed the management authority to the NPS.

The President's authority to choose a management agency other than NPS has been questioned. Before 1933, monuments were managed by different agencies, but in that year President Franklin Roosevelt consolidated management of national monuments in the NPS. Following the 1933

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<sup>37</sup> See *Alaska v. Carter*, 462 F. Supp. 1155 (D. Alaska 1978) (NEPA does not apply to presidential proclamation under the Antiquities Act).

<sup>38</sup> The status quo of BLM-managed lands could be maintained, because § 204(e) of FLPMA (43 U.S.C. 1714(e)) authorizes the Secretary to temporarily withdraw BLM lands for a period of up to two years. Comparable authority does not exist with respect to lands managed by other agencies.

consolidation, until 1978 no presidentially created monuments were managed by an agency other than the NPS. In 1978, two of the Alaska monuments created by President Carter were directed to be managed by the Forest Service, part of the U.S. Department of Agriculture, and two were managed by FWS. Assigning management to the Forest Service was controversial, and the two monuments were ultimately given statutory direction for Forest Service management.<sup>39</sup>

The Supreme Court has suggested that it is entirely proper to switch management of federal lands among federal agencies. As noted earlier, in its decision regarding the Channel Islands National Monument, the Court said that the Antiquities Act could mean that the “land is shifted from one federal use, and perhaps from one federal managing agency, to another.”<sup>40</sup> A 1980 opinion from the Office of Legal Counsel (Department of Justice) appears to indicate that the President may have some flexibility in choosing the managers of post-1933 monuments.<sup>41</sup> Others also assert that the authority of the President under the Antiquities Act carries with it discretion to choose the managing agency. Some critics contend that management by an agency other than the NPS is an illegal transfer of the current functions of the NPS. Others counter that establishing a new monument under another agency would not constitute a reorganization because management of current NPS units, and the general authority of the NPS to manage monuments, would be unaffected. Even if placing management authority under a department other than the DOI might constitute a reorganization, the President nevertheless might be able to move a function of the NPS to other DOI agencies under congressionally approved authority allowing transfers of functions within DOI.<sup>42</sup>

## **Administration Activity**

Most Presidents since 1906 have used the authority in the Antiquities Act to establish or expand national monuments. Recently, an Obama Administration evaluation of whether to designate or expand national monuments has been controversial. The controversy began in February 2010, when an administration “internal draft” document regarding possible national monuments was obtained by some Members of Congress.<sup>43</sup>

The internal draft document identifies 13 sites for possible new monument designations and one monument for possible expansion.<sup>44</sup> The areas are in nine states: Arizona, California, Colorado, Montana, Nevada, New Mexico, Oregon, Utah, and Washington. The document also identifies three areas in Alaska and Wyoming as worthy of protection, but as ineligible for monument designation because of the restrictions in law on the President’s authority in those states.

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<sup>39</sup> The two monuments were given statutory approval as part of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), P.L. 96-487.

<sup>40</sup> *California v. United States*, 436 U.S. 32, 40 (1978).

<sup>41</sup> 4B Op. Off. Legal Counsel 396 (February 8, 1980).

<sup>42</sup> Reorganization Plan No. 3 of 1950. The plan is available on the web at [http://www.law.cornell.edu/uscode/search/display.html?terms=reorganization%20plan%20no.%203%20of%201950&url=/uscode/html/uscode05a/uscode\\_sup\\_05\\_5\\_10\\_sq4notes.html](http://www.law.cornell.edu/uscode/search/display.html?terms=reorganization%20plan%20no.%203%20of%201950&url=/uscode/html/uscode05a/uscode_sup_05_5_10_sq4notes.html).

<sup>43</sup> E&E News PM, *Document Shows Obama Admin Exploring 14 New Monuments*, February 18, 2010.

<sup>44</sup> See *Prospective Conservation Designation: National Monument Designations Under the Antiquities Act* (undated), internal draft, available online at [http://robbishop.house.gov/UploadedFiles/states\\_for\\_designation.pdf](http://robbishop.house.gov/UploadedFiles/states_for_designation.pdf).

Concerns have centered on whether the Administration was planning to designate national monuments without input from Congress, local and state governments, residents of the affected areas, and the general public. Fear that the Administration had not intended to consult on its monument considerations originated with the notation on the document that it was “not for release.” Other concerns have echoed the traditional conflicts regarding the establishment of monuments—effects on land uses, monument size, and the type of objects protected.

The Administration subsequently expressed an intent to use a collaborative process in evaluating areas for monument status. The Secretary of the Interior stated an interest in working with land users, local governments, governors, and Congress with regard to using and protecting federal lands.<sup>45</sup> Others noted that the Administration’s intent to collaborate had been expressed on the “internal draft” itself, which states at the outset that areas identified “may be good candidates for National Monument designation under the Antiquities Act; however, further evaluations should be completed prior to any final decision, including an assessment of public and Congressional support.”<sup>46</sup> Still others noted that agency draft documents typically are not available for release.

## Legislative Activity

Given the recurring controversies over presidential establishment of national monuments, recent Congresses have evaluated whether to abolish, limit, or retain unchanged the President’s authority to establish monuments under the Antiquities Act. Legislation to require congressional approval of presidential recommendations for national monuments has been considered over the past decade or so. Some bills have sought to amend the Antiquities Act to make presidential designations of monuments exceeding a certain size, such as 5,000 or 50,000 acres, ineffective unless approved by Congress within two years.<sup>47</sup> Some measures proposed to establish a process for public input into presidential monument designations and to require presidential monument designation to comply with NEPA and/or with monument management plans to be developed in accordance with NEPA.<sup>48</sup>

The recent actions of the Obama Administration, together with long-running controversies over presidential authority to establish national monuments, has spurred the introduction in the 111<sup>th</sup> Congress of monument bills, especially to restrict the President’s authority. For instance, several pending House and Senate bills would prohibit the President from establishing or expanding national monuments in particular states.<sup>49</sup>

Other legislation in the 111<sup>th</sup> Congress has focused on the authority and procedures for monument designation more generally. H.R. 4996, H.R. 5135, and S. 472 have similar language to amend the Antiquities Act to require the President to obtain congressional approval and certify compliance with NEPA before establishing a monument. The bills also would prohibit the

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<sup>45</sup> E&E News PM, *Obama Admin Has ‘No Secret Agenda’ on Monuments—Salazar*, February 22, 2010.

<sup>46</sup> *Prospective Conservation Designation: National Monument Designations Under the Antiquities Act* (undated), internal draft, available online at [http://robbishop.house.gov/UploadedFiles/states\\_for\\_designation.pdf](http://robbishop.house.gov/UploadedFiles/states_for_designation.pdf).

<sup>47</sup> See, for example, H.R. 2386 (108<sup>th</sup> Congress); H.R. 1127 (105<sup>th</sup> Congress); and S. 477 (105<sup>th</sup> Congress).

<sup>48</sup> See, for example, H.R. 2386 (108<sup>th</sup> Congress); H.R. 1487 (106<sup>th</sup> Congress); and S. 691 (105<sup>th</sup> Congress).

<sup>49</sup> See H.R. 4814 (Arizona); H.R. 4703 (California); H.R. 4716 (Colorado); H.R. 4754 (Montana); H.R. 4675/S. 3041 (Nevada); H.R. 5135 (Oregon); and H.R. 4651/S. 3016 (Utah).

Secretary of the Interior from implementing restrictions on public use of a national monument until after a period for public input and congressional approval.<sup>50</sup>

Still another bill, H.R. 5580, would require that prior to proclaiming a national monument, the President is to provide the proposed language of the proclamation to Congress, the governor of the affected state(s), and officials of local and tribal governments. After the issuance of the proclamation, the Secretary of the Interior would be required to seek public input on the monument designation through hearings (unless waived) and comment. Within one year of the issuance of the monument proclamation, the President would be required to submit a report to Congress containing certain information, such as the economic impact of the designation on communities within the boundaries of the monument; the impact on the nation's energy security; the impact on interests, rights, and uses associated with the lands; the record of any hearings; and written public comments. Monument proclamations would be ineffective unless approved by an act of Congress within two years. The bill provides guidance on how the lands are to be managed following the proclamation but until congressional approval, namely that any restrictions on interests, rights, and uses will be "narrowly tailored and essential to the proper care and management of the objects to be protected." Any such restrictions imposed as a result of the proclamation become ineffective after two years unless the monument is approved by Congress. Further, if Congress does not approve the monument, the President would be restricted from issuing a monument proclamation that is "substantially similar" to it.

Three pending House measures would direct the Secretary of the Interior to provide the House with information on the Administration's actions regarding the potential designation of national monuments. These "resolutions of inquiry"—H.Res. 1238, H.Res. 1254, and H.Res. 1406—were referred to the House Committee on Natural Resources. Two of the resolutions were reported by the committee and placed on the House calendar. H.Res. 1254 was reported without recommendation on May 11, 2010, and H.Res. 1406 was reported favorably on June 23, 2010. Both resolutions would direct that no later than 14 days after adoption by the House, the Secretary is to transmit all DOI documents, maps, records, communications, and other information after July 1, 2009, relating to the Administration's internal draft regarding areas for potential monument consideration.<sup>51</sup> H.Res. 1254 also directs that the Secretary provide additional information, such as lists of invitees to, and attendees at, meetings related to the potential designation of national monuments.

## **Author Contact Information**

Carol Hardy Vincent  
Specialist in Natural Resources Policy  
chvincent@crs.loc.gov, 7-8651

Kristina Alexander  
Legislative Attorney  
kalexander@crs.loc.gov, 7-8597

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<sup>50</sup> H.R. 5135 has an additional provision to prohibit the President from establishing or expanding national monuments in Oregon.

<sup>51</sup> For information on the use of resolutions of inquiry, including on committee and House action and the frequency and outcome of their use, see CRS Report R40879, *Resolutions of Inquiry: An Analysis of Their Use in the House, 1947-2009*, by Christopher M. Davis.

## Massachusetts Lobstermen's Association, Inc.

8 Otis Place ~ Scituate, MA 02066

Bus. (781) 545-6984 Fax. (781) 545-7837



April 20, 2016

David Borden  
Chairman, Lobster Board  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St., Suite 200 A-N  
Arlington, VA 22201

Dear Chairman Borden,

RE: Southern New England

The Massachusetts Lobstermen's Association respectfully submits our comments to you regarding the future of the Southern New England (SNE) lobster stock habitat, Area 2 and Area 3 potential future management and the continued evolution of commercial lobster and crab fishing. Presently, the MLA has members fishing in Southern New England, Area 2 and Area 3 for both lobster and Jonah Crabs and we are hopeful to keep them doing so while managers continue to explore all other avenues to help the lobster stocks rebound.

We recognize the complexity and unprecedented challenges fisheries managers are faced with today regarding the SNE lobster stock as no other stock has ever maintained exploitation while collapsing. Nevertheless, fishermen in SNE, Area 2, are also faced with an unprecedented 50% trap reduction plan being implemented this year and will continue to be reduced over the next 5 years causing further difficulty in trying to staying whole with their business.

Over the past several months Fisheries Managers and fishermen have been meeting at Lobster Conservation Management Team meetings, lobster Advisory Panel meetings and at the Technical Committee meetings to discuss the dilemma in SNE. Throughout these meetings fishermen have continued to ask that more research be done on the many other environmental factors plaguing the water quality in SNE. Fisheries Managers must give the entire ecosystem health further consideration, deliberation and evaluation before more burdensome management is implemented on the already stressed industry when fishing has never been the primary culprit to the collapse.

As the habitat quality continues to decline in SNE, so does the essential lobster habitat for settlement. Given the sensitivity of lobster at its earliest stages of life and the unique habitat requirements for larval settlement, we strongly encourage a complete habitat evaluation on kelp forests, eel grass, algae blooms, water toxicity and the effects of water run off these non fishing industries related factors continue to have serious negative impacts on the essential near shore habitats.

Many Area 2 fishermen are currently working hard to stay whole in their businesses as the current 50% reduction plan has begun, given the limited pool of available tags and the complexity between transferring state and federal permits, the MLA strongly opposes any further expediting management reductions or restrictions in SNE without a specific end goal.

During the recent meetings between fisheries managers and fishermen it was clearly stated, to the fishermen, that with or without fishing there was no guarantee the lobster stock would return. Again, what is the goal here? We ask that you let the current 50% reduction plan in place, continue to be implemented as prescribed to give it time to work.

Lastly, the lobster industries fishing practices in SNE have experienced limited evolution as fishermen have now entered the limited fishery for Jonah Crab and Conch/Whelk. Fishermen have clearly stated that they too want to see the return of a healthy lobster stock in SNE.

In closing, we are committed to keeping our fishermen fishing while pursuing alternative ecological measures to manage the rebuilding of a healthy habitat in Southern New England.

Thank you for your time and consideration of our concerns. Should you have any further questions please feel free to call me.

Sincerely,

*Beth Casoni*

Executive Director

## Massachusetts Lobstermen's Association, Inc.

8 Otis Place ~ Scituate, MA 02066

Bus. (781) 545-6984 Fax. (781) 545-7837



April 22, 2016

David Borden  
Chairman, Lobster Board  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St., Suite 200 A-N  
Arlington, VA 22201

Dear Chairman Borden,

On behalf of its 1800 members, the Massachusetts Lobstermen's Association (MLA) respectfully submits this letter in support of Point Lobster Company, Point Pleasant NJ efforts to standardize the legal minimum size for New Jersey dealer possession regulation to 3 ¼" from the 3 3/8" to sustain the markets demands and to keep intact the infrastructure necessary to support the commercial fishing industry.

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. The membership of the MLA is comprised of fishermen, seafood dealers/processors and other shoreside businesses from Maryland to Canada. The MLA continues to work conscientiously through the management process with the Division of Marine Fisheries and the Atlantic States Marine Fisheries to ensure the continued sustainability and profitability of the resources in which our fishermen are engaged in.

The MLA supports this much needed change to the possession regulation as stated in the comments submitted by Point Lobster Company; "The total number of lobster imported into NJ far exceeds the number of lobsters landed. The time has come for NJ to standardize the minimum size of lobster, specifically for dealers. The current legal size of 3 3/8" is used as an arbitrary management tool for the NJ fishery. The size of 3 3/8" was established as a *management* tool, specifically to "increase protection to American lobster broodstock"<sup>1</sup> and was implemented to manage the fishing efforts within N.J. It should not be a problem for enforcement to measure lobsters coming solely from the NJ fishery. The state of Massachusetts has three minimum sizes for their fishery and they are the second largest producer of domestic lobsters. This illustrates that it is easily possible to enforce an additional gauge size. Additionally, there are shipping documents that can be used to trace the origin of each load of lobsters."

We recognize fisheries managers are faced with unprecedented challenges on how best to rebuild the Southern New England Lobster Stock while many businesses are treading water to stay whole, be it fishermen lobster dealers/ processors and or shoreside businesses . We are asking all the fisheries managers to help keep the current businesses that depend upon the American Lobster whole and open for business.

Sincerely,

*Beth Casoni*

Executive Director

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<sup>1</sup> "Environmental Assessment of American Lobster Broodstock Protection Regulation" Weiher Ph.D. 28  
Feb 2006



LANNY DELLINGER  
CHAIRMAN, LOBSTER CONSERVATION MANAGEMENT TEAM 2

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April 5, 2016

American Lobster Board  
Atlantic States Marine Fisheries Commission  
1050 N. Highland St., Suite 200 A-N  
Arlington, VA 22201

Dear Chairman David Borden,

On behalf of the commercial lobstermen of Southern New England's waters, the Lobster Conservation Management Teams of LCMAs 2 and 3 are recommending that the water quality of lobster habitats be reviewed and analyzed in the management process of significantly impaired stocks. In special recognition of the record low abundance and recruitment of the lobster stock in Southern New England, we feel that this additional habitat assessment should be considered in future fishery management models.

Our fisheries will only be as healthy as their habitats allow. Current stock assessments, however, excessively rely on the harvesting practices of fishermen and do little to assess the quality of the habitat in which these resources are expected to grow and thrive. Without a comprehensive review of all those who directly influence the marine habitat, even the most responsible and well-informed policies regulating fishing efforts will fall far short of the goal to promote and protect the Atlantic coastal fishery resources.

There are serious, well-documented issues in the Southern New England lobster stock, among other stocks that

have been struggling to thrive despite management interventions. At this juncture, it appears that other variables are having greater impacts on the health of our fishery than the standard commercial fishing efforts routinely analyzed in the existing management models. We strongly encourage your special consideration in identifying additional routes for incorporating water quality into the dynamic modeling systems that inform the management of this severely impaired fishery. To maintain the status quo and disregard other mechanisms impacting our resources would be a disservice to the greater public good and a deficiency in the mission to promote and protect these resources. It is our hope that by implementing these recommendations, our fisheries will be more effectively managed for long-term sustainability and the long-term benefit of all.

Sincerely,

Lanny Dellinger, LCMA 2 Chair

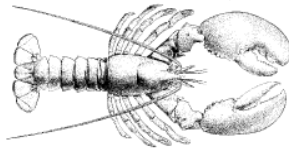


Rhode Island  
Department of Environmental Management

**DIVISION OF FISH AND WILDLIFE**

Marine Fisheries  
3 Ft. Wetherill Road  
Jamestown, RI 02835

401 423-1920  
FAX 401 423-1925  
TDD 401 222-4462



**ASMFC Lobster Conservation Management Area 2**

A meeting of the ASMFC Lobster Conservation Management Team for Area 2 was held on April 6, 2016 in Narragansett, RI. There were 20 people in attendance including 7 members of the LCMT 2, staff from RIDEM Marine Fisheries, MA Division of Marine Fisheries and members of the ASMFC Lobster Management Board. (See attached attendance sheet)

The first order of business was for the LCMT members to verify the membership list. Due to the duration between LCMT 2 meeting, staff wanted to verify active participants and alternates on the Team.

The purpose and goal of the meeting of the LCMT was to provide the team an early opportunity to determine a direction to go in the management process and afford the group the ability to understand the updated Stock Assessment and Technical Committee reports on the Management Boards task list. The Chair of the Technical Committee as well as technical staff from Rhode Island and Massachusetts answered questions of the Team related to the January 19, 2016 Memorandum to the American Lobster Management Board from the Lobster Technical Committee.

The first item that the LCMT addressed was the Item 4. Of the memorandum, Review Statement of Problem in Addendum XVII. Section 2.1.3 of Addendum XVII outlined management challenges in the lobster fishery resulting from limitations in the quality and quantity of biological and fisheries data. The TC identified three data deficiencies of the lobster fishery. Of most concern to the team is landings and effort information.

A. Landings and Effort Data – The SNE lobster fishery which occurs in federal waters is poorly characterized and the trip level reporting in some states is poor. Motion by A. Eagles to create mandatory reporting for all states. Second by B. McElroy. All in favor.

L. Dellinger submitted a paper for Team review on behalf of the commercial lobstermen of SNE recommending the review of water quality and lobster habitat in the southern New England stock area. (Attachment).

Motion by W. McElroy to submit the Water Quality and Habitat paper to the Lobster Management Board. Second by A. Eagles. All in favor.

The Chairmen of the Lobster Technical Committee, Bob Glenn from MADMF started discussion for the Team by reviewing the updated Lobster Stock Assessment. Noting the Committee's awareness of all of the environmental factors that have contributed to low stock abundance. Questions were answered regarding fishery dependent, independent, and settlement survey sources of data. After these discussions the Team stated that Area 2 is running out of options and that the other areas in the SNE stock unit need to implement addition measures to "catch up" to the sacrifices Area 2 has made in trap limits and subsequent trap reduction plans.

J. McNamee from RI Marine Fisheries gave a presentation on work that he and addition RI Marine staff gave to the TC at their last meeting which focuses on the relationship between traps and exploitation. Showing that trap reduction will eventually have a positive effect on exploitation rates. Although the analysis is not perfect it is a tool that can be used by technical staff and Managers to address some of the TC's concerns mentioned in the January memo to the Board. After the presentation team members expressed concern about the disconnect between the assessment which uses information through 2013 and a conservative trap reduction plan which has just started this year and which the benefits have yet to be realized. J. McNamee continued his presentation which looked at the benefits of increase egg production from minimum and maximum size changes.

Motion by A. Eagles to have no minimum size increase in LCMA 2. Second by M. Grimshaw. All in favor.

The Team revisited Item 4 of the January TC memo. The Team recommends to the Board the importance of the collection of addition biological information. The Atlantic Offshore Lobstermen's Association, the Rhode Island Lobstermen's Association and Industry members agreed to seek funds through their respective organizations to support the tagging study outlined by R. Glenn, MADMF.

Board Motion d. from February Management Board Meeting summary.

d. Improve current management and compliance with lower trap limits of nearshore trap fisheries by proposing a uniform closed season and new trap tag deadlines.

Although this motion was postponed the Team asked for clarification on its intent. After discussion of the effects of misaligned dates when fishing activity begins and trap tag start dates, the team discussed the evolution of a mixed crustacean fishery where management effect as they pertain to the lobster fishery would now potentially affect the newly adopted FMP for Jonah Crab.

Motion by G. Mataronas for the Management Board to begin to consider the SNE lobster fishery as a mixed species fishery co-prosecuted with the Jonah crab fishery.  
Second by A. Eagles. All in favor.

Motion by A. Eagles for the Management Board to not consider any closed season in the state or federal waters portion of LCMA 2 in order to pursue the mixed lobster and Jonah crab harvest. Second by B. McElroy. All in favor.

Maximum Size discussions. Upon review of the analysis done by RI Marine Fisheries and the potential egg production from the cumulative effect of preserving the spawning stock, the team discussed possible maximum size options.

Motion by A. Eagles to decrease the state and federal portion of LCMA 2 maximum size from the current 5 ¼ inch CL to a 5" CL. Second by G. Mataronas. 3 in favor, 2 opposed, 1 abstention.

Meeting adjourned at 9:15 pm

## Area 3 LCMT Meeting Minutes

Attendance: Dan McKiernan, David Borden, Grant Moore, Roy Campanale, Marc Palombo, David Spencer, Tracy Pugh, Alan Eagles, Lanny Dellinger.

E-mails from: Rob Burcaw, Peter Brown, Jim Violet

Tracy Pugh provided an overview of the latest stock assessment and projections.

Management measures in response to the assessment;

### Expedited trap reduction schedule

The current program calls for 5 years of reductions @ 5% each year starting in 2016. The trap cap associated with each year reduces from 1900 to 1548 in the final year.

The LCMT agreed to expedite the trap reduction schedule from a 5 year program to a 3 year program throughout Area 3

2016 fishing year 5 %

2017 fishing year 10%

2018 fishing year 10%

Trap cap schedule

2016 fishing year 1900

2017 fishing year 1715

2018 fishing year 1548

There was discussion regarding support for a higher trap cap number. The LCMT did not address this and pointed out that NMFS will soon be releasing their proposed rule on this and other issues. There will be opportunities to comment on a higher trap cap than is currently adopted by ASMFC

### Continued trap reductions:

The LCMT approved continuing trap reductions beyond the schedule mentioned above throughout Area 3. There will be one year of no trap reductions between the end of the expedited trap reductions mentioned above and the initiation of the additional trap reductions. The reductions would be for two years @ 5% each year. These reductions would not reduce the trap cap as do the previous trap reductions. The trap cap will remain at 1548 (or whatever the trap cap may be) throughout the two years of reductions and beyond.

### Max size reduction (SNE only)

The LCMT discussed this at length and is proposing a 6" max size for the SNE portion of Area 3, to be phased in over 3 years (1/4" reduction per year). Due to the much larger size structure of the offshore lobster resources south of Hudson Canyon, the LCMT felt a 6" maximum gauge size would be appropriate for all Area 3 participants in SNE. It is important to note that Area 3 has a significant higher minimum size than the rest of SNE.

RIDEM is finishing up their work on this issue early this week and will provide us with their numbers. I will forward this along as soon as I get it and will reach out to all after we have a chance to review.

In order to have a differing max size in SNE, a line would become necessary separating SNE from GB and the GOM. It would likely create a SNE endorsement that could be elected annually. This will require NMFS approval.

The LCMT identified two issues that need attention if a SNE only max size were to be implemented.

1. There is a significant difference in size structure in the canyons south of Hudson. A max size that might seem appropriate for most of SNE could have dramatic consequences for the fishery in the southern portion.
2. The second issue concerns the historical fishing pattern in the crab fishery. Some fishermen for many years have fished for crab (with very minimal lobster retention) in SNE and fished for lobster in GB. A max size suitable for SNE would have significant impact on the lobstering in GB. In order to have a smaller maximum size in SNE there will need to be a way to accommodate historical crab fishing patterns without triggering the smaller SNE max size on these businesses when lobstering in GB or the GOM.

I would recommend a committee be convened to look into ways that could accommodate these historical fishing practices.

The LCMT agreed to send a letter to ASMFC in strong support of creating a trap haul validation system as soon as possible and want to be involved in helping to create such a system. There was widespread agreement that as we invest more and more in the reduction of traps, it becomes increasingly important to insure that there is full compliance in the number of traps fished.

The LCMT also agreed to send a letter to ASMFC requesting that they do everything they can to help determine water quality issues that maybe having a negative impact on the near shore lobster resource particularly Narragansett Bay.

April 21, 2016

Atlantic States Marine Fisheries Council & American Lobster Management Board,

Based on the ASMFC September 2015 American Lobster Stock Assessment and the recent collapse of our stock, it is apparent that the New York fishery will not be able to fill the statewide demand for lobsters. It is also apparent that NY will not be able to depend on other Southern Atlantic Fisheries as those stocks have collapsed as well.

The best option based on sustainability and the most recent stock assessment is the Gulf of Maine. There is a limitation on our ability to import Gulf of Maine lobsters because of the disparity in legal sizes. All North American lobsters are sized for legal minimums on the boat at time of capture. It becomes costly and time sensitive to resize lobsters once they are landed and sold to dealers. Resizing also subjects the lobsters to additional handling and increases both mortality and waste. Most out of state dealers will resize orders for a larger minimum by eye; without the use of any gauge, thus missing many of the sizes that are closest to the NY legal minimum. This exposes NY businesses to incredible liability and virtually demands the wasteful resizing of imported product.

The total number of lobster imported into NY far exceeds the number of lobsters landed. The time has come for NY to standardize the minimum size of lobster, specifically for dealers. The current legal size of 3 3/8" is used as an arbitrary management tool for the NY fishery. The size of 3 3/8" was established as a *management* tool, specifically to "increase protection to American lobster broodstock"<sup>1</sup> and was implemented to manage the fishing efforts within NY. It should not be a problem for enforcement to measure lobsters coming solely from the NY fishery. The state of Massachusetts has three minimum sizes for their fishery and they are the second largest producer of domestic lobsters. This illustrates that it is easily possible to enforce an additional gauge size. Additionally, there are shipping documents that can be used to trace the origin of each load of lobsters.

Please consider standardizing the legal minimum size for Atlantic States dealers possession to 3 1/4". This would help to sustain a long established New York industry without causing further detriment to our fishery. Please accept this letter as my public comment for the Spring Meeting on May 2, 2016.

Sincerely, Paul Salke

Sunrise Lobster Company

Brookhaven, NY

Est 1980

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<sup>1</sup> "Environmental Assessment of American Lobster Broodstock Protection Regulation" Weiher Ph.D. 28 Feb 2006



April 20, 2016

Atlantic States Marine Fisheries Council & American Lobster Management Board,

Point Lobster Company has been located in Point Pleasant Beach, NJ since 1981. We are primarily a wholesale lobster company that operates under NMF Dealer permit #1852. We are a FDA registered and state inspected facility. In addition to offloading NJ lobsters, we also import from CT, RI, MA, NH, ME and Canada.

Based on the ASMFC September 2015 American Lobster Stock Assessment and the recent collapse of our stock, it is apparent that the NJ fishery will not be able to fill the statewide demand for lobsters. It is also apparent that NJ will not be able to depend on other Southern Atlantic Fisheries as those stocks have collapsed as well.

The best option based on sustainability and the most recent stock assessment is the Gulf of Maine. There is a limitation on our ability to import Gulf of Maine lobsters because of the disparity in legal sizes. All North American lobsters are sized for legal minimums on the boat at time of capture. It becomes costly and time sensitive to resize lobsters once they are landed and sold to dealers. Resizing also subjects the lobsters to additional handling and increases both mortality and waste. Most out of state dealers will resize orders for a larger minimum by eye; without the use of any gauge, thus missing many of the sizes that are closest to the NJ legal minimum. This exposes NJ businesses to incredible liability and virtually demands the wasteful resizing of imported product.

The total number of lobster imported into NJ far exceeds the number of lobsters landed. The time has come for NJ to standardize the minimum size of lobster, specifically for dealers. The current legal size of 3 3/8" is used as an arbitrary management tool for the NJ fishery. The size of 3 3/8" was established as a *management* tool, specifically to "increase protection to American lobster broodstock"<sup>1</sup> and was implemented to manage the fishing efforts within N.J. It should not be a problem for enforcement to measure lobsters coming solely from the NJ fishery. The state of Massachusetts has three minimum sizes for their fishery and they are the second largest producer of domestic lobsters. This illustrates that it is easily possible to enforce an additional gauge size. Additionally, there are shipping documents that can be used to trace the origin of each load of lobsters.

The sustainable fisheries topic is certainly one that cannot be avoided any longer. Customers are now demanding to know where their products are coming from. Some customers do not want products that are being harvested from an unsustainable source. The state of NJ must make an effort to bring the most sustainable products to market. That option is currently Gulf of Maine. It has been suggested that we buy from other states that currently have the same minimum size as NJ. That option limits us to buy from states that are also suffering from stock collapse. This is not a sustainable option.

Finally, some customers have discontinued and minimized their use of lobsters simply because they cannot get the size they want. Many restaurants want the smallest size possible because they are used as a promotional item on the menu. Others have been fined for possession of lobsters that were legally harvested out of state but do not make the legal NJ minimum size. Those include, but are not limited to: Point Lobster Co, Restaurant Depot, and Shop Rite. I do not believe this was the intention of N.J.A.C 7:25-14.13 *Size of lobster taken*.

If we cannot buy a sustainable product at good price we may not be able to maintain the infrastructure needed to provide for the remaining boats in the NJ industry. A smaller size for dealers will not devalue the price to the NJ fishermen simply because there is a demand for the sizes they catch. Please consider standardizing the legal minimum size for New Jersey dealer possession to 3 1/4". This would help to sustain a long established New Jersey industry without causing further detriment to our fishery.

Sincerely, John W. Godwin. Representing Point Lobster Company, Point Pleasant NJ

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<sup>1</sup> "Environmental Assessment of American Lobster Broodstock Protection Regulation" Weiher Ph.D. 28 Feb 2006

# Atlantic States Marine Fisheries Commission

## Executive Committee

*May 3, 2016  
8:00 – 10:00 a.m.  
Alexandria, Virginia*

## Draft Agenda

1. Welcome/Call to Order, *D. Grout*
2. Committee Consent **Action**
  - Approval of Agenda
  - Approval of Meeting Summary from February 2016
3. Public Comment
4. Report of the Administrative Oversight Committee, *J. Gilmore* **Action**
  - Presentation of the FY17 Budget
5. Discuss State Assessments
  - Level Funded in 2016
  - Confidential vs. Non-confidential Data
6. Discuss Black Sea Bass Management in Maine
7. Discuss Priorities for Saltonstall/Kennedy Research
8. Discuss Plan Development Team Membership
9. Discuss Conservation Equivalency
10. Discuss Offshore Monuments Proposal and Potential Commission Response, *D. Grout*
11. Future Annual Meetings Update, *L. Leach*
  - October 23-27, 2016 Bar Harbor, Maine
  - 2017 – Virginia
  - 2018 – New York
  - 2019 – New Hampshire
12. Closed Session
  - Discuss ACCSP Governance
  - Executive Director Performance Review
13. Other Business/Adjourn

***Please Note: Breakfast will be served at 7:45 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*



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

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## MEMORANDUM

**TO:** Executive Committee

**FROM:** Management and Science Committee and the Assessment and Science Committee

**DATE:** April 25, 2016

**SUBJECT:** Changes to the Conservation Equivalency Guidance Document

ASMFC uses conservation equivalency in a number of interstate fishery management programs. Conservation equivalency (CE) allows states/jurisdictions (hereafter states) flexibility to develop alternative regulations that address specific state or regional differences while still achieving the goals and objectives of Interstate Fishery Management Plans (FMPs). A Conservation Equivalency Guidance Document was approved in 2004 to provide policy and technical guidance on the application of conservation equivalency in interstate fishery management programs developed by the Atlantic States Marine Fisheries Commission (ASMFC). This guidance document received limited implementation since its approval; therefore, current processes to establish conservation equivalency programs varies widely among species FMPs.

The Executive Committee tasked staff to review the guidance document to provide information on where there are inconsistencies with current applications and where additional clarification on process may be warranted. The guidance document is outlined in 5 major sections: General Policy Guidance, Standards for State Conservation Equivalency Proposals, Review Process, Coordination Guidance, and Public Perception. This document presents policy questions on specific sections of the document regarding guidance on development, submission, review, and approval of conservation equivalency proposals that were presented to and then considered by the Management and Science Committee (MSC) and the Assessment and Science Committee (ASC). Recommendations from the MSC and ASC were incorporated into this memo for Executive Committee review and consideration.

### ***Section 1: General Policy Guidance***

The general policy guidance section of the 2004 Guidance Document describes how the Plan Development Team (PDT) develops CE within an FMP, gives some direction on the length a program can be in place, and the committees the Plan Review Team (PRT) should see feedback from.

## Policy Questions:

**1) Charter Guidance:** The ISFMP Charter allows for the use of CE in Commission management plans, unless the FMP specifically states it cannot be used. The general guidance section does not clearly describe Charter direction or the two ways in which conservation equivalency programs are utilized by states.

- Should the section be revised to clearly state the Charter guidance? Should it be revised to state through what process CE can be established: (1) FMPs (amendments or addenda) and (2) proposal submitted by the state?

**ASC/MSC recommendation: Agreed with suggested change to reflect Charter guidance.**

**2) More Restrictive Measures:** This section does not give direction to states when proposals are put forward for measures that are more conservative than a plan requires.

- Should the section be revised to clearly define when a CE proposal is required and when it is not? (e.g. Conservation equivalency proposals and Board approval are not required when states adopt more restrictive measures than those required in an FMP including but not limited to: higher minimum size, lower bag limit, lower quota, lower trip limit, closed or shorter seasons.)

### **Possible Language Change:**

Conservation equivalency proposals and Board approval are not required when states adopt more restrictive measures than those required in the FMP (e.g., higher minimum size, lower bag limit, lower quota, lower trip limit, closed or shorter seasons). These changes to the management program should be included in a state's annual compliance report or state implementation plan.

**ASC/MSC recommendation: Expressed concern over the difficulty in determining whether proposed measures are actually "more restrictive" due to unexpected consequences that may arise (e.g., a larger minimum size limit could increase discards). Recommend all CE proposals, regardless of the measures they propose, must be reviewed and considered by the board.**

## ***Section 2: Standards for Conservation Equivalency Proposals***

This section of the Guidance Document intends to provide a template for states to follow when developing conservation equivalency proposals. Current practices are not reflected in this section.

**1) Technical Committee (TC) Input:** The original policy does not address that the TC may need to provide input to states regarding analysis and usable datasets prior to states submitting CE proposals.

- Should the guidance be revised to state the TC should determine a recommended level of precision for all data and analyses used in proposals unless previously determined by the management board or FMP? This information may be requested by the state prior to the submission of their proposal.

**Possible Language Change:**

The TC should determine a recommended level of precision for all data and analyses, unless previously determined by the board or FMP. States may request this information prior to the submission of their proposal.

**ASC/MSC recommendation:** Agreed with suggested change, with the clarification that states have the option, but are not required, to ask for TC input.

**2) Implementation Timeframe:** The Guidance Document states all proposals must include how long the equivalent measures will be in place. It also states the timeframe should be linked to the next assessment or expected collection of additional data. It states plans should sunset after 3 years unless justification is provided for a longer timeframe. Expiration of proposals is intended to provide periodic reviews. This guidance does not reflect current practice. CE timeframes are rarely linked to assessments or data collection in state proposals. Most often they either expire at the end of the fishing year or they do not have a set expiration date.

- Should the guidance be simplified to state all proposals should include the length of time the measures are intended to be in place and the timing of the reviews of the measures? This would remove the linking of the proposal timeframe to assessments and data collection.

**Possible Language Change:**

The proposal must include the length of time the state is requesting CE and a review schedule. If the state does not intend to have an expiration date for the CE program it should be clearly stated in the proposal with justification.

**ASC/MSC recommendation:** Agreed with suggested change, and requested the proposals identify the length of time measures are intended to be in place and the timing for reviews.

**Section 3: Review Process**

This section of the Guidance Document provides direction to states on timelines, the review process, and the approval process. The timeline guidance for proposal submission does not reflect current practice and some of the direction on what committees should review proposals is not clear. It is recommended the section header be revised to: *Review and Approval Process*.

**1) Timing:** The current guidance requires a state to notify the Board chair three months in advance of a Board meeting that they intend to submit a CE proposal. Completed proposals are then due two months prior to the Board meeting.

- Current practice provides more flexibility for the submission of CE proposals. Should the guidelines be changed to reflect current practice? Current practice allows the submission of proposals by the states at any time. The review of proposals submitted less than two months in advance of a board meeting is at the discretion of the Board Chair, while those submitted less than two weeks in advance are not considered at the upcoming board meeting. This practice is intended to allow a flexible submission schedule but still consider the workload of the committees reviewing the proposal.

**Possible Language Change:**

If a state is submitting a proposal outside of an implementation plan process, it must provide the proposal two months in advance of the next board meeting to allow committees sufficient time to review the proposal and to allow states to respond to any requests for additional data or analyses. States may submit conservation equivalency proposals less than two months in advance of the next board meeting, but the review and approval at the upcoming board meeting is at the discretion of the Species Management Board Chair. Proposals submitted less than two weeks before a meeting will not be considered for approval at that meeting.

**ASC/MSC recommendation:** Agreed with suggested change as described in the language above.

**2) Committee Guidance:** The Guidance Document does not provide clear advice on the distribution of CE proposals to committees. It first states, upon receipt of the proposal the PRT will determine what additional input will be needed from the Technical Committee, Law Enforcement Committee, the Committee on Economics and Social Sciences. This would indicate the PRT determines which committees should complete a review. The next sentence contradicts this advice by stating the PRT will distribute and make the proposal available to all committees for possible comment.

- Should the document be revised to clarify what committees should review the proposals? Under current practice, the PRT reviews the proposal and then determines which committees should review the proposal based on its content. The PRT then distributes the proposal to the necessary committees for review.

**Possible Language Change:**

Upon receipt of the proposal, the PRT will determine what additional input will be needed from: the Technical Committee (TC), Law Enforcement Committee (LEC), and Committee on Economic and Social Sciences (CESS). The PRT will distribute the proposal to all necessary committees for comment.

**ASC/MSC recommendation:** Agreed with suggested change to reflect current practice.

**3) AP Guidance:** Current guidance states committee reviews will occur before the AP reviews and comments on CE proposals, and that the AP will receive the other committees' reports. This is intended to give the Advisory Panel as much information as possible to aid in their recommendation to the Board. However, time constraints may not allow all committees to complete their reviews prior to the meeting of the AP.

- Should the guidance document be revised to account for possible time constraints? In general manner.

***Possible Language Change:***

The PRT will compile all of the input and forward the proposal and comments to the Advisory Panel when possible. However, when there are time limitations, the AP may be asked for comments on a proposal prior to completion of other committee reviews.

**ASC/MSC recommendation:** Agreed with suggested change, the AP may have to review the proposal before receiving other committees' reports due to time constraints.

**4) PRT Recommendation:** The current guidance requires the PRT to make a recommendation to the Board on approval, rejection, or conditional approval of CE proposals. However, in current practice, the PRT determines if the state's proposal is equivalent to the measures contained in the FMP. In addition, the Guidance Document does not require the PRT to evaluate whether the proposal follows this policy document.

- (1) Should the guidance document be revised to reflect current practice? It has been the responsibility of the board to determined approval, rejection, or conditional approval of CE proposals.
- (2) When the PRT reviews CE proposals, should the review indicate whether a state's CE proposal followed the guidance document?

**Possible Language Change:**

The PRT will forward to the Board the proposal and all committee reviews, including any minority reports. The PRT will provide comment on whether the proposal is or is not equivalent to the standards within the FMP.

The PRT reviews should address whether a state's proposal followed the CE standards outlined in this policy, and any additional specifications included in the FMP.

**ASC/MSC recommendation:**

- 1) Agreed with suggested change and clarification, the Board determines approval, rejection, or conditional approval.
- 2) Agreed with suggested change. Commented that CE proposals should follow the guidance document and deviation will be highlighted by the PRT.

**5) Implementation Timing:** Under the current guidance, conservation equivalency programs are encouraged to be implemented at the beginning of the fishing year. Specific guidance on implementation timing may not be necessary.

- Under current practice the Board sets implementation dates for CE programs upon review and approval of CE proposals. Should the document be revised to reflect this practice?

**Possible Language Change:**

The Board will decide whether to approve the conservation equivalency proposal and will set an implementation date through final action.

**ASC/MSC recommendation:** Recommended implementation timing should be requested in the original state CE proposal. The Board will then set an implementation date for CE proposals when considering them for final action, taking into account the requested implementation date.

**6) Review Timeline:** The current Guidance Document establishes a timeline by which the Board will review CE plans. It states the Board designates that all CE plans will be reviewed at one meeting per year. The Board does not need to establish a specific meeting to review conservation equivalency because the timing for review and approval of conservation equivalency proposals is already addressed in this policy and is not consistent with this guidance of one meeting per year.

Should this language be deleted from the guidance document?

**Language to be Deleted:**

Where applicable, the Board should develop a schedule for each species to designate one meeting per year to address conservation equivalency plans. When a board cannot meet in a timely manner, and at the discretion of the Board and Commission Chair, boards may have the ISFMP Policy Board re-approve conservation equivalency plans.

**ASC/MSC recommendation:** Agreed with suggested deletion. The Board does not need to designate a meeting to review CE proposals because they already have established a review timeline in Section 3.1 above.

**Section 4: Coordination Guidance**

This section of the Guidance Document discusses the considerations states should take into account when conservation equivalency proposals impact coordination of management with federal partners. The current document does not include US Fish and Wildlife Service as one of those partners.



- While management changes from US Fish and Wildlife Service are less frequently necessary than other federal partners, they do occur. Should US Fish and Wildlife Service be added to the document?

**ASC/MSC recommendation:** Agreed with suggested change to add US Fish and Wildlife Service.

**DRAFT**

**Atlantic States Marine Fisheries Commission**

**CONSERVATION EQUIVALENCY:  
Policy and Technical Guidance Document**



**Drafted – April 27, 2004**

## **Introduction**

The purpose of this document is to provide policy and technical guidance on the application of conservation equivalency in interstate fisheries management programs developed by the Atlantic States Marine Fisheries Commission. The document provides specific guidance for the states, species management boards, and the technical support groups to follow during the development and implementation of fishery management plans, amendments, or addenda; as well as guidance on development, submission, review, and approval of conservation equivalency proposals.

## **Background**

The Atlantic States Marine Fisheries Commission (ASMFC) employs the concept of conservation equivalency in a number of interstate fishery management programs. Conservation equivalency is used to allow states a degree of flexibility in developing regulations to address specific state or regional differences while still achieving the goals and objectives of ASMFC management programs. Given that the species managed by ASMFC cross many state boundaries, it is often difficult to develop one-size-fits-all management measures, which necessitates the need to use conservation equivalency.

Conservation equivalency is currently defined in the Interstate Fisheries Management Program (ISFMP) Charter as:

*“Actions taken by a state which differ from the specific requirements of the FMP, but which achieve the same quantified level of conservation for the resource under management. One example can be, various combinations of size limits, gear restrictions, and season length can be demonstrated to achieve the same targeted level of fishing mortality. The appropriate Management Board/Section will determine conservation equivalency.” The application of conservation equivalency is described in the document Conservation Equivalency Policy and Technical Guidance Document*

In practice, the ASMFC frequently uses the term “conservation equivalency” in different ways depending on the language included in the plan (see appendix 1). For example in the Tautog FMP, conservation equivalency is used in the broadest sense, in that all states were required to achieve a 29% reduction in fishing mortality with no specific options listed in the document. In the Summer Flounder FMP, each state is required to achieve a state-specific reduction using the table and methodology developed annually by the Management Board. The Striped Bass FMP establishes a 2 fish bag limit and a 28-inch minimum size standard for the coastal recreational fishery, however states can vary these measures if it can be demonstrated that the potential recreational harvest will be equivalent to harvest that would have occurred under the standard measures in the plan.

Due to concerns over the lack of guidance on the use of conservation equivalency and the lack of consistency between fishery management programs, the ISFMP Policy Board accepted a recommendation from the Management and Science Committee and formed a sub-committee to address conservation equivalency. This sub-committee was charged

with developing a workshop to “develop options and recommendations for improving the use and effectiveness on conservation equivalency in Commission fishery management plans”. This workshop was held on October 17, 2001 and provided definite recommendations for refining the application of this management tool.

Based on the results of the workshop another sub-committee was formed comprised of commissioners and representatives from technical committees, the Law Enforcement Committee, the Management and Science Committee, the National Marine Fisheries Service, and the Committee on Economics and Social Sciences. The recommendations included in this document were developed by this sub-committee during meetings on December 3-4, 2002 and December 3, 2003. These recommendations will be reviewed and approved by the Management and Science Committee and ISFMP Policy Board.

### **General Policy Guidance**

Conservation equivalency is a tool the ASMFC uses frequently to provide the states flexibility in developing and implementing regulations to achieve the goals of interstate fisheries management programs. The use of conservation equivalency will continue to be an integral part of the Commission management process.

During the development of a management document the Plan Development Team (PDT) has the responsibility to recommend if conservation equivalency should be permitted for that species. The board should provide a specific determination if conservation equivalency is an approved option for the fishery management plan, since conservation equivalency may not be appropriate or necessary for all management programs. The PDT should consider stock status, data availability, range of the species, socio-economic information, and the potential for more conservative management when stocks are overfished or overfishing is occurring when making a recommendation on conservation equivalency. During the approval of a management document the Board will make the final decision on the inclusion of conservation equivalency.

If conservation equivalency is determined to be appropriate, the conservation equivalency process should be clearly defined and specific guidance should be supplied in the fishery management documents. Each of the new fishery management plans, amendments, or addenda should include the details of the conservation equivalency program. The guidance should include, at a minimum, a list of management measures that can be modified through conservation equivalency, evaluation criteria, review process, and monitoring requirements. If possible, tables including the alternative management measures should be developed and included in the management documents. The development of the specific guidance is critical to the public understanding and the consistency of conservation equivalency implementation.

The states have the responsibility of developing conservation equivalency proposals for submission to the Plan Review Team (see standards detailed below). Upon receiving a conservation equivalency proposal the PRT will initiate a formal review process as detailed in this guidance document. The state submitting the conservation equivalency

proposal has the obligation to ensure proposed measures are enforceable. If the PRT has a concern regarding the enforceability of a proposed measure it can task the Law Enforcement Committee with reviewing the proposal. Upon approval of a conservation equivalency proposal, the implementation of the program becomes a compliance requirement for the state. Each of the approved programs should be described and evaluated in the annual compliance review and included in annual FMP Reviews.

The management programs should place a limit on the length of time that a conservation equivalency program can remain in place without re-approval by the Board. Some approved management programs may require additional data to evaluate effects of the management measures. The burden of collecting the data falls on the state that has implemented such a conservation equivalency program. Approval of a conservation equivalency program may be terminated if the state is not completing the necessary monitoring to evaluate the effects of the program.

The Plan Review Team (PRT) will serve as the “clearing house” for approval of conservation equivalency proposals. All proposals will be submitted to the PRT for review. The PRT will have the responsibility of collecting all necessary input from the technical committee, Law Enforcement Committee, and Committee on Economics and Social Sciences. The PRT will compile input from all of the groups and forward a recommendation to the management board. Review and input from the Advisory Panel will also be forwarded to the board.

### **Standards for state conservation equivalency proposals**

Each state that is seeking to implement a conservation equivalency program must submit a proposal for review and approval. It is the state’s responsibility to supply the necessary information and analysis for a complete review of the proposal. The following section details the information that needs to be included in each proposal. Proposals that include an excessive number of options may delay timely review by the PRT and other groups and may ultimately delay the report to the Board. The states should limit the number of options included in a proposal or prioritize the options for review.

1. The proposal must include rationale on why or how an alternate management program is needed in the state. Rationale may include, but are not limited to, socio-economic grounds, fish distribution considerations, size of fish in state waters, interactions with other fisheries, protected resource issues, and enforcement efficiency.
2. Each proposal must include a description of how the alternative management program meets all relevant FMP objectives and management measures (FMP standards, targets, and reference points). This description must include necessary analyses to quantify the effects of the alternate management program. The analyses should be based on the most recent Board approved stock assessment. There should be sufficient information included in the proposal for the Plan

Review Team to review the proposal without additional documentation or explanation.

3. Each proposal must include a description of available datasets used in the analysis, description of how the data are collected, detailed description of state level data collection programs, and information on sampling targets/sample distribution/CV/post-stratification/etc. The proposal should also describe limitations of data and any data aggregation. All the landings data used should have a set level of precision as determined by the Technical Committee. The species technical committee should develop data standards for other types of data that may be used in a conservation equivalency proposal. Any states that do not meet the approved precision standards should conduct sensitivity analyses to determine the effects of the uncertainty in the data.
4. The proposal must include the length of time the state is requesting conservation equivalency. The timeline should be linked to the next assessment update or the expected collection of additional data. The timeline should be consistent with plan horizon with a maximum of 3 years (sunset) unless justification is provided for a longer period of time or an indefinite period of time is requested. A state can resubmit an updated proposal following the expiration and the board can re-approve the alternate measures. The expiration of conservation equivalency programs is intended to provide periodic reviews of alternate plans to ensure they are consistent with the relevant plan objectives.
5. Each proposal must justify any deviations from the conservation equivalency procedures detailed in the FMP. The state should conduct analyses to compare new procedures to procedures included in the plan, as appropriate, including corroborative information where available.
6. Each proposal should include a plan for follow-up and monitoring of potential impacts of the conservation equivalency proposal. This plan should include a description of the process that will document the results from a conservation equivalency measure relative to the FMP requirements and the annual reporting requirements. This proposal must provide a monitoring schedule to evaluate the effectiveness of a conservation equivalency program.

### **Review Process**

Implementation of new amendments/FMPs should include timelines and a review process for conservation equivalency proposals. However, the review process and timeline needs to be established for all conservation equivalency proposals that are submitted outside of the implementation of a new management document.

The following is a list of the steps and timelines for review and approval of conservation equivalency proposals. Any deviations from the following process should be included in the plan/amendment.

1. Conservation equivalency should be approved by the Management Board and, where possible implemented at the beginning of the fishing year.
2. A state must declare the intent to submit a conservation equivalency proposal to the species board chair three months prior to the a scheduled ASMFC meeting week. The state will then be required to submit the proposal to the board chair two months prior to the meeting week. The board chair will then submit the proposal to the Plan Review Team (PRT) for review.
3. The PRT should notify the state that the proposal is complete.
4. Upon receipt of the proposal the PRT will determine what additional input will be needed from the Technical Committee, Law Enforcement Committee, the Committee on Economics and Social Sciences. The PRT will distribute and make the proposal available to all committees for possible comment. The review should include a description of the impacts on or from adjoining jurisdictions or other management entities (Councils and/or NMFS). If possible this description should include qualitative descriptions addressing enforcement, socio-economic issues and expectations from other states perspective (shifts in effort). The review should highlight efforts to make regulations consistent across waterbodies. The PRT will compile all of the input and provide a recommendation for approval of the proposal to the management board.
5. The PRT will compile all of the input and forward the proposal and comments to the Advisory Panel. The Chair of the Advisory Panel (AP) will compile the AP Comments and provide to the Management Board.
6. The PRT will provide the following type of recommendations – approval, rejection, or conditional approval. The PRT should provide rationale for the recommendation, including improvements that could be made if the proposal was rejected. The report to the board should include the input provided by all the committees that were consulted by the PRT. Any minority reports that were developed should also be forwarded to the board. If possible the PRT should identify potential cumulative effects of all conservation equivalency plans under individual FMPs (e.g. impacts on stock parameters).
7. The management board will review and take action on the proposal. Board action should be based on the PRT recommendation as well as other factors such as impacts to adjoining states and federal management programs. A schedule should be developed for each species to provide one scheduled meeting per year to address conservation equivalency plans, where applicable. When a board cannot meet in a timely manner and at the discretion of the board and Commission Chair, the boards have the option to have the ISFMP Policy Board approve the conservation equivalency plan.

8. The PRT will evaluate whether the measures implemented under a state conservation equivalency plan are in compliance as part of the annual compliance review. The PRT will also evaluate whether the state conservation plan meets the goals of the species FMP. The board will determine if modification of the state conservation equivalency plan is required.

### **Coordination Guidance**

The Commission's interstate management program has a number of joint or complementary management programs with NOAA Fisheries and the Fishery Management Councils. Conservation equivalency creates additional burden on the Commission to coordinate with our federal fishery management partners.

The Commission's FMPs may include recommendations to NOAA Fisheries for complementary EEZ regulations. Conservation equivalency measures may alter some of the recommendations contained in the FMPs, which would require that the Commission notify NOAA Fisheries of any changes. The Commission needs to consider the length of time that it will take for regulations to be implemented in the EEZ and try to minimize the frequency of requests to the federal government.

The protocol for NOAA fisheries implementing changes varies for the different species managed by the Commission. The varying protocols need to be considered as conservation equivalency proposals are being developed and reviewed.

When necessary for complementary management of the stock, the ASMFC Chair will request federal partners to consider changes to federal regulations may be required.

### **Public Perception**

A lack of public understanding of the conservation equivalency process has led to a perception that some states are allowed to implement regulations that are less restrictive than the standards in the plan. The public has also expressed concern over not fully understanding how conservation equivalency management options are developed.

The development of this document is the first step in helping the public better understand conservation equivalency. Another important step to foster public understanding is the inclusion of management options in Commission FMPs and Amendments. If the public has access to the options that the states can select from, a major source of confusion is eliminated. Also, the public should be informed that conservation equivalency does not change the allocation between jurisdictions included in the plan.

The states need to work with the fishing public to better describe conservation equivalency and provide an explanation of why a state's regulations may differ from their neighbors.



**Conservation Equivalency Subcommittee membership:**

Stu Kennedy (Chair)  
Rob O'Reilly  
Harry Mears  
Anne Lange  
Bill Goldsborough  
Pete Jensen  
Kathy Hattala  
Doug Grout  
Ernie Beckwith

Bruce Buckson  
Paul Caruso  
Joe Fessenden  
John Carmichael  
Vishwanie Maharaj  
Melvin Shepard  
Byron Young  
Steve Doctor

## **APPENDIX 1**

The following appendix details the management measures for each ASMFC managed species that can be modified through conservation equivalency. This appendix also includes a summary of the management measures that the states have developed and are currently implemented through conservation equivalency.

*Note: This document is a summary of the conservation equivalency measures and procedures included in ASMFC fishery management plan. It does not supercede any of the language included in the plans.*

### **American Eel**

The American Eel FMP states: "With approval of the American Eel Management Board, a state may vary its regulatory specifications listed in Section 4, so long as that state can show to the Board's satisfaction that the goals and objectives of this FMP will still be met." Section 4 of the FMP includes the Management Program Implementation, therefore a state can modify any provision included in the FMP through conservation equivalency.

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

### **American Lobster**

Amendment 3 to the FMP for American Lobster outlines the adaptive management limitations for lobster management. The Amendment states that the following measures cannot be altered through conservation equivalency:

- Prohibition on possession of berried or scrubbed lobsters
- Prohibition on possession of lobster meats, detached tails, claws or other parts of lobster
- Prohibition on spearing lobsters
- Prohibition on possession of V-notched female lobsters
- Requirement for biodegradable "Ghost" panel for Traps
- Minimum Gauge Size
- Limits on Landings by fishermen using gear or methods other than traps

Any lobster management measure that is not listed above may be modified through conservation equivalency.

#### **Current Measures Implemented**

New Hampshire: The Lobster Management Board approved a New Hampshire program that allows a portion of their Area 1 fishermen 1,200 traps and the rest

600 traps rather than the 800 trap allocation for everyone as specified in Addendum III.

Massachusetts: The Lobster Management Board approved a Massachusetts program for the Outer Cape Cod which uses 1999 through 2001 as qualifying years to identify potential participants and allocates traps based on fishing performances during 2000 and 2002 with pounds as the qualifying parameter. The Outer Cape Cod plan in Addendum III used 1999 through 2000 as the qualifying years and fishermen reported catch reports as the qualifying parameter.

New Jersey: The Lobster Management Board approved a New Jersey conservation equivalency proposal allowing New Jersey to implement an alternative permitting and trap allocation system then what was outlined in Addendum I.

### **Atlantic Croaker**

There is no mention of Conservation Equivalency in the 1987 FMP for Atlantic croaker.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Atlantic croaker management.

### **Atlantic Herring**

Under Addendum II to the Atlantic Herring FMP the states are permitted to alter any measure for which a compliance criteria is in place provided that approval is obtained prior to implementation. The compliance measures that are included in the plan are:

- Report, annually, the amount harvested by fixed gears in state waters
- Provide a description of the operation and amount of fish mealed in conjunction with herring processing activities
- Enact spawning restrictions
- Prohibit landings when TAC has been attained in an area or sub-area
- Prohibit directed fishing for herring in state waters when the TAC has been attained in an area or sub-area
- Prohibit landing to IWPs when harvested from a closed area or sub-area
- Daily fixed gear landings be reported on a weekly basis
- Provide an annual report on any mealing activity in the state

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

**Atlantic Menhaden**

Amendment 1 provides states the opportunity to request permission to implement an alternative to any mandatory compliance measure. States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes in state plans must be submitted in writing to the Board and to the Commission either as part of the annual FMP Review process or the Annual Compliance Reports.

**Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

**Atlantic Striped Bass**

Amendment 6 allows for the use of conservation equivalency in the management of striped bass. States/jurisdictions are permitted to modify recreational minimum size limits and bag limits to remain consistent with the 2 fish at 28-inch minimum standard in the plan. The commercial minimum size can also be decreased with a corresponding decrease in commercial quota. The plan states that the minimum size limits cannot be implemented below 18-inches.

**Current Measures Implemented**

Maine:	Recreational Fishery	1 fish 20”-26” or over 40”; no 2 <sup>nd</sup> fish
New York:	Hudson Recreational	1 fish 18, 24 or 26 inches w/ or w/out spawning closure
Maryland:	Coastal Comm. Fishery	24 inch min size limit;
	reduced quota	
North Carolina:	Albemarle/Roanoke Rec	18 inch minimum size limit
	Albemarle Commercial	18 inch minimum size limit

**Atlantic Sturgeon**

Amendment 1 to the Atlantic Sturgeon Fishery Management Plan does not provide for conservation equivalency.

**Current Measures Implemented**

Conservation equivalency is not applicable to Atlantic sturgeon management.

### **Black Sea Bass**

The Black Sea Bass Fishery Management Plan does not provide for conservation equivalency.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Black sea bass management.

### **Bluefish**

The Bluefish Fishery Management Plan does not provide for conservation equivalency.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Bluefish management.

### **Horseshoe Crab**

The Horseshoe Crab Fishery Management Plan does not provide for conservation equivalency.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Horseshoe crab management.

### **Northern Shrimp**

Amendment 1 to the Northern Shrimp Fishery Management Plan does not provide for conservation equivalency

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Northern shrimp management.

### **Red Drum**

Amendment 2 to the Red Drum FMP allows any state to request permission to implement an alternative to any mandatory compliance measure. States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes in state plans must be submitted in writing to the Board and to the Commission either as part of the annual FMP Review process or the Annual Compliance Reports.

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

### **Scup**

Addendum XI to the Scup Fishery Management Plan provides the details for conservation equivalency in the 2004 recreational fishery. This Addendum also allows the Board to establish annual conservation equivalency procedures through future Board action. Under Addendum XI, the states from Massachusetts through New York must

develop a combination of size limits, bag limits, and seasonal closures to achieve a state-specific reduction. The states from New Jersey through North Carolina must implement minimum size limits, seasonal closures, and bag limits as described in the Addendum. Conservation equivalency is not permitted in the commercial fishery.

#### **Current Measures Implemented**

The states from Massachusetts through New York have implemented measures that achieve the necessary reduction for their recreational fisheries in 2004.

#### **Shad and River Herring**

Amendment 1 to the Shad and River Herring FMP allows a state to vary their recreational and commercial management programs so long as that state can show to the Board's satisfaction that the target fishing mortality rate or the overfishing definition will not be exceeded. Also, Amendment 1 states that alternative management regimes may also include other indices of their equivalency (e.g., eggs-per-recruit, yield-per-recruit, etc.), in addition to fishing mortality protection. States shall submit proposals for altering their regulatory program for American shad, hickory shad, or river herring prior to implementing any changes.

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

#### **Spanish Mackerel**

There is no mention of Conservation Equivalency in the 1990 FMP for Spanish mackerel.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Spanish mackerel management.

#### **Spiny Dogfish**

The Interstate FMP for Spiny Dogfish allows the states to submit a proposal and receive Board approval to change any compliance requirement in the FMP. The compliance requirements included in the FMP are:

- Must close state waters when the quota is harvested
- Required to report landings weekly to NMFS
- State permitted dealers must report weekly
- Implement possession limits that comply with the annual specifications
- State issued exempted permits for biomedical harvest, limited to 1,000 fish (must report in annual compliance report)
- State prohibition of finning

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

### **Spot**

There is no mention of Conservation Equivalency in the 1987 FMP for spot.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Spot management.

### **Spotted Seatrout**

There is no mention of Conservation Equivalency in the 1984 FMP for Spotted seatrout

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Spotted seatrout management.

### **Summer Flounder**

The Summer Flounder, Scup, and Black Sea Bass Management Board annually establish the process for applying conservation equivalency to the summer flounder recreational fishery. Each year the Board establishes state-specific targets (numbers of fish) that the states must achieve through combinations of minimum size limits, bag limits, and seasonal closures. Conservation equivalency is not permitted in the commercial summer flounder fishery.

#### **Current Measure Implemented**

All of the states have developed proposals and are currently implementing regulations that are consistent with the 2004 state-specific targets.

### **Tautog**

Addendum III to the Tautog FMP required each state to make a 29% reduction in fishing mortality (25% reduction in exploitation rate) in the recreational fishery by April 1, 2003. States were required to submit proposals for this reduction and all proposals were reviewed and approved by the TC, the AP, and the Board.

#### **Current Measures Implemented**

All of the states have implemented approved measures to achieve the reduction that is required under Addendum III.

### **Weakfish**

Amendment 3 to the Weakfish FMP required states to achieve a 32% reduction in the weakfish exploitation rate (F) from the 1990-1992 reference period. This level of reduction was carried over into Amendment 4. Appendix I of Amendment 4, an updated Evaluation Manual (O'Reilly 2002), provides states guidance in establishing their reduction plans. A state has the ability to adjust its commercial fishery regulations and choose from several creel limit/minimum size combinations for its recreational fishery to achieve the 32% reduction.

To achieve the fishing mortality reduction, states' commercial fisheries are constrained by size limits, gear restrictions, and possibly seasonal and area closures. Amendment 4

established a minimum size in the recreational fishery of 12 inches total length. However, it also provided states with a pre-determined suite of conservation equivalencies for recreational fishery regulations. States may choose a minimum size and creel limit combination of 12 inches/7 fish, 13 inches/8 fish, 14 inches/9 fish, or 15+ inches/10 fish.

**Current Measures Implemented**

All states regulate their commercial fisheries using combinations of minimum fish and mesh sizes and closed seasons to achieve the required reduction. The states have also implemented a combination of recreational minimum size limit and bag limits that are consistent with Amendment 4.

**Winter Flounder**

The current plan, states do not have to comply with any specific requirements. Therefore, conservation equivalency is currently not applicable for winter flounder. Amendment 1 is in development and will contain compliance criteria and the Board will decide which of these are available to change through conservation equivalency.

**Current Measures Implemented**

*Conservation equivalency is not applicable to winter flounder management.*



## **APPENDIX 2**

### **Current Plan Review Team Membership**

#### **American Eel Plan Review Team**

Herb Austin (VA)  
Mel Bell (SC)  
Dan Kuzmeskus (USFWS)  
Lydia Munger (ASMFC)  
Vic Vecchio (NY)  
Gail Wippelhauser (ME)

#### **American Lobster Plan Review Team**

Richard Allen (RI)  
Clare McBane (NH)  
Dan McKiernan (MA)  
Bob Ross (NMFS)  
Carrie Selberg (ASFMC)  
Carl Wilson (ME)

#### **Atlantic Croaker Plan Review Team**

Herb Austin (VA)  
Wilson Laney (USFWS)  
Tina Moore (NC)  
Harley Speir (MD)  
Nancy Wallace (ASMFC)

#### **Atlantic Herring Plan Review Team**

Megan Gamble (ASMFC)  
David Libby (ME)  
Clare McBane (NH)  
William Overholtz (NMFS)

#### **Atlantic Menhaden Plan Review Team**

Matt Cieri (ME)  
Ellen Cosby (VA)  
Trisha Murphey (NC)  
Douglas Vaughn (NMFS)

#### **Atlantic Striped Bass Plan Review Team**

Megan Gamble (ASMFC)  
Wilson Laney (USFWS)  
Gary Shepherd (NMFS)

#### **Atlantic Sturgeon Plan Review Team**

Kim McKown (NY)  
Tom Meyer (NMFS)

Ted Smith (SC)  
Brad Spear (ASMFC)  
Dick St. Pierre (USFWS)

**Black Sea Bass Plan Review Team**

Michael Armstrong (MA)  
Beth Burns (NC)  
Nancy Butowski (MD)  
Toni Kerns (ASMFC)  
Chris Moore (MAFMC)

**Bluefish Plan Review Team**

Elliot Atstupenas (USFWS)  
Herb Austin (VA)  
Vic Crecco (CT)  
Louis Daniel (NC)  
Toni Kerns (ASMFC)  
Najih Lazar (RI)  
Chris Moore (MAFMC)  
Roger Pugliese (SAMFC)

**Horseshoe Crab Plan Review Team**

Tom Meyer (NMFS)  
Stewart Michels (DE)  
Eric Schrading (USFWS)  
Brad Spear (ASMFC)

**Northern Shrimp Plan Review Team**

Clare McBane (NH)  
Dan Schick (ME)  
Brad Spear (ASMFC)

**Red Drum Plan Review Team**

John Merriner (NMFS)  
Michael Murphy (FL)  
Lee Paramore (NC)  
Roger Pugliese (USFWS)  
Nancy Wallace (ASMFC)  
Charlie Wenner (SC)

**Scup Plan Review Team**

Michael Armstrong (MA)  
Beth Burns (NC)  
Bill Figley (NJ)  
Mark Gibson (RI)  
Toni Kerns (ASMFC)

Chris Moore (MAFMC)  
David Simpson (CT)  
Byron Young (NY)

**Shad and River Herring Plan Review Team**

Lydia Munger (ASMFC)  
Dick St. Pierre (USFWS)  
Sara Winslow (NC)

**Spanish Mackerel Plan Review Team**

Henry Ansley (GA)  
Randy Gregory (NC)  
Nancy Wallace (ASMFC)  
Gregg Waugh (SAFMC)

**Spiny Dogfish Plan Review Team**

Megan Gamble (ASMFC)  
Tina Moore (NC)  
Gregory Skomal (MA)

**Spot Plan Review Team**

Herb Austin (VA)  
John Schoolfield (NC)  
Harley Speir (MD)  
Nancy Wallace (ASMFC)

**Spotted Seatrout Plan Review Team**

Beth Burns (NC)  
Michael Murphy (FL)  
John Pafford (GA)  
Nancy Wallace (ASMFC)  
Charlie Wenner (SC)

**Summer Flounder Plan Review Team**

Michael Armstrong (MA)  
Toni Kerns (ASMFC)  
Wilson Laney (USFWS)  
Najih Lazar (RI)  
Chris Moore (MAFMC)  
Mark Terceiro (NMFS)  
Carter Watterson (NC)  
Byron Young (NY)

**Tautog Plan Review Team**

Paul Caruso (MA)  
Jason McNamee (RI)

Lydia Munger (ASMFC)  
David Simpson (CT)

**Weakfish Plan Review Team**

Rick Cole (DE)  
Toni Kerns (ASMFC)  
Rob O'Reilly (VA)

**Winter Flounder Plan Review Team**

Lydia Munger (ASMFC)  
Deb Pacileo (CT)  
Sally Sherman (ME)  
Alice Weber (NY)



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • [www.asmf.org](http://www.asmf.org)

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## ASMFC Horseshoe Crab Advisory Panel Call Summary

April 5, 2016

**Advisory Panel Members:** Dr. Jim Cooper, Benji Swann, Rick Robins, Allen Burgenson, Brett Hoffmeister, John Turner, Jay Harrington

**ASMFC Staff:** Kirby Rootes-Murdy and Amy Hirrlinger

**Public:** Peter Himchak

The Horseshoe Crab Advisory Panel (AP) met via conference call to discuss the following items: 1) Alternative Horseshoe Crab Bait Trials 2) Biomedical data and the next Horseshoe Stock Assessment 3) Review and updating of the ARM Framework in 2016 4) Review of Biomedical BMPs for handling horseshoe crabs. Below is a summary of their discussion.

### 1) **Alternative Horseshoe Crab Bait Trials** (*K. Rootes-Murdy*)

#### a) Overview of Alternative Bait Trial Results

Kirby Rootes-Murdy provided an overview of the alternative bait trials that were conducted by Connecticut and Rhode Island fishermen in conjunction with state agencies in 2014. Alternative bait supplied by LaMonica Fine Foods of New Jersey were used in the trials. The alternative bait contained between 1/10 to ¼ horseshoe crab. The main finding of the bait trials was that the alternative bait did not differ in resulted catch of conch than traditional horseshoe crab bait. Based on these findings, the Management Board requested that a cost comparison be conducted to evaluate whether the alternative bait was cost competitive relative to traditional horseshoe crab bait. In undertaking the cost comparison, ASMFC staff met via conference call with the Alternative Bait Working Group, (a subcommittee of the Horseshoe Crab Technical Committee) to consider elements and possible questions for the Advisory Panel to provide comment on regarding the costs associated with horseshoe crab bait. Based on discussion with the Alternative Bait Working Group, three distinct situations would be need to be evaluated 1) Traditional bait costs 2) alternative bait from La Monica Foods 3) alternative bait made by fisherman.

#### b) Questions for the Advisory Panel on Cost/Time & Discussion

Regarding questions of cost and considerations of alternative bait, the AP members provided the following comments:

- Conch legal size varies from state to state, so a comparison of legal size in CT and RI should be also compared against trial studies in other states along the coast with different legal sizes.
- The alternative bait trials indicate some promise, but the sample size of the study is limited and additional trials should be undertaken throughout the range of the fishery.
- Conch fishermen have already taken measures to preserve horseshoe crabs, as indicated by the maximum amount of horseshoe crab that can be used in bait bags and cups in many states. Any further restrictions or requirements of an alternative bait should take these current conservation measures into account.
- Many Conch fishermen look to the processor or dealer to supply horseshoe bait, so a move to alternative bait provided by LaMonica Fine Foods would need to be sent to dealers/processors- otherwise, this would be a new step and potential challenge in securing bait.
- While the LaMonica Fine Foods bait product has been interchangeably labelled 'alternative' or 'artificial' relative to traditional horseshoe crab bait, this is misleading. The bait product produced by LaMonica Fine Foods contains horseshoe crab, and as many bait fishermen use a combination of horseshoe crab and other ingredients already, a more appropriate term should be 'composite bait' rather than 'alternative' or 'artificial'.
- Conservation efforts in Massachusetts include a dual use of horseshoe crabs where a portion of crabs intended for bait will first be bled for biomedical use. This makes the best use of a precious resource and reduces the overall demand on the horseshoe crab fishery.
- La Monica Fine Foods makes their bait product on an order-by-order basis. For this 'composite' bait to be utilized across the coast, they would have to scale up production significantly.
- Lastly, members of the AP encourage the Commission to pursue a research/education/outreach strategy regarding conservation of Horseshoe Crabs through current regulatory measures.

#### Public Comment

- Peter Himchak pointed out that the bait product produced by LaMonica Fine Foods is not a money maker for the company, and there isn't a lot of interest by fishermen in making their own, as a bait slab costs only \$40 (between \$.8- \$1.60 per piece/puck of bait).

The AP members did not offer specifics on the cost of refrigeration, current cost of bait gotten from dealers/processors, or estimated cost of time spent harvesting horseshoe crab.

## **2) Biomedical data and the next Horseshoe Stock Assessment (*K. Rootes-Murdy*)**

Kirby Rootes-Murdy provided an overview of the issues confidential biomedical data pose in conducting a stock assessment. Members of the AP took part in a call with ASMFC staff and Horseshoe Crab TC members in 2013, at which point a few options for conducting the next Horseshoe Crab stock assessment were discussed. There was not agreement on how the next stock assessment should be conducted as Biomedical Representatives were not in favor of an assessment that disclosed biomedical catch data publicly and TC members were not in favor of conducting an assessment where biomedical catch data would be reviewed, but not be made available publicly. Since this call, there has not been

developments on different or new stock assessment approaches for horseshoe crab. The one change was the number of biomedical bleeding facilities in the Delaware Bay Region (currently at 4) which would now be considered non-confidential when the data is pooled as an aggregate number on the regional level. Questions to the AP were how receptive would they be in a stock assessment using biomedical data moving forward and thoughts on the Delaware Bay Region biomedical data becoming non-confidential (as an aggregate number on a regional level) and possibly used in future stock assessments.

a) Questions and comments from the Advisory Panel

The AP had an extensive discussion on trying to find a solution to allow for a stock assessment to proceed without jeopardizing current confidentiality. Regarding considerations on biomedical data being used in stock assessment, the AP members provided the following comments:

- The number of horseshoe crabs caught and utilized by the biomedical industry are almost negligible when compared to commercial bait harvest landings. Additionally the loss or mortality from the biomedical industry are estimated to be 15%, but that 15% estimate comes from a study did not match conditions in the biomedical facilities. Many AP members contend that mortality is less than 15%, likely closer to 3%.
- Benji Swan suggested combining all the biomedical data and applying it proportionally to the regions, such as to the Delaware Bay region, that it would be close enough without jeopardizing confidentiality.
  - Kirby provided the following response on the call and in greater detail in an email to the AP on April 20:
    - 1) From what the Technical Committee and Stock Assessment Subcommittee (TC/SAS) can infer from available fishery independent and dependent data, there are regional populations of horseshoe crab (roughly broken down as New England, New York/Long Island Sound, Delaware Bay, and Southeast) along the Atlantic coast of the US. And these regional populations likely vary in size and abundance, with the Delaware Bay region likely having the largest population. This was determined in the previous two assessments (2009 assessment and 2013 assessment update)
    - 2) What we know from annual compliance reports is the amount of horseshoe crabs utilized by the biomedical industry varies by facility and regionally along the coast- there are more facilities in the Delaware Bay region than there are in New England and the Southeast. Additionally, not every facility utilizes the same number of horseshoe crabs- Associates of Cape Cod do not use the same number of crabs as

Limuli, nor does Heptest labs (VA) use the same amount of crabs as either Associates of Cape Cod, Limuli, or Charles River Endosafe. Similarly, we know that the biomedical mortality varies by region- the coastwide biomedical mortality of an example number of horseshoe crabs (78,000) does not breakdown to 1/3s (approximately 26,000) across the New England, Delaware Bay, and Southeast regions equally. So if we know that the breakdown is not correct, and we have the data to support that conclusion, we cannot present to a peer review panel that that regional biomedical mortality estimate is a representation of the reality, or our best guess at reality, when we know it is not.

- 3) Returning to the regional populations idea established from the previous assessments, even if we went with a 1/3s regional breakdown of the 78K horseshoe crabs biomedical mortality estimate, we also know that a 26K horseshoe crab mortality in the Delaware Bay region (largest population) attributed to biomedical catch and use is different than 26K mortality in New England (different population size). When you take into account commercial bait harvest differs along the coast and by region too, the 26K mortality estimate is different in the DE Bay than New England, and is different in the Southeast than both of them. And if we know that 26K isn't correct, then we also would know that our estimated impact of that combined mortality (bait and biomedical) on each of the regional populations would also be wrong. If we want to have a stock assessment pass peer reviewed, we cannot present information that we know is wrong.
- 4) Lastly and again, data for the horseshoe crab assessment needs to be examined on a regional level, not a coastwide level- this was the recommendation of the previous stock assessment. So for example, to understand abundance and mortality in New England we need to look at commercial data, biomedical data, and fishery independent data at the regional level. As there is only 1 biomedical facility in the New England region, the biomedical company's horseshoe mortality estimate is considered confidential. If there were 3 biomedical facilities in New England (for example companies A, B, and C) we could disclose what that biomedical mortality estimate is for the region as an aggregate number (A+B+C= biomedical mortality). When presented as an aggregate number, each individual companies' horseshoe crab mortality estimate remains confidential (as does the number of crabs caught and brought to a facility) and unable to be linked back to the others (so even if you know company A's mortality, you don't know what B or C's is, nor how many crabs companies B or C utilized). So for the Delaware Bay region, the aggregate mortality estimate from the 4 companies could be reported out as one number, without disclosing each company's mortality estimate. This is why data confidentiality for the Delaware Bay region facilities can be preserved while also putting forth a more correct mortality estimate.

- AP members took issue with the idea of biomedical data in the Delaware Bay Region becoming non-confidential.
- Concern remains among the AP that if biomedical data were disclosed to the public, it would be detrimental to their businesses- both because if this information were disclosed to their



competitors, it would be hurt their business (in knowing how many crabs were used) and environmental groups would try to use the information against them.

- The AP members indicated that there are additional sources of mortality that are more significant than biomedical use- strandings, disease, predation by other species, and altered beaches.
  - Kirby noted to the group that this is accounted for in a natural mortality estimate that is fixed across the coast. The issue remains that with biomedical caught and bled is a variable mortality estimate, one that is estimated at varying degrees along the coast, but cannot be used because of confidentiality.
- **\*\*\*Overall the AP members were in strong opposition to the use of biomedical data in the next stock assessment if that information were to be disclosed publicly\*\*\***

### 3) Review and updating of the ARM Framework in 2016 (*K. Rootes-Murdy*)

Kirby Rootes-Murdy provided the AP an overview of the current ARM Framework review. At the 2016 Winter Meeting, the Board supported moving forward with a short-term, partial review of the ARM Framework to be conducted by the ARM Subcommittee in consultation with the Horseshoe Crab TC.

The ARM Subcommittee met twice a month from February through April 2016 to consider components of the ARM Framework to be updated. Areas of possible change in the ARM Framework include valuation of female horseshoe crabs, alternative harvest packages, abundance thresholds for allowing female horseshoe crab harvest, and the possibility of including biomedical data in the ARM Framework moving forward.

**\*\*\*The AP again raised concerns over confidentiality and indicated their preference that biomedical data not be used in the ARM Framework.\*\*\***

### 4) Review Biomedical BMPs for handling horseshoe crabs (*J. Cooper*)

Dr. Jim Cooper provided the group with an overview of Ad-Hoc Working Group Report from 2011 on biomedical best management practices. The AP members indicated that nearly all of the practices outlined in the document are currently being utilized by biomedical facilities. Moving forward AP members indicated that adherence to these BMPs should be publicized more.

## 5) Other Business/Adjourn

- Benjie Swann requested that the graph on the ASMFC website indicating biomedical catch and bait harvest be adjusted, as it could be perceived to indicate removals from both sectors are comparable.
  - Kirby indicated that an alternative graph will be sent to her soon
- Other AP members indicated that the biomedical industry- specifically those involved in the catch and bleeding of crabs for developing Limulus Amoebocyte Lysate and other biomedical products- need to be given more credit for their role in the providing a vital resource to the biomedical field.

**TO: Horseshoe Crab Management Board**  
**FROM: James Cooper, Chair, HSC Advisory Panel**  
**RE: Position Paper of biomedical group on Stock Assessment**

April 26, 2016

The HSC board received a summary of an April 2016 meeting of the HSC Advisory Panel. In the opinion of the biomedical group, the summary does not reflect the extensive dialogue by the AP members to try and find a solution that would allow the Stock Assessment to proceed without jeopardizing confidential data. As suggested, dividing the biomedical mortality number (78,000) proportionally among the impacted regions would be a viable alternative and produce a reasonable estimate. The biomedical mortality numbers are a small fraction of the bait harvest and a minuscule fraction of the total population (20 million in Delaware Bay alone, according to work of Dr. Carl Schuster and Dr. David Smith); therefore, the relevance of the number being exact does not seem justified.

What does the mortality number actually mean? The FMP required biomedical firms to supply their State with collection and use data, but did not limit harvest. The FMP also specified a number, a so-called threshold level, at which the ASMFC would review biomedical practices if the estimated loss of HSC exceeded this number. The intent of the threshold was to evaluate the HSC biomedical catch and reporting should the estimated mortality exceed 57.5K specimen per year. **This number was selected arbitrarily** and was never envisioned as an unacceptable quantity or upper limit for biomedical collection. The threshold number is not the reported mortality, but is an estimated mortality based on 15% of the annual biomedical catch; it is not an exact number and is an over-estimate.

As this threshold was exceeded, the Board asked the biomedical group to evaluate its HSC handling practices and to incorporate them into a formal document. The ASMFC sponsored a Working Group of biomedical and State fisheries representatives that met in 2011 and created the Best Management Practices (BMP) document to detail their procedures that insure minimal stress and mortality during collection and handling of HSC. The group discussed and analyzed the 8 basic steps for handling HSC in the biomedical facility, from collection to bleeding to return-to-sea. The BMP specified behaviors such as timely transport to the LAL facility, protection from direct exposure to the sun, training of LAL personnel in handling and bleeding practices, prompt return to sea, and training of watermen in best handling techniques. The BMP is necessarily flexible to accommodate differences in climate, habitat and size of HSC with respect to a LAL firm's geographical location in the US. No further action was taken by the HSC Board which indicated their satisfaction with the response of the biomedical industry.

The LAL reagent business is small and stable. The firms that entered this business years ago are still involved today, although their company names may have changed. Their commitment to the quality of their product and to the horseshoe crab population is evidenced by their continued presence in the industry. The reagent is comprehensively regulated by the FDA. The extensive requirements that must be met to gain approval for LAL production is an enormous barrier to market entry. The likelihood of a new startup LAL firm in the next 10 years is highly unlikely. Three firms produce greater than 95% of the LAL reagent used worldwide; they are approximately equal in market share. The companies firmly believe that the numbers remaining confidential are crucial to their continued business success. HSC collection by these three firms constitutes the impact of HSC collection on stock assessment.

In summary, the Biomedical LAL industry requests that the Board reject the proposal by the SAC and ASMFC staff to illegally take confidential information from biomedical firms. Alternatively, we propose that representatives of the LAL industry advise the SAC of a meaningful way to use relevant HSC mortality data to arrive at a realistic stock assessment.



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • [www.asmf.org](http://www.asmf.org)

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## ASMFC Horseshoe Crab Adaptive Resource Management Framework Review Update

April 2016

**Horseshoe Crab Adaptive Resource Management Subcommittee members:** John Sweka (USFWS), Steve Doctor (MD DNR), Jeff Brust (NJ DFW), Ed Hale (DE DFW), Jim Lyons (USGS), Larry Niles (American Littoral Society), Conor McGowan (Auburn University/ USGS), Wendy Walsh (USFWS), and Dave Smith (USGS)

**ASMFC Staff:** Kirby Rootes-Murdy and Kristen Anstead

In February 2016, the Horseshoe Crab Board tasked the Adaptive Resource Management (ARM) Subcommittee with revising three components in the ARM model as part of a short-term review process. Since then, the ARM Subcommittee has met twice a month by conference call to develop objectives, assign tasks, and make progress to complete an ARM review by fall 2016. Below are the three components of the short-term ARM model review, along with a summary of the discussions and progress that has been made. The ARM Subcommittee plans to complete the short-term review by the ASMFC Annual Meeting in October 2016.

### 1. Evaluate the Monitoring Program

- The ARM Subcommittee discussed the necessary continuation of the Virginia Tech (VT) trawl survey and the possible development of more advanced modeling in that region based on that data, such as a catch-survey model.
  - The group received confirmation that the VT trawl survey will resume in fall 2016.
  - After discussions on available data, it was determined that a catch survey model could not be developed at this time as the VT trawl survey is one of the only surveys that categorizes pre & repeat spawning females.
- The ARM Subcommittee considered a horseshoe crab tagging study done in the region to further determine regional abundance, but ultimately didn't feel it was ready for use in the model.
- Jim Lyons and shorebird biologists from Delaware and New Jersey are working on the annual red knot population estimate and are reevaluating the structure of their mark-resight data collection program and the assumptions in the model; a new sampling protocol was developed and drafted.
  - Will have preliminary analysis results by July regarding the model assumptions
  - The shorebird group is currently reviewing the new sampling protocol.

- The possibility of including data from biomedical catch and mortality estimates in the model for more accurate survival rates has been discussed because there are 3 or more facilities in the Delaware Bay region and therefore the data is no longer confidential (if combined as an aggregate number at the regional level), but the group is concerned this level of work is beyond the scope of a short-term review and would extend the timeline of completing the ARM review. The ARM Subcommittee views this as possible revision of the model inputs and will discuss it in more detail over the next few months in developing recommendations for the Board's consideration in August 2016.

## **2. Harvest Rates and Specifications**

- Alternative harvest packages have been developed and discussed for incorporation into the revised ARM model, including the potential for more female harvest and the discrepancies between state quotas and recent harvest levels.
  - Current constraints in utilizing these additional harvest packages is the knife edge slope in the reward function of the abundance thresholds for the 1) female horseshoe crab abundance estimate and 2) red knot abundance estimate. If the abundance estimates are below the thresholds, no female horseshoe crab harvest is allowed.

## **3. Revisit the Objective Function**

- Alternative formulations, including a change in the knife-edge slope, reward, and sex ratio utility functions, are currently being developed and considered.
- Consideration was given to changing the order of red knot and horseshoe crabs in the objective function to focus on red knots conservation more given the 2013 Endangered Species Act listing, but the group believes this wouldn't result in substantially different conservation measures outside of what the Commission has already considered through the decision-making framework process. In the future, there may be additional information provided by the US Fish and Wildlife Service on recovery considerations for red knots as the formal recovery plan is developed.

## Atlantic States Marine Fisheries Commission

### Climate Change Workshop

Tuesday, May 3, 1:15pm-3:45pm

#### Agenda

1. Review and Discuss Northeast Fish and Shellfish Climate Vulnerability Assessment (J. Hare) 1:20pm
2. Review and Discuss NOAA Climate Science Action Plans
  - a. North East Climate Science Action Plan (J. Hare) 2:20pm
  - b. South East (Atlantic) Climate Science Action Plan (H. Lovett) 2:40pm
3. Begin Discussion of Next Steps for Commission Action in Response to the Climate 3:00pm

#### Discussion Questions

- 1) For stocks that do not respond to management, how long do we continue the FMP (e.g. surveys, quotas, monitoring)?

How do we as managers make the decision to adapt our current management tools for the stocks that do not respond because of climate change?
- 2) What are the management priorities given expected future environmental change?
- 3) What are the science priorities? There are several great ideas being put forward. What would ASMFC prioritize? Are there other science priorities not listed?
  - Improve/continue environmental monitoring
  - Improve/continue fish surveys (fisheries dependent and/or fisheries independent)
  - Monitoring zooplankton and forage species
  - Monitoring key species for changes in growth or recruitment
  - Incorporating environmental parameters into stock assessment
  - Quantifying changes in distribution
  - Analyzing changes in stock structure
  - Improving socio-economic surveys and analyses
- 4) How will management respond to current and future changes in climate and ocean? How will managers use the science that integrate ecosystem monitoring and basic research into predictive models into fisheries management decisions?
  - precautionary management decisions in anticipation of shifting distributions and productivity
  - design and implement flexible allocation strategies
  - change permitting approaches and landings regulations

## Methodology for Assessing the Vulnerability of Marine and Anadromous Fish Stocks in a Changing Climate

NOAA's National Marine Fisheries Service (NOAA Fisheries) works with our partners to sustainably manage U.S. marine and anadromous fisheries and to conserve and protect marine mammals, sea turtles, and species listed under the Endangered Species Act. NOAA Fisheries also recognizes that climate-related changes are affecting the nation's valuable living marine resources and the people, businesses and communities that depend on them. NOAA Fisheries recently released a National Climate Science Strategy (Link et al. 2015) that outlines the Agency's approach to tackling the science needs for managing fisheries and protected species in a changing climate. A primary goal of the science strategy is to better understand which species are more or less vulnerable to environmental changes and the factors driving the vulnerability. NOAA Fisheries has developed a methodology (Morrison et al. 2015) for assessing the relative vulnerability of marine and anadromous fish and invertebrate species to climate change. Implementing the methodology will help identify areas for in-depth analysis and assist fisheries and protected species decision makers in considering how to prepare for and respond to climate-related changes. We have implemented the methodology for 82 fish and invertebrate species off the Northeastern United States, including a mix of exploited, protected, and forage species (Hare et al. 2016). Similar assessments are currently underway for the Bering Sea and California Current ecosystems. The methodology is being modified in the California Current to better account for the vulnerability of Pacific salmon, an important anadromous protected species. NOAA Fisheries intends to replicate this process in other regions, depending on needs and available resources. In addition, NOAA Fisheries is in the process of creating a similar analysis for marine mammals and sea turtles.

The methodology is designed to generate three key results for each species: a relative vulnerability rank (based on exposure and sensitivity), an indication of a species' propensity for shifting distribution (based on a subset of the sensitivity attributes), and an overall directional effect (do experts expect the species to respond positively or negatively to expected climate changes). NOAA Fisheries designed the methodology to be applicable across tropical, temperate, and high latitude marine systems and address a wide range of fish and invertebrate life history characteristics. The vulnerability rank is a combination of a species' expected exposure to environmental change and its biological sensitivity to that change. The methodology assumes that current biological parameters are an indicator of the relative sensitivity of a species. The exposure variables may vary between different regions (e.g. extent of sea ice will be important in some but not all regions). However, the twelve life history attributes used to determine a species' sensitivity to climate change are consistent across regions, and include: habitat requirements, prey requirements, physiological tolerances, reproduction requirements, ability to change distributions, and other stressors. A subset of the life history attributes can be used to determine if a species is likely to respond to changes in climate by shifting distributions, which could have a large impact on some fishing communities and on the overlap among fisheries and with protected species.

The methodology uses expert elicitation to rank multiple species at the same time. Experts assign scores based on four well-defined scoring bins (low, moderate, high, very high) to ensure that the scores are consistent across species. Each expert is asked to independently score the exposure and sensitivity of the species using species profiles, scientific literature, and general knowledge. Later the experts are asked to review their scores compared to the other experts, discuss the results, and are allowed to adjust their scores based on those discussions. Using both individual and group expert elicitation practices helps minimize bias and increases precision of the results.



The results from a climate vulnerability assessment can be used to identify: 1) species with high relative vulnerability that may need additional research or monitoring; 2) species that have a propensity to change distribution in response to a changing climate; 3) species that may be positively impacted by projected change; and 4) a list of major data gaps identified during the assessment. The assessment does not predict or quantify the scale or magnitude of expected change for a species in the future. We recommend that the results, along with other relevant information, be summarized for each species in a short species narrative that provides an easily accessible resource that can be used by scientists, fishery managers, or the public. Scientists can use these results to identify research priorities, such as identifying stock assessments that can benefit from explicit consideration of climate vulnerability and species that could benefit from increased monitoring. Managers can use the results to help identify specific attributes that make a particular species more or less resilient to climate change and to craft management measures that account for those differences among species.

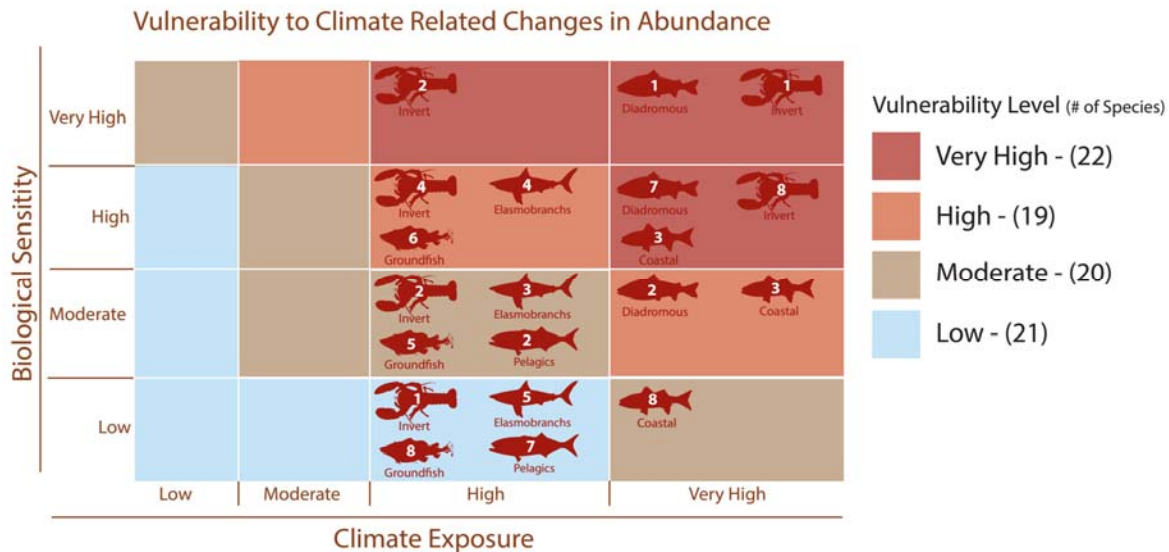
References:

Hare JA, Morrison WE, Nelson MW, Stachura MM, Teeters EJ, Griffis RB, et al. (2016) A Vulnerability Assessment of Fish and Invertebrates to Climate Change on the Northeast U.S. Continental Shelf. PLoS ONE 11(2): e0146756. doi:10.1371/journal.pone.0146756.

Link, J. S., R. Griffis, and S. Busch (Editors). 2015. NOAA Fisheries Climate Science Strategy. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-F/SPO-155, 70p. Available: [st.nmfs.noaa.gov/Assets/ecosystems/climate/documents/NCSS\\_Final.pdf](http://st.nmfs.noaa.gov/Assets/ecosystems/climate/documents/NCSS_Final.pdf). (February 2016).

Morrison, W.E., M. W. Nelson, J. F. Howard, E. J. Teeters, J. A. Hare, R. B. Griffis, J.D. Scott, and M.A. Alexander. 2015. Methodology for Assessing the Vulnerability of Marine Fish and Shellfish Species to a Changing Climate. U.S. Dept. of Commer., NOAA. NOAA Technical Memorandum NMFS-OSF-3, 48 p. Available: [st.nmfs.noaa.gov/Assets/ecosystems/climate/documents/TM%20OSF3.pdf](http://st.nmfs.noaa.gov/Assets/ecosystems/climate/documents/TM%20OSF3.pdf). (February 2016).

Photo: Summary results from Hare et al. 2016.





# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish, Wildlife and Marine Resources, Bureau of Marine Resources

205 North Belle Mead Road, Suite 1, East Setauket, NY 11733

P: (631) 444-0430 | F: (631) 444-0434 | FW.Marine@dec.ny.gov

www.dec.ny.gov

## Memorandum

**To:** ASMFC American Eel Management Board

**From:** James Gilmore

**Subject:** American Eel Commercial Yellow Eel State-By-State Allocation

**Date:** April 25, 2016

**Background:** Under Addendum IV, coastal harvest of yellow eels is managed under a coastwide cap. Quota management, with state-by-state allocation is triggered if the coastwide cap is exceeded by 10% in any one year; or if the cap is exceeded by any amount for two consecutive years. The individual state allocations were determined by a combination of landings from 2010; the State's average harvests from 2011 – 2013; and a set of rules that prohibited any state to be allocated a quota that was more than 2,000 pounds above its 2010 commercial yellow eel harvest. However, there were incomplete landings at the time for at least the state of New York which underestimated the actual harvest. The allocations were based upon these incomplete landings. New York performed outreach targeted at mandatory reporting requirements beginning in 2010, resulting in significantly improved reporting for yellow eels beginning in 2011. We believe our 2010 landings data, therefore, significantly under-represent our true landings that year.

New York along with all the other states in the fishery now have several years of more accurate landings data. It is an ASMFC operating principle that we use the most accurate data for management of our fisheries. However, no mechanism was included in Addendum IV to revisit allocation over a set period of time or when new data become available. This issue also exists with management of several other ASMFC quota managed fisheries (e.g., menhaden, summer flounder, bluefish). Provisions exist currently to re-evaluate allocations through the addendum process but this is voluntary and tends not to occur if the disadvantaged states are in the minority.

**Proposals:** As a result, New York is Proposing: (1) current reconsideration of the commercial yellow eel state-by-state quotas, and (2) consideration of a revisiting timeframe moving forward.

### **(1) Current Reconsidering Commercial Yellow Eel Quota**

See Table 1 for examples of state-by-state allocation for options A-C.

**Option A:** Status quo from Addendum IV. A combination of landings from 2010; the State’s average harvests from 2011 – 2013; and a set of rules that prohibited any state to be allocated a quota that was more than 2,000 pounds above its 2010 commercial yellow eel harvest.

**Option B:** Allocation based on the most recent three years of data (i.e., 2013-2015).

**Option C:** Allocation based on the most recent five years of data (i.e., 2011-2015).

**Option D:** Allocation based on the most recent five years as a partial percentage and some historical landings timeframe as a partial percentage.

**(2) Consideration of a revisiting timeframe moving forward**

**Option A:** Status quo, no revisiting timeframe specified.

**Option B:** Revisit allocation every three years.

**Option C:** Revisit allocation every five years.

**Recommendation:** This proposal be circulated the ASMFC American Eel Board for review and discussion with subsequent initiation of an Addendum at the May, 2016 Board meeting.

**Table 1.** State-by-state allocation examples showing quotas for options A-C. Note landings data used to create Table 1 as for example only and need to be confirmed by the states/jurisdictions as final.

State	A: Addendum IV Status Quo	B: Recent 3 Yrs (2013 -2015)	C: Recent 5 Yrs (2011-2015)
ME	3,907	4,295	4,736
NH	2,000	34	71
MA	2,000	2,870	1,732
RI	4,642	1,985	1,619
CT	2,000	3,248	2,413
NY	15,220	38,710	39,876
NJ	94,899	87,192	90,350
DE	61,632	60,563	58,804
MD	465,968	522,422	515,725
PRFC	52,358	36,476	41,026
VA	78,702	88,734	88,552
NC	107,054	48,742	48,991
SC	2,000	-	-
GA	2,000	-	-
FL	13,287	12,227	13,318
<b>Total</b>	<b>907,669</b>	<b>907,669</b>	<b>907,669</b>

**Table 2.** Commercial yellow eel landings by state from 1998 through 2015. Source: Table 2 from Addendum IV, plus preliminary 2014 and 2015 state data. Note that all data need to be confirmed as final by the states/jurisdictions.

Year	ME	NH	MA	RI	CT	NY <sup>1</sup>	NJ	DE	MD	PRFC	VA	NC	SC	GA	FL	Total
1998	20,671	459	5,606	967	5,606	16,896	94,327	131,478	301,833	209,008	123,819	91,084		*	13,819	1,015,649
1999	36,087	245	10,281	140	10,281	7,945	90,252	128,978	305,812	163,351	183,255	99,939	*		17,533	1,054,121
2000	14,349	310	5,158	25	5,158	5,852	45,393	119,180	259,552	208,549	114,972	127,099	*		6,054	911,824
2001	9,007	185	3,867	329	1,724	19,187	57,700	120,634	271,178	213,440	96,998	107,070	*	*	14,218	915,585
2002	11,616	67	3,842	234	3,710	26,824	64,600	90,353	208,659	128,595	75,549	59,940	*	*	7,587	681,609
2003	15,312	36	4,047	246	1,868	3,881	100,701	155,515	346,412	123,450	121,043	172,065		*	8,486	1,053,119
2004	29,651	65	5,328	971	1,374	5,386	120,607	141,725	273,142	116,163	123,314	128,875			7,330	953,931
2005	17,189	120	3,073	0	341	25,515	148,127	110,456	378,659	103,628	66,701	49,278			3,913	907,000
2006	17,259	93	3,676	1,034	3,443	7,673	158,917	120,462	362,966	83,622	82,738	33,581			1,248	876,712
2007	9,309	70	2,853	1,230	885	15,077	164,331	131,109	309,215	97,361	56,463	34,486			7,379	829,767
2008	7,992	25	6,046	8,866	6,012	15,159	140,418	80,003	381,993	71,655	84,789	24,658	*		15,624	843,762
2009	2,525	83	1,217	4,855	630	13,115	121,471	59,619	324,773	58,863	119,187	65,481			6,824	778,643
2010	2,624	80	277	4,642	164	13,220	107,803	68,666	511,201	57,755	78,076	122,104	*	*	11,287	978,004
2011	2,700	129	368	1,521	20	56,963	129,065	90,631	715,162	29,010	103,856	61,960			25,601	1,216,986
2012	10,785	167	532	1,484	3,560	48,637	111,810	54,304	583,057	90,037	122,058	64,110		*	11,845	1,104,429
2013	1,826	106	2,499	2,244	2,638	32,573	89,300	80,811	539,775	32,290	84,385	33,980		*	17,246	919,953
2014	7,368	0	3,903	2,378	4,386	34,142	91,225	62,388	610,585	49,293	112,199	59,458	*	*	15,057	1,052,514
2015	4,130	0	2,502	1,538	3,052	53,389	90,000	44,708	470,532	31,588	78,727	57,791	*	*	5,632	843,589

<sup>1</sup> NY includes DE River Weir

\*confidential landings

## Mike Waine

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**From:** Mitchell Feigenbaum <feigen99@yahoo.com>  
**Sent:** Tuesday, April 26, 2016 12:43 PM  
**To:** Mike Waine  
**Cc:** JOHN CLARK; Patrick Keliher; Douglas Grout; J. Thomas Moore; REP. MIKE VEREB;  
LOREN W.LUSTIG; LEROY YOUNG  
**Subject:** Eel News.....

Hello Mike -

Hope you are well.

I have been monitoring the EU's efforts and intentions with regard to the upcoming CITES Convention of Parties. As you may know, the EU had earlier asked range states for all *anguilla* species to comment on a proposal to list all the *anguilla* species on Appendix II, based on look-alike concerns. This was discussed at the Sargasso Sea Commission symposium, where you provided thorough explanation of eel management in the U.S.

Today I learned that the EU has decided NOT to propose any listing for American eel. The EU will instead submit a request to the Conference of the Parties (called a "Decision") to study eel species further. If approved, it is my understanding that the CITES Animal Committee would issue a contract or create a working group to conduct the study. It appears the work would focus on identifying and curbing illegal trade.

I believe that your presentation and other information brought forward at the Sargasso Sea Commission symposium contributed to this decision. No doubt, the ASMFC eel board and officials from Maine and other states can make valuable contributions to the CITES process as it moves forward.

The EU's proposed Decision is attached in the link below:

<http://ec.europa.eu/environment/cites/pdf/cop17/eels.pdf>

A useful explanation on how CITES CoP works and Resolutions and Decisions:

[http://awsassets.panda.org/downloads/what\\_is\\_cites\\_final\\_coc.pdf](http://awsassets.panda.org/downloads/what_is_cites_final_coc.pdf)

I would appreciate if you could circulate this to the members of the eel board, TC and AP before next week's meeting.

Respectfully,

Mitchell Feigenbaum

## Mike Waine

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**From:** Jim Price <preschesbay@verizon.net>  
**Sent:** Friday, April 22, 2016 5:06 PM  
**To:** LYNN FEGLEY  
**Cc:** William Goldsborough; Bruce Vogt; David Blazer  
**Subject:** Recommendations for Menhaden management - ASMFC Spring meeting  
**Attachments:** Valued Customer.vcf; Official Version April 2016.docx; UPHOFF ABSTRACT oral present. US Fish&Wildlife conf. 4-4-16.docx

Lynn,

The Chesapeake Bay Ecological Foundation (CBEF) has completed a long term study of striped bass and Atlantic menhaden interactions. This study has indicated a substantial imbalance between striped bass and its prey, as evidenced by malnutrition and disease. In June 1998, MD DNR requested that I testify before the ASMFC menhaden management board on the decline of menhaden and possible effects on Chesapeake Bay striped bass. Following my testimony, the board initiated its first menhaden peer review. In July 1998, CBEF presented data compiled on striped bass lesions and the declining forage base in the Chesapeake Bay to the Living Resources Subcommittee Work Group at a workshop sponsored by the Chesapeake Bay Program. Over the next 10 years, I frequently provided the ASMFC menhaden management board with information derived from CBEF data analyses. In winter 2004-2005, CBEF initiated a study with Dr. Anthony Overton, titled "Predator/Prey Monitoring Program" (PPMP) to determine prey selection and age structure of Atlantic menhaden consumed by striped bass along the mid-Atlantic coast. Partial funding for the PPMP was provided by the U.S. Fish & Wildlife Service, MD DNR, CBEF and East Carolina University. CBEF continued to provide information to Dr. Overton through winter 2007. From 2006-2015, expanding the PPMP, CBEF collected striped bass from the mid-Atlantic coast and the Chesapeake Bay-sanctioned by MD DNR through a scientific collecting permit. CBEF has also reviewed and analyzed the data collected through the PPMP for various dissemination purposes.

I believe it is time that Maryland makes a strong case to have the ASMFC consider this Bay predator/prey imbalance in management of striped bass and Atlantic menhaden. In fact, raising the striped bass size limit and reducing fishing mortality made conditions worse by increasing prey demand. Even though the current menhaden assessment indicates high spawning stock, improvement in abundance of age 0 menhaden, a crucial prey of striped bass over 12", has not occurred. While a major imbalance has existed since mid-late 1990s, ASMFC is making slow progress in developing an ecosystem-based approach to fisheries management along the Atlantic coast. Peer-reviewed information that describes the imbalance between striped bass and its prey in Maryland's part of the Bay is accumulating. ASMFC requires that information be well documented and peer reviewed, if possible, therefore I am submitting this 25 year review and assessment of striped bass and Atlantic menhaden interactions as well as

recommendations for fisheries management. This review and assessment was presented at the U.S. Fish & Wildlife conference April 4<sup>th</sup>, 2016. CBEF has provided voluminous data to Anthony Overton and Jim Uphoff (MD DNR), enabling the publication of several scientific papers. Anthony Overton has just published a comparison of the three striped bass bioenergetics studies conducted in Maryland and Jim Uphoff is working with CBEF and others on publishing an assessment based on indicators available for Maryland (this paper is in review). These studies support my position and point out the unintended consequences of managing without considering forage supply and demand.

Jim Price  
Chesapeake Bay Ecological Foundation, Inc  
410-822-4400



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[www.avast.com](http://www.avast.com)



CHESAPEAKE BAY ECOLOGICAL FOUNDATION, INC.

## **STRIPED BASS & ATLANTIC MENHADEN MANAGEMENT QUESTIONED**

### **25 Year Review & Assessment (1990-2014) of Striped Bass & Atlantic Menhaden Fisheries Management** **Analysis of 2005-2015 Striped Bass Study – Predator/Prey Monitoring Program**

The Chesapeake Bay Ecological Foundation (CBEF) conducted the first long-term, year-round study of Chesapeake Bay striped bass, dissecting and examining over 15,000 from 2005-2015. At approximately 12", striped bass begin feeding on age 0 Atlantic menhaden (approx. 2"). Chesapeake Bay is primarily a production area striped bass; most females >16" become migratory ocean residents. Most striped bass harvested in Chesapeake Bay are 18"- 24" resident adult males that mainly consume 2"- 9" menhaden (ages 0&1). In 1990, Atlantic States Marine Fisheries Commission (ASMFC) increased the striped bass minimum size to 18" in the Chesapeake Bay and reduced fishing mortality. This strategy inadvertently created an unsustainable prey demand. Striped bass predation increased on bay anchovy (crucial prey for striped bass <18") as well as spot and blue crab (consuming up to 100,000,000 juvenile hard crabs in one year- MD DNR data). Predation on soft crabs is also significant; however, fast digestion precludes accurate detection during stomach content analyses. Concurrently, these populations of striped bass prey declined to historical lows (J. Uphoff- MD DNR), potentially disrupting the ecosystem. Striped bass natural mortality has increased greatly at the same time. CBEF recommends a lower striped bass minimum size to reduce natural mortality. Unfortunately, the current single-species strategy used by ASMFC to manage striped bass may be creating a bigger forage disparity for Maryland's part of the Bay by raising size limits and lowering fishing mortality further.

In the Chesapeake Bay, ages 0&1 menhaden dominate (by weight) the resident striped bass diet and are essential for nutritional health. Since the mid-1990s, MD DNR's Bay juvenile menhaden indices have remained low. In the mid-1990s, striped bass abundance rapidly increased, intensifying competition for ages 0&1 menhaden. By the late 1990's, the physical condition of resident striped bass deteriorated, growth slowed, skin lesions proliferated and natural mortality increased - indicating vulnerability to starvation and disease. Also, body fat, a nutritional indicator, is often low or absent in most striped bass during the fall, the most intense feeding period on age 0 menhaden.

In 2013, the ASMFC established a Total Allowable Catch of 170,800mT for the menhaden fishery, but failed to protect immature, ages 0&1 menhaden. Within the Chesapeake Bay during the spring, age 1 menhaden is the **ONLY AGE CLASS AVAILABLE** as prey for resident striped bass (approx. 16"-24"). A ban on menhaden purse seine reduction fishery harvest (processed into fish oil and meal) in the Chesapeake Bay or establishing a menhaden minimum size of 9" for the purse seine bait and reduction fisheries would prevent the large scale harvest of ages 0&1 menhaden, the crucial food source for Chesapeake Bay striped bass.



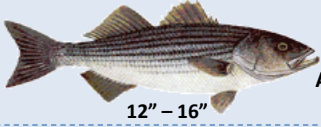



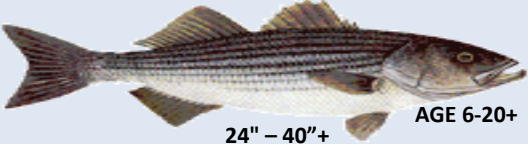

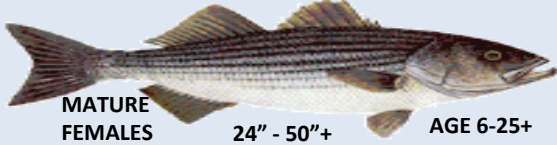

# ECOLOGICAL INTERACTIONS OF STRIPED BASS, ATLANTIC MENHADEN & BAY ANCHOVY

CHESAPEAKE BAY ECOLOGICAL FOUNDATION (CBEF) EXAMINED 15,000 STRIPED BASS FROM 2005-2015 IN A PREDATOR/PREY MONITORING PROGRAM, DEFINING DIET, BODY FAT, SEX RATIOS & MIGRATIONS.

**STRIPED BASS:** Most male striped bass reside in the Chesapeake Bay. By age 3, most immature females migrate from Chesapeake Bay to inshore coastal waters. While migrating south from northern coastal waters during the fall, adult female striped bass feed on menhaden – a vital energy source for egg development. Historical striped bass winter feeding grounds shifted, during 2005-2007, from NC coastal waters to VA coastal waters, as menhaden populations declined and distribution contracted. Migratory striped bass now overwinter in offshore coastal waters approx. 20 miles east of the Chesapeake Bay and feed primarily on aggregations of menhaden. Many adult female striped bass enter the Chesapeake Bay from fall through spring and compete with resident males for all sizes of menhaden. Both sexes accumulate body fat utilized for gonadal development. The spawning sequence is generally mid-spring for older female striped bass to early summer for young, first time spawners. After spawning in the Chesapeake Bay, female striped bass aggressively feed on menhaden in Chesapeake Bay prior to migrating north along the Atlantic coast for the summer.

**ATLANTIC MENHADEN:** *Ecological overfishing* (unsustainable harvest levels that disrupt the natural balance between predators and prey) of menhaden has depleted the adult striped bass food supply in the Chesapeake Bay and Atlantic coastal waters and lowered the carrying capacity of seabirds and fishes. Menhaden spawn in coastal waters and larvae are transported by wind and ocean currents into estuaries along the Atlantic coast, primarily the Chesapeake Bay. After spending most of their first year in the Bay, young age 0 menhaden migrate down the Bay and south along the Atlantic coast. During the following spring, many 1 year old menhaden return northward to the Chesapeake Bay area. In some years during this migration, (since ASMFC has not established a menhaden minimum size) over 400,000,000 age 1, CRUCIAL FORAGE SIZE MENHADEN <9” are caught by the purse seine reduction fishery (large scale harvest of menhaden for processing into fish oil and meal) in Virginia’s section of the Bay and nearby coastal waters. In spring, age 1 menhaden is the ONLY AGE CLASS AVAILABLE AS PREY for resident striped bass (approx. 16”-24”). During summer, most menhaden disperse by size, with older, larger individuals migrating as far north as the Gulf of Maine and then as far south as NC by fall.

**BAY ANCHOVY:** Depletion of menhaden intensified striped bass predation on the bay anchovy spawning stock overwintering in coastal ocean waters. Subsequently, populations of bay anchovy (crucial prey for striped bass <18”) that spawn in & inhabit Chesapeake Bay, declined to historical lows in MD’s portion of the Bay.

CHESAPEAKE BAY STRIPED BASS:		ALL MEASUREMENTS ARE APPROX TOTAL LENGTH	MENHADEN AGE & SIZE CONSUMED BY STRIPED BASS:	
	AGE 2-3 12” – 16”	MALES AND FEMALES MOST MALES MATURE BY AGE 2-3		AGE 0 MOST 2” - 6”
	AGE 4-6 18” – 24”	PREDOMINANTLY ADULT RESIDENT MALES MOST FEMALES MIGRATE TO THE OCEAN BY AGE 3		AGES 0&1 MOST LESS THAN 9”
	AGE 6-20+ 24” – 40”+	PREDOMINANTLY ADULT RESIDENT MALES FEW MIGRATE TO OCEAN		ALL AGES MOST LESS THAN 14”
	MATURE FEMALES AGE 6-25+ 24” - 50”+	MOST FEMALES MATURE BY AGE 5-7 AND LIVE IN OCEAN		ALL AGES MOST LESS THAN 14”

MENHADEN - CHESAPEAKE BAY AREA		
2007 DATA – NMFS BEAUFORT, NC / 2009 DATA - *CBEF		
AGES	MEAN - INCHES	MEAN WT - OZ
*0	*6.0	*1.4
1	8.6	4.0
2	10.0	7.0
3	12.2	12.0
4	12.8	13.0
5	13.5	16.0

MOST MENHADEN MATURE BY AGE 2-3  
 AGE 3 MENHADEN PRODUCE APPROXIMATELY 100,000 EGGS  
 AGE 7+ MENHADEN CAN PRODUCE OVER 1,000,000 EGGS

MENHADEN—RECORD MEASUREMENT (NMFS)		
AGE	LENGTH	WEIGHT
12 YEARS	20”	54 OZ.

IN 2006, CBEF DOCUMENTED A 17” MENHADEN FOUND IN STOMACH OF 32” MALE STRIPED BASS CAUGHT IN CHESAPEAKE BAY

**ABSTRACT OF ORAL PRESENTATION GIVEN AT**  
**NORTHEAST FISH & WILDLIFE ANNUAL CONFERENCE 4/4/16:**

**Indicator-based Assessment of Forage Status and Well-being of Striped Bass in Upper Chesapeake Bay**

*Jim Uphoff, Maryland Department of Natural Resources Fisheries Service; John Jacobs, NOAA NOS; Mark Matche, Maryland Department of Natural Resources; Jim Price, Chesapeake Bay Ecological Foundation*

Monitoring of striped bass health (1998-2013), relative abundance (1983-2013), natural mortality (1987-2012), and forage relative abundance in surveys (1959-2013) and fall diets of striped bass (2006-2013) provided indicators to assess forage status and striped bass well-being in Maryland's portion of Chesapeake Bay. Striped bass abundance rose rapidly during the mid-1990s and was followed by declines of Atlantic menhaden, bay anchovy, spot, and blue crab (major prey) to historical lows. Estimates of proportion without body fat indicated striped bass were typically in poor condition and vulnerable to starvation and disease during fall, 1998-2013. Condition was related to striped bass relative abundance; the relationship was described by an ascending curve with a plateau of proportion without body fat (~0.70) at high relative abundance. Striped bass were in good condition during 2008-2010 when their relative abundance was at a mid-level, proportion of stomachs without food was low, and some forage indices were higher. Age-0 Atlantic menhaden dominated biomass of fall diets even though their relative abundance was low. Correlations among survey and diet-based forage indices suggested that fall diets of striped bass less than 457 mm were more sensitive to major prey shifts than diets of larger striped bass. Instantaneous annual natural mortality estimates for striped bass in Chesapeake Bay increased from 0.26 to 0.82 shortly after forage-to-striped bass ratios fell to a nadir in the mid-1990s. Compensatory processes that intensified under regulation for highly abundant striped bass may undercut anticipated fishery and escapement outcomes from low fishing mortality.

# 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:** ASMFC Atlantic Menhaden PRT  
**From:** Steve Heins, Chief, Bureau of Marine Fisheries  
**Date:** April 26, 2016  
**SUBJECT:** PLAN FOR USE OF EPISODIC EVENT QUOTA

New York is requesting the Menhaden Board approve its inclusion in the menhaden episodic event set aside program in order to mitigate a potential massive fish kill in the Peconic River and adjacent tidal creeks, Riverhead, NY. Local baymen estimate as much as 20 million pounds of fish are in the area, which has seen several large fish kills since 2007. New York would like to remove as many fish as possible from the most confined reaches of the Peconic River and area shallow creeks, as these areas are subject to rapid loss of dissolved oxygen due to the demand by the large biomass of menhaden.

Technical Addendum I to Amendment II states to qualify for participation in the episodic events set aside program, a state must demonstrate it has implemented the mandatory provisions through submission of its implementation plan which is reviewed and verified by the Plan Review Team. This memo outlines, for PRT review, what New York will implement if the Board approves the state into the episodic event set aside program at the May 2016 ASMFC Menhaden Board Meeting.

Specifically, New York will invite up to a dozen licensed crews to harvest up to 30,000 pounds of menhaden each per trip/day. The 30K limit is seen as vital to the success of the operation as that much is needed for the efficient transport of fish to bait outlets. The license holders will be issued Letters of Authorization to allow them to exceed the current 6,000-pound limit. Four crews are now working in the area under that trip limit (6,000 pounds).

The area of the operation will be confined to the Peconic River and tidal creeks off of Flanders Bay. All by-catch will be released alive on site. The Peconic River is home to a growing run of alewife, though the 2016 run is winding down. To date, no alewives have been caught in the seining operation, while a small number of striped bass and weakfish have been released alive.

Catch will be monitored through daily VTRs.

Operations will cease once the biomass has been reduced so that there is no longer a threat of a major fish kill. This should be before the end of June.

Cc: J. Gilmore

T. Kerns



# *Atlantic States Marine Fisheries Commission*

TECHNICAL ADDENDUM I

to

## Amendment 2 to the Interstate Fishery Management Plan for Atlantic Menhaden



*ASMFC Vision Statement:*

*Healthy, self-sustaining populations for all Atlantic coast fish species or  
successful restoration well in progress by the year 2015.*

May 2013

## **Introduction**

Amendment 2 to the Interstate Fishery Management Plan for Atlantic Menhaden was approved in December 2012. Amendment 2 enables the Atlantic Menhaden Management Board to set aside 1% of the overall total allowable catch (TAC) for episodic events (*Section 4.2.1.8*). Episodic events are times and areas where Atlantic menhaden are available in more abundance than they normally occur. The set aside is designed to enable increased harvest of Atlantic menhaden during episodic events.

## **Statement of the Problem**

At its December 2012 meeting, the Board set aside 1% of the 2013 TAC for episodic events (1% of 170,800 metric tons). As part of the episodic events set aside provision the Board must develop a mechanism for state(s) to use the set aside through Board action that includes a qualifying definition of episodic events, required effort controls to scale a state's fishery to the set aside amount, and a timely reporting system to monitor the set aside. At its February 2013 meeting, the Board noted that episodic events of Atlantic menhaden historically occur in the New England region and directed a subcommittee of those states to further develop the parameters for the episodic events set aside program. This Technical Addendum details an episodic events set aside program for the 2013 fishing year that was approved by the Board at its May 22, 2013 meeting.

## **Episodic Events Set Aside Program**

### **Eligibility**

1. New England states (Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut) are eligible to participate in the episodic events set aside program.
2. To participate in the episodic events program, a state must implement the following mandatory provisions and follow the procedures outlined below:

### **Mandatory Provisions**

1. Participating states must implement daily trip level harvest reporting. Each state must track landings and submit weekly reports to ASMFC staff.
2. Episodic event harvests and landings must be restricted to state waters of the state that declares participation in an episodic event.
3. Participating states must implement a maximum daily trip limit no greater than 120,000 pounds/vessel.

### Qualification Process

1. To qualify for participation in the episodic events set aside program, a state must demonstrate it has implemented the mandatory provisions through resubmission of its implementation plan by July 1, 2013. The Plan Review Team will verify compliance with the mandatory provisions of the episodic events set aside program. The ASMFC's Executive Director (or designee) will issue a letter to the Atlantic Menhaden Management Board identifying state(s) that qualify to participate in the episodic events set aside program.
2. States that qualify for the episodic events program do not forfeit their allocated state quotas as they will use their quota to determine if an episodic event has occurred as described below.

### Declaring Participation

1. A state must declare participation in the episodic events program to the ASMFC prior to September 1. Notification must be sent to ASMFC that an episodic event has been triggered as defined below:
  - a. Episodic events shall be defined as any instances when a qualified state has reached its individual state quota, prior to September 1, and has information indicating the presence of unusually large amounts of menhaden in its state waters. For example, Maine has a quota of 66.58 metric tons. Should Maine landings reach 66.58 metric tons before September 1, and should Maine become aware of the presence of large amounts of menhaden in its waters, an episodic event will have been triggered specifically for that state, enabling it to begin harvesting from the set aside in accordance with the mandatory provisions herein.
2. States declaring participation in the episodic events program will not be eligible for *de minimis* status. If a qualifying state was previously granted *de minimis* status it will lose that status and will need to collect biological data and catch and effort data for an adult index as required by Amendment 2 (*Section 3.6.2.1 and 3.6.2.2*).

### Procedure for Unused Set Aside

1. If an episodic event is not triggered by September 1 in any state, the unused set aside quota will immediately be rolled into the overall quota and redistributed to the states based on the historical allocation from 2009-2011.
2. If an episodic event is triggered, any unused set aside at the end of the calendar year will remain unused and will not be rolled over into the coastwide quota. The justification for this measure is that Amendment 2 does not currently allow for quota rollovers because Atlantic menhaden is experiencing overfishing.

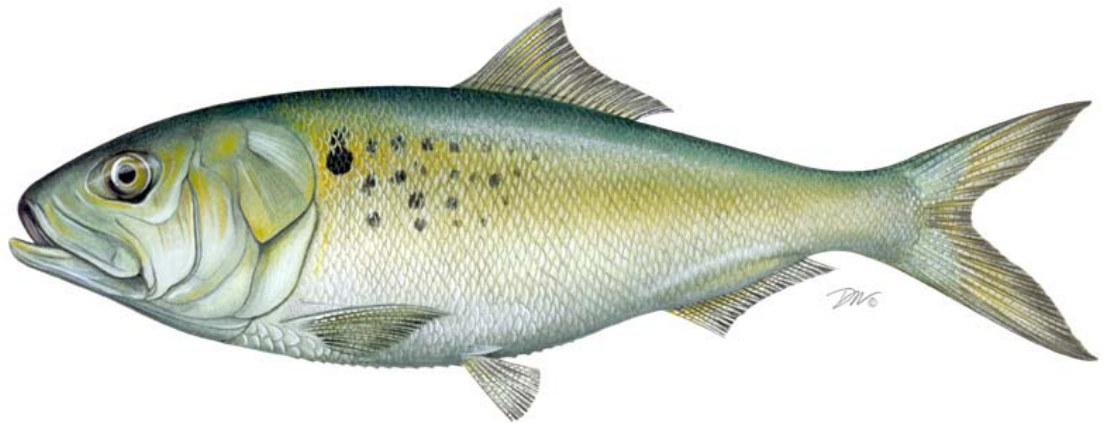
### Procedure for Set Aside Overages

1. If the episodic event set aside is exceeded, any overages will be deducted from the next year's episodic event set aside amount.

### Set Aside Program Review

1. Participating states, acting through the Subcommittee, will review performance of the episodic events set aside program and report back to the Board at the fall ASMFC meeting. As part of this review, the Subcommittee will evaluate the effectiveness of timely reporting, and the appropriateness of effort controls, as implemented by states that participated in the program during 2013.
2. Upon review of the episodic events set aside program, the Board may develop additional criteria, or alter the existing program provisions through Board action or the adaptive management addendum process.

**2016 REVIEW OF THE FISHERY MANAGEMENT PLAN  
AND STATE COMPLIANCE  
FOR THE 2015  
ATLANTIC MENHADEN (*Brevoortia tyrannus*) FISHERY**



Prepared by:

The Atlantic Menhaden Plan Review Team

Michael Waine, Chair Atlantic States Marine Fisheries Commission

Ellen Cosby, Potomac River Fisheries Commission

Nichola Meserve, Massachusetts Division of Marine Fisheries

April 2016



## 2015 REVIEW OF THE FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR ATLANTIC MENHADEN (*Brevoortia tyrannus*)

### Management Summary

<u>Date of FMP:</u>	Original FMP: August 1981
<u>Amendments:</u>	Plan Revision: September 1992 Amendment 1: July 2001 Amendment 2: December 2012
<u>Management Unit:</u>	Maine through Florida
<u>States With Declared Interest:</u>	Maine – Florida, (Pennsylvania added in 2016))
<u>Additional Jurisdictions:</u>	Potomac River Fisheries Commission, National Marine Fisheries Service, United States Fish and Wildlife Service
<u>Active Boards/Committees:</u>	Atlantic Menhaden Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team, and Plan Development Team.
<u>Stock Status:</u>	Not overfished, and overfishing is not occurring (benchmark assessment; ASMFC 2015)

### I. Status of the Fishery Management Plan

Atlantic menhaden management authority is vested in the states because the vast majority of landings come from state waters. All Atlantic coast states and jurisdictions except the District of Columbia have declared an interest in the Atlantic menhaden management program.

Amendment 1 to the Interstate Fisheries Management Plan (FMP) for Atlantic Menhaden was approved at the 2001 Spring Meeting of the Atlantic States Marine Fisheries Commission (Commission). The goal of Amendment 1 was “to manage the Atlantic menhaden fishery in a manner that is biologically, economically, socially, and ecologically sound while protecting the resource and those who benefit from it.” The amendment established new overfishing/overfished definitions based on fishing mortality and spawning stock biomass (SSB). Addendum I to Amendment 1, approved in August 2004, revised the biological reference points, changed the frequency of stock assessments, and updated the habitat section. The biomass target and threshold were based on fecundity instead of SSB. A new fishing mortality target and

threshold were also adopted. Stock assessments were to take place every third year; however, the Technical Committee was required to meet annually to review the previous year's landings and indices.

Addendum II, approved in October 2005, initiated a research program to examine the possibility of localized depletion of menhaden in Chesapeake Bay. Read more about the research in Section V of this report. Addendum III, approved in Fall 2006, established a harvest cap for the reduction fishery in the Chesapeake Bay. The annual total allowable harvest from the Chesapeake Bay by the reduction fishery was set at 109,020 metric tons. If harvest was greater than the cap in a given year, the cap would be reduced by the overage amount for the following year. Similarly, if harvest was less than the cap, the cap could be increased to a maximum of 122,740 metric tons for the following year. The cap established by Addendum III remained in effect through the 2010 fishing season. Addendum IV, approved in November 2009, extended the provisions of Addendum III and the Chesapeake Bay reduction fishery harvest cap through 2013.

Addendum V, approved in November 2011, established a new F threshold and target rate based on maximum spawning potential (MSP) with the goal of increasing abundance, spawning stock biomass, and Atlantic menhaden availability as a forage species.

Amendment 2, approved in December 2012, established a 170,800 metric ton (mt) total allowable catch (TAC) for the commercial fishery beginning in 2013 and continuing until completion of, and Board action on, the next benchmark stock assessment, scheduled for 2014. The TAC is allocated by state based on landings history of each state's fishery from 2009-2011; allocation will be revisited three years after implementation. States are accountable for their respective quotas and must pay back any overages the following year. The amendment includes provisions to allow for the transfer of quota between states and a bycatch allowance of 6,000 pounds for non-directed fisheries that are operating after a state's quota has been landed. Further, it reduces the Chesapeake Bay reduction fishery harvest cap by 20%; and establishes requirements for timely reporting and improved biological monitoring. Lastly, new SSB reference points were implemented that match the MSP based fishing mortality reference points approved through Addendum V.

In early 2013, the Board approved a one-year exemption from Amendment 2's bycatch allowance provision to enable two permit holders fishing aboard one vessel to harvest 12,000 pounds (one landing event per calendar day). Beginning in 2014, all states were limited to the amendment's 6,000 pound per vessel bycatch trip limit regardless of the number of permit holders on the vessel (one landing event per calendar day).

An episodic events set aside program, approved in May 2013, established 1% of the coastwide TAC as a set aside quota for the New England States (ME, NH, MA, RI, CT) to harvest Atlantic menhaden when they occur in higher abundance than normal (see Technical Addendum I to Amendment 2). An eligible state must have reached its individual quota prior to September 1

before harvesting from the set aside. For a New England state to be eligible, it must demonstrate that it meets the mandatory provisions (i.e., daily reporting, 120,000-pound trip limit, restricting harvest to state waters). At its October 2013 meeting, the Board extended the episodic event set aside program through 2015 adding a re-allocation provision, meaning any unused set aside as of October 31 of each year will be re-allocated to the coastwide states based on the same allocation percentages included in Amendment 2.

At its February 2014 meeting, the Board passed a motion to manage cast net fisheries for Atlantic menhaden under the bycatch allowance for 2014 and 2015, with the states bearing responsibility for reporting. At its November 2015 meeting, the Board approved a motion to continue the management of cast net fisheries under the bycatch allowance provision for 2016.

At its May 2015 meeting, the Board established a 414.2 million pound TAC (187,880 mt) for both 2015 and 2016 fishing years. This represents a 10% increase from the 2013 and 2014 TAC.

## **II. Status of the Stock**

Threshold reference points are the basis for determining stock status. When the fishing mortality rate ( $F$ ) exceeds the  $F$ -threshold, overfishing is occurring. When the reproductive output measure, in this case population fecundity ( $FEC$ ), falls below its threshold, then the stock is overfished, meaning there is insufficient egg production to replenish the stock.

Amendment 2 (2013) implemented maximum spawning potential (MSP) based reference points that relate current stock conditions as a percent of unfished conditions. Considering the modeling and data input changes that occurred in the 2015 Benchmark Stock Assessment, the TC and Peer Review Panel has recommended new MSP based reference points that are applicable to the results of the assessment (ASMFC 2015).

As recommended by the Peer Review Panel, and accepted by the TC, the value of fishing mortality reference points will be the geometric mean of fishing mortality on ages-2 to -4. These ages represent the fully selected fishing mortality rates depending upon the year and fishery (i.e., bait and reduction). The fecundity ( $FEC$ ) reference points match the  $F$  reference points meaning they are equal to the fecundity estimated when  $F$  reaches equilibrium at its target and threshold MSP levels, respectively.

As a result, the fishing mortality reference points are  $F$ -target ( $F_{57\%MSP}$ ) = 0.38 and  $F$ -threshold ( $F_{26\%MSP}$ ) = 1.26. Associated reference points for population fecundity are  $FEC$ -target ( $FEC_{57\%MSP}$ ) = 189,270 (billions of eggs), and  $FEC$ -threshold ( $FEC_{26\%MSP}$ ) = 86,821 (billions of eggs). Based on the 2015 stock assessment, overfishing is not occurring because fishing mortality for the terminal year (2013) is estimated to be  $F = 0.22$  ( $F_{70\%MSP}$ ), below both the target and the threshold. Additionally, the stock is not overfished because fecundity for 2013 is estimated to be  $FEC = 170,536$  billion eggs, above the threshold and just below the target.

The MSP based reference points continue to be interim reference points while the ASMFC's Biological Ecological Reference Points Workgroup (BERP) develops ecological-based reference points (ERP) expected in 2019 or 2020.

The next stock assessment will be an update assessment in 2017.

### **III. Status of Assessment Advice**

The peer review panel report contains of the 2015 Benchmark Stock Assessment contains the Panel's conclusions and recommendations for moving forward. Below is a summary of their applicable findings.

The panel reached consensus on all its recommendations and conclusions. The research, data collection, and assessment methodology recommendations of the assessment team were generally supported by the panel; overall the panel was very impressed with both the thoroughness and the clarity of the assessment reports.

- The panel recommends that the length composition data from the fishery independent surveys be down-weighted during the model fit. This change was implemented, demonstrating that the conclusions of the assessment would not be affected by this change. The panel also suggests that future analyses consider the covariance structure in the input parameters to lessen inflation of the estimated magnitude of uncertainty.
- The panel supports the development of ecological reference points (ERPs) to reflect the entire role of the species in the Atlantic coastal ecosystem, especially the inclusion of predator and prey relative abundances as a priority. However, the panel cautioned to maintain "minimum sufficient complexity" when developing ERPs.
- The panel endorses the acquisition of age composition data for the fishery independent surveys and the completion of a management strategy evaluation guided by an inclusive structured decision making process.

### **IV. Status of the Fishery**

#### Recreational

Menhaden are important bait in many recreational fisheries; some recreational fishermen employ cast nets to capture menhaden or snag them with hook and line for use as bait, both dead and live. Recreational harvest is not well captured by the Marine Recreational Information Program (MRIP) because there is not a known identified direct harvest for menhaden, other than for bait. MRIP intercepts typically capture the landed fish from recreational trips as fishermen come to the dock or on the beach. Since menhaden caught by recreational fishermen are used as bait during their trip, they will not be a part of the catch that is typically seen by the surveyor completing the intercept.

The MRIP estimated harvest of Atlantic Menhaden in 2015 was 914,572 pounds.

### Commercial

Total commercial Atlantic menhaden landings in 2015 (preliminary), including reduction, bait, bycatch, and episodic event set aside (EESA) landings, was 416.5 mil pounds. The bycatch landings<sup>1</sup> of 5.9 mil pounds do not count toward the coastwide commercial TAC of 414.2 mil pounds. The non-bycatch landings total was 410.6 mil pounds, representing a 1% underage of the coastwide TAC in 2015, and a 10.5% increase from the 371.7 mil pounds landed in 2014. The increase from 2014 was expected because of the 10% increase in the TAC that occurred in 2015.

### *Reduction Fishery*

The 2015 harvest for reduction purposes was 316.2 mil pounds. This represents a 9.4% increase from the 2014 landings, and a 1.8% decrease from the previous 5-year (2010-2014) average of 321.9 mil pounds (Figure 1). Omega Protein's plant, at Reedville, Virginia, is the only active Atlantic menhaden reduction factory on the Atlantic coast. During 2015, seven purse seine steamers unloaded Atlantic menhaden for reduction at Reedville, Virginia.

### *Bait Fishery*

The preliminary estimate of the coastwide directed bait harvest for 2015 is 92.5 mil pounds; this is a 10.6% increase from the 2014 bait harvest, and a 10.4% decrease from the average harvest of the previous five years (2010-2014) 102.1 mil pounds (Figure 1). New Jersey (51%), Virginia (35%), Maryland (6%), Massachusetts (3%), and the Potomac River Fisheries Commission (2.5%) landed the five largest shares while all other states landed less than 1% of the 2015 commercial bait harvest.

### *Bycatch Landings*

Bycatch landings in 2015, harvested under the 6,000 pound bycatch allowance, totaled 5.9 mil pound) which represents a 10% decrease from 2014 bycatch landings. The 2015 bycatch landings accounted for approximately 1.4% of the coastwide landings, but do not count towards the coastwide TAC. From 2013 through 2015, the Chesapeake Bay jurisdictions of Maryland (41%), Virginia (25%), and PRFC (15%) comprised 81% of the average bycatch with the states of New Jersey, New York, Delaware, Florida, and Rhode Island accounting for the remaining 19% (Table 2). The predominant gears used from 2013-2015 were pound nets (61%) and gill nets (24%), which accounted for 85% of the average landings from 2013 through 2015 (Table 2).

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<sup>1</sup> Landed under the 6,000 pound bycatch allowance

Table 1. Average landings under the bycatch allowance from 2013–2015 by gear type (stationary and mobile) and jurisdiction. Highlighted cells represent the gear type with the highest landings within a jurisdiction. (C) = confidential landings, and (-) = no landings. Total confidential landings were 209,277 pounds (i.e., the sum of all C's in the table below). Note that sum of pounds and percent of total columns do not include confidential data.

State/Jurisdiction	MD	VA	PRFC	NY	NJ**	FL	DE	RI*	Sum lbs (NonConf)	% of Total
<b>Stationary Gears While Fishing</b>										
Pound net	2,306,552	122,913	884,843	128,854	C	-	-	57,231	<b>3,500,393</b>	60.9%
Anchored/stake gill net	5,131	1,242,512	-	-	100,202	C	28,998	C	<b>1,376,843</b>	24.0%
Pots	10,001	-	-	C	-	C	C	-	<b>10,001</b>	0.2%
Fyke nets	C	C	-	-	C	-	-	-	<b>918</b>	0.0%
<b>Mobile Gears While Fishing</b>										
Cast Net	C	-	-	183,137	C	163,776	-	C	<b>346,913</b>	6.0%
Drift Gill net	16,082	57,794	-	18,175	129,620	-	66,117	-	<b>287,788</b>	5.0%
Seines Haul/Beach	C	5,119	-	206,587	-	-	-	-	<b>211,706</b>	3.7%
Trawl	-	-	-	9,733	C	-	-	C	<b>9,733</b>	0.2%
Hook & Line	C	-	-	-	-	C	-	C	<b>278</b>	0.0%
<b>Sum lbs (NonConf)</b>	<b>2,337,766</b>	<b>1,428,339</b>	<b>884,843</b>	<b>546,485</b>	<b>229,822</b>	<b>163,776</b>	<b>95,116</b>	<b>57,231</b>	<b>5,744,572</b>	
% of Total	40.7%	24.9%	15.4%	9.5%	4.0%	2.9%	1.7%	1.0%		

A total of 4,668 trips landed bycatch of Atlantic menhaden in 2015. A majority of the bycatch trips (68%) landed less than 1,000 pounds from 2013 through 2015 (Table 2). Maryland reported occurrences of pound net bycatch trips that were over the 6,000 pound limit because some license holders were using two vessels to legally land more than 6,000 pounds a day.

Table 2. Total number of trips by year from 2013-2015 separated into 1,000 pound landings bins.

Bins (LBS)	2013 Trips	2014 Trips	2015 Trips	Total Trips	% of total trips 2013-2015
1-1000	1,875	3,673	3,163	8,711	68%
1001-2000	252	517	582	1,351	11%
2001-3000	148	318	316	782	6%
3001-4000	110	190	139	439	3%
4001-5000	131	206	132	469	4%
5001-6000	158	265	196	619	5%
6000+	130	109	140	379	3%
<b>Total</b>	<b>2,804</b>	<b>5,278</b>	<b>4,668</b>	<b>12,750</b>	

#### *Episodic Events Set Aside Program*

One percent of the TAC is set aside for episodic events. Episodic events are defined as any instances when a qualified state has reached its individual state quota, prior to September 1, and has information indicating the presence of unusually large amounts of menhaden in its state waters. The states of Maine, Massachusetts and Rhode Island all qualified for the set aside program because they implemented mandatory fishery management provisions of the set aside (i.e., daily reporting, 120,000 pound trip limit, restricting harvest to state waters). In 2015, only one state—Rhode Island—declared participation in the set aside (on May 29). Rhode Island harvested 1.9 mil pounds from the set aside in 2015, and the remaining unused set aside

of 2.3 mil pounds was re-allocated to all the coastal states on November 1, 2015 using the allocation percentages from Amendment 2.

## **V. Status of Research and Monitoring**

### **Commercial fisheries monitoring**

Reduction fishery - The NMFS Southeast Fisheries Science Center Beaufort Laboratory in Beaufort, North Carolina, continues to monitor and process landings and bio sample data collected on the Atlantic menhaden purse-seine reduction fishery. The Beaufort Laboratory processes and ages all reduction samples collected on the East Coast. In addition, the purse-seine reduction fishery continues to provide Captains Daily Fishing Reports (CDFRs) to the Beaufort Laboratory where NMFS personnel enter data into a database for storage and analysis.

Bait fishery - The SAFIS daily electronic dealer reporting system allows near real time data acquisition for federally permitted bait dealers in the Mid-Atlantic and Northeast. However, landings by Virginia's purse-seine for-bait vessels (snapper rigs) in Chesapeake Bay are tabulated (at season's end) using CDFRs maintained on each vessel during the fishing season. A bait-fishery sampling program for size and age composition (of mostly the purse-seine catch) has been conducted since 1994. In New Jersey and New England, state fisheries personnel collect and process the bait samples and forward the data to the NMFS Beaufort Laboratory. Maryland has been collecting age and length samples since 2005. In 2010, the Potomac River Fisheries Commission began collecting samples for size and age composition from their pound net fishery; Beaufort Laboratory personnel process the fish. The Beaufort Laboratory ages all bait samples collected.

### **Atlantic menhaden research**

The following research projects relevant to menhaden assessment and management have been recently completed:

- Publication: Lynch, P. , Brush, Mark J., and Latour, Robert J. 2011. *Simulated short-term impacts of the Atlantic Menhaden reduction fishery on Chesapeake Bay water quality. North American Journal of Fisheries Management 31(1): 70-78.*
  - A simulation study was performed to estimate the monthly and annual water quality impacts caused by the reduction fishery harvesting its current total allowable catch in Chesapeake Bay of Atlantic menhaden, a filter-feeding fish that consume phytoplankton. The study concluded that average feeding rates are relatively low and that the probable impact of the fishery on water quality is negligible.
- Publication: Lozano, C. & Houde, E. D. 2013. *Factors contributing to variability in larval ingress of Atlantic menhaden, Brevoortia tyrannus. Estuarine, Coastal and Shelf Science 118:1-10.*

- A larval ingress study was conducted at the Chesapeake Bay mouth during 2005-2008. Two peaks in larval menhaden spawning activity were identified – one in November/December and a second in January/February – with stronger recruitment resulting from the later pulse. Environmental variables were not correlated consistently with temporal and spatial variability in abundance of larvae at ingress. Larval abundance was not correlated with juvenile survey abundance in the three study years.
- Report (Not peer-reviewed, funded by Omega Protein): *Sulikowski, J., Morgan, A., Carlson, A., and Butterworth, D. 2012. Inferences from aerial surveys on the abundance of Atlantic menhaden from outside the normal fishery range: implications for improved management of this resource.*
  - A pilot study was initiated to test the feasibility of an aerial survey for menhaden in New England to estimate the abundance of ages 3+ that may reside outside the area fished. The ratio of estimated biomass for the northern vs. southern region was estimated through the use of commercial spotter plane data from the fishery. Results suggest that biomass estimates of menhaden in absolute terms for the New England survey was negatively biased, possibly due to deep-swimming schools not observed. The relative biomass ratio suggested that New England biomass may be more than twice that of southern region biomass.

The following research projects relevant to menhaden assessment and management are ongoing:

- Dr. Robert Latour of the Virginia Institute of Marine Science is developing a statistical design for an aerial survey of adult Atlantic menhaden along the Eastern Seaboard of the United States. An aerial survey could be used to develop a coastwide adult index of abundance which is currently lacking in the stock assessment. Funding for implementation of the aerial survey has not been identified.
- Dr. Cynthia Jones and Mr. Jason Schaffler of Old Dominion University are using stable isotope and trace element analyses to assess Atlantic menhaden population structure and connectivity, and to identify essential areas. Signatures of juvenile menhaden from Massachusetts to Florida are being determined and adults collected from the fishery are being assigned back to region of origin. To date, age-1 trace element analysis is complete, and juvenile signature analysis from 2009-2011 is nearly complete.
- Drs. Edward Houde and David Secor at the University of Maryland Center for Environmental Science Chesapeake Biological Laboratory are comparing the precision of relative abundance estimates of YOY menhaden sampled by seining and mid-water trawling gears in principal sub-estuaries of the Chesapeake Bay. Hydrographic and environmental correlates associated with YOY menhaden catches will be investigated. Size, age, and spatial variability of YOY caught will be compared with Maryland DNR juvenile index surveys. The first field season was completed in 2012; however, funding for future research is uncertain.



## **VI. Status of Management Measures and Issues**

Amendment 2 was adopted in December of 2012, and was implemented on July 1, 2013 (see Section I for FMP details).

The Board placed a high priority on continuing work on developing ecosystem reference points using a multispecies modeling approach (MSVPA). Ecosystem reference points would explicitly address the forage needs of menhaden's predator species such as striped bass, weakfish, and bluefish. This work is anticipated to take some time because of its complexity.

The Board has initiated Amendment 3 to the FMP which will consider ecosystem based reference points and a revisit of allocation. Amendment 3 is expected to be developed during the 2016 and 2017 fishing years for possible implementation in 2018.

## **VII. Implementation of FMP Compliance Requirements for 2015**

All states are required to submit annual compliance reports by April 1.

### *Quota Results*

The final state quotas for 2015 include an adjustment from the reallocation of unused episodic event set aside that occurred on November 1, as well as two inter-state quota transfers (Table 3). Massachusetts transferred 33,685 pounds to Rhode Island and 475,000 pounds to New York to cover quota overages that occurred within those states in 2015. Table 3 contains state specific quotas and harvest that occurred in 2015. Table 4 displays the breakdown in directed versus bycatch landings by jurisdiction.

The 2016 TAC is the same as it was in 2015 at 414.2 mil pounds (187,880 mt). State-specific quotas are displayed in Table 3. New Jersey's and Florida's 2016 quotas will be reduced by the amount of their overages in 2015 unless inter-state quota transfers are processed.

### *Quota Monitoring*

All menhaden purse seine and bait seine vessels (or snapper rigs) are required to submit the Captain's Daily Fishing Reports (CDFRs). States that have purse seine and bait seine fisheries met the CDFR requirements in 2015.

Through Amendment 2, the Board approved timely quota monitoring programs for each state that were intended to minimize the potential for quota overages. Table 5 contains a summary of each state's approved quota monitoring system. Quota overages occurred in four states in 2015 (Table 3). The PRT recommends the Board consider requiring more timely reporting for New York because of its quota overage in 2015 (and 2014). Overages in Rhode Island and Florida are attributed to high and/or variable daily landings rates relative to their small quotas. New Jersey's overage was a result of delinquent dealer reports from the purse seine fishery. .

### *Biological Monitoring Requirements*

Amendment 2 implemented monitoring requirements for non *de minimis* states as follows:

- One 10-fish sample (age and length) per 300 metric tons landed for bait purposes for ME, NH, MA, RI, CT, NY, NJ, and DE; and
- One 10-fish sample (age and length) per 200 metric tons landed for bait purposes for MD, PRFC, VA, and NC.

Table 6 provides the number of 10-fish samples required for 2015. These are based on the best available 2015 landings data (including bycatch) provided to the Commission by the states. Table 6 also provides the number of ages and lengths collected by the states in 2015, and an indication of the gear type sampled during collections. All states met the biological monitoring requirements of Amendment 2 in 2015.

### *Adult CPUE Index Requirement*

Amendment 2 required that, at a minimum, each state with a pound net fishery must collect catch and effort data elements for Atlantic menhaden as follows; total pounds landed per day, number of pound nets fished per day. These are harvester trip level ACCSP data requirements. In May of 2013, the Board approved North Carolina's request to omit this information on the basis that it does not have the current reporting structure to require a quantity of gear field by harvesters or dealers. All other states with a pound net fishery met this requirement.

### *Chesapeake Bay Reduction Fishery Cap*

Amendment 2 implemented a change to the Chesapeake Bay Cap for the reduction fishery, starting in 2013 and continuing indefinitely. More specifically, the new cap is 87,216 metric tons (a 20% reduction from 109,020 which was the average landings from 2001-2005). Harvest for reduction purposes shall be prohibited within the Chesapeake Bay when 100% of the 87,216 cap is harvested from the Chesapeake Bay.

Reported reduction landings from the Chesapeake Bay for 2015 was less than 50,000 metric tons (110.2 mil pounds). The maximum rollover of unlanded fish is 10,976 metric tons (a 20% reduction from the prior maximum rollover amount of 13,720 metric tons). As a result, the 2016 Chesapeake Bay Cap for the reduction fishery is 98,192 metric tons. The rollover applies to the following year only, and will not be carried for multiple years.

### *De Minimis Status*

To be eligible for *de minimis* status, a state's bait landings must be less than 1% of the total coastwide bait landings for the most recent two years. State(s) with a reduction fishery are not eligible for *de minimis* consideration. If granted *de minimis* status by the Board, states are exempt from implementation of biological sampling and pound net catch and effort data reporting. The

Board also approved a *de minimis* exemption for New Hampshire, South Carolina and Georgia from implementation of timely reporting

The states of New Hampshire, Pennsylvania, South Carolina, Georgia, and Florida requested and qualify for *de minimis* status for the 2016 fishing season. As a result, the PRT recommends that New Hampshire, Pennsylvania, South Carolina, Georgia, and Florida be granted *de minimis* status.

### **VIII. Plan Review Team Recommendations**

#### **Management Recommendations**

- That the Board consider the reporting timeframe of New York to minimize future quota overages.
- That the Board consider the *de minimis* requests from New Hampshire, Pennsylvania, South Carolina, Georgia, and Florida.

### **IX. Literature Cited**

Southeast Data, Assessment, and Review (SEDAR). 2015. SEDAR 40 – Atlantic Menhaden Stock Assessment Report. SEDAR, North Charleston SC. 643 pp.

Atlantic States Marine Fisheries Commission (ASMFC). 2012. Atlantic menhaden stock assessment update report. ASMFC, Arlington, VA, 228 p.

Atlantic States Marine Fisheries Commission. 2012. Amendment 2 to the Interstate Fishery Management Plan for Atlantic Menhaden. 114 pp.

Table 3. Results of 2015 quota accounting in pounds. Note, in this table, the 2015 landings do not include bycatch landings because they do not count towards the TAC. Some states' data are confidential, and therefore are not reported.

State	2015 Quota	Returned Set Aside	Transfer	Total 2015 Quota	2015 Landings	Overage	2016 Quota
ME	161,466	889		162,356	C		161,466
NH	123	1		124	0		123
MA	3,438,630	18,941	(508,685)	2,948,886	2,932,128		3,438,630
RI	73,457	405	33,685	107,546	107,142		73,457
CT	71,537	394		71,931	71,537		71,537
NY	227,365	1,252	475,000	703,617	698,853		227,365
NJ	45,893,335	252,794		46,146,129	47,569,115	1,422,986	44,470,349
DE	54,153	298		54,451	54,153		54,153
MD	5,628,568	31,004		5,659,572	5,601,853		5,628,568
PRFC	2,545,595	14,022		2,559,617	2,283,685		2,545,595
VA	349,873,884	1,927,211		351,801,096	348,490,296		349,873,884
NC	2,020,645	11,130		2,031,775	839,637		2,020,645
SC	-	-		-	C		-
GA	-	-		-		-	-
FL	73,695	406		74,101	75,766	1,665	72,030
<b>Total</b>	<b>410,062,453</b>	<b>2,258,748</b>		<b>412,321,201</b>	<b>408,724,164.80</b>	<b>1,424,651</b>	<b>408,637,802</b>

Table 4. Directed, bycatch, episodic and total landings (pounds) for 2015 by jurisdiction.

<b>State</b>	<b>Directed</b>	<b>Bycatch</b>	<b>Episodic</b>	<b>Total</b>
ME	Confidential	-		Confidential
NH	-	-		-
MA	2,932,128	-		2,932,128
RI	107,142	69,947	1,883,292	2,060,381
CT	71,537	5,466		77,003
NY	698,853	769,312		1,468,165
NJ	47,569,115	240,922		47,810,037
DE	54,153	96,389		150,542
MD	5,601,853	1,949,577		7,551,430
PRFC	2,283,685	455,350		2,739,035
VA	348,490,296	2,034,372		350,524,668
NC	839,637			839,637
SC	Confidential			Confidential
GA	-			-
FL	75,766	301,963		377,729
<b>Total</b>	<b>408,724,165</b>	<b>5,923,298</b>	<b>1,883,292</b>	<b>416,530,755</b>

Table 5: State quota reporting timeframes in 2015. The **bold** text indicates which reporting program (dealer or harvesters) the states use to monitor its quotas.

State	Dealer Reporting	Harvester Reporting	Notes
ME	monthly	<b>monthly/daily</b>	Harvesters landing greater than 6,000 lbs must report daily
NH	<b>weekly</b>	monthly	Exempt from timely reporting. Implemented weekly, trip level reporting for state dealers.
MA	<b>weekly</b>	monthly/daily	Harvesters landing greater than 6,000 lbs must report daily
RI	<b>twice weekly</b>	quarterly/daily	Harvesters using purse seines must report daily
CT	<b>weekly/monthly</b>	monthly	No directed fisheries for Atlantic menhaden
NY	<b>Weekly</b>	monthly	Capability to require weekly harvester reporting if needed
NJ	<b>weekly</b>	monthly	All menhaden sold or bartered must be done through a licensed dealer
DE	—	<b>monthly/daily</b>	Harvesters landing menhaden report daily using IVR
MD	monthly	<b>monthly/daily</b>	PN harvest is reported daily, while other harvest is reported monthly.
PRFC	—	<b>weekly</b>	Trip level harvester reports submitted weekly. When 70% of quota is estimated to be reached, then pound netters must call in weekly report of daily catch.
VA	—	<b>monthly/weekly/daily</b>	Purse seines submit weekly reports until 97% of quota, then daily reports. Monthly for all other gears until 90% of quota, then reporting every 10 days.
NC	<b>monthly (combined reports)</b>		Single trip ticket with dealer and harvester information submitted monthly. Larger dealers can report electronically, updated daily.
SC	<b>monthly (combined reports)</b>		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
GA	<b>monthly (combined reports)</b>		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
FL	<b>monthly/weekly (combined reports)</b>		Monthly until 50% fill of quota triggers implementation of weekly.

Table 6. Biological monitoring results in 2015. Note that total bait landings includes bycatch landings.

State	Total Bait Landings (pounds)	#10-fish samples required	#10-fish samples collected	Age samples collected	Length samples collected	Gear/Comments
MA	2,932,128	4	4	40	40	all capture via cast net south of cape cod
RI	177089	0	9	110	110	floating fish trap (8) and purse seine (1)
CT	77,003	0	2	22	22	gill nets
NY	1,468,165	2	22	190	220	gill nets, pound nets, seines
NJ	47,810,037	72	130	1300	1300	purse seine (119), and other gears (11)
DE	150,542	0	1	10	10	gill net
MD	7,551,430	17	23	277	914	pound net (12 from CBay,11 from Potomac River)
PRFC	2,739,035	6	14	140	140	pound net
VA	34,312,808	78	79	794	794	pound net (9), gill net (9), haul seine (3)
NC	839,637	2	9	120	120	gillnet, seine, trawl
	<b>Total</b>	<b>183</b>	<b>293</b>	<b>3003</b>	<b>3670</b>	

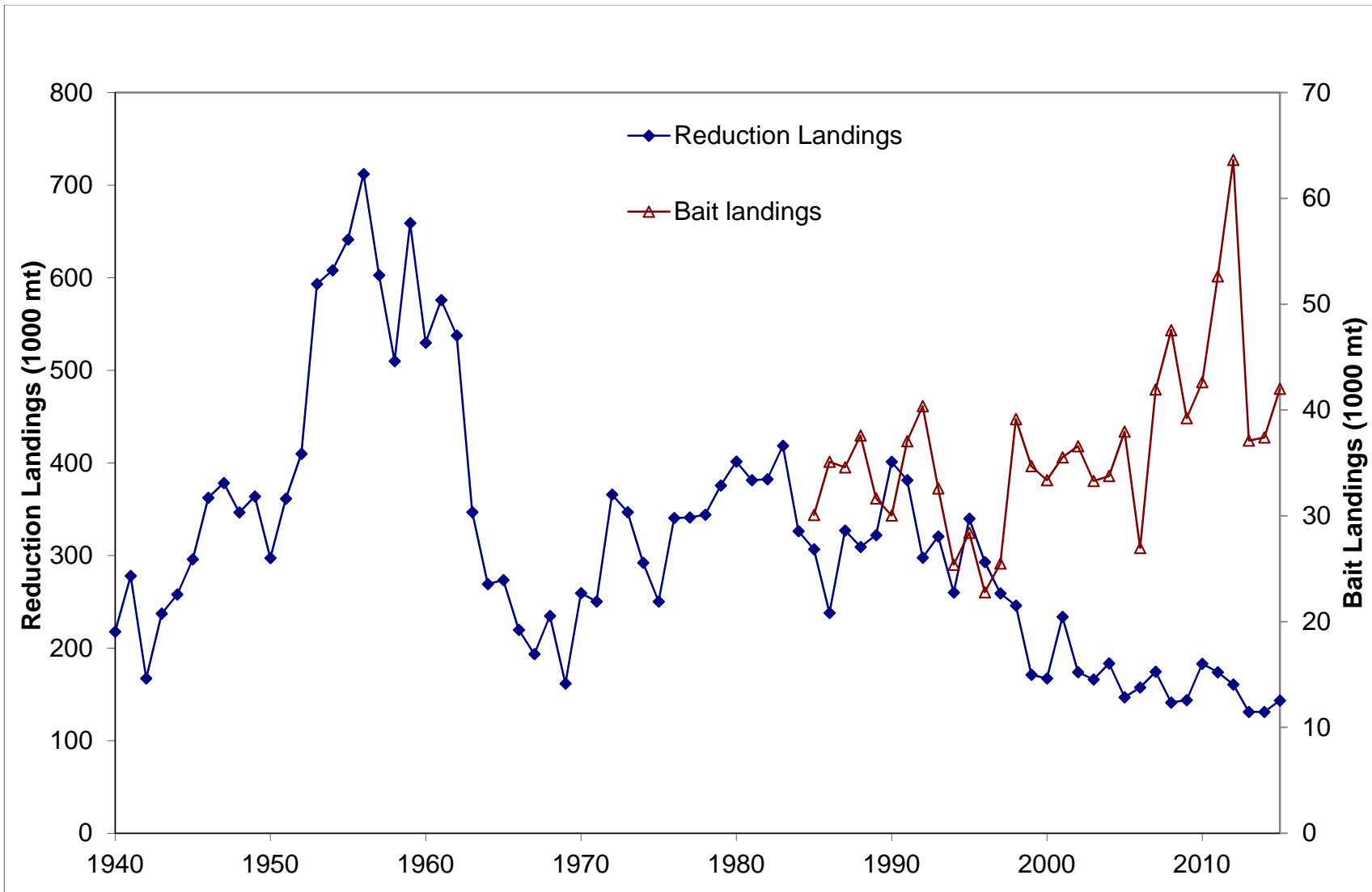


Figure 1. Landings from the reduction purse seine fishery (1940–2015) and bait fishery (1985–2015) for Atlantic menhaden.



# MEETING OVERVIEW

## ISFMP Policy Board Meeting

Thursday, May 4, 2016

10:15-11:45 a.m.

Alexandria, Virginia

Chair: Doug Grout (NH) Assumed Chairmanship: 10/15	Vice Chair: Jim Gilmore (NY)	Previous Board Meeting: February 4, 2016
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (19 votes)		

### 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February 4, 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. Executive Committee Report (10:30-10:35 a.m.)

#### Background

- The Executive Committee will meet on May 3, 2016.

#### Presentations

- D. Grout will provide an update of the committees work

#### Board direction for consideration at this meeting

- none

### 5. Discuss Request from the South Atlantic Fishery Management Council to Consider a Cobia Interstate Fishery Management Plan (10:35-11:00 a.m.) Possible Action

#### Background

- The South Atlantic Council Fishery Management Council (Council) requested the Commission consider joint or complementary management of cobia with the Council (**Briefing Materials and Supplemental Materials**).
- In 2105, 82% of the cobia harvest occurred in state waters. The ACL was exceeded by approximately 910,000 pounds.
- The Council is looking for a more flexible management approach to allow for timely adjustments of measures but still provide equitable access across multiple jurisdictions while meeting conservation goals.

**Presentations**

- G. Waugh will review the Council request.

**Board guidance for consideration at this meeting**

- Does the board want to consider a cobia FMP?

**5. Discuss Revisions to Conservation Equivalency Guidance Documents (11:00-11:05 a.m.)****Background**

- The Executive Committee tasked staff to update the Conservation Equivalency Guidance Document to reflect the current practices of the Commission.
- The MSC and ASC reviewed proposed revisions and made recommendations to the Executive Committee (**Supplemental Materials**).
- The Executive Committee will discuss the proposed revisions at the May 3 meeting.

**Presentations**

- T. Kerns will review the executive Committee discussion on the Conservation Equivalency Guidance Document

**Board guidance for consideration at this meeting**

- None

**6. Joint Management and Science and Assessment Science Committee Report (11:05-11:20 a.m.) Action****Background**

- The Assessment Science Committee (ASC) and Management and Science Committee (MSC) met to discuss various issues and receive presentations on several topics. (**Briefing Materials**)
- The ASC has several recommendations to the ISFMP Policy Board regarding the ASMFC Stock Assessment Peer Review Schedule (**Briefing and Supplemental Materials**).
- Both scientific oversight committees discussed developing a Commission Risk and Uncertainty Policy and advised the formation of a multi-disciplinary workgroup.

**Presentations**

- S. Madsen will review (1) topics covered at the joint meeting, (2) the formation of a Risk and Uncertainty Policy Workgroup, and (3) changes to the stock assessment schedule (**Briefing Materials**)

**Board actions for consideration at this meeting**

- Approve the revised stock assessment schedule

**7. Discuss Next Steps for Commission Action in Response to the Climate Change Workshop (11:20-11:35 a.m.)****Background**

- Climate change is impacting fishery resources and the communities that depend on them. How will management respond to current and future changes in climate and

<p>ocean and what can we do to identify ways to reduce risks and impacts to fisheries resources and those depending on them?</p> <ul style="list-style-type: none"> <li>• A Commissioner workshop will be held on May 3 to review Federal Climate Science Action Plans and Species Climate Vulnerability Assessments.</li> </ul>
<p><b>Presentations</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul>
<p><b>Board action for consideration at this meeting</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul>

<p><b>8. Update on the Sturgeon Stock Assessment (11:35-11:40 a.m.)</b></p>
<p><b>Background</b></p> <ul style="list-style-type: none"> <li>• The Benchmark stock assessment for sturgeon is schedule to undergo peer review in the fall of 2017.</li> </ul>
<p><b>Presentations</b></p> <ul style="list-style-type: none"> <li>• K. Drew will present an update on progress for the sturgeon assessment</li> </ul>
<p><b>Board actions for consideration at this meeting</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul>

<p><b>9. Law Enforcement Committee Report (11:40-11:45 a.m.)</b></p>
<p><b>Background</b></p> <ul style="list-style-type: none"> <li>• The Law Enforcement Committee will meet on May 3 and 4, 2016</li> </ul>
<p><b>Presentations</b></p> <ul style="list-style-type: none"> <li>• Update on LEC activities by M. Robson</li> </ul>
<p><b>Board action for consideration at this meeting</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul>

**11. Review Non-Compliance Findings, if Necessary**

**12. Other Business**

**13. Adjourn**



# ***Coastal Migratory Pelagics (CMP) Framework Amendment 4***

**Why is the ASMFC being asked to consider  
complementary management of cobia?**



Prepared by: **SAFMC Staff**

Presented by: **Gregg Waugh, Executive Director**

ASMFC Policy Board: May 4, 2016

# Brief History of Cobia Management

- **GM/SA FMP (1983)** – 1 stock TX->NC; MSY=1.057MP; 33"FL
- **AM 1 (1985)** – FY=Jan-Dec; 33"FL or 37"TL
- **AM 2 (1987)** – annual com & for-hire permit for April->March
- **AM 3 (1989)** – prohibited drift gillnets
- **AM 5 (1990)** – MSY=1MP & avg catch 81-89=1.9MP; overfishing definition; added to stock assmt process; 2/p/d w/1 day limit
- **AM 6 (1992)** – 33"FL only; MSY=2.2MP (92 Mack Stock Assmt)
- **AM 8 (1996)** – range->MAFMC; OY=MSY= 2.2MP
- **AM 11 (1998)** – Spawning Potential Ratio (SPR) for biomass parameters rejected; MSY=unknown; OY=all harvest while SPR>or=40%StaticSPR; overfishing>30%; threshold=10%



# Brief History of Cobia Management

- **AM 18 (2011)** – regs eff. 1/30/12; new MSA requirements (new rec quotas); **2 migratory groups: TX->FLWC & FLEC->NC**; 98% Rec/2%Com based on 50% 2000-08 & 50% 2006-08; MSY unknown; OFL unknown but use total ACL to determine overfishing
  - Atlantic Migratory Group: ACL=ABC=OY= 1,571,399 lbs (avg. of 2000-09 FLEC->NC landings +1.5x standard deviation of landings)
  - Rec ACL=1,445,687 lbs; Rec ACT=1,184,688 lbs
  - Com ACL = 125,712 lbs
  - Com AM = track & close; payback if overfished & C > total ACL
  - Rec AM = if Rec & Total ACL exceeded shorten season; use 1 year then avg. 2, then avg. 3 unless ACL changed & restart; payback if overfished & C > total ACL
  - Continue with 33"FL & 2/p/d w/1 day limit



# Brief History of Cobia Management

- **SEDAR 28 (2013)** – data thru 2011; **new stock boundary GA->NY** not overfished/no overfishing; Review Panel approved; SSC approved: MSY = 808,000 lbs; OFL & ABC in million pounds; ABC = max. landings Councils can allow

	OFL	ABC
2014	0.81	0.73
2015	0.76	0.69
2016	0.73	0.67



# Brief History of Cobia Management

- **AM 20B(2014)** – regs eff. 3/1/15; implement SEDAR/SSC values; **2 migratory groups: TX->FLEC & GA->NC**; kept 98% Rec/2%Com based on 50% 2000-08 & 50% 2006-08; MSY=808,000 lbs; OFL = 760,000 for 2015 & 730,000 lbs 2016 and beyond
  - ACL=ABC=OY= 690,000 in 2015 & 670,000 lbs 2016 onwards
  - Rec ACL= 630,000 (2015) & 620,000 lbs 2016 onwards
  - Rec ACT= 520,000 (2015) & 500,000 lbs 2016 onwards
  - Com ACL = 60,000 (2015) & 50,000 lbs 2016 onwards
  - AM no change: Com AM = track & close; payback if overfished &  $C > \text{total ACL}$ ; Rec AM = if Rec & Total ACL exceeded shorten season; use 1 year then avg. 2, then avg. 3 **unless ACL changed & restart**; payback if overfished and  $C > \text{total ACL}$
  - Continue with 33"FL & 2/p/d w/1 day limit





# Why taking action?

- Rec ACL decreased from 1,445,687 lbs (FL Keys->NY) to 630,000 lbs (GA->NY) based on new stock ID and SEDAR 29/SSC ABC results
- Rec Catch GA->NY = 1,540,775 lbs in 2015 = 129% over the Rec ACL and over Total ACL
- Accountability Measures triggered and recreational season for 2016 must be shortened to prevent exceeding the 2016 Rec ALC of 620,000 lbs; aiming for ACT of 500,00 lbs to estimate season length; season closes June 20<sup>th</sup>
- Council is working on Framework to change AMs & bag/size/season to prevent closure in 2017
- Council is asking if ASMFC is interested in developing a joint/complementary plan for state waters; pulse fishery with high catches in state waters



# Timing

An in-person **Public Presentation and Q&A** will be held on **May 9, 2016**, at 6 p.m.:  
Hilton Garden Inn Outer Banks/Kitty Hawk  
5353 N. Virginia Dare Trail  
Kitty Hawk, NC

- Council selects actions/alternatives and approves for public hearings at the next **SAFMC meeting in June 13-17, 2016**, in Cocoa Beach, FL
- Public hearings week of August 8<sup>th</sup> (Midway, GA; Bluffton, SC; Morehead City, NC; Kitty Hawk, NC; & Virginia Beach, VA)
- MAFMC input during their August 8-11, 2016 meeting in Virginia Beach, VA
- SAFMC review public input and approve for formal review at September 12-16, 2016 meeting in North Myrtle Beach, SC
- Sent for formal review and implementation by September 30, 2016
- Target new regulations implemented prior to April 2017



## COBIA QUESTIONS & ANSWERS

Prepared by John Carmichael, Deputy Director for Science & Statistics

April 18, 2016

This document was prepared to examine questions that may be raised by the Council concerning the cobia AM application for 2016. It is in no way intended to serve as an analysis of the status of cobia or the management changes necessary to prevent overfishing in 2016. Rather, it is intended to provide a simple, summary overview of some of the major trends in the fishery, place them in context of stock status as estimated by the 2013 stock assessment, and consider whether some of the typical causes of sudden, unexpected spikes in MRIP landings estimates are at work in this situation.

*NOTE: This document was modified on April 17 2016 to clarify that the 'rec OFL' derived here for illustration is based on the OFL implemented in Amendment 20B to the CMP FMP.*

### How does the 2015 landings spike compare to long-term trends in the fishery?

- The 2015 estimate of landings in MRIP is the highest on record

Landings values as reported by MRIP, for GA to NY, were plotted for 1981-2015 to show how 2015 compares with the past. Values were obtained from an MRIP website query, so no calibration for 2013-2015 APAIS survey changes is applied and weight values will not match exactly to those from the SERO ACL database. Initial estimates were obtained April 4, and then updated on March 1 to include any Wave 6 landings (there were none for 2015). Landings from the headboat fishery are not included, so the figures here do not represent the full recreational component. Therefore, any overages of OFL or ACL were actually greater than shown here.

A hypothetical "recreational OFL" was derived to provide some reference for overfishing, by multiplying the annual OFL specified in Amendment 20B (in pounds) by the recreational allocation of 92%. Note this is not an official management parameter, it was simply derived for illustration purposes in this document, intended to provide some context on the potential impact of the 2015 landings on the stock.

Amendment 20B to the CMP FMP established an OFL based on landings consistent with the 50% P\* recommendation of the SSC, and an ABC based on landings consistent with the P\* recommendation of 40%. Management quantities chosen by the Council and based on the SSC recommendations are shown in Table 1.

*Table 1. Management parameters for GA-NY cobia stock, 2014 and 2015. Values are in pounds, whole weight.*

YEAR	Total Yield*		Landed Yield, as specified in CMP A20B		Recreational		"rec OFL"
	ABC	OFL	ABC	OFL	ACL	ACT	
2015	726,700	792,800	690,000	760,000	630,000	520,000	699,200
2016	706,500	766,700	670,000	730,000	620,000	500,000	671,600

\*Total Yield = Landings + Discards

Preliminary recreational landings in pounds for 2015, not including headboat landings or MRIP Wave 6, are an all-time high at 1.7mpds (Type A+B1; A is observed harvest, b1 is unobserved harvest)(Figure 1). This value is well above the management benchmarks and any measure of prior landings (NOTE: this is the value reported by MRIP. It differs from the value in the ACL database used by SERO to monitor quotas and evaluate AMs due to an alternative approach for dealing with gaps in weight samples). It is 1.5x the prior peak observed in 2006, 3.7x the estimate for 2014, 2.9x the average from 2010-2014, and 2.7x the 2015 recreational ACL. Considering values in numbers, the 43,737 estimate of A+B1 harvest in 2015 is a series high, 1.7x the previous high of 25,554 reported in 2006 and 2.1x the average of the last 5 years.

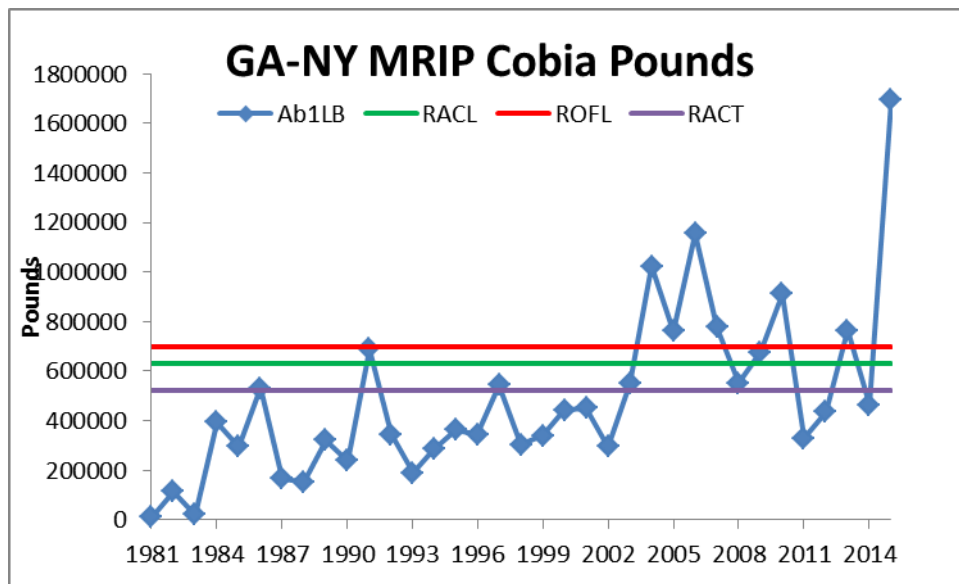


Figure 1. Cobia landings for New York through Georgia in pounds reported by MRIP for catch types A+B1 (AB1LB), 1981-2015, with reference lines denoting the 2015 recreational ACL (RACL), hypothetical recreational OFL component (ROFL), and the 2015 recreational ACT (RACT). Reference lines were extended back in time to indicate how past landings match current productivity estimates and management parameters; please keep in mind that these are annual values that were not in place until 2014.

**Is there any evidence that the 2015 recreational spike is an anomaly, perhaps related to a spike in landings in a single area or to a substantial change in average weight?**

- No evidence that the increase is narrow in range.

2015 landings increased in all states, in pounds as well as in numbers. Type A+B1 numbers were up in 2015 relative to 2014 by 2.9 in GA, 3.6 in SC, 1.6 in NC and 3.4 in VA.

- Trips targeting and catching cobia increased in 2015.

Effort directed toward cobia, as evidenced by trips indicating cobia as a target species, increased in 2015 (Table 2). Successful trips, as evidence by trips that encountered a cobia (indicated as Type A (observed harvest), Type B1 (discarded alive), or Type B2 (unobserved harvest, discarded dead or unseen by samplers)) also increased in 2015 relative to 2014.

*Table 2. Trips that targeted or encountered cobia, 2014 and 2015 as reported by MRIP for GA-NY.*

Year	Target Trips	Successful Trips	Successful %
2014	165,369	40,951	0.25
2015	206,528	60,313	0.29

- There is indication of a slightly higher mean weight in 2015.

Overall, numbers of fish were up by 2.4x and pounds of fish were up by 3.65x in 2015 relative to 2014. Mean weight, calculated from overall A+B1 estimates in pounds and numbers and shown in Figure 2, increases about 50% from 25 to 38 pounds between 2014 and 2015. The average 2010-2014 average is 28 pounds. To consider if the change in mean weight is a reason for the landings spike, the 5 year average mean weight was substituted for the 2015 value to estimate an alternative A+B1 in pounds (multiplying the alternative mean by A+B1 numbers). This produces an alternative estimate of pounds landed of 1,223,374, which is still nearly 2x the 2015 OFL. Therefore, the 2015 landings are a peak even if the mean weight change is removed.

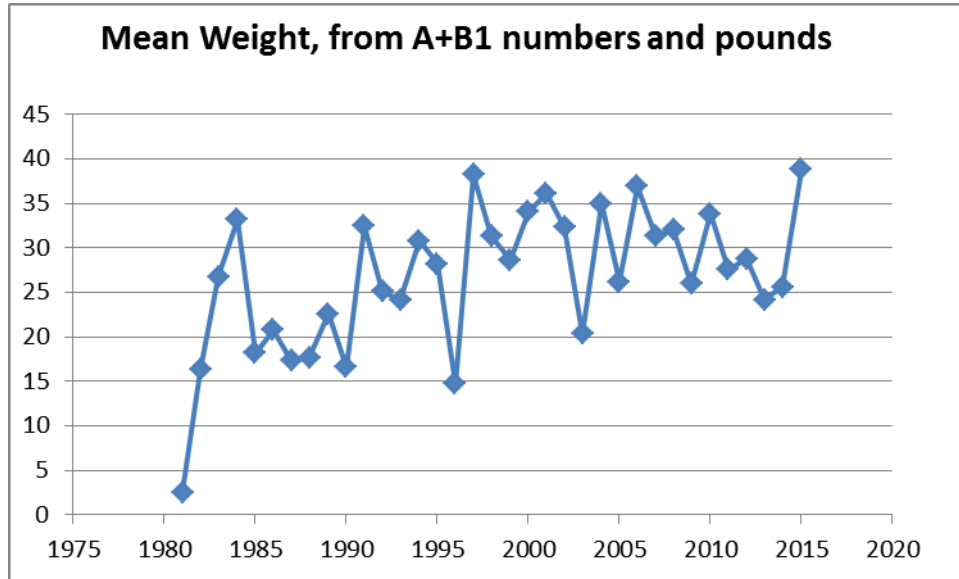


Figure 2. Mean weight for cobia, calculated from MRIP reported landings in pounds and numbers.

The 2015 mean weight is the peak of the series, beating the 1997 value by half a pound. While the increase over 2014 and 2013, and from 2011-2014 is noticeable, the 2015 estimate is not an obvious outlier when the whole time series is considered.

- 2015 mean weight is high, but this does not appear to be the sole explanation for the increased landings.

**Is there any evidence that the 2015 recreational catch estimate is particularly uncertain?**

- No evidence of an increase in PSE in 2015.

The MRIP program provides a value for “PSE”, Percent Squared Error, which is a measure of statistical uncertainty and error in the estimation that is calculated such that it can be compared across species regardless of their level of catch or frequency in the survey. Recall that MRIP is a survey based estimate procedure, and all surveys have some level of error in their estimates. Higher PSE values indicate an estimate with higher error and lower precision. The amount of data used for an estimate directly influences its precision, so species commonly encountered by anglers and thus encountered by MRIP samplers of those anglers typically have lower PSE, on the order of 10 – 20. Rare species can have much higher PSEs, even exceeding 100.

Since sample size affects PSE, its value depends on whether a fine scale catch estimate is desired, such as for a wave, mode, year and state, or whether a broader scale estimate is desired, such as for a region and year. While MRIP provides various regional aggregations for catch estimates, there is not one that matches the range of the GA-NY cobia stock. Using an aggregation of the full Atlantic Coast would include FL, thereby including both a separate stock and an area of high cobia encounters, thereby biasing the overall PSE downward and implying greater precision than exists for the GA-NY stock. Special queries can be conducted, but doing so was beyond the intent and time available for this analysis. Therefore, PSE was examined on a state and year basis to provide an illustration of overall trends in precision.

Most cobia from this stock are landed in VA and NC, followed by SC and GA. Typically lower PSE scores in VA and NC therefore reflect the greater frequency of cobia (Figure 3). MD to NY are not included as cobia seldom appear in the catches in those areas; in recent years the only reports are of small numbers of discarded cobia in NJ in 2015, 2012 and 2010. Cobia PSE values in 2015 are among the best in recent years in VA and NC. PSEs scores are also trending downward recently, perhaps reflecting ongoing efforts to improve the MRIP program.

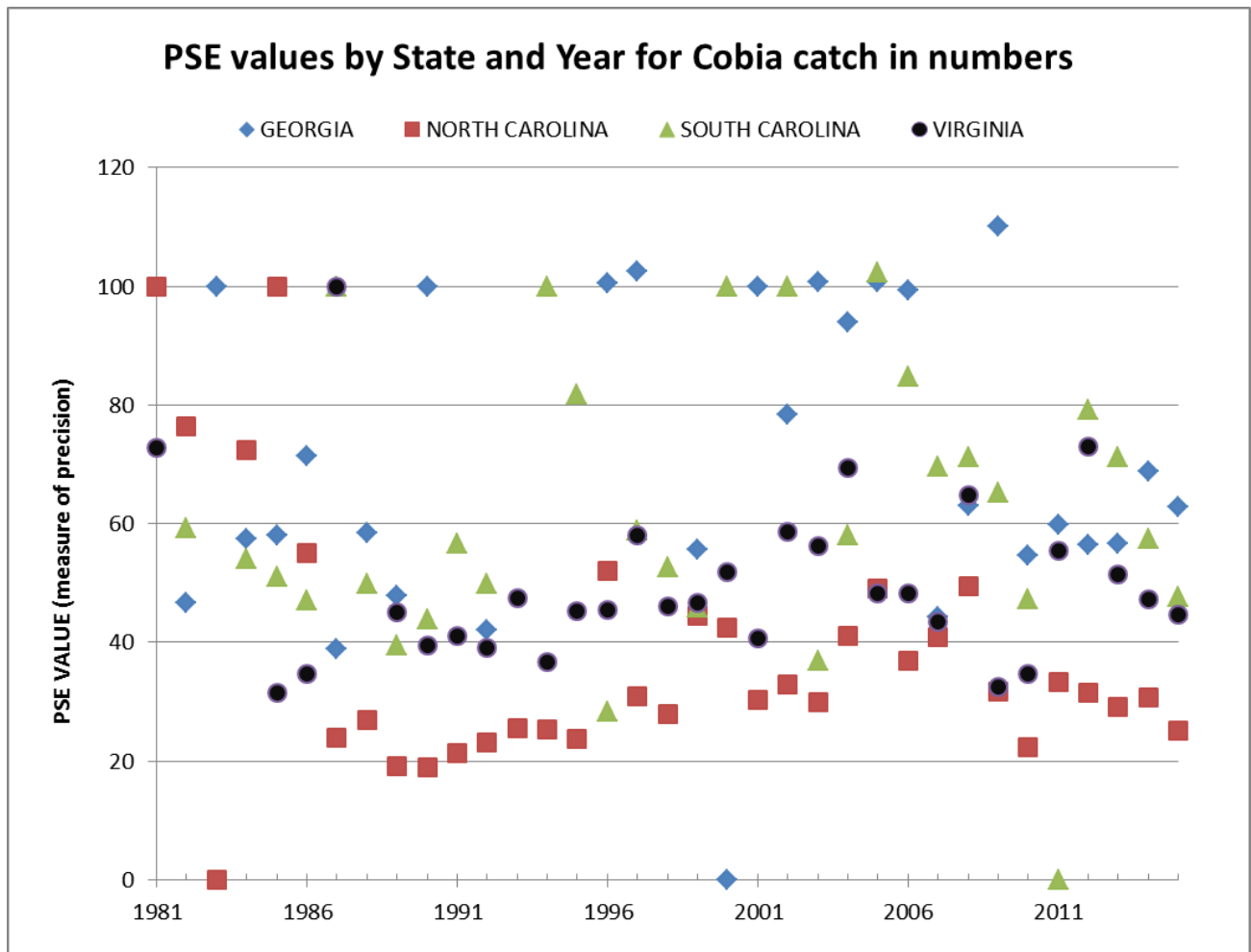


Figure 3. PSE values for Cobia, by state and year.

### Did overfishing occur during 2004-2010, when there are numerous years of landings exceeding the estimated Rec OFL?

Figure 1 suggests that overfishing of cobia was occurring in the recent past, since landings exceeded the overfishing levels. However, many recall that the assessment outcomes indicated the stock was neither overfished nor overfishing. The time series of the overfishing measure,  $F/F_{msy}$  was added to the landings plot to compare trends in the two measures of the population (Figure 4). This shows that overfishing was approached, in 2006, but the threshold MFMT was not exceeded.

- The stock assessment did not show a period when overfishing occurred.

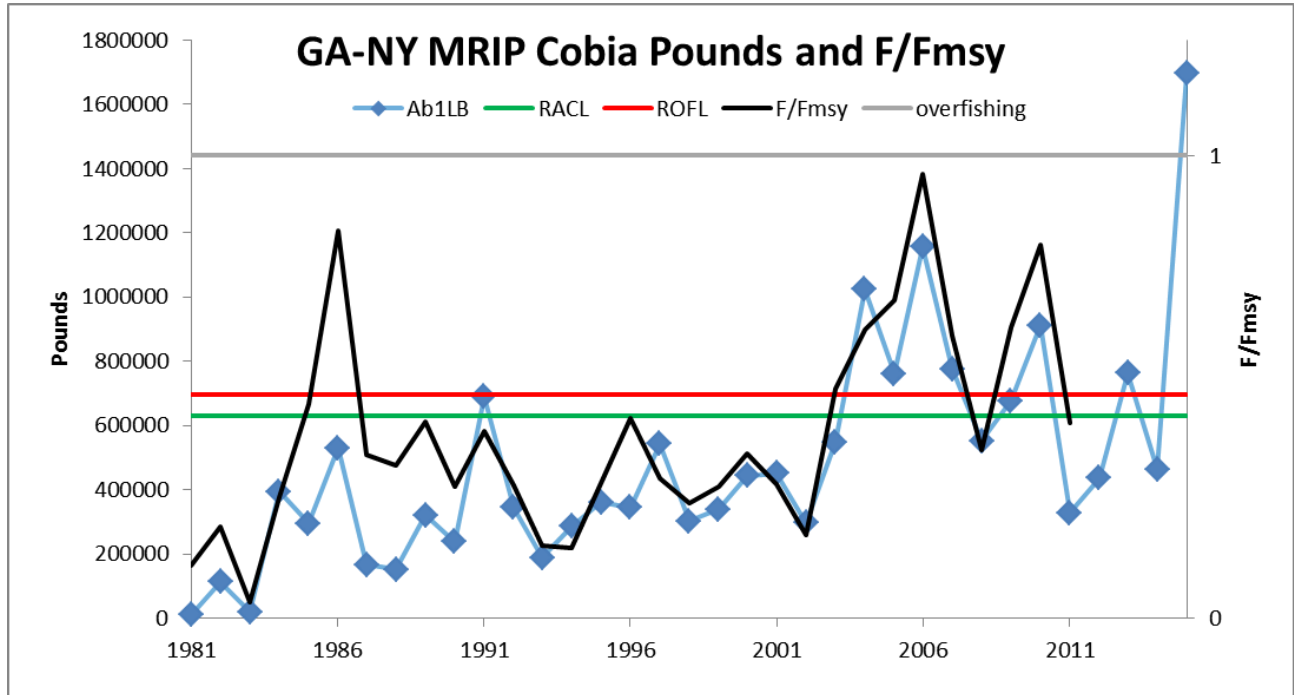


Figure 4. Cobia landings trend and 2015 benchmarks as shown in figure 1, overlaid with  $F/F_{msy}$  estimated from the last assessment. Note that  $F/F_{msy}$  is referenced on the right hand axis, and values exceeding 1 indicate overfishing. Assessment results indicate that overfishing is not estimated to have occurred during those years when OFL was exceeded ( $F/F_{msy} < 1$ ).

It may seem counterintuitive that overfishing was not occurring despite landings exceeding benchmarks and equilibrium MSY. However, that this can and does happen illustrates the difference between yield and exploitation (fishing mortality) rates, and the role of stock biomass in the relation between those two measures of stock performance. When biomass is very high, above Biomass at MSY levels as was the case for cobia in the 1990's, yield exceeding MSY can be taken for a short while and maintain fishing mortality rates below  $F_{msy}$ . This is the same mechanism that the Council has used to 'fish down' other stocks temporarily, such as mackerel and black sea bass, taking yields that exceed equilibrium MSY values while staying within fishing mortality (MFMT) thresholds.

Examining the biomass estimates for cobia indicate high spawning stock biomass relative to MSY levels in the 1990's and 2000's (Figure 5). At that time SSB was as much as 2.5 times SSB/SSB<sub>msy</sub>, and such biomass levels could support short term landings above MSY without leading to excessive exploitation rates. However, removing more than the average the stock can support has a cost, and such action is called "fishing down" because that is exactly what it does to the stock biomass. The effect of landings exceeding MSY are apparent in the declining SSB after the mid 1990's. In fact, the terminal estimate from the assessment was the lowest in the time series and was only slightly above SSB<sub>msy</sub> (SSB/SSB<sub>msy</sub> 2011 = 1.29). Over about a 20 year period the stock went from 2.5x SSB<sub>msy</sub> to 1.3x SSB<sub>msy</sub>. In real terms, this was a 53% decline in SSB. It is interesting that the decline in SSB initially starts during a time of relatively low landings and low  $F$ . This could perhaps be due to a series of poor year classes in the early to mid-1990's, as there is some recovery a few years later. Regardless, the decline in SSB has been consistent over most of the last 20 years, and was accelerated by the landings increase beginning around 2004. Given the terminal SSB estimates



and landings history of the last few years, it seems likely that overfishing will occur if landings on the order of those from 2004-2007 were to occur today.

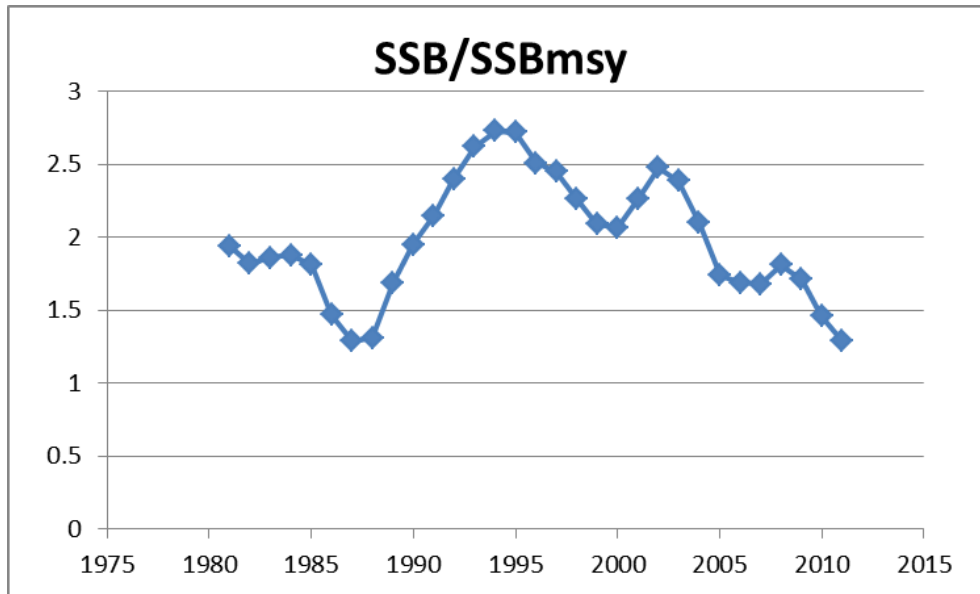


Figure 5. Spawning stock biomass relative to the MSY biomass reference for 1981-2011. SSB estimates are available farther back in time; this period was chosen to highlight the impact of landings during this time on SSB estimates.

#### Is there reason for concern and precaution with Cobia?

It appears so.

- Terminal assessment results indicate declining biomass and peak fishing mortality rates bumping up against the limits.
- Recreational landings for 7 of the last 12 years exceed the hypothetical recreational share (92%) of the equilibrium MSY (808,000 pounds).
- Landings have increased considerably in the last decade, with those from 2004 to 2014 twice those from 1992-2002.
- It seems unlikely that the APAIS calibration will have enough impact to resolve the ACL overage.
- Based on the use of landings relative to OFL as a measure of overfishing for years since the terminal assessment year, overfishing occurred in 2015.

#### Data Source Caveat

- Data used in this analysis to represent recreational landings in pounds and numbers are taken from a direct query of the MRIP website on February 4, 2015.
  - They do not include Wave 6 2015 although estimates since available show there were no wave 6 cobia landings
  - Headboat landings are not included
  - Weight values and mean weights derived here may not match information provided by SERO directly, due to different calculation of mean weight by SEFSC for the official ACL tracking database.



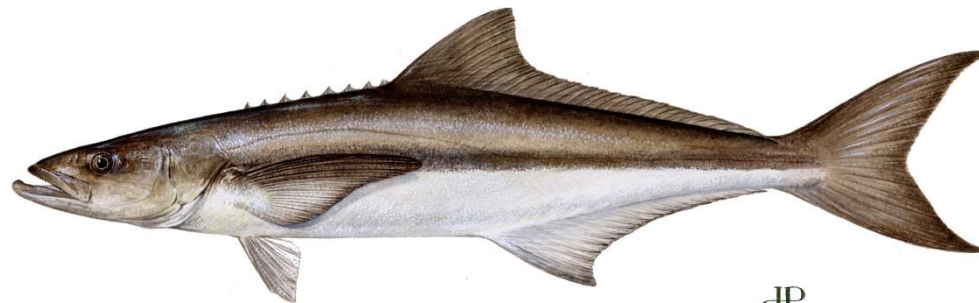
# Atlantic Cobia Recreational Sector Update

Michael Larkin, Ph.D  
LAPP/DM Branch  
SERO

SAFMC Meeting  
March 7-11, 2016

# Management Changes

- In March 2015, Amendment 20B changed cobia ABC, ACLs, and ACTs based on SEDAR 28, but the AMs did not change.
- Following SEDAR 28, the Atlantic cobia stock is from New York through Georgia.



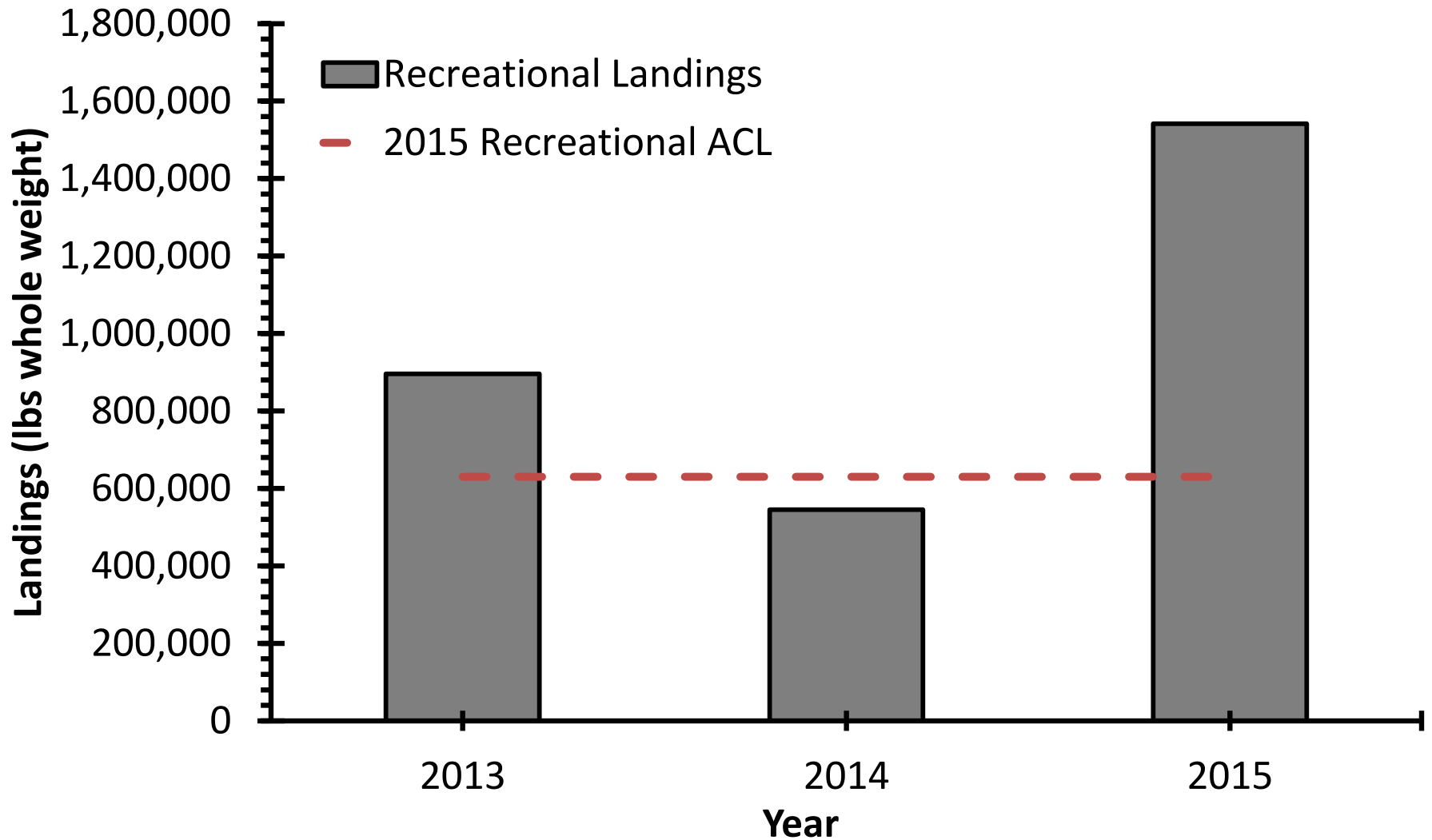
dP

COBIA

*Rachycentron canadum*

# Atlantic Cobia Recreational Landings

(New York through Georgia)



\* All 2015 data are preliminary

# Details of 2015 Atlantic Cobia Recreational Landings by State

ATTACHMENT 3

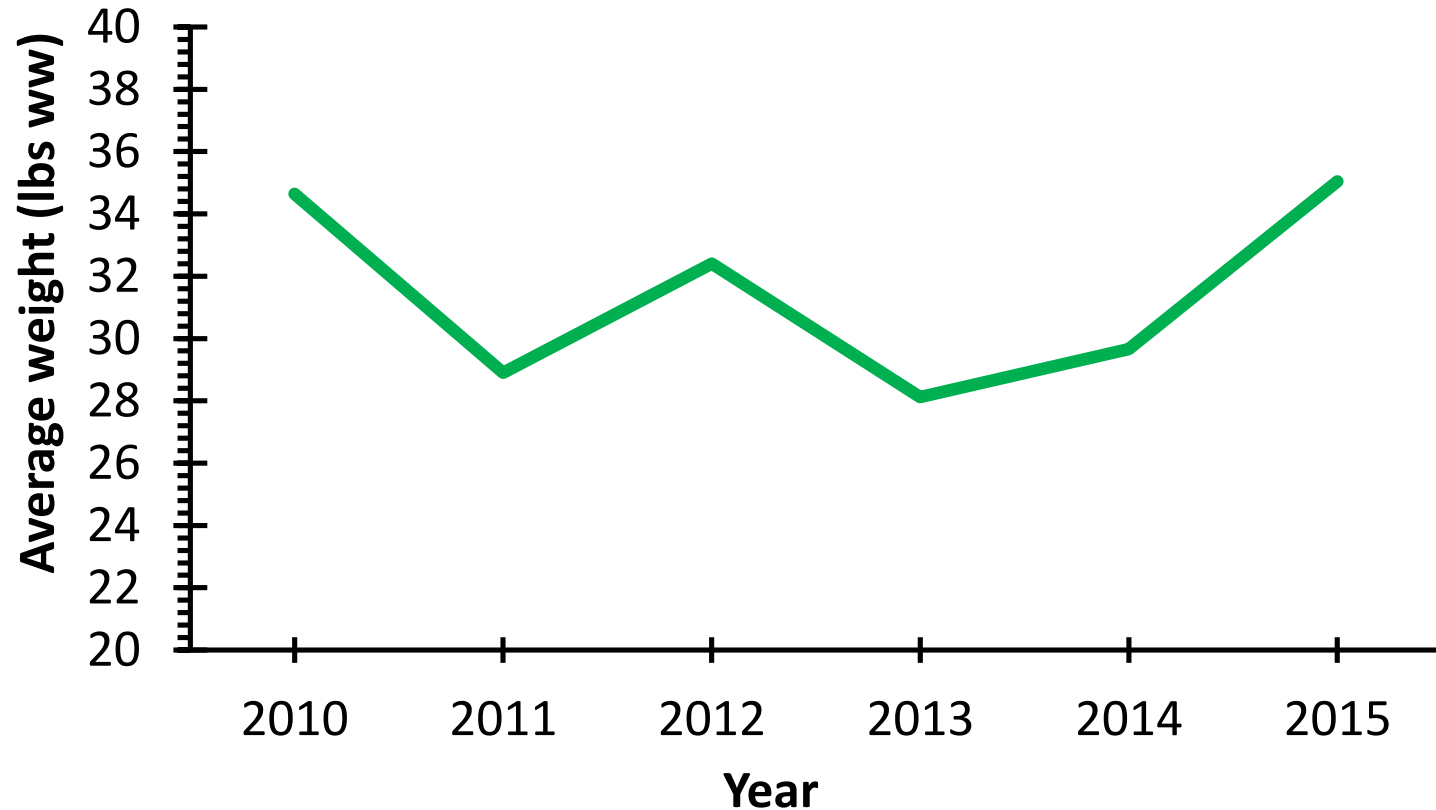
State	Landings (lbs)	% of 2015 Landings	PSE
VA	718,647	47	39
NC	631,006	41	29
SC	124,068	8	47
GA	67,814	4	75
Total	1,541,535	100	NA

# Why were the Atlantic Cobia landings so high in 2015?

Average Atlantic cobia harvested per trip

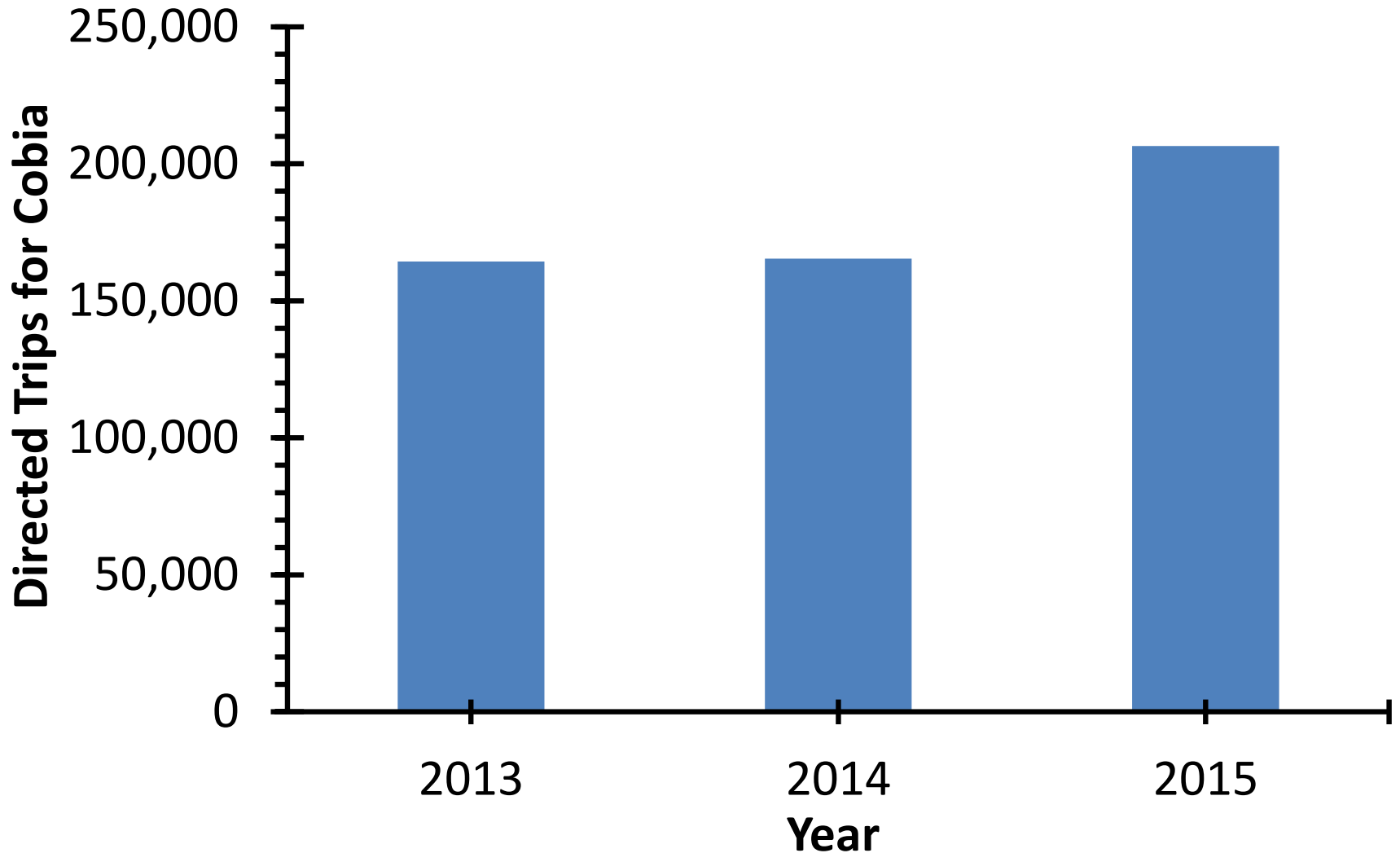
2014 0.512 cobia per person

2015 0.523 cobia per person



\*All data are from New York through Georgia

# Atlantic Cobia Targeted Fishing Effort (New York through Georgia)



- In 2011, Amendment 18 set the AM. If the recreational sector ACL and total ACL (commercial and recreational ACL) are exceeded then compare recreational landings to recreational ACL over a range of years. However, if ACL is changed then the first single year of landings will be compared to the recreational ACL.
- ACL was changed in 2015
- In 2015, both the recreational ACL and total ACL were exceeded



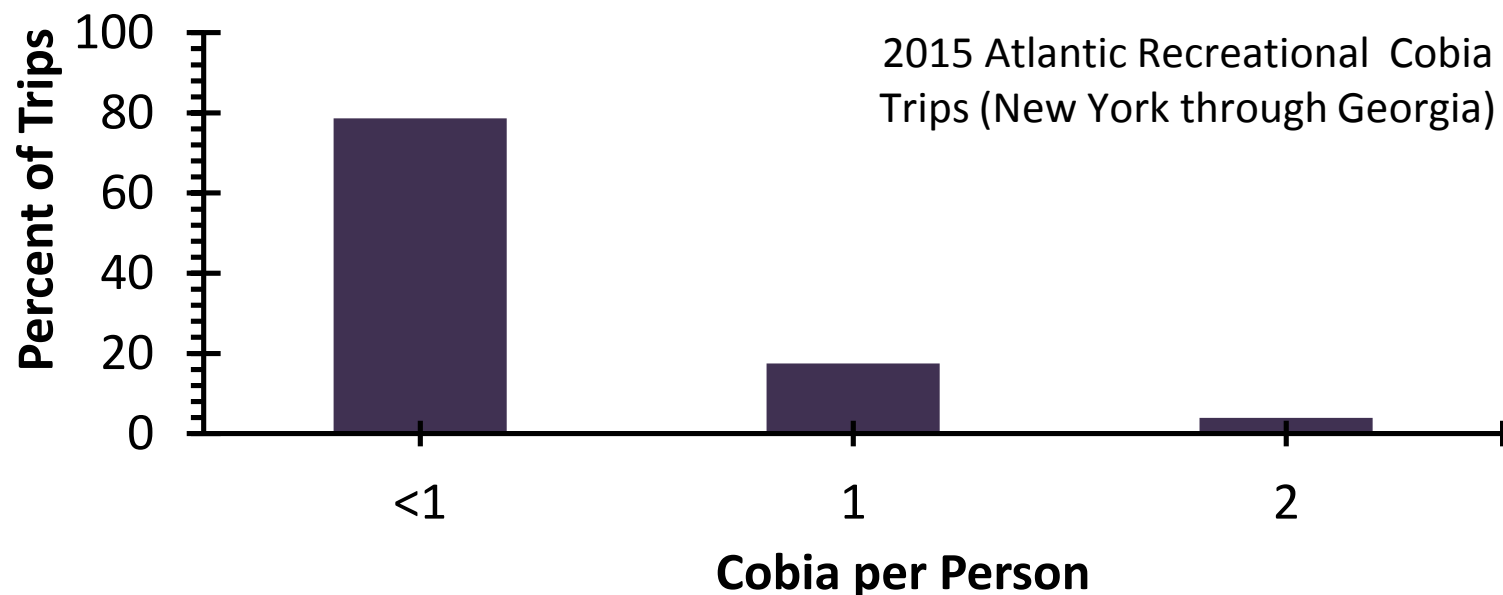
- AM requires the season to be reduced in 2016 based on projections when the landings will reach the ACT (500,000 lbs)
- Closure date dependent on what years are used to predict 2016 landings

<b>Landings</b>	<b>Closure Date</b>	<b>NC 1 fish bag limit Closure Date</b>
2013	27-Jun	29-Jun
2014	14-Aug	19-Aug
2015	31-May	1-Jun
Average 2013-2015	18-Jun	20-Jun
Average 2014-2015	14-Jun	16-Jun

# Potential Bag Limit Changes

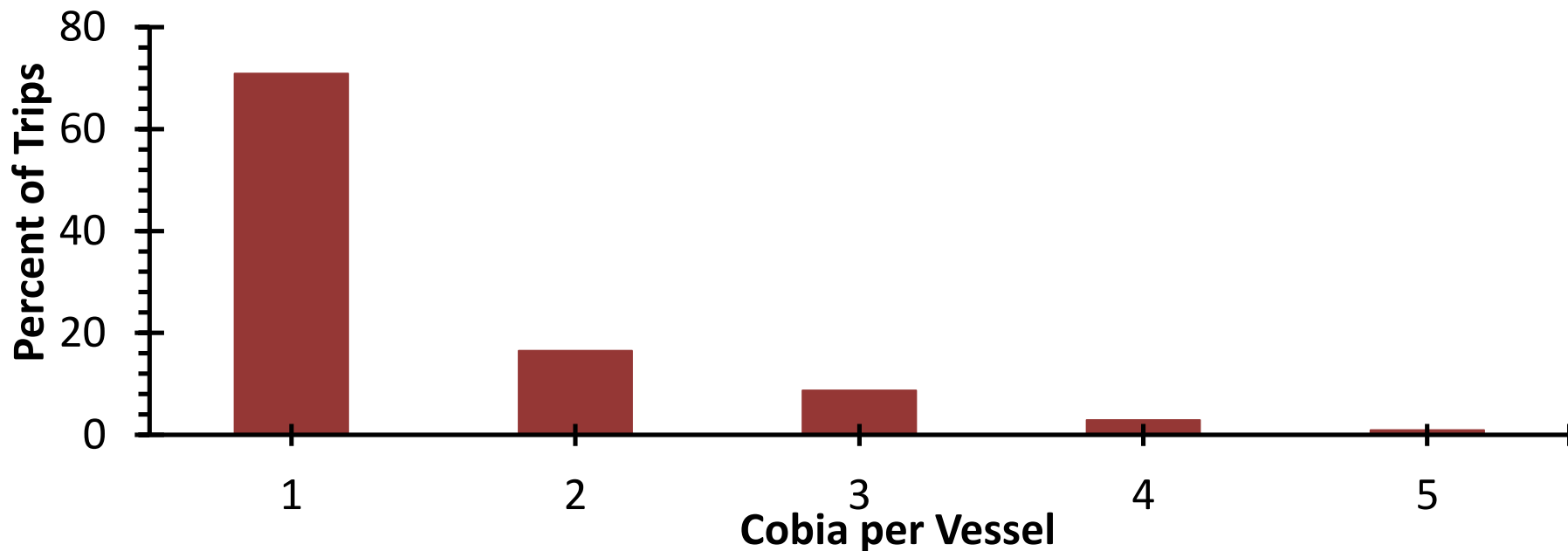
Bag Limit Change	Closure Date	Increase in Days
No Reduction in Bag Limit	18-Jun	-
NC Bag Limit Reduction to 1 Cobia per Person	20-Jun	2
NC, SC, GA Bag Limit Reduction to 1 Cobia per Person	21-Jun	3

\*Closures based on average 2013-2015 landings



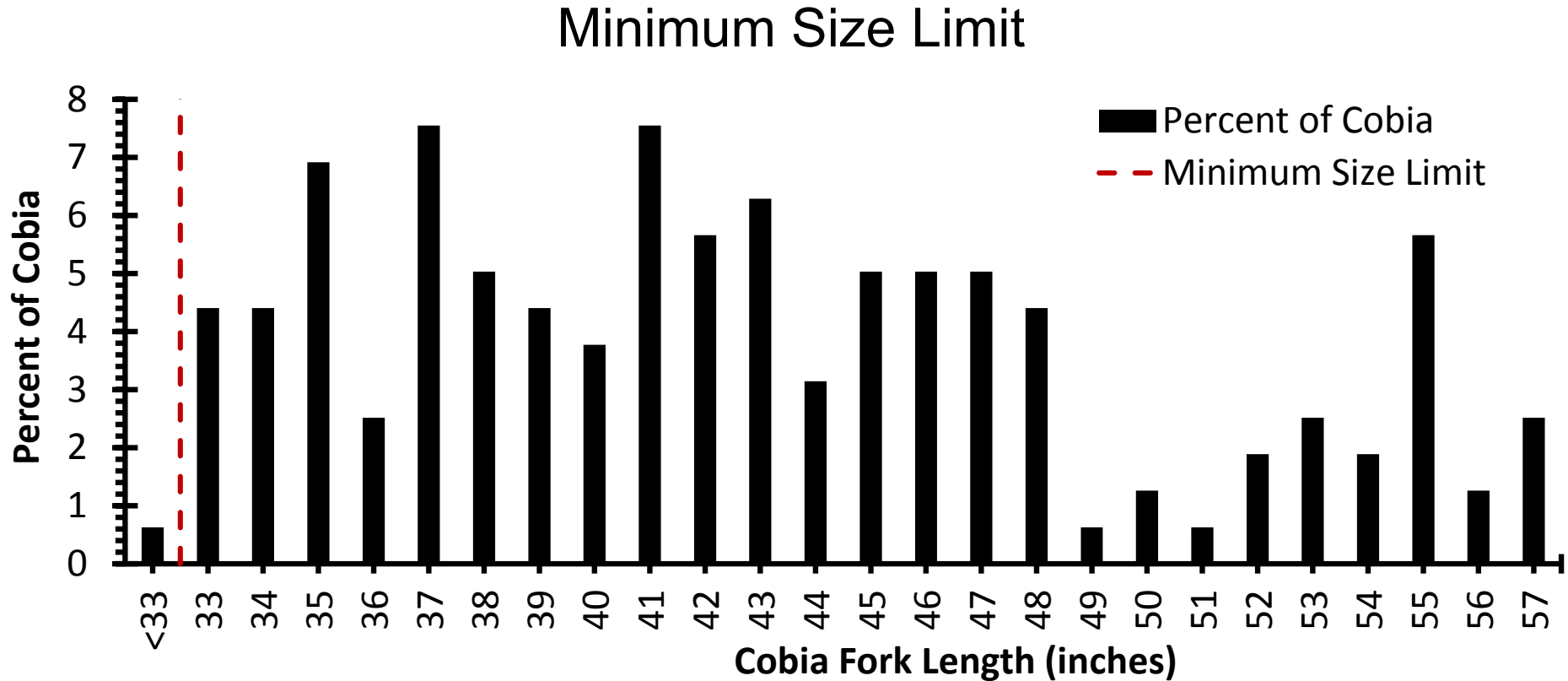
# Other Management Options

## Potential Vessel Limit



Data are from 2015 Atlantic Recreational Cobia Trips (New York through Georgia)

# Other Management Options

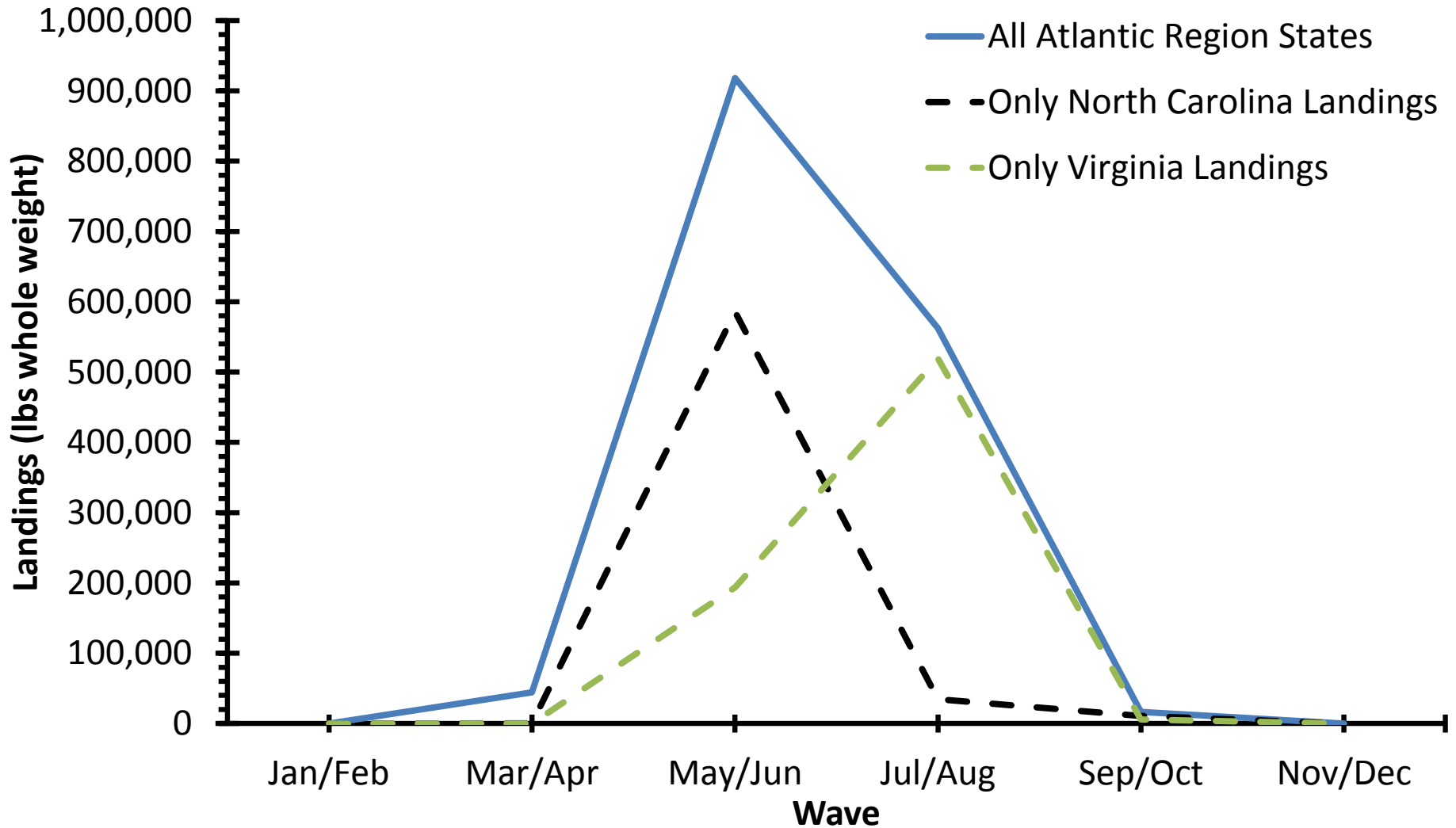


\*100% of cobia are sexually mature at 31 inches fork length (SEDAR 28)

\*Data are from 2015 Atlantic Recreational Cobia Trips (New York through Georgia)

# QUESTIONS?

# Details of 2015 Atlantic Cobia Recreational Landings



\*Data are from 2015 Atlantic Recreational Cobia (New York through Georgia)

# Details of Atlantic Cobia Recreational Landings by State from 2013 through 2015

ATTACHMENT 3

State	2013 Landings		2014 Landings		2015 Landings	
	Landings (lbs)	% of Landings	Landings (lbs)	% of Landings	Landings (lbs)	% of Landings
VA	354,463	40	214,426	39	718,647	47
NC	492,998	55	277,846	51	631,006	41
SC	19,159	2	32,010	6	124,068	8
GA	29,304	3	20,670	4	67,814	4
Total	895,925	100	544,952	100	1,541,535	100

\*Data are from Atlantic Recreational Cobia (New York through Georgia)

# Details of 2015 Atlantic Cobia Recreational Landings by Mode

<b>Mode</b>	<b>2015 Landings</b>	<b>%</b>
Shore	35,957	2
Private	1,400,457	91
Charter	102,948	7
Headboat	2,172	<1
Total	1,541,535	100

\*Data are from 2015 Atlantic Recreational Cobia (New York through Georgia)



# Details of 2015 Atlantic Cobia Recreational Landings by Jurisdiction

<b>Mode</b>	<b>2015 Landings</b>	<b>%</b>
Federal Waters	277,497	18
State Waters	1,261,865	82
Not Provided	2,172	<1
Total	1,541,535	100

\*Data are from 2015 Atlantic Recreational Cobia (New York through Georgia)



## SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201, North Charleston SC 29405

Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: [www.safmc.net](http://www.safmc.net)

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Dr. Michelle Duval, Chair | Charlie Phillips, Vice Chair  
Gregg T. Waugh, Executive Director

March 23, 2016

The Honorable Robert J. Wittman  
2454 Rayburn House Office Building  
Washington, DC 20515

RE: Your cobia letter dated March 18, 2016

Dear Representative Robert Wittman:

Thank you for contacting me about cobia and your concerns about the closure scheduled to begin on June 20, 2016. I am also concerned about the closure and the resulting impacts on fishermen from Georgia through New York, especially those from Virginia northwards who have access to cobia later in the year relative to the states in the South Atlantic.

First, let me review how we got to this point:

Cobia is managed jointly with the Gulf of Mexico Fishery Management Council through the Coastal Migratory Pelagics Fishery Management Plan (FMP). On the Atlantic Coast, cobia are managed through New York, and the Mid-Atlantic Council participates with 2 voting seats on the South Atlantic Council's Mackerel Committee that also addresses cobia. The Magnuson-Stevens Act (MSA), as amended, specifies that the Scientific and Statistical Committee (SSC) set the Acceptable Biological Catch (ABC) and the Council sets the Annual Catch Limit (ACL) at a level that cannot exceed the ABC. The Reauthorized MSA also requires measures to limit each sector (recreational and commercial) to their ACLs and Accountability Measures (AMs) should those levels be exceeded. This removed all flexibility from the Councils regarding closures when the total ACL has been exceeded and AMs have been triggered.

**Amendment 18 (implemented in January 2012)** to the FMP established a Gulf Migratory Group and Atlantic Migratory Group of Cobia. The Atlantic Group ranged from the jurisdictional boundary between the Gulf and South Atlantic Councils off Key West, Florida northwards to the boundary between the Mid-Atlantic and New England Councils (through New York). As required by the Reauthorized Magnuson-Stevens Act, Amendment 18 also established annual catch limits and accountability measures that will be triggered when the catch limits are exceeded in a fishing year. The annual catch limits are based on recommendations from the South Atlantic Council's scientific advisors (Scientific and Statistical Committee). Each sector is allocated a proportion of the total

annual catch limit. For Atlantic group Cobia, the recreational and commercial allocations are 92% and 8%, respectively.

The accountability measures to avoid commercial harvest of Atlantic Group Cobia exceeding the commercial annual catch limit includes an in-season closure when the commercial annual catch limit is met and a “pay-back” provision in which the subsequent year’s commercial catch limit is reduced. The pay-back provision is only triggered if the total (commercial + recreational) annual catch limit is exceeded as well.

The accountability measures for the recreational sector only occur post-season, and include a reduction of the length of the subsequent fishing year and a potential pay-back if the total annual catch limit is exceeded as well as the recreational catch limit. The length of the subsequent fishing year is determined by the National Marine Fisheries Service (NMFS) Regional Administrator and is based on a moving average of recreational landings. Below is the language from Amendment 18 that established the catch levels and recreational accountability measures:

- Catch Levels (Florida Keys northwards through New York):
  - Annual Catch Limit (ACL) = Acceptable Biological Catch (ABC) = Optimum Yield (OY) =
    - 1,571,399 pounds
  - Commercial ACL (8% of total ACL) = 125,712 pounds
  - Recreational ACL (92% of total ACL) = 1,445,687 pounds
- Accountability Measures (AMs)
  - Commercial - prohibit harvest, possession, and retention when the commercial ACL is met or projected to be met. All purchase and sale is prohibited. Commercial payback of any overage - Payback only if overfished & total ACL exceeded.
  - Recreational - If the recreational ACL is exceeded, the Regional Administrator shall publish a notice to reduce the length of the following fishing year by the amount necessary to ensure landings do not exceed the recreational ACL for the following fishing year. Compare the recreational ACL with recreational landings over a range of years. For 2011, use only 2011 landings. For 2012, use the average landings of 2011 and 2012. For 2013 and beyond, use the most recent three-year (fishing years) running average. If in any year the ACL is changed, the sequence of future ACLs will begin again starting with a single year of landings compared to the ACL for that year, followed by two-year average landings compared to the ACL in the next year, followed by a three-year average of landings ACL for the third year and thereafter. Only adjust the recreational season length if the Total ACL is exceeded. Recreational payback of any overage - Payback only if overfished & total ACL exceeded - If the recreational ACL is exceeded, the Assistant Administrator for Fisheries shall file a notification with the Office of the Federal Register to reduce the recreational ACL in the following year by the amount of the overage. The ACT would also be adjusted according to the ACT formula in Action19-6.

In 2013, the stock assessment for Atlantic Group Cobia (SEDAR 28) was completed. The assessment incorporated data through 2011. Additionally, new information used in the assessment indicated that the boundary between Gulf Group and Atlantic Group was not in the Florida Keys, but near the Georgia/Florida state line, i.e., the cobia on the east coast of Florida are part of the same stock of cobia in the Gulf of Mexico.

**SEDAR 28 (Atlantic Group Cobia; completed in 2013 with data through 2011)**

- Used new stock boundary based on genetic/tagging work (Georgia northwards through New York)

- Reviewed and approved by an independent peer review panel
- South Atlantic Cobia stock not overfished/not overfishing
- Council's Scientific and Statistical Committee accepted the assessment as appropriate for use in management and recommended fishing levels (ABC and Overfishing Level (OFL)) based on assessment projections.

Following the 2013 stock assessment, the South Atlantic and Gulf of Mexico Councils, with input from the Mid-Atlantic Council, developed joint **Amendment 20B (implemented on March 1, 2015)**. This amendment updated the annual catch limits based on SEDAR 28 results and modified the management boundary between the Gulf Migratory Group and Atlantic Migratory Group of Cobia to align with the boundary used in the stock assessment. The east coast of Florida was allocated a proportion of the Gulf Group Cobia annual catch limit. The Atlantic Group Cobia annual catch limits were established in Amendment 20B as follows:

- Catch Limits (Georgia through New York):
  - Overfishing Level (OFL) = 760,000 pounds for 2015 and 730,000 in 2016 and beyond.
  - Annual Catch Limit (ACL) = Acceptable Biological Catch (ABC) = Optimum Yield (OY) =
    - 690,000 pounds in 2015 and 670,000 pounds in 2016 onwards
  - Commercial ACL (8% of total ACL) = 60,000 pounds (2015) and 50,000 pounds (2016+)
  - Recreational ACL (92% of total ACL) = 630,000 pounds (2015) and 620,000 pounds (2016+)
- Accountability Measures (AMs) – no changes

**Bottom Line:**

- Recreational ACL decreased from 1,445,687 pounds (FL Keys-NY) to **630,000** ~~690,000~~ pounds (GA-NY) in 2015 based on new stock ID and SEDAR 28 ABC results
- Recreational catch = 1,540,775 pounds in 2015 = **129123%** over the Recreational ACL
- Accountability Measures triggered and recreational season for 2016 must be shortened to prevent exceeding the 2016 Recreational ACL of 620,000 pounds

Now I would like to talk about how we reduce the likelihood that this happens again:

**Framework** - The Council is working on a framework amendment that will include actions for vessel limits, increased minimum size limits, decreased bag limit, change of fishing year start date, modified recreational accountability measures, and a step-down for the commercial sector, and a request to the Atlantic States Marine Fisheries Commission (ASMFC) to consider a joint management plan for Atlantic cobia. The Committee and Council approved the following motions for actions in the amendment that would apply to cobia management from Georgia through New York:

- Motion: Direct staff to look at vessel limits for 1, 2, 3, 4, 5 and 6 fish.
- Motion: Look at a combined recreational vessel limit decrease with increased minimum size limit.
  - 33-39 inches fork in 1-inch increments
  - 1-6 fish vessel limit.
- Motion: Look at a 1/person bag limit for cobia.
- Motion: Look at combined bag limit options with increased min size limit.

- 33-39 inches fork in 1-inch increments
- 1/person bag limit
- 2/person bag limit
- Motion: Direct staff to look at changing start of recreational fishing year to May 1.
- Motion: Explore modifying the recreational accountability measures:
  - If recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings.
  - If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage, only if the species, or one or more species in a species complex, is overfished and the total ACL (commercial ACL and recreational ACL) is exceeded. The length of the recreational season and recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.
- Motion: For commercial Atlantic cobia sector, continue to fish at 2 fish per person until 75% of the commercial ACL has been caught, then decrease to 1 fish per person.
- Direction to staff: add options for dates after which a step-down would not occur.
- Motion: Draft a letter from the council to the ASMFC policy board to request consideration of joint management of Atlantic cobia.
- The Council's intent is to have new regulations in place prior to the start of the 2017 cobia fishing year.

### **Work with ASMFC**

On behalf of the Council, I sent a letter to the ASMFC dated 3/18/16 requesting the Commission consider complementary management approaches for this fishery at its upcoming May 4, 2016 meeting (**Attachment 1**). I unfortunately have another commitment that day, but Gregg Waugh, SAFMC Executive Director, will be making a presentation to the ASMFC Policy Board on May 4<sup>th</sup> and he would be glad to meet with you and/or your staff to discuss cobia management. As noted in our letter, the Council believes the ASMFC process can provide the timely flexibility for each State to develop measures specific to its needs, while ensuring harvest does not exceed the target level for that State/region.

I know this response is long but the cobia issue is complex and I wanted you to know that we are doing everything we can to address this challenge. At our March 2016 Council meeting we received several presentations. John Carmichael, Deputy Executive Director for Science and Statistics, discussed cobia questions and answers that address a number of concerns about the cobia situation (**Attachment 2**). I would direct your attention to Figure 3 on page 6 of John's presentation showing the decline in the biomass compared to the biomass at maximum sustainable yield. Also, based on 2015 landings exceeding the overfishing level, overfishing occurred in 2015. These two factors urge caution in how we manage cobia to ensure that further declines in the stock biomass do not occur. The presentation (**Attachment 3**) by Mike Larkin, NMFS Southeast Regional Office, outlines the reason for the reduction in the 2016 season and the analysis to determine the length of the 2016 recreational season.

Finally, we are working through the SEDAR process to have a stock assessment update done as soon as possible. Cobia is not on the current SEDAR schedule and a stock assessment update is not likely to occur prior to 2018 or 2019.

Thanks again for contacting me and I know we will be talking again about cobia. If there is any additional information we can provide or if you have any additional questions, please do not hesitate to contact me or Gregg Waugh.

Best regards,

*Michelle A. Duval*

Michelle Duval  
Chair

cc: Council Members & Staff  
Eileen Sobeck  
Bonnie Ponwith  
Monica Smit-Brunello  
Jack McGovern, Rick DeVictor & Sue Gerhart  
Douglas Grout, Chair, ASMFC  
John Bull, Commissioner, Virginia Marine Resources Commission



# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

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## MEMORANDUM

**TO:** Executive Committee

**FROM:** Management and Science Committee and the Assessment and Science Committee

**DATE:** April 25, 2016

**SUBJECT:** Changes to the Conservation Equivalency Guidance Document

ASMFC uses conservation equivalency in a number of interstate fishery management programs. Conservation equivalency (CE) allows states/jurisdictions (hereafter states) flexibility to develop alternative regulations that address specific state or regional differences while still achieving the goals and objectives of Interstate Fishery Management Plans (FMPs). A Conservation Equivalency Guidance Document was approved in 2004 to provide policy and technical guidance on the application of conservation equivalency in interstate fishery management programs developed by the Atlantic States Marine Fisheries Commission (ASMFC). This guidance document received limited implementation since its approval; therefore, current processes to establish conservation equivalency programs varies widely among species FMPs.

The Executive Committee tasked staff to review the guidance document to provide information on where there are inconsistencies with current applications and where additional clarification on process may be warranted. The guidance document is outlined in 5 major sections: General Policy Guidance, Standards for State Conservation Equivalency Proposals, Review Process, Coordination Guidance, and Public Perception. This document presents policy questions on specific sections of the document regarding guidance on development, submission, review, and approval of conservation equivalency proposals that were presented to and then considered by the Management and Science Committee (MSC) and the Assessment and Science Committee (ASC). Recommendations from the MSC and ASC were incorporated into this memo for Executive Committee review and consideration.

### ***Section 1: General Policy Guidance***

The general policy guidance section of the 2004 Guidance Document describes how the Plan Development Team (PDT) develops CE within an FMP, gives some direction on the length a program can be in place, and the committees the Plan Review Team (PRT) should see feedback from.

## Policy Questions:

**1) Charter Guidance:** The ISFMP Charter allows for the use of CE in Commission management plans, unless the FMP specifically states it cannot be used. The general guidance section does not clearly describe Charter direction or the two ways in which conservation equivalency programs are utilized by states.

- Should the section be revised to clearly state the Charter guidance? Should it be revised to state through what process CE can be established: (1) FMPs (amendments or addenda) and (2) proposal submitted by the state?

**ASC/MSC recommendation: Agreed with suggested change to reflect Charter guidance.**

**2) More Restrictive Measures:** This section does not give direction to states when proposals are put forward for measures that are more conservative than a plan requires.

- Should the section be revised to clearly define when a CE proposal is required and when it is not? (e.g. Conservation equivalency proposals and Board approval are not required when states adopt more restrictive measures than those required in an FMP including but not limited to: higher minimum size, lower bag limit, lower quota, lower trip limit, closed or shorter seasons.)

### **Possible Language Change:**

Conservation equivalency proposals and Board approval are not required when states adopt more restrictive measures than those required in the FMP (e.g., higher minimum size, lower bag limit, lower quota, lower trip limit, closed or shorter seasons). These changes to the management program should be included in a state's annual compliance report or state implementation plan.

**ASC/MSC recommendation: Expressed concern over the difficulty in determining whether proposed measures are actually "more restrictive" due to unexpected consequences that may arise (e.g., a larger minimum size limit could increase discards). Recommend all CE proposals, regardless of the measures they propose, must be reviewed and considered by the board.**

## ***Section 2: Standards for Conservation Equivalency Proposals***

This section of the Guidance Document intends to provide a template for states to follow when developing conservation equivalency proposals. Current practices are not reflected in this section.

**1) Technical Committee (TC) Input:** The original policy does not address that the TC may need to provide input to states regarding analysis and usable datasets prior to states submitting CE proposals.



- Should the guidance be revised to state the TC should determine a recommended level of precision for all data and analyses used in proposals unless previously determined by the management board or FMP? This information may be requested by the state prior to the submission of their proposal.

**Possible Language Change:**

The TC should determine a recommended level of precision for all data and analyses, unless previously determined by the board or FMP. States may request this information prior to the submission of their proposal.

**ASC/MSC recommendation:** Agreed with suggested change, with the clarification that states have the option, but are not required, to ask for TC input.

**2) Implementation Timeframe:** The Guidance Document states all proposals must include how long the equivalent measures will be in place. It also states the timeframe should be linked to the next assessment or expected collection of additional data. It states plans should sunset after 3 years unless justification is provided for a longer timeframe. Expiration of proposals is intended to provide periodic reviews. This guidance does not reflect current practice. CE timeframes are rarely linked to assessments or data collection in state proposals. Most often they either expire at the end of the fishing year or they do not have a set expiration date.

- Should the guidance be simplified to state all proposals should include the length of time the measures are intended to be in place and the timing of the reviews of the measures? This would remove the linking of the proposal timeframe to assessments and data collection.

**Possible Language Change:**

The proposal must include the length of time the state is requesting CE and a review schedule. If the state does not intend to have an expiration date for the CE program it should be clearly stated in the proposal with justification.

**ASC/MSC recommendation:** Agreed with suggested change, and requested the proposals identify the length of time measures are intended to be in place and the timing for reviews.

**Section 3: Review Process**

This section of the Guidance Document provides direction to states on timelines, the review process, and the approval process. The timeline guidance for proposal submission does not reflect current practice and some of the direction on what committees should review proposals is not clear. It is recommended the section header be revised to: *Review and Approval Process*.

**1) Timing:** The current guidance requires a state to notify the Board chair three months in advance of a Board meeting that they intend to submit a CE proposal. Completed proposals are then due two months prior to the Board meeting.

- Current practice provides more flexibility for the submission of CE proposals. Should the guidelines be changed to reflect current practice? Current practice allows the submission of proposals by the states at any time. The review of proposals submitted less than two months in advance of a board meeting is at the discretion of the Board Chair, while those submitted less than two weeks in advance are not considered at the upcoming board meeting. This practice is intended to allow a flexible submission schedule but still consider the workload of the committees reviewing the proposal.

**Possible Language Change:**

If a state is submitting a proposal outside of an implementation plan process, it must provide the proposal two months in advance of the next board meeting to allow committees sufficient time to review the proposal and to allow states to respond to any requests for additional data or analyses. States may submit conservation equivalency proposals less than two months in advance of the next board meeting, but the review and approval at the upcoming board meeting is at the discretion of the Species Management Board Chair. Proposals submitted less than two weeks before a meeting will not be considered for approval at that meeting.

**ASC/MSC recommendation:** Agreed with suggested change as described in the language above.

**2) Committee Guidance:** The Guidance Document does not provide clear advice on the distribution of CE proposals to committees. It first states, upon receipt of the proposal the PRT will determine what additional input will be needed from the Technical Committee, Law Enforcement Committee, the Committee on Economics and Social Sciences. This would indicate the PRT determines which committees should complete a review. The next sentence contradicts this advice by stating the PRT will distribute and make the proposal available to all committees for possible comment.

- Should the document be revised to clarify what committees should review the proposals? Under current practice, the PRT reviews the proposal and then determines which committees should review the proposal based on its content. The PRT then distributes the proposal to the necessary committees for review.

**Possible Language Change:**

Upon receipt of the proposal, the PRT will determine what additional input will be needed from: the Technical Committee (TC), Law Enforcement Committee (LEC), and Committee on Economic and Social Sciences (CESS). The PRT will distribute the proposal to all necessary committees for comment.

**ASC/MSC recommendation:** Agreed with suggested change to reflect current practice.

**3) AP Guidance:** Current guidance states committee reviews will occur before the AP reviews and comments on CE proposals, and that the AP will receive the other committees' reports. This is intended to give the Advisory Panel as much information as possible to aid in their recommendation to the Board. However, time constraints may not allow all committees to complete their reviews prior to the meeting of the AP.

- Should the guidance document be revised to account for possible time constraints? In general manner.

***Possible Language Change:***

The PRT will compile all of the input and forward the proposal and comments to the Advisory Panel when possible. However, when there are time limitations, the AP may be asked for comments on a proposal prior to completion of other committee reviews.

**ASC/MSC recommendation:** Agreed with suggested change, the AP may have to review the proposal before receiving other committees' reports due to time constraints.

**4) PRT Recommendation:** The current guidance requires the PRT to make a recommendation to the Board on approval, rejection, or conditional approval of CE proposals. However, in current practice, the PRT determines if the state's proposal is equivalent to the measures contained in the FMP. In addition, the Guidance Document does not require the PRT to evaluate whether the proposal follows this policy document.

- (1) Should the guidance document be revised to reflect current practice? It has been the responsibility of the board to determined approval, rejection, or conditional approval of CE proposals.
- (2) When the PRT reviews CE proposals, should the review indicate whether a state's CE proposal followed the guidance document?

**Possible Language Change:**

The PRT will forward to the Board the proposal and all committee reviews, including any minority reports. The PRT will provide comment on whether the proposal is or is not equivalent to the standards within the FMP.

The PRT reviews should address whether a state's proposal followed the CE standards outlined in this policy, and any additional specifications included in the FMP.

**ASC/MSC recommendation:**

- 1) Agreed with suggested change and clarification, the Board determines approval, rejection, or conditional approval.
- 2) Agreed with suggested change. Commented that CE proposals should follow the guidance document and deviation will be highlighted by the PRT.

**5) Implementation Timing:** Under the current guidance, conservation equivalency programs are encouraged to be implemented at the beginning of the fishing year. Specific guidance on implementation timing may not be necessary.

- Under current practice the Board sets implementation dates for CE programs upon review and approval of CE proposals. Should the document be revised to reflect this practice?

**Possible Language Change:**

The Board will decide whether to approve the conservation equivalency proposal and will set an implementation date through final action.

**ASC/MSC recommendation:** Recommended implementation timing should be requested in the original state CE proposal. The Board will then set an implementation date for CE proposals when considering them for final action, taking into account the requested implementation date.

**6) Review Timeline:** The current Guidance Document establishes a timeline by which the Board will review CE plans. It states the Board designates that all CE plans will be reviewed at one meeting per year. The Board does not need to establish a specific meeting to review conservation equivalency because the timing for review and approval of conservation equivalency proposals is already addressed in this policy and is not consistent with this guidance of one meeting per year.

Should this language be deleted from the guidance document?

**Language to be Deleted:**

Where applicable, the Board should develop a schedule for each species to designate one meeting per year to address conservation equivalency plans. When a board cannot meet in a timely manner, and at the discretion of the Board and Commission Chair, boards may have the ISFMP Policy Board re-approve conservation equivalency plans.

**ASC/MSC recommendation:** Agreed with suggested deletion. The Board does not need to designate a meeting to review CE proposals because they already have established a review timeline in Section 3.1 above.

**Section 4: Coordination Guidance**

This section of the Guidance Document discusses the considerations states should take into account when conservation equivalency proposals impact coordination of management with federal partners. The current document does not include US Fish and Wildlife Service as one of those partners.

- While management changes from US Fish and Wildlife Service are less frequently necessary than other federal partners, they do occur. Should US Fish and Wildlife Service be added to the document?

**ASC/MSC recommendation:** Agreed with suggested change to add US Fish and Wildlife Service.

**DRAFT**

**Atlantic States Marine Fisheries Commission**

**CONSERVATION EQUIVALENCY:  
Policy and Technical Guidance Document**



**Drafted – April 27, 2004**

## **Introduction**

The purpose of this document is to provide policy and technical guidance on the application of conservation equivalency in interstate fisheries management programs developed by the Atlantic States Marine Fisheries Commission. The document provides specific guidance for the states, species management boards, and the technical support groups to follow during the development and implementation of fishery management plans, amendments, or addenda; as well as guidance on development, submission, review, and approval of conservation equivalency proposals.

## **Background**

The Atlantic States Marine Fisheries Commission (ASMFC) employs the concept of conservation equivalency in a number of interstate fishery management programs. Conservation equivalency is used to allow states a degree of flexibility in developing regulations to address specific state or regional differences while still achieving the goals and objectives of ASMFC management programs. Given that the species managed by ASMFC cross many state boundaries, it is often difficult to develop one-size-fits-all management measures, which necessitates the need to use conservation equivalency.

Conservation equivalency is currently defined in the Interstate Fisheries Management Program (ISFMP) Charter as:

*“Actions taken by a state which differ from the specific requirements of the FMP, but which achieve the same quantified level of conservation for the resource under management. One example can be, various combinations of size limits, gear restrictions, and season length can be demonstrated to achieve the same targeted level of fishing mortality. The appropriate Management Board/Section will determine conservation equivalency.” The application of conservation equivalency is described in the document Conservation Equivalency Policy and Technical Guidance Document*

In practice, the ASMFC frequently uses the term “conservation equivalency” in different ways depending on the language included in the plan (see appendix 1). For example in the Tautog FMP, conservation equivalency is used in the broadest sense, in that all states were required to achieve a 29% reduction in fishing mortality with no specific options listed in the document. In the Summer Flounder FMP, each state is required to achieve a state-specific reduction using the table and methodology developed annually by the Management Board. The Striped Bass FMP establishes a 2 fish bag limit and a 28-inch minimum size standard for the coastal recreational fishery, however states can vary these measures if it can be demonstrated that the potential recreational harvest will be equivalent to harvest that would have occurred under the standard measures in the plan.

Due to concerns over the lack of guidance on the use of conservation equivalency and the lack of consistency between fishery management programs, the ISFMP Policy Board accepted a recommendation from the Management and Science Committee and formed a sub-committee to address conservation equivalency. This sub-committee was charged

with developing a workshop to “develop options and recommendations for improving the use and effectiveness on conservation equivalency in Commission fishery management plans”. This workshop was held on October 17, 2001 and provided definite recommendations for refining the application of this management tool.

Based on the results of the workshop another sub-committee was formed comprised of commissioners and representatives from technical committees, the Law Enforcement Committee, the Management and Science Committee, the National Marine Fisheries Service, and the Committee on Economics and Social Sciences. The recommendations included in this document were developed by this sub-committee during meetings on December 3-4, 2002 and December 3, 2003. These recommendations will be reviewed and approved by the Management and Science Committee and ISFMP Policy Board.

### **General Policy Guidance**

Conservation equivalency is a tool the ASMFC uses frequently to provide the states flexibility in developing and implementing regulations to achieve the goals of interstate fisheries management programs. The use of conservation equivalency will continue to be an integral part of the Commission management process.

During the development of a management document the Plan Development Team (PDT) has the responsibility to recommend if conservation equivalency should be permitted for that species. The board should provide a specific determination if conservation equivalency is an approved option for the fishery management plan, since conservation equivalency may not be appropriate or necessary for all management programs. The PDT should consider stock status, data availability, range of the species, socio-economic information, and the potential for more conservative management when stocks are overfished or overfishing is occurring when making a recommendation on conservation equivalency. During the approval of a management document the Board will make the final decision on the inclusion of conservation equivalency.

If conservation equivalency is determined to be appropriate, the conservation equivalency process should be clearly defined and specific guidance should be supplied in the fishery management documents. Each of the new fishery management plans, amendments, or addenda should include the details of the conservation equivalency program. The guidance should include, at a minimum, a list of management measures that can be modified through conservation equivalency, evaluation criteria, review process, and monitoring requirements. If possible, tables including the alternative management measures should be developed and included in the management documents. The development of the specific guidance is critical to the public understanding and the consistency of conservation equivalency implementation.

The states have the responsibility of developing conservation equivalency proposals for submission to the Plan Review Team (see standards detailed below). Upon receiving a conservation equivalency proposal the PRT will initiate a formal review process as detailed in this guidance document. The state submitting the conservation equivalency



proposal has the obligation to ensure proposed measures are enforceable. If the PRT has a concern regarding the enforceability of a proposed measure it can task the Law Enforcement Committee with reviewing the proposal. Upon approval of a conservation equivalency proposal, the implementation of the program becomes a compliance requirement for the state. Each of the approved programs should be described and evaluated in the annual compliance review and included in annual FMP Reviews.

The management programs should place a limit on the length of time that a conservation equivalency program can remain in place without re-approval by the Board. Some approved management programs may require additional data to evaluate effects of the management measures. The burden of collecting the data falls on the state that has implemented such a conservation equivalency program. Approval of a conservation equivalency program may be terminated if the state is not completing the necessary monitoring to evaluate the effects of the program.

The Plan Review Team (PRT) will serve as the “clearing house” for approval of conservation equivalency proposals. All proposals will be submitted to the PRT for review. The PRT will have the responsibility of collecting all necessary input from the technical committee, Law Enforcement Committee, and Committee on Economics and Social Sciences. The PRT will compile input from all of the groups and forward a recommendation to the management board. Review and input from the Advisory Panel will also be forwarded to the board.

### **Standards for state conservation equivalency proposals**

Each state that is seeking to implement a conservation equivalency program must submit a proposal for review and approval. It is the state’s responsibility to supply the necessary information and analysis for a complete review of the proposal. The following section details the information that needs to be included in each proposal. Proposals that include an excessive number of options may delay timely review by the PRT and other groups and may ultimately delay the report to the Board. The states should limit the number of options included in a proposal or prioritize the options for review.

1. The proposal must include rationale on why or how an alternate management program is needed in the state. Rationale may include, but are not limited to, socio-economic grounds, fish distribution considerations, size of fish in state waters, interactions with other fisheries, protected resource issues, and enforcement efficiency.
2. Each proposal must include a description of how the alternative management program meets all relevant FMP objectives and management measures (FMP standards, targets, and reference points). This description must include necessary analyses to quantify the effects of the alternate management program. The analyses should be based on the most recent Board approved stock assessment. There should be sufficient information included in the proposal for the Plan

Review Team to review the proposal without additional documentation or explanation.

3. Each proposal must include a description of available datasets used in the analysis, description of how the data are collected, detailed description of state level data collection programs, and information on sampling targets/sample distribution/CV/post-stratification/etc. The proposal should also describe limitations of data and any data aggregation. All the landings data used should have a set level of precision as determined by the Technical Committee. The species technical committee should develop data standards for other types of data that may be used in a conservation equivalency proposal. Any states that do not meet the approved precision standards should conduct sensitivity analyses to determine the effects of the uncertainty in the data.
4. The proposal must include the length of time the state is requesting conservation equivalency. The timeline should be linked to the next assessment update or the expected collection of additional data. The timeline should be consistent with plan horizon with a maximum of 3 years (sunset) unless justification is provided for a longer period of time or an indefinite period of time is requested. A state can resubmit an updated proposal following the expiration and the board can re-approve the alternate measures. The expiration of conservation equivalency programs is intended to provide periodic reviews of alternate plans to ensure they are consistent with the relevant plan objectives.
5. Each proposal must justify any deviations from the conservation equivalency procedures detailed in the FMP. The state should conduct analyses to compare new procedures to procedures included in the plan, as appropriate, including corroborative information where available.
6. Each proposal should include a plan for follow-up and monitoring of potential impacts of the conservation equivalency proposal. This plan should include a description of the process that will document the results from a conservation equivalency measure relative to the FMP requirements and the annual reporting requirements. This proposal must provide a monitoring schedule to evaluate the effectiveness of a conservation equivalency program.

### **Review Process**

Implementation of new amendments/FMPs should include timelines and a review process for conservation equivalency proposals. However, the review process and timeline needs to be established for all conservation equivalency proposals that are submitted outside of the implementation of a new management document.

The following is a list of the steps and timelines for review and approval of conservation equivalency proposals. Any deviations from the following process should be included in the plan/amendment.

1. Conservation equivalency should be approved by the Management Board and, where possible implemented at the beginning of the fishing year.
2. A state must declare the intent to submit a conservation equivalency proposal to the species board chair three months prior to the a scheduled ASMFC meeting week. The state will then be required to submit the proposal to the board chair two months prior to the meeting week. The board chair will then submit the proposal to the Plan Review Team (PRT) for review.
3. The PRT should notify the state that the proposal is complete.
4. Upon receipt of the proposal the PRT will determine what additional input will be needed from the Technical Committee, Law Enforcement Committee, the Committee on Economics and Social Sciences. The PRT will distribute and make the proposal available to all committees for possible comment. The review should include a description of the impacts on or from adjoining jurisdictions or other management entities (Councils and/or NMFS). If possible this description should include qualitative descriptions addressing enforcement, socio-economic issues and expectations from other states perspective (shifts in effort). The review should highlight efforts to make regulations consistent across waterbodies. The PRT will compile all of the input and provide a recommendation for approval of the proposal to the management board.
5. The PRT will compile all of the input and forward the proposal and comments to the Advisory Panel. The Chair of the Advisory Panel (AP) will compile the AP Comments and provide to the Management Board.
6. The PRT will provide the following type of recommendations – approval, rejection, or conditional approval. The PRT should provide rationale for the recommendation, including improvements that could be made if the proposal was rejected. The report to the board should include the input provided by all the committees that were consulted by the PRT. Any minority reports that were developed should also be forwarded to the board. If possible the PRT should identify potential cumulative effects of all conservation equivalency plans under individual FMPs (e.g. impacts on stock parameters).
7. The management board will review and take action on the proposal. Board action should be based on the PRT recommendation as well as other factors such as impacts to adjoining states and federal management programs. A schedule should be developed for each species to provide one scheduled meeting per year to address conservation equivalency plans, where applicable. When a board cannot meet in a timely manner and at the discretion of the board and Commission Chair, the boards have the option to have the ISFMP Policy Board approve the conservation equivalency plan.

8. The PRT will evaluate whether the measures implemented under a state conservation equivalency plan are in compliance as part of the annual compliance review. The PRT will also evaluate whether the state conservation plan meets the goals of the species FMP. The board will determine if modification of the state conservation equivalency plan is required.

### **Coordination Guidance**

The Commission's interstate management program has a number of joint or complementary management programs with NOAA Fisheries and the Fishery Management Councils. Conservation equivalency creates additional burden on the Commission to coordinate with our federal fishery management partners.

The Commission's FMPs may include recommendations to NOAA Fisheries for complementary EEZ regulations. Conservation equivalency measures may alter some of the recommendations contained in the FMPs, which would require that the Commission notify NOAA Fisheries of any changes. The Commission needs to consider the length of time that it will take for regulations to be implemented in the EEZ and try to minimize the frequency of requests to the federal government.

The protocol for NOAA fisheries implementing changes varies for the different species managed by the Commission. The varying protocols need to be considered as conservation equivalency proposals are being developed and reviewed.

When necessary for complementary management of the stock, the ASMFC Chair will request federal partners to consider changes to federal regulations may be required.

### **Public Perception**

A lack of public understanding of the conservation equivalency process has led to a perception that some states are allowed to implement regulations that are less restrictive than the standards in the plan. The public has also expressed concern over not fully understanding how conservation equivalency management options are developed.

The development of this document is the first step in helping the public better understand conservation equivalency. Another important step to foster public understanding is the inclusion of management options in Commission FMPs and Amendments. If the public has access to the options that the states can select from, a major source of confusion is eliminated. Also, the public should be informed that conservation equivalency does not change the allocation between jurisdictions included in the plan.

The states need to work with the fishing public to better describe conservation equivalency and provide an explanation of why a state's regulations may differ from their neighbors.

**Conservation Equivalency Subcommittee membership:**

Stu Kennedy (Chair)  
Rob O'Reilly  
Harry Mears  
Anne Lange  
Bill Goldsborough  
Pete Jensen  
Kathy Hattala  
Doug Grout  
Ernie Beckwith

Bruce Buckson  
Paul Caruso  
Joe Fessenden  
John Carmichael  
Vishwanie Maharaj  
Melvin Shepard  
Byron Young  
Steve Doctor

## **APPENDIX 1**

The following appendix details the management measures for each ASMFC managed species that can be modified through conservation equivalency. This appendix also includes a summary of the management measures that the states have developed and are currently implemented through conservation equivalency.

*Note: This document is a summary of the conservation equivalency measures and procedures included in ASMFC fishery management plan. It does not supercede any of the language included in the plans.*

### **American Eel**

The American Eel FMP states: "With approval of the American Eel Management Board, a state may vary its regulatory specifications listed in Section 4, so long as that state can show to the Board's satisfaction that the goals and objectives of this FMP will still be met." Section 4 of the FMP includes the Management Program Implementation, therefore a state can modify any provision included in the FMP through conservation equivalency.

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

### **American Lobster**

Amendment 3 to the FMP for American Lobster outlines the adaptive management limitations for lobster management. The Amendment states that the following measures cannot be altered through conservation equivalency:

- Prohibition on possession of berried or scrubbed lobsters
- Prohibition on possession of lobster meats, detached tails, claws or other parts of lobster
- Prohibition on spearing lobsters
- Prohibition on possession of V-notched female lobsters
- Requirement for biodegradable "Ghost" panel for Traps
- Minimum Gauge Size
- Limits on Landings by fishermen using gear or methods other than traps

Any lobster management measure that is not listed above may be modified through conservation equivalency.

#### **Current Measures Implemented**

New Hampshire: The Lobster Management Board approved a New Hampshire program that allows a portion of their Area 1 fishermen 1,200 traps and the rest

600 traps rather than the 800 trap allocation for everyone as specified in Addendum III.

Massachusetts: The Lobster Management Board approved a Massachusetts program for the Outer Cape Cod which uses 1999 through 2001 as qualifying years to identify potential participants and allocates traps based on fishing performances during 2000 and 2002 with pounds as the qualifying parameter. The Outer Cape Cod plan in Addendum III used 1999 through 2000 as the qualifying years and fishermen reported catch reports as the qualifying parameter.

New Jersey: The Lobster Management Board approved a New Jersey conservation equivalency proposal allowing New Jersey to implement an alternative permitting and trap allocation system then what was outlined in Addendum I.

### **Atlantic Croaker**

There is no mention of Conservation Equivalency in the 1987 FMP for Atlantic croaker.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Atlantic croaker management.

### **Atlantic Herring**

Under Addendum II to the Atlantic Herring FMP the states are permitted to alter any measure for which a compliance criteria is in place provided that approval is obtained prior to implementation. The compliance measures that are included in the plan are:

- Report, annually, the amount harvested by fixed gears in state waters
- Provide a description of the operation and amount of fish mealed in conjunction with herring processing activities
- Enact spawning restrictions
- Prohibit landings when TAC has been attained in an area or sub-area
- Prohibit directed fishing for herring in state waters when the TAC has been attained in an area or sub-area
- Prohibit landing to IWPs when harvested from a closed area or sub-area
- Daily fixed gear landings be reported on a weekly basis
- Provide an annual report on any mealing activity in the state

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

**Atlantic Menhaden**

Amendment 1 provides states the opportunity to request permission to implement an alternative to any mandatory compliance measure. States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes in state plans must be submitted in writing to the Board and to the Commission either as part of the annual FMP Review process or the Annual Compliance Reports.

**Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

**Atlantic Striped Bass**

Amendment 6 allows for the use of conservation equivalency in the management of striped bass. States/jurisdictions are permitted to modify recreational minimum size limits and bag limits to remain consistent with the 2 fish at 28-inch minimum standard in the plan. The commercial minimum size can also be decreased with a corresponding decrease in commercial quota. The plan states that the minimum size limits cannot be implemented below 18-inches.

**Current Measures Implemented**

Maine:	Recreational Fishery	1 fish 20”-26” or over 40”; no 2 <sup>nd</sup> fish
New York:	Hudson Recreational	1 fish 18, 24 or 26 inches w/ or w/out spawning closure
Maryland:	Coastal Comm. Fishery	24 inch min size limit;
reduced quota		
North Carolina:	Albemarle/Roanoke Rec	18 inch minimum size limit
	Albemarle Commercial	18 inch minimum size limit

**Atlantic Sturgeon**

Amendment 1 to the Atlantic Sturgeon Fishery Management Plan does not provide for conservation equivalency.

**Current Measures Implemented**

Conservation equivalency is not applicable to Atlantic sturgeon management.



### **Black Sea Bass**

The Black Sea Bass Fishery Management Plan does not provide for conservation equivalency.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Black sea bass management.

### **Bluefish**

The Bluefish Fishery Management Plan does not provide for conservation equivalency.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Bluefish management.

### **Horseshoe Crab**

The Horseshoe Crab Fishery Management Plan does not provide for conservation equivalency.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Horseshoe crab management.

### **Northern Shrimp**

Amendment 1 to the Northern Shrimp Fishery Management Plan does not provide for conservation equivalency

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Northern shrimp management.

### **Red Drum**

Amendment 2 to the Red Drum FMP allows any state to request permission to implement an alternative to any mandatory compliance measure. States submitting alternative proposals must demonstrate that the proposed action will not contribute to overfishing of the resource. All changes in state plans must be submitted in writing to the Board and to the Commission either as part of the annual FMP Review process or the Annual Compliance Reports.

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

### **Scup**

Addendum XI to the Scup Fishery Management Plan provides the details for conservation equivalency in the 2004 recreational fishery. This Addendum also allows the Board to establish annual conservation equivalency procedures through future Board action. Under Addendum XI, the states from Massachusetts through New York must

develop a combination of size limits, bag limits, and seasonal closures to achieve a state-specific reduction. The states from New Jersey through North Carolina must implement minimum size limits, seasonal closures, and bag limits as described in the Addendum. Conservation equivalency is not permitted in the commercial fishery.

#### **Current Measures Implemented**

The states from Massachusetts through New York have implemented measures that achieve the necessary reduction for their recreational fisheries in 2004.

#### **Shad and River Herring**

Amendment 1 to the Shad and River Herring FMP allows a state to vary their recreational and commercial management programs so long as that state can show to the Board's satisfaction that the target fishing mortality rate or the overfishing definition will not be exceeded. Also, Amendment 1 states that alternative management regimes may also include other indices of their equivalency (e.g., eggs-per-recruit, yield-per-recruit, etc.), in addition to fishing mortality protection. States shall submit proposals for altering their regulatory program for American shad, hickory shad, or river herring prior to implementing any changes.

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

#### **Spanish Mackerel**

There is no mention of Conservation Equivalency in the 1990 FMP for Spanish mackerel.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Spanish mackerel management.

#### **Spiny Dogfish**

The Interstate FMP for Spiny Dogfish allows the states to submit a proposal and receive Board approval to change any compliance requirement in the FMP. The compliance requirements included in the FMP are:

- Must close state waters when the quota is harvested
- Required to report landings weekly to NMFS
- State permitted dealers must report weekly
- Implement possession limits that comply with the annual specifications
- State issued exempted permits for biomedical harvest, limited to 1,000 fish (must report in annual compliance report)
- State prohibition of finning

#### **Current Measures Implemented**

No states have altered the management measures through conservation equivalency.

### **Spot**

There is no mention of Conservation Equivalency in the 1987 FMP for spot.

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Spot management.

### **Spotted Seatrout**

There is no mention of Conservation Equivalency in the 1984 FMP for Spotted seatrout

#### **Current Measures Implemented**

Conservation equivalency is not applicable to Spotted seatrout management.

### **Summer Flounder**

The Summer Flounder, Scup, and Black Sea Bass Management Board annually establish the process for applying conservation equivalency to the summer flounder recreational fishery. Each year the Board establishes state-specific targets (numbers of fish) that the states must achieve through combinations of minimum size limits, bag limits, and seasonal closures. Conservation equivalency is not permitted in the commercial summer flounder fishery.

#### **Current Measure Implemented**

All of the states have developed proposals and are currently implementing regulations that are consistent with the 2004 state-specific targets.

### **Tautog**

Addendum III to the Tautog FMP required each state to make a 29% reduction in fishing mortality (25% reduction in exploitation rate) in the recreational fishery by April 1, 2003. States were required to submit proposals for this reduction and all proposals were reviewed and approved by the TC, the AP, and the Board.

#### **Current Measures Implemented**

All of the states have implemented approved measures to achieve the reduction that is required under Addendum III.

### **Weakfish**

Amendment 3 to the Weakfish FMP required states to achieve a 32% reduction in the weakfish exploitation rate (F) from the 1990-1992 reference period. This level of reduction was carried over into Amendment 4. Appendix I of Amendment 4, an updated Evaluation Manual (O'Reilly 2002), provides states guidance in establishing their reduction plans. A state has the ability to adjust its commercial fishery regulations and choose from several creel limit/minimum size combinations for its recreational fishery to achieve the 32% reduction.

To achieve the fishing mortality reduction, states' commercial fisheries are constrained by size limits, gear restrictions, and possibly seasonal and area closures. Amendment 4

established a minimum size in the recreational fishery of 12 inches total length. However, it also provided states with a pre-determined suite of conservation equivalencies for recreational fishery regulations. States may choose a minimum size and creel limit combination of 12 inches/7 fish, 13 inches/8 fish, 14 inches/9 fish, or 15+ inches/10 fish.

**Current Measures Implemented**

All states regulate their commercial fisheries using combinations of minimum fish and mesh sizes and closed seasons to achieve the required reduction. The states have also implemented a combination of recreational minimum size limit and bag limits that are consistent with Amendment 4.

**Winter Flounder**

The current plan, states do not have to comply with any specific requirements. Therefore, conservation equivalency is currently not applicable for winter flounder. Amendment 1 is in development and will contain compliance criteria and the Board will decide which of these are available to change through conservation equivalency.

**Current Measures Implemented**

*Conservation equivalency is not applicable to winter flounder management.*

## **APPENDIX 2**

### **Current Plan Review Team Membership**

#### **American Eel Plan Review Team**

Herb Austin (VA)  
Mel Bell (SC)  
Dan Kuzmeskus (USFWS)  
Lydia Munger (ASMFC)  
Vic Vecchio (NY)  
Gail Wippelhauser (ME)

#### **American Lobster Plan Review Team**

Richard Allen (RI)  
Clare McBane (NH)  
Dan McKiernan (MA)  
Bob Ross (NMFS)  
Carrie Selberg (ASFMC)  
Carl Wilson (ME)

#### **Atlantic Croaker Plan Review Team**

Herb Austin (VA)  
Wilson Laney (USFWS)  
Tina Moore (NC)  
Harley Speir (MD)  
Nancy Wallace (ASMFC)

#### **Atlantic Herring Plan Review Team**

Megan Gamble (ASMFC)  
David Libby (ME)  
Clare McBane (NH)  
William Overholtz (NMFS)

#### **Atlantic Menhaden Plan Review Team**

Matt Cieri (ME)  
Ellen Cosby (VA)  
Trisha Murphey (NC)  
Douglas Vaughn (NMFS)

#### **Atlantic Striped Bass Plan Review Team**

Megan Gamble (ASMFC)  
Wilson Laney (USFWS)  
Gary Shepherd (NMFS)

#### **Atlantic Sturgeon Plan Review Team**

Kim McKown (NY)  
Tom Meyer (NMFS)

Ted Smith (SC)  
Brad Spear (ASMFC)  
Dick St. Pierre (USFWS)

**Black Sea Bass Plan Review Team**

Michael Armstrong (MA)  
Beth Burns (NC)  
Nancy Butowski (MD)  
Toni Kerns (ASMFC)  
Chris Moore (MAFMC)

**Bluefish Plan Review Team**

Elliot Atstupenas (USFWS)  
Herb Austin (VA)  
Vic Crecco (CT)  
Louis Daniel (NC)  
Toni Kerns (ASMFC)  
Najih Lazar (RI)  
Chris Moore (MAFMC)  
Roger Pugliese (SAMFC)

**Horseshoe Crab Plan Review Team**

Tom Meyer (NMFS)  
Stewart Michels (DE)  
Eric Schrading (USFWS)  
Brad Spear (ASMFC)

**Northern Shrimp Plan Review Team**

Clare McBane (NH)  
Dan Schick (ME)  
Brad Spear (ASMFC)

**Red Drum Plan Review Team**

John Merriner (NMFS)  
Michael Murphy (FL)  
Lee Paramore (NC)  
Roger Pugliese (USFWS)  
Nancy Wallace (ASMFC)  
Charlie Wenner (SC)

**Scup Plan Review Team**

Michael Armstrong (MA)  
Beth Burns (NC)  
Bill Figley (NJ)  
Mark Gibson (RI)  
Toni Kerns (ASMFC)

Chris Moore (MAFMC)  
David Simpson (CT)  
Byron Young (NY)

**Shad and River Herring Plan Review Team**

Lydia Munger (ASMFC)  
Dick St. Pierre (USFWS)  
Sara Winslow (NC)

**Spanish Mackerel Plan Review Team**

Henry Ansley (GA)  
Randy Gregory (NC)  
Nancy Wallace (ASMFC)  
Gregg Waugh (SAFMC)

**Spiny Dogfish Plan Review Team**

Megan Gamble (ASMFC)  
Tina Moore (NC)  
Gregory Skomal (MA)

**Spot Plan Review Team**

Herb Austin (VA)  
John Schoolfield (NC)  
Harley Speir (MD)  
Nancy Wallace (ASMFC)

**Spotted Seatrout Plan Review Team**

Beth Burns (NC)  
Michael Murphy (FL)  
John Pafford (GA)  
Nancy Wallace (ASMFC)  
Charlie Wenner (SC)

**Summer Flounder Plan Review Team**

Michael Armstrong (MA)  
Toni Kerns (ASMFC)  
Wilson Laney (USFWS)  
Najih Lazar (RI)  
Chris Moore (MAFMC)  
Mark Terceiro (NMFS)  
Carter Watterson (NC)  
Byron Young (NY)

**Tautog Plan Review Team**

Paul Caruso (MA)  
Jason McNamee (RI)

Lydia Munger (ASMFC)  
David Simpson (CT)

**Weakfish Plan Review Team**

Rick Cole (DE)  
Toni Kerns (ASMFC)  
Rob O'Reilly (VA)

**Winter Flounder Plan Review Team**

Lydia Munger (ASMFC)  
Deb Pacileo (CT)  
Sally Sherman (ME)  
Alice Weber (NY)





# Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201  
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

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## MEMORANDUM

April 21, 2016

**To: Tautog Management Board**  
**From: Ashton Harp, FMP Coordinator**  
**RE: Draft Amendment 1 Update**

The following provides additional information on key issues within Draft Amendment 1, specifically how a stock assessment update will impact the Draft Amendment 1 timeline and next steps for the commercial harvest tagging program.

### **2016 Tautog Stock Assessment Update**

A tautog stock assessment update was added to the ASMFC stock assessment schedule, which will be presented for approval at the ISFMP Policy Board meeting. The inclusion of a 2016 stock assessment update was discussed at the February Tautog Board meeting, however a decision was deferred in order to present this option to the Tautog Technical Committee (TC) and Stock Assessment Sub-Committee (SAS). After review of the available data the TC and SAS recommend an update, which will include data through 2015. This represents an additional two years of data that was not available for the benchmark stock assessment. The TC believes the recent data could provide insight on the effects of the management restrictions put in place in 2012, as a result of Addendum VI.

The Long Island Sound (LIS) and New York/New Jersey regional assessments (Table 2) are currently underway and will also include data through 2015. These stock assessments will be completed this summer and results presented at the August Board Meeting.

The 2016 stock assessment update will include the Massachusetts/Rhode Island region, the Delaware, Maryland, Virginia region, and possibly the Connecticut, New York, New Jersey region depending upon the Board's preferred regional configuration (Table 1 or Table 2).

M16-37

*Regional Management Options the Board is Considering:*

Table 1: Three Region Approach
1) Massachusetts–Rhode Island
2) Connecticut–New Jersey
3) Delaware–Virginia

Table 2: Four Region Approach
1) Massachusetts–Rhode Island
2) Long Island Sound (Connecticut–New York)
3) New York–New Jersey (excluding LIS)
4) Delaware–Virginia

*Impacts on the Draft Amendment 1 Timeline*

Adding a stock assessment update will impact the timeline for Draft Amendment 1. However, the delay will be minimal. The SAS expects to complete the stock assessment update in time for the November Board meeting. A comparison of the timeline with and without the stock assessment update is provided below—both estimate a 2017 completion date for Draft Amendment 1. It is likely new management measures would not go into effect until January 1, 2018 for either timeline.

*Timeline A: Draft Amendment 1 with regional assessments for LIS and NY/NJ; no stock assessment update*

Stock Assessment Data:

- LIS and NY/NJ assessments will include data through 2015
- All other regions will use the results of the benchmark stock assessment, which includes data through 2013

<b>Jan-May 2016</b>	Long Island Sound stock assessment (UConn)
<b>April-May 2016</b>	NY/NJ assessment, excluding LIS (Tautog SAS)
<b>June-July 2016</b>	TC and peer review of LIS and NY/NJ assessment report
<b>Aug 2016</b>	Board reviews peer-reviewed LIS and NY/NJ assessments; Board chooses one management region alternative (Table 1 or 2)
<b>Aug-Oct 2016</b>	TC catch reduction analysis; PDT further develops options
<b>Nov 2016</b>	Draft Amendment 1 is presented to the Board for public comment approval
<b>Winter 2016</b>	Draft Amendment 1 public comment/hearings
<b>Feb 2017</b>	Board reviews public comments and considers final approval of Draft Amendment 1

*Timeline B: Draft Amendment 1 with regional assessments for LIS and NY/NJ + stock assessment update*

Stock Assessment Data:

- Each regional assessment will include data through 2015

<b>Jan-May 2016</b>	Long Island Sound stock assessment (UConn)
<b>April-May 2016</b>	NY/NJ assessment, excluding LIS (Tautog SAS)
<b>May 2016*</b>	<a href="#">Policy Board approves the stock assessment update</a>
<b>June-July 2016</b>	TC and peer review of LIS and NY/NJ assessment report
<b>Aug 2016</b>	Board reviews peer-reviewed LIS and NY/NJ assessments; Board chooses one management region alternative (Table 1 or 2)
<b>Aug-Nov 2016*</b>	<a href="#">Stock assessment update (Tautog SAS)</a>
<b>Nov 2016*</b>	<a href="#">Board reviews the stock assessment update results</a>
<b>Nov 2016-Jan 2017</b>	TC catch reduction analysis; PDT further develops options
<b>Feb 2017</b>	Draft Amendment 1 is presented to the Board for public comment approval
<b>Spring 2017</b>	Draft Amendment 1 public comment/hearings
<b>May 2017</b>	Board reviews public comments and considers final approval of Draft Amendment 1

\* *Blue text highlights the additional steps necessary to complete a stock assessment update*

**Commercial Harvest Tagging Program**

The Law Enforcement Sub-Committee (sub-committee) will meet in mid-May to discuss the commercial harvest tagging program. Staff will present tags ranging from lip tags, button tags and cable ties from vendors including Tyden Brooks, Cambridge Seals, QC supply, National Band, and Floy. Preferred tags will be identified and the sub-committee will establish next steps which may include the initiation of a live fish trial to test preferred tags. In addition, staff will present comments from individual commercial fishermen interviews on topics including live tagging and market dynamics. A report on the commercial harvest tagging program activities and findings will be presented at the August Board meeting.

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*The following details the Northern Shrimp Plan Development Team's (PDT) preliminary analysis for a limited entry program and was taken from Draft Addendum I to Amendment 2 of the FMP for Northern Shrimp. PDT recommendations, and decisions that the Section must make have been bolded.*

### **3.8 Issue: Limited Entry Programs**

The Public Information Document (PID) for Amendment 2 initially notified the public of the Section's intent to consider development of a limited entry program. Based on public comment received on the PID and the Section's concern regarding continuing effort increases in this fishery, the Section established a control date of June 7, 2011. The intention of the control date was to notify potential new entrants to the fishery that there is a strong possibility they will be treated differently from participants in the fishery prior to the control date.

It is important to note that this Addendum will not implement limited entry programs for the 2012/2013 fishing season, but does solicit feedback from the industry regarding potential limited entry programs that would be relevant to the northern shrimp fishery in the future.

Option A. Status quo, the Northern shrimp fishery remains open access.

Option B. Limited entry should be considered in the Northern shrimp fishery.

*If selecting Option B, the Section is looking for feedback on limited entry approaches in Section 3.8.1 and 3.8.2*

#### **3.8.1 Fixed Percentage Share Program (FPS)**

To assess the efficacy of initiating a limited entry program for the Northern shrimp fisheries, addressing latent effort, and developing a historically based allocation program, the PDT queried Northern shrimp landings data for all state license and federal permit holders for the period of 2000 to 2011. Landings data were summarized by state license number and federal permit number for each year. This potentially would allow tracking landings history and a better understanding a vessel's performance over time. However, several data quality assurance/quality control and analytical issues occurred, preventing the completion of the analysis. These issues include:

- 1.) Incomplete reporting in 2000 and 2001. **All analyses will have to be from 2002 forward.**
- 2.) **Inconsistent means of indentifying an individual's landing history from 2002 to 2011.** Some permit holders have multiple permits, including a mixture of active permits and inactive permits, state licenses only, federal permit only, and some with both state licenses and federal permits, in some years and not others. Additionally, some federal permits were fished on multiple vessels, and the permit holder may

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not be the same individual who reported on the VTR. There is also the potential for the history of an “owner” to change between an individual and corporation over time.

The PDT is working with NOAA Fisheries Service to develop a means to track Northern shrimp landings history over time. **However, the Section needs to decide whether landings history will be assigned to the vessel permit or the individual, before limited entry can be analyzed further by the PDT.**

Option A. Assign landings history to a vessel permit.

By default, unless otherwise specified, the current holder of the permit receives all of the Northern shrimp landings history associated with that permit’s fishing history. This could be tracked using the NOAA Fisheries permit history databases; it can also be tracked by a state’s license holder with the caveat that some vessels may be listed on more than one license.

Option B. Assign landings history to an individual.

As noted, vessel permit landing history is available for those permitted through NOAA Fisheries, and the PDT would have to further disseminate what vessel(s) an individual operated over specific fishing years. Defining an “individual” that should receive the landings history could be different depending on the type of license/permit being considered. The following scenarios explore the different license/permit type scenarios.

*If the Section selects Option B, Scenarios B1, B2 and B3 must also be considered.*

Scenario B1. *State of Maine licensees who report to the State of Maine* – the vessel ID is attached to a state license and license is attached to a person, so tracking individual landings history is relatively straight forward for this scenario, with some exceptions.

Scenario B2. *State of Maine licensees who report federally* – for the Maine harvesters who report federally on the VTR there is a vessel ID; however, there are the following sub-options:

Sub-option 1. Assign history to the state license holder. Use Federal VTR records to track and attribute fishing history to a state license holder based on that licensee’s reported fishing activity.

Sub-option 2. Assign history to the individual/corporation who held the federal permit at the time of landing. This information is obtained from NOAA Fisheries permit system.

Sub-option 3. Assign history to the individual who is named on the VTR. This information is obtained from the VTRs.

Scenario B3. *New Hampshire and Massachusetts participants who report federally* – All landings would be reported through VTR. The VTR has a vessel ID and a permit number and an

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individual's name. The individual's name may not match the permit holder's name. There are the following sub-options:

Sub-option 1. Assign history to the individual/corporation who held the federal permit at the time of landing. This information is obtained from the NOAA Fisheries permit system.

Sub-option 2. Assign history to the individual who is named on the VTR. This information is obtained from the VTRs.

**In all cases, the PDT recommends that there be a process by which participants could review their data and appeal any allocations or entry limitations derived from those data.**

### **3.8.2 License Cap Program (LCP)**

The Northern Shrimp PDT analyzed the empirical data to determine the number of active vessels in the fishery during years when biomass was estimated to be,

- Scenario A: below the Biomass threshold, but above the Biomass limit (Table 2)
- Scenario B: below the Biomass threshold and below the Biomass limit (Table 3)
- Scenario C: over the stable period in the fishery 1985-1994 (Table 4)

In all of the three scenarios, the range in the number of active vessels overlaps significantly (see Tables 2-4). The mean number of active vessels in Scenarios A and B are similar, whereas, the stable period supports the highest number of active vessels.

The Section may consider a limited entry program that caps the number of licenses based on the mean number of active vessels in the three scenarios. License allocation to each state would then be determined based on the percent of active vessels in each state averaged over the timeframe sub-options below. Note that these timeframes are equivalent to the timeframes used in the TAC allocation, including one additional timeframe from 2000-08.

**It is important to note the Plan Development Team cautions that there are too many variables (e.g., varying effort, technological advances) that may limit the usefulness of a limited entry program based on capping the number of licenses. In other words, while this option limits the number of participants in the fishery, there are other factors (e.g., varying effort, technological advances) that may lead to overages in the fishery.**

Additionally, if moving forward with capping the number of licenses by state, **assigning licenses to specific individuals would be the responsible of each respective state and not the ASMFC. Therefore, each state would have to go through an allocation process that thoroughly reviewed its participants and their respective landings history, before the state assigned**

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**licenses to individuals. The appeals process for the licenses would also be the responsibility of each respective state.**

Option A. Cap the number of licenses at 256 (Scenario A)

Sub-options A	Timeframes	ME	NH	MA	Total
A1	2001-2009	224	22	9	256
A2	2001-2011	226	21	9	256
A3	2003-2008	226	22	8	256
A4	1998-2006	213	26	17	256
A5	2000-2008	223	23	10	256

Option B. Cap the number of licenses at 247 (Scenario B)

Sub-options B	Timeframes	ME	NH	MA	Total
B1	2001-2009	216	22	9	247
B2	2001-2011	218	20	9	247
B3	2003-2008	218	21	8	247
B4	1998-2006	206	25	16	247
B5	2000-2008	215	22	10	247

Option C. Cap the number of licenses at 299 (Scenario C)

Sub-options C	Timeframes	ME	NH	MA	Total
C1	2001-2009	262	26	11	299
C2	2001-2011	264	24	10	299
C3	2003-2008	264	25	10	299
C4	1998-2006	249	30	20	299
C5	2000-2008	260	26	12	299

For informational purposes, the table below has the percent of active vessels by state for the timeframes used to compute the tables above, along with the average number of active vessels over those timeframes. The table below also contains the average number of licenses issued (not necessarily active) by the state of Maine for the timeframes. It does not include New Hampshire or Massachusetts because they do not issue a specific northern shrimp license.

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Option	Timeframes	ME	NH	MA	Average # Active Vessels	Average # Issued ME Licenses
1	2001-2009	87.6%	8.8%	3.6%	204	439
2	2001-2011	88.4%	8.2%	3.5%	218	463
3	2003-2008	88.3%	8.4%	3.3%	198	418
4	1998-2006	83.3%	10.1%	6.6%	225	475
5	2000-2008	87.1%	8.9%	4.1%	217	461

**TABLES**

**Table 1. Estimated numbers of vessels in the Gulf of Maine Northern shrimp fishery by fishing season state and gear from 1980 to 2011.**

<u>Season</u>	<u>Maine</u>		<u>Massachusetts</u>	<u>New Hampshire</u>	<u>Total</u>
	<u>Trawl</u>	<u>Trap</u>			
1980			15-20		30-40
1981			~75	~20-25	~100
1982			>75	~20-25	>100
1983			~164	~25	~197
1984			239	43	288
1985			~231	~40	~300
1986					~300
1987			289	39	345
1988			~290	~70	~390
1989			~230	~50	~310
1990			~220		~250
1991			~200	~30	~250
1992			~259	~50	~325
1993			192	52	273
1994			178	40	247
1995					
1996			275	43	347
1997			238	32	311
1998			195	33	260
1999			181	27	238
2000			249	15	287
2001	174	60	234	19	275
2002	117	52	168	7	198
2003	142	49	191	12	222
2004	114	56	170	7	192
2005	102	64	166	9	197
2006	68	62	129	4	144
2007	97	84	179	3	196
2008	121	94	215	4	234
2009	80	78	158	12 (MA and NH combined)	
*2010	123	112	234	5	254
*2011	156	125	276	12	308

note that some boats reported both trapping and trawling

\* preliminary



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**Table 2. Summary statistics of active vessels when Biomass was estimated to be below the Bthreshold, but above the Blimit.**

Year	% below BThreshold	Active Vessels
1993	6%	273
1994	23%	247
1997	0%	311
2004	31%	192
Range	Mean	Median
192-311	256	260

**Table 3. Summary statistics of active vessels when Biomass was estimated to be below the Bthreshold, and the Blimit.**

Year	% below Blimit	Active Vessels
1998	19%	260
1999	34%	238
2000	34%	287
2001	42%	275
2002	39%	198
2003	23%	222
Range	Mean	Median
198-287	247	249

**Table 4. Summary statistics of active vessels over the stable period in the fishery 1985-1994 (Note from 1985-1992 the number of active vessels by year is approximate).**

Year	% above (+) or below (-) BThreshold	Active Vessels
1985	11%	300
1986	42%	300
1987	45%	345
1988	20%	390
1989	6%	310
1990	35%	250
1991	39%	250
1992	17%	325
1993	-6%	273
1994	-23%	247
Range	Mean	Median
247-390	299	300

*Atlantic States Marine Fisheries Commission*

# **PUBLIC INFORMATION DOCUMENT**

**for Amendment 3 to the  
Interstate Fishery Management Plan For**

**NORTHERN SHRIMP**



*ASMFC Vision Statement:  
Sustainably Managing Atlantic Coastal Fisheries*

**February 2015**

**DRAFT PUBLIC INFORMATION DOCUMENT FOR PUBLIC COMMENT**

**The Atlantic States Marine Fisheries Commission seeks your comments  
on the Initiation of Amendment 3 to the Northern Shrimp Fishery Management Plan**

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until **5:00 PM (EST) on April 15, 2015**. Regardless of when they were sent, comments received after that time will not be included in the official record. The Northern Shrimp Section will consider public comment on this document when developing the first draft of the Amendment 3.

You may submit public comment in one or more of the following ways:

1. Attend public hearings held in your state or jurisdiction, if applicable.
2. Refer comments to your state's members on the Northern Shrimp Section or Northern Shrimp Advisory Panel, if applicable.
3. Mail, fax, or email written comments to the following address:

Mike Waine

Atlantic States Marine Fisheries Commission

1005 North Highland Street, Suite 200A-N

Arlington, Virginia 22201

Fax: (703) 842-0741

[comments@asmfc.org](mailto:comments@asmfc.org) (subject line: Northern Shrimp Amendment 3)

If you have any questions please call Mike Waine at (703) 842-0740.

**Atlantic States Marine Fisheries Commission  
Draft Public Information Document for Northern Shrimp Draft Amendment 3**

**Introduction**

The Atlantic States Marine Fisheries Commission (Commission) is developing an amendment to revise the Interstate Fishery Management Plan for Northern Shrimp (FMP). The Commission, through the coastal states of Maine, New Hampshire, and Massachusetts, is responsible for managing northern shrimp.

This is your opportunity to inform the Commission about changes observed in the fisheries; actions you feel should or should not be taken in terms of management, regulation, enforcement, and research; and any other concerns you have about the resources or the fisheries, as well as the reasons for your concerns.

**Management Issues**

Amendment 2 to the FMP was approved in October 2011. Since implementation, the northern shrimp fishery and population have experienced significant changes. There have also been substantial changes in other fisheries in the northeast resulting in increased effort in the shrimp fishery. For example, reductions in the groundfish fishery have caused fishermen to switch their effort to the northern shrimp fishery to make up for the loss of opportunity in the groundfish fishery.

Recently, the northern shrimp resource has experienced three successive years of recruitment failure. In addition, abundance and stock biomass indices in recent years are the lowest on record. Changing environmental conditions paired with fluctuating effort in the fishery have resulted in uncertainties in the future status of the northern shrimp resource. Limited entry has been used in other fisheries to control fishing effort which stabilizes fishing pressure on the resource. An amendment to the plan is necessary to establish a limited entry program in the northern shrimp fishery.

**Purpose of the Public Information Document (PID)**

The purpose of this document is to inform the public of the Commission's intent to gather information concerning the northern shrimp fishery and to provide an opportunity for the public to identify major issues and alternatives related to the management of this species. Input received at the start of the amendment development process can influence the final outcome of the amendment. This document is intended to draw out observations and suggestions from northern shrimp harvesters and industry, the public, and other interested parties, as well as any supporting documentation and additional data sources.

To facilitate public input, this document provides a broad overview of the issues already identified for consideration in the amendment; background information on the northern shrimp

**DRAFT PUBLIC INFORMATION DOCUMENT FOR PUBLIC COMMENT**

population, fisheries, and management; and a series of questions for the public to consider on the management of the species. In general, the Commission is seeking input on the following question: **“How would you like the northern shrimp fishery to be managed in the future?”**

**Commission’s Process and Timeline**

The publication of this document and announcement of the Commission’s intent to amend the existing FMP for northern shrimp is the first step of the formal amendment process. The following motion was made at the Northern Shrimp Section meeting in November 2014 to continue the amendment process:

*Move to approve the Public Information Document (PID) for Amendment 3 to the Northern Shrimp FMP for public comment, pending the changes discussed today [adding more background information for the public to consider].*

Following the initial phase of information gathering and public comment, the Commission will evaluate potential management alternatives and the impacts of those alternatives. The Commission will then develop Draft Amendment 3, incorporating the identified management alternatives through the PID process, for public review. After the public comment process is completed on Draft Amendment 3, the Commission will specify the management measures to be included in a final version of Amendment 3, as well as a timeline for implementation.

As a note, Draft Amendment 3 may include additional issues identified through the public comment period that were not initially included in the PID process.

The proposed timeline for completion of Amendment 3 is as follows:

June 2014	Northern Shrimp Section (Section) tasks the Plan Development Team (PDT) to develop Public Information Document
Fall 2014	Section receives the Public Information Document (PID) and considers approval for public comment
<b>Spring 2015</b>	<b>Public Comment on the PID</b>
Summer 2015	Section reviews PID for public comment, considers initiation of Draft Amendment. PDT will develop amendment with input from Technical Committee and Advisory Panel.
Fall 2015	Section reviews Draft Amendment for public comment
Fall 2015	Public comment on Draft Amendment
Winter 2016	Section reviews and approves Amendment

## **Description of the Resource**

### ***Summary of Management***

The Gulf of Maine fishery for northern shrimp is managed through an interstate agreement between Maine, New Hampshire and Massachusetts. The management framework evolved during 1972-1979 under the auspices of the State/Federal Fisheries Management Program. In 1980, this program was restructured as the Interstate Fisheries Management Program (ISFMP) of the Commission. The FMP for Northern Shrimp was approved under the ISFMP in October 1986.

The Commission approved Amendment 1 to the FMP in May 2004. Amendment 1, which replaced the original FMP, established biological reference points for the first time in the shrimp fishery and expanded the tools available to manage the fishery. Amendment 2, which completely replaced Amendment 1 and was approved in October 2011, further expanded the tools available to manage northern shrimp, including options to slow catch rates throughout the season. It also established a threshold level for the fishing mortality reference points; included a more timely and comprehensive reporting system; and allowed for the initiation of a limited entry program to be pursued through the adaptive management addendum process. The goal of Amendment 2 is “to manage the northern shrimp fishery in a manner that is biologically, economically, and socially sound, while protecting the resource, its users, and opportunities for participation.”

Addendum I to Amendment 2, approved in November 2012, refined the annual specification process, and allocated the total allowable catch (TAC) to the trawl (87%) and trap (13%) fisheries based on historical landings since 2001.

The Northern Shrimp Technical Committee (NSTC) provides annual stock assessments and related information to the ASMFC Northern Shrimp Section (Section). Annually, the Section sets specifications on management measures after considering the NSTC stock assessment, input from the Northern Shrimp Advisory Panel, and comment from others knowledgeable about the shrimp fishing industry. Management tools used under Amendment 2 were primarily TACs and seasonal closures.

### ***Summary of Stock Status***

Stock assessments for northern shrimp are updated on an annual basis. The 2013 Stock Assessment Update utilized the model which was accepted by peer reviewers in 2007. The 2014 Benchmark Stock Assessment explored new analytic methods, including a new model and modifications to the accepted assessment model. The Benchmark Assessment went through peer review in January 2014 and the new approaches were not approved for management use.

Due to uncertainties raised by the Benchmark Review, the 2014 assessment did not include modeling results. Instead, the NSTC evaluated a suite of indicators that reflected fishery

performance, stock status, and environmental conditions. Abundance and biomass indices for 2012-2014 were the lowest on record in the thirty-one year survey time series (Figure 1). Recruitment indices for the 2010-2012 year classes were also well below average and included the two smallest year classes on record. As a result, the 2014 index of fishable biomass was the lowest on record. The recruitment index increased slightly in the 2014 survey, but was the ninth lowest in the time series. Recruits from the 2013 year class are not expected to reach exploitable size until 2017. Despite the marginal increase in recruitment, the NSTC concluded that the northern shrimp stock has collapsed with little prospect of recovery in the near future.

Recruitment of northern shrimp is related to both spawning biomass and ocean temperatures, with higher spawning biomass and colder temperatures producing stronger recruitment. Ocean temperatures in the western Gulf of Maine have increased in recent years and reached unprecedented highs in the past several years (Figure 2). While temperatures in 2014 were cooler, in the longer term they are predicted to continue rising as a result of climate change. This suggests an increasingly inhospitable environment for northern shrimp and the need for strong conservation efforts to help sustain the stock.

### *Summary of the Fishery*

Drastic fluctuations in landings have characterized the Gulf of Maine northern shrimp fishery throughout its history. Annual landings of Gulf of Maine northern shrimp declined from an average of 11,400 metric tons (mt) during 1969-1972 to about 400 mt in 1977, resulting in a closure of the fishery in 1978 (Table 1a, Figure 3). The fishery reopened in 1979 and landings increased steadily to over 5,000 mt by 1987. Landings ranged from 2,300 to 6,400 mt during 1988-1995, and then rose dramatically to 9,500 mt in 1996, exceeding the previous high in 1973. Landings subsequently declined from 1997 to 2002, only to increase again between 2003 and 2011, from 1,300 to 6,400 mt, with a slight drop in 2009.

In recent years (2010-2012), the fishery has been closed early when landings approached the TAC. In 2011, a year in which the fishery closed early because the TAC was exceeded, the average price per pound was \$0.75 and the estimated landed value of the catch was \$10.6 million (Table 1b). Since then, the price per pound of shrimp has increased, but low landings have kept the value of the fishery well below \$10 million (Table 1b).

The Section considered several factors in setting the specifications for the 2015 shrimp fishery, and ultimately implemented a moratorium to protect the limited number of spawning females. The Section's deliberation considered the biomass in 2014 (500 mt) that was the lowest value in recent history, estimated at 5.2% of the biomass of the reference period (1985-1994), and well below the FMP biomass threshold of 9,000 mt and the biomass limit of 6,000 mt. Additionally, there was recent recruitment failure of three consecutive year classes (2010-2012).

## DRAFT PUBLIC INFORMATION DOCUMENT FOR PUBLIC COMMENT

Typically, Maine accounts for about 90% of the landings of northern shrimp. In 2013, the most recent year with landings, Maine landed 83% (278.7 mt) of the season total, New Hampshire followed with 11% (36.9 mt) and Massachusetts landed 6% (18.9 mt) of the season total (preliminary data, Table 1a). The proportional distribution of landings among the states has been similar between 2003 and 2013, though has shifted gradually since the 1980's when Massachusetts averaged about 34% of the catch (Table 1a).

Most northern shrimp fishing in the Gulf of Maine is conducted using otter trawls designed for shrimp, although traps are also utilized off the central Maine coast. Trapping effort has increased in recent years, accounting for 22% of Maine's landings in 2010, but may have been lower relative to trawling in 2011 (17%) and 2012 (9%) because of the early closure of the fishing seasons which limited the trapper's ability to harvest (Table 2). Preliminary dealer reports indicate that trappers accounted for about 7% of Maine's landings in 2013, which was a season impacted by the low abundance of northern shrimp.

Size composition data from both the fishery and summer trawl surveys indicate that higher landings have followed the recruitment of strong (dominant) year classes. Low biomass and landings during 1998 – 2004 can be attributed in part to the below-average recruitment of the associated year classes. In 2014, the female population was comprised of the 2009 and 2010 year classes; the 2010 year class was the first of three successive year classes of recruitment failure. The last two year classes failed to recruit into the fishery, therefore it is anticipated that landings will be low even if the fishery reopens.

### **Issues for Public Comment**

Public comment is sought on a series of issues being considered for inclusion in Draft Amendment 3. The issues are intended to focus the public comment and provide the Section with the necessary input to develop the Amendment. The public is encouraged to submit comment on the issues listed below as well as other issues that may need to be addressed in the management document.



**ISSUE 1:  
LIMITED ENTRY  
INTO THE  
FISHERY**

**Background**

The northern shrimp fishery is currently open access and has experienced significant fluctuations in participation over the last 30 years (Table 3). Interest and effort in the fishery generally increases as the season length or price increases. As one of the last open access fisheries in the region, the northern shrimp fishery has provided opportunities for harvesters to target an alternative species when other fishing was unavailable or not economically viable.

However, as the shrimp biomass has decreased, concern has been raised over the influx of boats into the fishery when shrimp stocks and markets warrant. Harvesters and managers have noted the reduced fishing opportunities in other fisheries such as the New England groundfish fishery and are concerned about the impact of shifting effort entering the shrimp fishery. More effort in the fishery would result in increased pressure on the shrimp population. This concern has led to the suggestion that access to the shrimp fishery should be restricted.

Limited access has been used in a number of fisheries along the Atlantic coast to control effort while maintaining access by harvesters who have demonstrated a history and a vested interest in the fishery. Limited entry may also moderate the boom and bust cycle for both harvesters and processors in this relatively small fishery by ensuring more stable landings for northern shrimp. The current status of the northern shrimp stock (lowest indices in the time series) has increased the interest in exploring options to limit new entrants into the fishery. Managers are seeking strategies to stabilize the fishery and improve harvesters and processors' ability to make informed business decisions each year.

**Addendum I also scoped the potential for limited entry programs and a summary of public comment is presented below the management questions.**

**Management Questions**

- Should limited entry be used in the northern shrimp fishery?
- How should effort be capped (number of vessels, number of licenses)?
- How should landings history be assigned (by vessel, by individual, by state license holder [Maine only])?
- What years should be used to determine the landings history?
- Should the previously set control date of June 7, 2011 remain or be re-evaluated?

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- Should new participants be allowed to enter the fishery? If yes, how and when would new participants enter the fishery?

Addendum I to Amendment 2 included preliminary options concerning entrance into a limited entry program to the Section. Options that received the most positive public comment from Addendum I are included below, however, the Section welcomes comments on other options.

Potential options for entrance into the program include:

- Assign landings history to a vessel, by default the current vessel owner gets landings history, unless specified.
- Assign landings history to an individual.

In addition, Addendum I explored which years are appropriate to determine landings history. Options that are the most feasible given data availability and reliability are included below, however, the Section welcomes comments on other options:

Potential options for assigning landings history include:

- Assign landings history based on average annual landings between 2001 and 2009. Logbook reporting requirements were initiated in 2000 for Maine, allowing for one year of quality assurance/quality control procedures to ensure full reporting. This time period includes the last season before emergency closures were implemented.
- Assign landings history based on average annual landings between 2008 and 2012. These years reflect the more recent condition of the stock.

### ***ISSUE 2: STATE-BY-STATE ALLOCATION***

#### **Background**

Over the past five fishing seasons (2009-2013), Maine has accounted for approximately 90% of the northern shrimp landings. Maine is the only state with a trap fishery for northern shrimp. Under a limited entry program, Maine would be the only state in which a significant reduction in participation would be necessary to achieve an effective limited entry program. An alternative to limited entry (see Issue 1 above) would be to determine state-by-state allocations of the TAC. Maine, New Hampshire, and Massachusetts could implement measures to meet the needs of the state's fishery, as long as the state allocation was not exceeded. In other Commission-managed species, state allocations are based on average landings over a certain period of time. Usually, this period of time represents a stable period in the fishery to ensure equitable division of landings. It should be noted that state-by-state allocation of the fishery may limit vessels seeking to enter the fishery and reduce growth of the fishery in Massachusetts and New Hampshire. The managers are

investigating the most fair and equitable way to manage the fishery while ensuring flexibility for the future.

**Addendum I also scoped the potential for state-by-state allocations and a summary of public comment is presented below the management questions.**

### **Management Questions**

- Should the northern shrimp TAC be allocated by state?
- Should landings history be used to determine allocations? Which years should be used to determine landings history?
- How should historical landings be accounted for when a boat permitted in one state lands shrimp in a different state?
- Should a permitted harvester from one state be able to land in another state? If yes, what state's quota would the landings be deducted from (permitted or landed state)?
- Would quota transfers between states be allowed?
- Are there other methods to set state allocations that the Section should consider?

The Plan Development Team (PDT) has previously investigated which years are appropriate for determining state-by-state allocation. Options that are the most feasible given data availability and reliability are included below, however, the Section welcomes comments on other options

Potential time frames for assigning landings history include:

- Timeline 1 - 2001 – 2009 - This time period represents landings after new logbook reporting requirements for non-federal permits were instituted in Maine in 2000, allowing for one year of quality assurance/quality control procedures to ensure full reporting. The time period includes the last season before emergency closures were implemented because the TAC was reached.
- Timeline 2 - 2001 – 2013 - This time period represents the full range of data of new logbook reporting requirements in Maine for non-federal permits, which were implemented in 2000, allowing for one year for quality assurance/quality control procedures to ensure full reporting and accountability. This includes management measures in 2010-2012 that may have influenced landings history.
- Timeline 3 - 2003 – 2008 - This time period represents data three years after new logbook reporting requirements for non-federal permits were implemented in Maine in 2000, but before emergency closures were implemented in the 2010-2012 seasons

because the TAC was reached. It is similar to but shorter than Timeline 1.

**ISSUE 3:  
HOW SHOULD  
THE  
SPECIFICATIONS  
PROCESS OCCUR  
UNDER  
AMENDMENT 3?**

**Background**

Northern shrimp specifications are based on a TAC for the entire fishery. Typically, an annual stock assessment estimates values for the fishing mortality target ( $F_{\text{target}}$ ) and fishing mortality threshold ( $F_{\text{threshold}}$ ). The TAC is set based on those estimates and 87% is allocated to the trawl fishery and 13% to the trap fishery. The Section may then specify various effort controls such as fishing seasons, trip limits, days out of the fishery, trap limits, season closure dates and a research set aside. These measures are based upon the most recent stock status report and are revisited annually. Measures which may be changed within seasons include trip limits, days out, and transferability of the TAC between gear types.

Due to the uncertainties in the benchmark stock assessment (ASMFC 2014), current estimates of fishing mortality are not usable for establishing a TAC. The Section would like to explore flexibility in the specifications process so a TAC can be set when (1) fishing mortality estimates are not usable (2) as the stock recovers and/or (3) as environmental conditions change. For example, the Section may use stock status indicators (e.g., catch rates, recruitment) and/or empirical harvest levels (e.g., historical harvest levels that match similar stock status conditions) to set the TAC. In addition, the Section would like to consider including multi-year specifications in the fishery to provide stability to the market and processors.

**Management Questions**

- How should the TAC be set under Amendment 3 (stock assessments, other)?
- How should overages/underages in the TAC be handled?
- Should the gear allocation of 87%/13% for trawl/trap be revisited?
- Should target reference points (fishing mortality or biomass) be determined for northern shrimp? How should they be determined?
- Should the northern shrimp fishery have a defined season, or should the season be set on an annual or multi-annual basis?
- Should there be trip limits in the northern shrimp fishery?
- Should there be an option for research set asides? If so, what maximum percentage of the TAC should be allocated for research set asides?
- Should multi-year specifications be considered in the northern shrimp fishery?

**ISSUE 4:  
SHOULD THE  
GOALS AND  
OBJECTIVE OF  
THE FISHERY  
MANAGEMENT  
PLAN FOR  
NORTHERN  
SHRIMP BE  
REVISED?**

**Background**

The goal and objectives for this management program should be reviewed to ensure they are consistent with the needs of the northern shrimp fishery. The current goal and objectives are outlined in Amendment 2:

**GOAL**

“To manage the northern shrimp fishery in a manner that is biologically, economically and socially sound, while protecting the resource, its users and opportunities for participation.”

**OBJECTIVES (as outlined in Amendment 2 to the FMP)**

- Protect and maintain the northern shrimp stock at levels that will support a viable fishery
- Optimize utilization of the resource within the constraints imposed by distribution of the resource, available fishing areas, and harvesting, processing and marketing capacity
- Maintain the flexibility and timeliness of public involvement in the northern shrimp management program
- Maintain existing social and cultural features of the fishery to the extent possible
- Minimize the adverse impacts the shrimp fishery may have on other natural resources
- Minimize the adverse impacts of regulations, including increased cost to the shrimp industry and the associated coastal communities
- Promote research and improve the collection of information to better understand northern shrimp biology, ecology, and population dynamics,
- Achieve compatible and equitable management measures through coordinated monitoring and law enforcement among jurisdictions throughout the fishery management unit

Management Questions

- Are the goals and objectives from Amendment 2 still appropriate for the northern shrimp fishery?
- What changes to the goals and objectives need to be made to reflect the needs of the fishery?

**ISSUE 5:  
OTHER ISSUES**

**Background**

As stated earlier in this document, the goal of the PID is to solicit comments on a broad range of issues for consideration as the next amendment to the northern shrimp FMP is developed. The public comment should generally focus on

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**“How would you like the northern shrimp fishery to be managed in the future?”** The Section is interested in hearing from the public on all issues associated with the fishery. Comments do not need to be limited to issues included in this document.

A number of other issues have been discussed by stakeholders, scientists, and managers regarding the future of the fishery. These topics include:

- Implementation of area management
- Individual fishing/transferable quotas (ITQ/IFQ)
- Fleet or sector quotas
- Days-at-sea restrictions
- Vessel limits (size, horsepower, tonnage)
- Catch limits by gear type and vessel category
- Additional gear restrictions (mesh size, sweep length, roller size)
- Monthly and seasonally divided catch
- Bycatch of finfish species
- Maximum count-per-pound limits
- Size-selective gear and research
- Assessment methodology
- Management reference points
- Adapting to climate change

### **Management Questions**

- What other changes should be made to the northern shrimp fishery that is not covered by the topics included in this document?

### ***References***

Atlantic States Marine Fisheries Commission, 2014. Stock Status Report for Northern Shrimp. [http://www.asmfc.org/uploads/file/545cf3b5NShrimpStockStatusReport\\_2014.pdf](http://www.asmfc.org/uploads/file/545cf3b5NShrimpStockStatusReport_2014.pdf)

*Tables and Figures*

**Table 1a. U.S. Commercial landings (mt) of northern shrimp in the Gulf of Maine**

Year	Maine		Massachusetts		New Hampshire		Total	
	Annual	Season	Annual	Season	Annual	Season	Annual	Season
1958	2.2		0.0		0.0		2.2	
1959	5.5		2.3		0.0		7.8	
1960	40.4		0.5		0.0		40.9	
1961	30.5		0.3		0.0		30.8	
1962	159.5		16.2		0.0		175.7	
1963	244.3		10.4		0.0		254.7	
1964	419.4		3.1		0.0		422.5	
1965	941.3		8.0		0.0		949.3	
1966	1,737.8		10.5		18.1		1,766.4	
1967	3,141.2		10.0		20.0		3,171.2	
1968	6,515.2		51.9		43.1		6,610.2	
1969	10,993.1		1,773.1		58.1		12,824.3	
1970	7,712.8		2,902.3		54.4		10,669.5	
1971	8,354.8		2,724.0		50.8		11,129.6	
1972	7,515.6		3,504.6		74.8		11,095.0	
1973	5,476.6		3,868.2		59.9		9,404.7	
1974	4,430.7		3,477.3		36.7		7,944.7	
1975	3,177.2		2,080.0		29.4		5,286.6	
1976	617.3		397.8		7.3		1,022.4	
1977	142.1		236.9		2.2		381.2	
1978	0.0		3.3		0.0		3.3	
1979	32.8		405.9		0.0		438.7	
1980	69.6		256.9		6.3		332.8	
1981	530.0		539.4		4.5		1,073.9	
1982	883.0		658.5		32.8		1,574.3	
1983	1,029.2		508.2		36.5		1,573.9	
1984	2,564.7		565.4		96.8		3,226.9	
1985	2,957.0	2,946.4	1,030.5	968.8	207.4	216.7	4,194.9	4,131.9
1986	3,407.2	3,268.2	1,085.7	1,136.3	191.1	230.5	4,684.0	4,635.0
1987	3,534.2	3,680.2	1,338.7	1,427.9	152.5	157.9	5,025.4	5,266.0
1988	2,272.5	2,258.4	632.7	619.6	173.1	157.6	3,078.3	3,035.6
1989	2,544.8	2,384.0	751.6	699.9	314.3	231.5	3,610.7	3,315.4

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**Table 1a continued – U.S. commercial landings of northern shrimp (\*2013 data are preliminary)**

Year	Maine		Massachusetts		New Hampshire		Total		
	Annual	Season	Annual	Season	Annual	Season	Annual	Season	
1990	2,962.1	3,236.3	993.4	974.9	447.3	451.3	4,402.8	4,662.5	
1991	2,431.5	2,488.6	737.7	814.6	208.3	282.1	3,377.5	3,585.3	
1992	2,990.4	3,070.6	291.7	289.3	100.1	100.1	3,382.2	3,460.0	
1993	1,563.1	1,492.5	300.3	292.8	441.2	357.6	2,304.6	2,142.9	
1994	2,815.4	2,239.7	381.9	247.5	521.0	428.0	3,718.3	2,915.2	
1995		5,013.7		670.1		772.8		6,456.6	
1996		8,107.1		660.6		771.7		9,539.4	
1997		6,086.9		366.4		666.2		7,119.5	
1998		3,481.3		240.3		445.2		4,166.8	
1999		1,573.2		75.7		217.0		1,865.9	
2000		2,516.2		124.1		214.7		2,855.0	
2001		1,075.2		49.4		206.4		1,331.0	
2002		391.6		8.1		53.0		452.7	
2003		1,203.7		27.7		113.0		1,344.4	
2004		1,926.9		21.3		183.2		2,131.4	
2005		2,270.2		49.6		290.3		2,610.1	
2006		2,201.6		30.0		91.1		2,322.7	
2007		4,469.3		27.5		382.9		4,879.7	
2008		4,515.8		29.9		416.8		4,962.4	
2009		2,315.7	MA & NH combined			185.6		2,501.2	
2010		5,604.3		35.1		501.4		6,140.8	
2011		5,569.7		196.4		631.5		6,397.5	
2012		2,219.9		77.8		187.8		2,485.4	
*2013		278.7		18.9		36.9		334.5	
2014			Moratorium in fishery						



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**Table 1b. Price and value of U.S. Commercial landings (mt) of northern shrimp in the Gulf of Maine. (\*2013 data are preliminary.) Values are not adjusted for inflation.**

Year	Price \$/Lb	Value \$
1958	0.32	1,532
1959	0.29	5,002
1960	0.23	20,714
1961	0.2	13,754
1962	0.15	57,382
1963	0.12	66,840
1964	0.12	112,528
1965	0.12	245,469
1966	0.14	549,466
1967	0.12	871,924
1968	0.11	1,611,425
1969	0.12	3,478,910
1970	0.2	4,697,418
1971	0.19	4,653,202
1972	0.19	4,586,484
1973	0.27	5,657,347
1974	0.32	5,577,465
1975	0.26	3,062,721
1976	0.34	764,094
1977	0.55	458,198
1978	0.24	1,758
1979	0.33	320,361
1980	0.65	478,883
1981	0.64	1,516,521
1982	0.6	2,079,109
1983	0.67	2,312,073
1984	0.49	3,474,351
1985	0.44	3,984,563
1986	0.63	6,451,207
1987	1.1	12,740,583
1988	1.1	7,391,778
1989	0.98	7,177,660

Year	Price \$/Lb	Value \$
1990	0.72	7,351,421
1991	0.91	7,208,839
1992	0.99	7,547,942
1993	1.07	5,038,053
1994	0.75	4,829,107
1995	0.9	12,828,031
1996	0.73	15,341,506
1997	0.79	12,355,873
1998	0.96	8,811,939
1999	0.91	3,762,044
2000	0.79	4,968,656
2001	0.86	2,534,095
2002	1.08	1,077,534
2003	0.87	2,590,917
2004	0.44	2,089,636
2005	0.57	3,261,648
2006	0.37	1,885,978
2007	0.38	4,087,121
2008	0.49	5,407,374
2009	0.4	2,216,411
2010	0.52	6,994,107
2011	0.75	10,625,534
2012	0.95	5,230,032
*2013	1.81	1,332,150
2014	NA	moratorium

**Table 2. Distribution of landings (metric tons) in the Maine northern shrimp fishery by season, gear type, and month.**

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Season Total</u>	<u>% of total</u>		<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Other</u>	<u>Season Total</u>	<u>% of total</u>	
<b>2000</b> Season, 51 days, Jan 17 - Mar 15, Sundays off										<b>2008</b> Season, 152 days, Dec 1- Apr 30										
Trawl		731.1	1,354.8	163.6				2,249.47	89%	Trawl	408.5	989.6	1,680.8	603.4	42.6			0.1	3,724.9	82%
Trap		28.9	179.6	58.3				266.7	11%	Trap	conf	64.1	339.6	380.4	6.7				790.8	18%
Total	0.0	759.9	1,534.4	221.9	0.0	0.0	0.0	2,516.2		Total	408.5	1,053.7	2,020.4	983.8	49.3	0.0	0.1		4,515.8	
<b>2001</b> Season, 83 days, Jan 9 - Apr 30, Mar 18 - Apr 16 off, experimental offshore fishery in May										<b>2009</b> Season, 180 days, Dec 1- May 29										
Trawl		533.0	360.1	30.9	29.8	0.3		954.0	89%	Trawl	134.3	579.7	780.9	405.4	33.6	1.8	0.2		1,935.9	84%
Trap		42.9	72.6	5.7				121.2	11%	Trap	0.4	16.2	207.3	154.7	1.3				379.8	16%
Total	0.0	575.8	432.8	36.6	29.8	0.3	0.0	1,075.2		Total	134.6	595.9	988.2	560.1	34.9	1.8	0.2		2,315.7	
<b>2002</b> Season, 25 days, Feb 15 - Mar 11										<b>2010</b> Season, 156 days, Dec 1- May 5										
Trawl			263.6	77.2				340.8	87%	Trawl	263.4	1,488.3	2,091.1	326.3	194.3	33.0	0.4		4,396.7	78%
Trap			43.2	7.6				50.8	13%	Trap	conf	194.8	823.4	189.3	conf				1,207.6	22%
Total	0.0	0.0	306.8	84.8	0.0	0.0	0.0	391.6		Total	263.4	1,683.1	2,914.5	515.6	194.3	33.0	0.4		5,604.3	
<b>2003</b> Season, 38 days, Jan 15 - Feb 27, Fridays off										<b>2011</b> Season, 90 days, Dec 1- Feb 28										
Trawl		467.2	518.8	0.4			0.6	987.0	82%	Trawl	720.8	2,194.5	1,728.5	0.5					4,644.4	83%
Trap		67.5	149.2					216.7	18%	Trap	19	377.7	545.8						925.3	17%
Total	0.0	534.7	668.0	0.4	0.0	0.0	0.6	1,203.7		Total	722.7	2,572.2	2,274.3	0.5	0.0	0.0	0.0		5,569.7	
<b>2004</b> Season, 40 days, Jan 19 - Mar 12, Saturdays and Sundays off										<b>2012</b> Season, Trawling Mon, Wed, Fri, Jan 2- Feb 17 (21 days); Trapping Feb 1-17 (17 days)										
Trawl	18	514.0	905.5	430.0	4.7	2.7	0.04	1,858.7	96%	Trawl	0.5	1,130.6	895.2	0.5					2,026.8	91%
Trap		12.2	39.5	16.5				68.1	4%	Trap			193.1						193.1	9%
Total	18	526.2	945.1	446.4	4.7	2.7	0.04	1,926.9		Total	0.5	1,130.6	1,088.2	0.5	0.0	0.0	0.0		2,219.9	
<b>2005</b> Season, 70 days, Dec 19 - 30, Fri-Sat off, Jan 3 - Mar 25, Sat-Sun off										<b>*2013</b> Season, Trawl 2-7 days/wk, Jan 23-Apr 12 (54 days); Trap 6-7 days/wk, Feb 5-Apr 12 (62 days)										
Trawl	75.0	369.4	770.6	663.6			0.01	1,878.5	83%	Trawl		63.0	155.6	37.4	2.4				258.3	93%
Trap		conf	132.6	259.0				391.6	17%	Trap			15.2	4.9	0.2				20.4	7%
Total	75.0	369.4	903.2	922.6	0.0	0.0	0.01	2,270.2		Total	0.0	63.0	170.8	42.4	2.6	0.0	0.0		278.7	
<b>2006</b> Season, 140 days, Dec 12 - Apr 30										<b>2014</b> Season was closed.										
Trawl	144.1	675.0	733.8	256.9	117.1			1,927.0	88%											
Trap	conf	16.7	163.1	93.9	0.9			274.6	12%											
Total	144.1	691.7	896.9	350.8	118.0	0.0	0.0	2,201.6												
<b>2007</b> Season, 151 days, Dec 1- Apr 30																				
Trawl	758.2	1,443.3	1,275.6	362.1	143.6	0.4	0.0	3,983.2	89%											
Trap	3.7	37.2	314.7	119.8	10.6			486.1	11%											
Total	761.9	1,480.5	1,590.4	481.9	154.2	0.4	0.0	4,469.3												

conf = Confidential data were combined with an adjacent month.  
 \* Preliminary data

**Table 3. Estimated numbers of active vessels in the Gulf of Maine northern shrimp fishery by fishing season and state.**

<u>Season</u>	<u>Maine</u> <u>Trawl</u>	<u>Maine</u> <u>Trap</u>	<u>Total</u>	<u>Massachusetts</u>	<u>New Hampshire</u>	<u>Total</u>
1980			15-20	15-20		30-40
1981			~75	~20-25		~100
1982			>75	~20-25		>100
1983			~164	~25	~5-8	~197
1984			239	43	6	288
1985			~231	~40	~17	~300
1986						~300
1987			289	39	17	345
1988			~290	~70	~30	~390
1989			~230	~50	~30	~310
1990			~220			~250
1991			~200	~30	~20	~250
1992			~259	~50	16	~325
1993			192	52	29	273
1994			178	40	29	247
1995						
1996			275	43	29	347
1997			238	32	41	311
1998			195	33	32	260
1999			181	27	30	238
2000			249	15	23	287
2001	174	60	234	19	27	275
2002	117	52	168	7	23	198
2003	142	49	191	12	22	222
2004	114	56	170	7	15	192
2005	102	64	166	9	22	197
2006	68	62	129	4	11	144
2007	97	84	179	3	15	196
2008	121	94	215	4	15	234
2009	80	78	158	12 (MA and NH combined)		170
2010	124	112	236	6	14	256
2011	172	143	311	12	19	342
2012	164	132	295	15	17	327
*2013	109	72	181	13	14	207
2014	0	0	0	0	0	0

note that some boats reported both trapping and trawling

\* preliminary

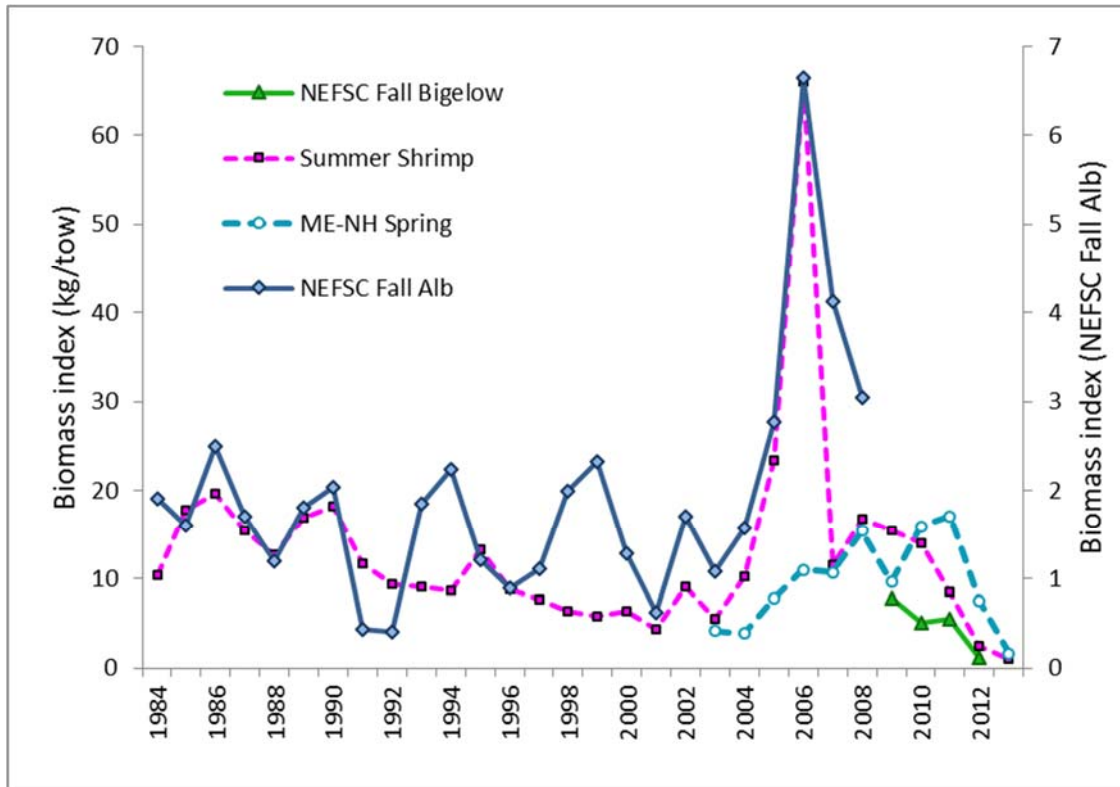
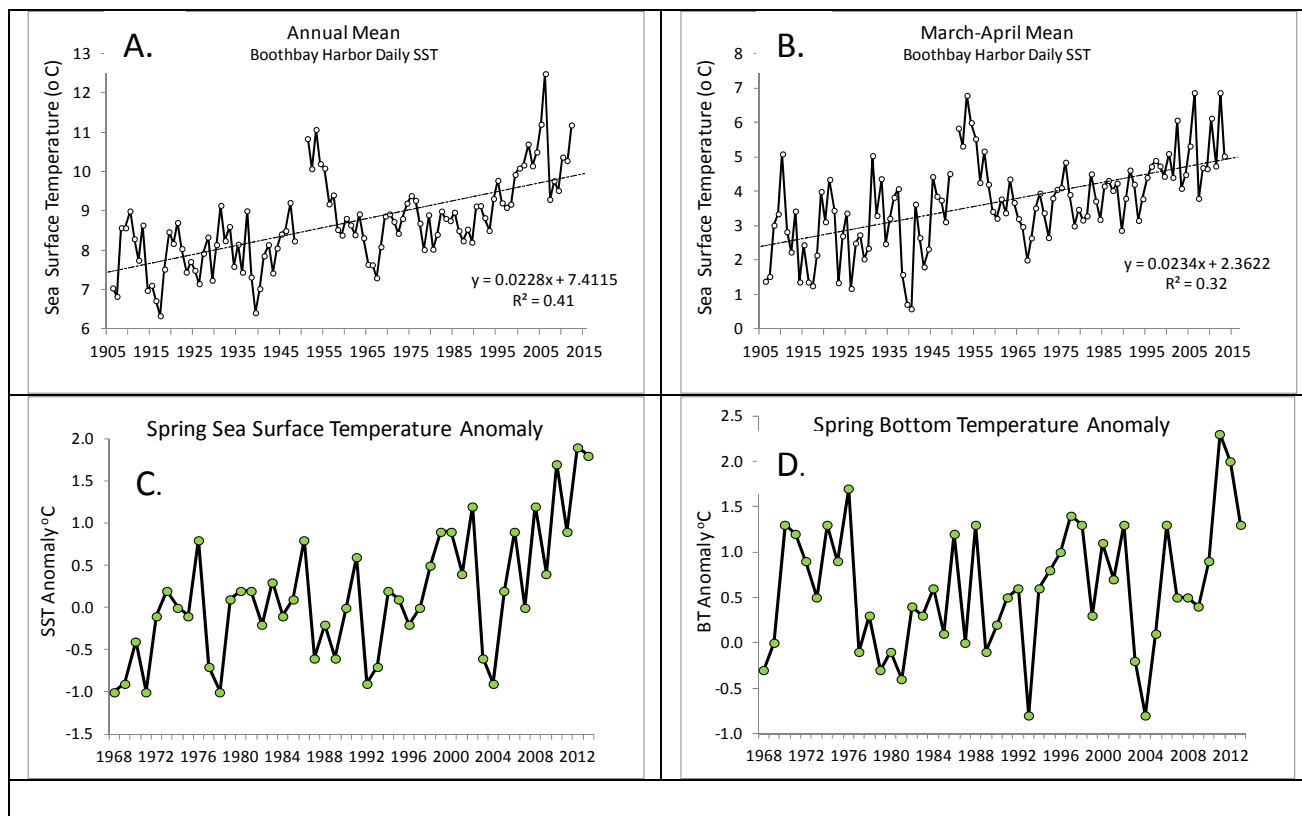


Figure 1. Biomass indices (kg/tow) from various northern shrimp surveys in the Gulf of Maine.



**Figure 2. (A) Average annual sea surface temperature (SST) at Boothbay Harbor, Maine, during 1906-2013 and (B) average SST during March-April, 1906-2013. (C) Spring sea surface temperature anomaly in shrimp offshore habitat areas from NEFSC trawl surveys, 1968-2013. (D) Spring bottom temperature anomaly in shrimp offshore habitat areas from NEFSC trawl surveys, 1968-2013.**

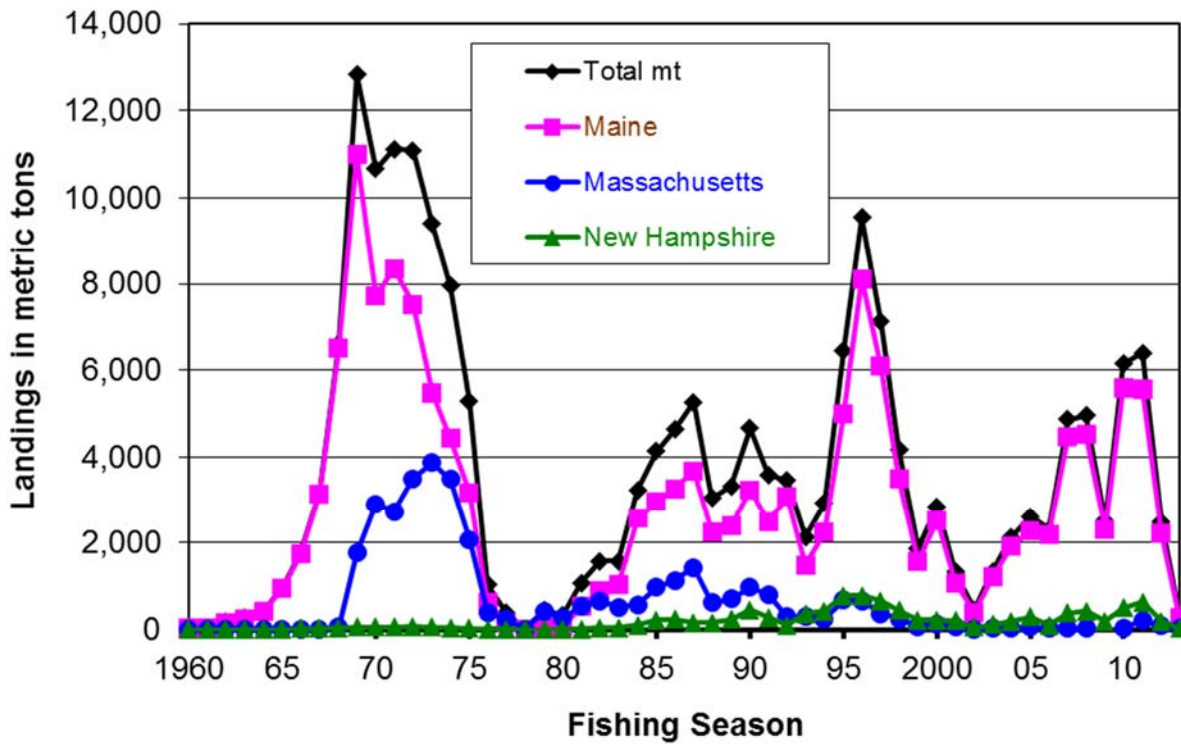


Figure 3. Gulf of Maine northern shrimp landings by season and state. MA landings are combined with NH landings in 2009 to preserve confidentiality.

**North Carolina Division of Marine Fisheries**

**Report to Atlantic States Marine Fisheries Commission South Atlantic Board:  
Spanish Mackerel Addendum I Pilot Program**

**April 25, 2016**



## **Introduction**

In August 2013, the South Atlantic State-Federal Fisheries Management Board (Board) approved a two-year pilot program through Addendum I to the Interstate Fishery Management Plan for Spanish Mackerel to allow states to reduce the commercial minimum size limit of Spanish mackerel from 12 inches to 11.5 inches (fork length) in the pound net fishery during the months of July through September. The intent was to reduce dead discards of these undersized fish that do not survive the bunting and bailing of the net during the summer months. The use of cull panels to allow for escape of undersized Spanish mackerel at this time of year has met with only limited success.

This exemption was originally applied only for the 2013 and 2014 fishing years to allow the Board to review the impacts of the pilot program and determine if it should be allowed to continue. In 2015, the Board extended the exemption. North Carolina was the only state to apply this exemption in its pound net fisheries. The results of sampling efforts and the impacts on harvest are detailed in the tables and figures below.

## **Results**

A description of the North Carolina Spanish mackerel fishery and associated harvest characteristics from 2000-2012, including the pound net fishery, is contained in Addendum I and incorporated herein by reference. The following information is based on data collected through the North Carolina Trip Ticket Program and fishery-dependent biological sampling.

Tables 1a and 1b contain Spanish mackerel landings and proportion of harvest by pound nets vs. all other gear types, respectively, for the years 2012-2015. Although the pilot program only applied to fishing years 2013-2014 and was subsequently extended, harvest characteristics from 2012 are included for comparison. Total Spanish mackerel commercial landings, as well as that from pound nets, decreased substantially in 2013 relative to 2012 and increased only slightly in 2014, then decreased to 558,993 pounds in 2015 (Table 1a). However, the overall proportion of commercial landings of Spanish mackerel from pound nets stayed relatively constant until 2015, when it increased to seven percent, nearly double that of the previous three years (Table 1b). Table 2 provides an additional breakdown of landings by major gear type; harvest from gill nets clearly dominates landings.

The proportions of Spanish mackerel pound net landings by size bin were calculated using commercial trip ticket data and fishery-dependent sampling. The number of individuals, weight, and length frequencies (fork length) of Spanish mackerel in a pound net sample were expanded to represent the species quantities in the total state pound net catch (trip sample data were expanded to represent the total catch). Expansion was accomplished by matching at the market grade level biological fish house sample data (mean weight or length data) to the corresponding commercial trip ticket market grade harvest. For example, the total length frequency of a species within a catch was derived by expanding the length frequency of the individuals measured in the subsample of a market grade (culled samples) to the total market category weight of that species in the sampled trip. These sample distributions were then summed and the summed distribution applied to the total landings of that market grade.



All of the monthly market grade distributions were summed to produce a single monthly length distribution (i.e., weighted by number of individuals in each distribution); similarly, annual distributions were summed to produce a single weighted annual distribution. In instances where only partial data sets were obtained, such as no fish house length data for a reported trip ticket market grade of extra-large, the number of fish values was applied to the proportions of fish greater than or equal to 12 inches fork length. In cases where species collection weight was obtained, but not species collection number, substitute estimates based on means calculated from available data (e.g., average year market weight) in the same or adjacent sampling cells were used to fill in missing values.

Table 4 and Figure 1 show the proportions of July through September Spanish mackerel pound net harvest (in numbers of fish) accounted for by different size bins for the years 2012-2015. There was a distinct increase of the proportions of fish below 11.5 inches during these months, from one percent in 2012 to 16 percent in 2013, then dropping to 11 percent in 2014, and increasing back to 15 percent in 2015. Similarly, the proportion of fish harvested between 11.5 and 11.99 inches increased from eight percent in 2012 to 16 percent in 2013, decreased slightly to 12 percent in 2014, and dropped to seven percent by 2015. In 2015, the proportion of fish less than 11.5 inches increased to 15 percent of Spanish mackerel pound net harvest during July through September, while the proportion of fish between 11.5 and 11.99 inches dropped to seven percent.

Table 5 and Figure 2 illustrate the annual proportions of Spanish mackerel pound net harvest (in numbers of fish) by size bin. On an annual basis, the proportion of fish less than 11.50 inches increased from less than one percent in 2012 to 11 percent in 2013, dropped in 2014 to two percent, and reached 10 percent in 2015. The proportion of fish between 11.5 and 11.99 inches increased from three percent in 2012 to 11 percent in 2013, and fell to four percent in 2014, then reached five percent of annual Spanish mackerel pound net harvest in 2015.

## **Discussion**

The harvest of Spanish mackerel by pound nets in North Carolina represents a small fraction of the total commercial landings. Despite the decrease in pound net landings of Spanish mackerel in 2013, the proportion of fish harvested within the exempted size limit and below is somewhat high (on an annual basis, Table 5) in comparison to 2014. There are several possible reasons for this: a decrease in the total number of pound net trips in 2013 compared to 2012; the relatively short timeframe during which this fishery occurs; and the small geographic area (the eastern edge of Pamlico Sound on the backside of the Outer Banks). All of these factors combined to produce limited fishery-dependent sampling opportunities in 2013 for the pound net fishery. Fewer available trips and a shortened season can result in missed sampling of certain market grades, which impacts the ability to accurately characterize the fishery. For these reasons, 2014 and 2015 may be a better comparison with regard to the effectiveness and impact of the size limit exemption on harvest.

While the proportional increases in harvest by size bin in 2013 are high in comparison to 2012 and 2014, the magnitude of that harvest is relatively small in comparison to the total harvest

(across all fisheries) of Spanish mackerel, especially since the proportion of size bins landed in 2015 were more similar to 2013 than any other year. Applying the proportions of July through September harvest below 11.5 inches and between 11.5 and 11.99 inches from Table 4 to the pound net landings during these months in Table 3, approximately 3,900 pounds of Spanish mackerel under the regular 12-inch size limit were harvested in 2013 (roughly 2,000 pounds below 11.5 inches and 2,000 pounds between 11.5 and 11.99 inches). Similarly for 2014, approximately 500 pounds of Spanish mackerel below 11.5 inches and 600 pounds between 11.5 and 11.99 inches were harvested by pound nets. For 2015, given the overall increase in pound net harvest, approximately 3,500 pounds below 11.5 inches and 1,600 pounds between 11.5 and 11.99 inches were harvested by pound nets.

Finally, a couple discrepancies should be noted between the 2015 report and this report. First, an unnecessary conversion (from kilograms to pounds) occurred with landings from 2012 in the 2015 report; this has been corrected. Second, corrections to the coding of fishery-dependent pound net samples occurred in the NCDMF biological database, which impacted the proportions of harvest shown in Tables 4 and 5, and Figures 1 and 2.

**Table 1a.** North Carolina Spanish mackerel landings (pounds) by pound nets vs. other gears (2012-2015).

<b>Gear Type</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Grand Total</b>
Pound net	38,612	18,764	25,600	40,032	123,008
Other gears	874,382	598,051	645,592	518,961	2,636,986
<b>TOTAL</b>	<b>912,994</b>	<b>616,815</b>	<b>671,192</b>	<b>558,993</b>	<b>2,759,994</b>

**Table 1b.** North Carolina Spanish mackerel proportion of landings from pound nets vs. other gears (2012-2015).

<b>Gear Type</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Grand Total</b>
Pound net	4%	3%	4%	7%	4%
Other gears	96%	97%	96%	93%	96%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Table 2.** North Carolina Spanish mackerel landings (pounds) by major gear type (2012-2015).

<b>Gear Type</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Beach Seine	15	44	23	22
Estuarine Gill Net	372,801	250,524	221,972	229,439
Long Haul	197	682	1,069	
Ocean Gill Net	501,369	346,801	422,528	289,500
Pound Net	38,612	18,764	25,600	40,032
<b>TOTAL</b>	<b>912,994</b>	<b>616,815</b>	<b>671,192</b>	<b>558,993</b>

**Table 3.** North Carolina pound net landings (pounds) by month (2012-2015).

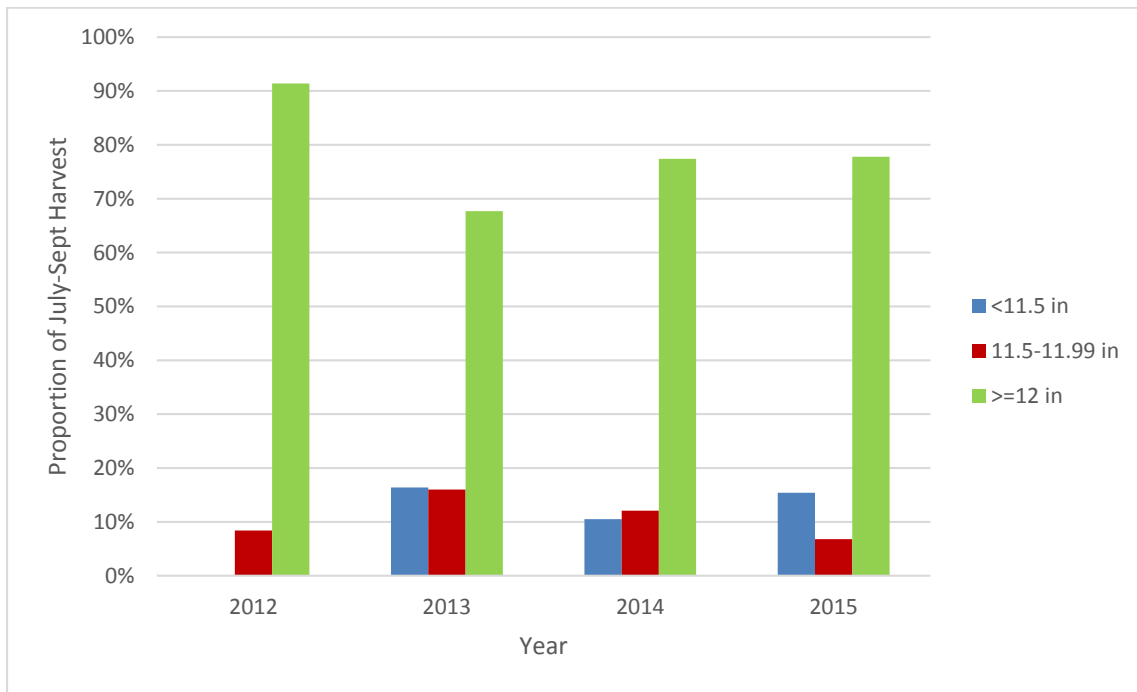
<b>Month</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
May	3,173	-	389	93
June	24,191	6,222	20,262	16,127
July	5,761	4,408	2,425	9,519
August	2,719	3,585	2,297	11,365
September	2,622	4,357	218	2881
October	146	111	9	43
November	-	81	-	4
<b>TOTAL</b>	<b>38,612</b>	<b>18,764</b>	<b>25,600</b>	<b>40,032</b>

**Table 4.** Proportion of July - September Spanish mackerel pound net landings (number of fish) by size class (2012-2015).

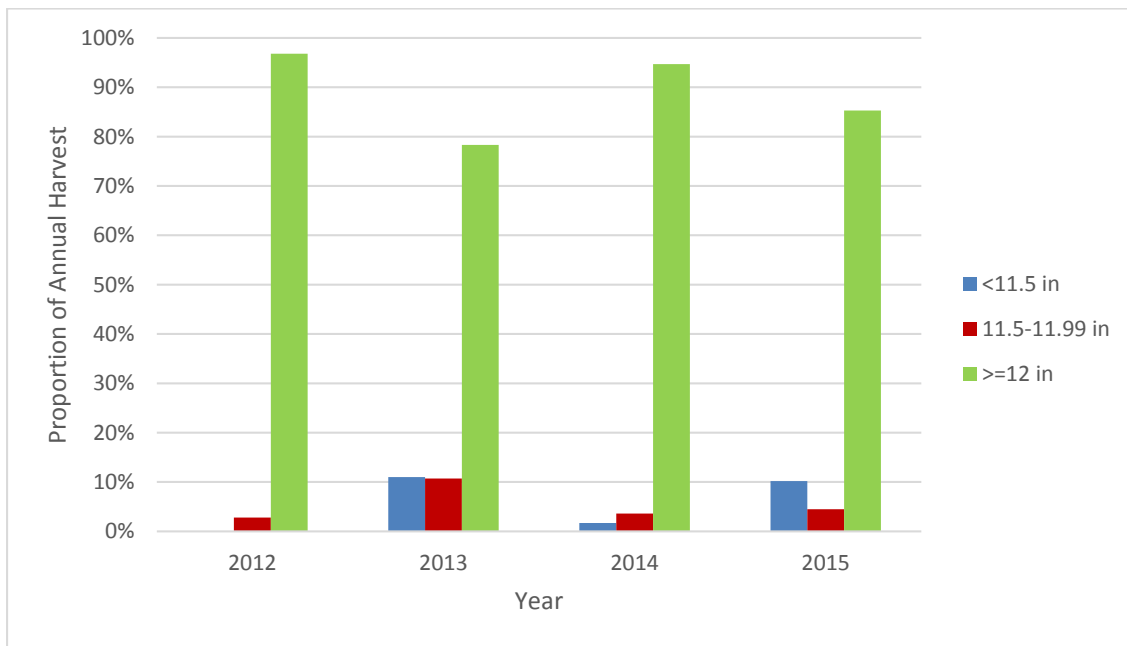
<b>Size (July-Sept)</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<11.5 in	<1%	16%	11%	15%
11.5-11.99 in	8%	16%	12%	7%
≥12 in	91%	68%	77%	78%

**Table 5.** Proportion of annual Spanish mackerel pound net landings (number of fish) by size class (2012-2014).

<b>Size (Jan-Dec)</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<11.5 in	<1%	11%	2%	10%
11.5-11.99 in	3%	11%	4%	5%
≥12 in	97%	78%	95%	85%



**Figure 1.** Proportion of July through September Spanish mackerel pound net harvest accounted for by different size bins (2012-2015).



**Figure 2.** Proportion of annual Spanish mackerel pound net harvest accounted for by different size bins (2012-2015).