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

Robert E. Beal, Executive Director

Maine Department of Marine Resources
State House Station 21
Augusta, ME 04333

Patrick Keliher, Commissioner

MEMORANDUM

October 19, 2016

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

FROM: Robert E. Beal REB
Executive Director

RE: **75th Annual Meeting of the Atlantic States Marine Fisheries Commission**
October 23-27, 2016

The Atlantic States Marine Fisheries Commission's 75th Annual Meeting will be held October 23-27, 2016 at the Harborside Hotel in Bar Harbor, Maine. The reserved hotel room block is now closed. Please call Cindy Robertson at the Commission if you need assistance with lodging.

Board/Section meeting proceedings will be broadcast daily via webinar at https://attendee.gotowebinar.com/register/6632926318150310403 beginning at 8:30 a.m. on October 24th, continuing daily until the conclusion of the meeting (expected to be 4:00 p.m.) on October 27th. The webinar will allow registrants to listen to the proceedings of the Commission's management boards/sections during the 75th Annual Meeting, October 24-27, 2016. Registrants will also be able to view presentations and motions as they occur. For a detailed agenda and meeting materials, go to http://www.asmfc.org/home/2016-Annual-Meeting. No comments or questions will be accepted via the webinar. Should technical difficulties arise during the streaming of the broadcast, the boards/sections will continue their deliberations without interruption. We will attempt to resume the broadcast as soon as possible. Board/Section summaries, presentations, and audio files will be available at http://www.asmfc.org/home/2016-Annual-Meeting the week of October 30th.

Maine DMR has arranged for a boat tour around the local area islands and Mt Desert shoreline on one of the Bar Harbor Whale Watch vessels. The tour will last about an hour, and there will be a cash-bar on board. Information about where to meet will be available at the registration desk at the Annual Meeting.

The following pages contain the Final Agenda. Be advised the schedule is subject to change; the order in which the agenda items are listed is subject to change, and other agenda items or meetings may be added as necessary.

I look forward to seeing you all in Bar Harbor.

Enclosures: Annual Meeting Agenda
TA #16-067

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, October 18, 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, **October 18, 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.

Preliminary Agenda (Revised)

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.

Sunday, October 23, 2016

2:00 – 6:00 p.m. **Registration**

6:30 – 8:30 p.m. **Welcome Reception**

Monday October 24, 2016

7:00 a.m. – Noon **Registration**

8:30 a.m. – Noon **75th Annual Meeting Plenary Session – *Honoring our Past, Celebrating the Present and Envisioning the Future***

1. Welcome/Kick-off, ASMFC Chair Doug Grout, Chief of Marine Fisheries, New Hampshire Fish and Game
2. Plenary Overview, ASMFC Executive Director Bob Beal
3. ASMFC History
   - Honoring the Past (1941-1991), Phil Coates, former Massachusetts Division of Marine Fisheries Director and ASMFC Commissioner (1979-2000)
   - Celebrating the Present (1992- 2016), Susan Shipman, former Georgia Coastal Resources Division Director and ASMFC Commissioner (1994-2008)
4. ASMFC Highlights – Interactive Session
5. Morning Session Wrap-up and Overview of Things to Come, Bob Beal
6. Break
7. Envisioning the Future
   - Introduction, Patrick Keliher, Commissioner, Maine Department of Marine Resources
   - Observations on the Current and Future State of the Ocean and Marine Resources, Guest Speaker Dr. Robert Steneck, Maine School of Marine Sciences
   - Panel Discussion on Adapting to Future Challenges

Panelists: Jack Dunnigan, Former ASMFC Executive Director and Assistant Administrator for Oceans and Coastal Services; Gordon Colvin, former Director of Marine Resources, New York State Department of Environmental Conservation and ASMFC Commissioner (1982-2007); Robert Boyles, Jr., Deputy for Marine Resources, South Carolina Department of Natural Resources; Patrick Keliher; Jason McNamee, Chief, Marine Resources Division, Rhode Island Division of Fish and Wildlife; and Kathy Knowlton, Fisheries Statistics Unit Leader, Georgia Coastal Resources Division

8. Plenary Wrap-up and Adjournment, Bob Beal

1:00 – 5:00 p.m. **Law Enforcement Committee**

(A portion of this meeting is a closed session for Committee members and authorized personnel only)

Members: Anthony, Blanchard, Burton, Cloutier, Cornish, Donovan, Eastman, Frampton, Furlong, Gordon, Green, Hettenbach, Hogan, Huss, Kersey, King, Lynn, Messeck, Moran, Overturf, Schlaht, Snellbaker

Chair: Eastman

Staff: Robson

1. Call to Order/Roll Call of the Law Enforcement Committee (LEC) Representatives *(M. Eastman)*
2. Approval of Agenda and Minutes from May 2016
3. Public Comment
4. Discussion of Emerging ISFMP Issues
5. Review and Discussion of 2017 Action Plan Items
6. Interstate Violator Compacts and Application to Marine Fisheries
7. Review Proposed Jonah Crab Claw Harvest Regulations
8. Review Warrant and Search Provisions Among LEC Jurisdictions
9. Review and Discussion of Ongoing Enforcement Activities *(Closed Session)*
10. Other Business/Recess

1:00 – 1:30 p.m. **Spiny Dogfish Management Board**

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

Other Members: NMFS, USFWS

Chair: Borden

Other Participants: Moran, Newlin

Staff: Appelman

1. Welcome/Call to Order *(D. Borden)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2016
3. Public Comment
4. Review and Set Spiny Dogfish Fishery Specifications for 2017/2018 Season **Final Action**
   - Review Mid-Atlantic Fishery Management Council 2016-2018 Specifications Recommendation *(M. Appelman)*

5. Consider 2016 Spiny Dogfish Fishery Management Plan Review and State Compliance *(M. Appelman)* **Action**
6. Other Business/Adjourn

1:45 – 2:45 p.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 August 2016
3. Public Comment
4. Updates from NOAA Fisheries Highly Migratory Species (HMS) Division (*K. Brewster-Geisz*)
   - Review Proposed Rule for HMS Amendment 5b (Dusky Sharks) and 2016 Stock Assessment Results
   - Review Draft Environmental Assessment for Amendment 10 to the 2006 Consolidated HMS Fishery Management Plan: Essential Fish Habitat
   - Review Proposed Review Proposed Rule for Blacknose Possession Limits for Federally-permitted Vessels
   - Review Proposed Rule for the 2017 Atlantic Shark Commercial Fishing Season
5. Set 2017 Coastal Sharks Fishery Specifications *(A. Harp)* **Final Action**
6. Other Business/Adjourn

2:00 – 5:00 p.m. **Registration**

2:00 – 3:00 p.m. **Welcome Tea for Spouses/Guests**

3:00 – 5:00 p.m. **Atlantic Striped Bass Management Board**

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina
Other Members: NMFS, DC, PRFC, USFWS
Chair: Gilmore
Other Participants: Blanchard, Lengyel, Nelson
Staff: Appelman

1. Welcome/Call to Order *(J. Gilmore)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016

3. Public Comment
4. Technical Committee Report *(N. Lengyel)*
   - Performance Evaluation of Addendum IV Regulatory Measures
5. Review the 2016 Atlantic Striped Bass Stock Assessment Update *(G. Nelson)*
6. Consider the Advisory Panel Request to Submit Comment to the Mid-Atlantic Fishery Management Council on its Draft Squid Capacity Amendment *(J. Gilmore)* **Possible Action**
7. Other Business/Adjourn

Tuesday October 25, 2016

7:30 a.m. – Noon **Registration**

8:00 – 10:00 a.m. **Executive Committee**
Breakfast to be served at 7:30 a.m.
(A portion of this meeting may be a closed session for Commissioners and Committee members only)
Members: Abbott, Blazer, Boyles, Bull, Chanda, Clark, Davis, Estes, Gilmore, Grout, Keliher, McNamee, Miller, Pierce, Shiels, Simpson, Woodward
Chair: Grout
Staff: Leach

1. Welcome/Call to Order *(D. Grout)*
2. Board Consent
   - Approval of Agenda
   - Approval of Meeting Summary from August 2016
3. Public Comment
4. Consider Approval of FY16 Audit *(L. Leach)* **Action**
5. Review Conservation Equivalency Guidance Document *(T. Kerns)* **Action**
6. Review ASMFC Standard Meeting Practices Document *(R. Beal)* **Action**
7. Awards Committee Report *(S. Woodward)*
8. Review Performance Appraisal/Merit Increase Protocol *(R. Beal)*
9. Review Resolution Regarding Revision of Retirement Plan *(L. Leach)* **Action**
10. Discuss Revision of Action Plan to Include ACCSP Goal *(R. Beal)*
11. Discuss Health Benefits for Retired ASMFC Employees *(R. Beal)*
12. Other Business/Adjourn

8:00 a.m. – Noon **Law Enforcement Committee (continued)**

1. Social (Open to Commissioners and Staff)
2. Update on Future Safe Harbor Issues and Input (Other Emerging Issues)
3. Update on Aerial Enforcement Subcommittee Discussions
4. Federal/State Agency Reports
5. Lobster Enforcement Subcommittee Report and Discussion
6. Review Law Enforcement Committee Comments and Recommendations to ASMFC Boards
7. Review Out-of-State Shipment/Sale Tracking for Enforcement Needs
8. Review Updated ISFMP Issues
9. Other Business/Adjourn

10:15 a.m. – 12:15 p.m. **South Atlantic State/Federal Fisheries Management Board**

Member States: New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: PRFC, DC, NMFS, USFWS, SAFMC
Other Participants: Lynn, McDonough, Murphy, Rickabaugh
Chair: Estes
Staff: Kerns

1. Welcome/Call to Order *(J. Estes)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Consider Draft Cobia FMP Public Information Document for Public Comment *(L. Daniel)* **Action**
5. Red Drum Working Group Report *(J. Kipp)*
   - Presentation of Follow Up Tasks to the Red Drum Assessment
6. Progress Report on the Spot and Atlantic Croaker Benchmark Stock Assessments *(J. Kipp)*
7. Consider 2016 Fishery Management Plan Reviews and State Compliance *(A. Hirrlinger*) **Action**
   - Black Drum
   - Spanish Mackerel
   - Spotted Seatrout
8. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
9. SEAMAP Funding Update *(S. Madsen)*
10. Other Business/Adjourn

1:15 – 3:15 p.m. **Tautog Management Board**

Member States: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
Other Participants: McNamee, Snellbaker
Chair: Nowalsky
Staff: Harp

1. Welcome/Call to Order (*A. Nowalsky)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Review 2016 Stock Assessment Update *(J. McNamee)*
5. Provide Plan Development Team Guidance on Draft Amendment 1 *(A. Harp, A. Nowalsky)*
6. Update on Tautog Tagging Trial *(A. Harp)*
7. Other Business/Adjourn

2:30 – 5:00 p.m. **Registration**

3:30 – 4:30 p.m. **Summer Flounder, Scup, and Black Sea Bass Management Board**

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina
Other Members: NMFS, PRFC, USFWS
Other Participants: Wojcik, Snellbaker
Chair: Luisi
Staff: Rootes-Murdy

1. Welcome/Call to Order *(M. Luisi)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2016
3. Public Comment
4. Review Marine Recreational Information Program Wave 4 Harvest Estimates for Summer Flounder, Scup, and Black Sea Bass (if available) *(K. Rootes-Murdy)*
5. Consider Management Approaches for 2017 Summer Flounder and Black Sea Bass Recreational Fisheries **Possible Action**
   - Summer Flounder Working Group Report *(K. Rootes-Murdy)*
6. Update on Stock Assessment Progress for Black Sea Bass *(K. Rootes-Murdy)*
7. Consider 2016 Fishery Management Plan Reviews and State Compliance *(K. Rootes-Murdy)* **Action**
   - Summer Flounder
   - Scup
   - Black Sea Bass
8. Other Business/Adjourn

4:45 – 5:30 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: Harp

1. Welcome/Call to Order *(B. Goldsborough)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from May 2016
3. Public Comment
4. Consider Approval of the Nemasket River, Massachusetts Sustainable Fishery Management Plan for River Herring *(B. Chase)* **Final Action**
   - Review Technical Committee Memo on the Nemasket River Sustainable Fishery Management Plan
5. Discuss the Timetable for the Five-Year Update of Shad and River Herring Sustainable Fishery Management Plans *(A. Harp)*

6. Review Mid-Atlantic Fishery Management Council Decision on Potential Management of Shad and River Herring *(B. Goldsborough)*
7. Other Business/Adjourn

6:30 – 9:00 p.m. **Annual Dinner**

Wednesday October 26, 2016

8:00 – 10:00 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
Other Participants: Breese, Doctor, Messeck
Chair: Gilmore
Staff: Rootes-Murdy

1. Welcome/Call to Order *(J. Gilmore)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Consider Comments from the Adaptive Resource Management (ARM) Subcommittee on Draft Addendum VIII *(K. Rootes-Murdy)* **Possible Action**
   - ARM Subcommittee Report *(K. Anstead)*
5. Horseshoe Crab Technical Committees Report *(S. Doctor)* **Possible Action**
   - Shorebird and Horseshoe Crab Survey Reports Summary
   - ARM Framework Harvest Output for 2017
   - Recommendations on Bait Trials
6. Set 2017 Delaware Bay Horseshoe Crab Fishery Specifications *(K. Rootes-Murdy)* **Final Action**
7. Consider 2016 Horseshoe Crab Fishery Management Plan Review and State Compliance *(K. Rootes-Murdy)* **Action**
8. Other Business/Adjourn

10:15 – 11:15 a.m. **Atlantic Coastal Cooperative Statistics Program (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. Council Consent
   - Approval of Agenda
   - Approval of Minutes from August 2016
3. Public Comment
4. ACCSP Status Report *(M. Cahall)*
   - Program Updates
   - Committee Updates
5. Presentation of the Universe of Electronic Reporting Efforts on the Atlantic Coast *(M. Cahall)*
6. Consider Recommendations of FY2017 Submitted Proposals *(P. Campfield, J. Morgan)* **Action**
7. Consider Addendum to Memorandum of Understanding to Reflect Governance Change *(R. Boyles, Jr.)* **Action**
8. Other Business/Adjourn

11:30 a.m. – 12:30 p.m. **Business Session**

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 August 2016
3. Public Comment
4. Election of Commission Chair and Vice-chair (*R. Beal*) **Action**
5. Review and Consider Approval of the 2017 ASMFC Action Plan **Action**
6. Other Business/Adjourn

12:30 – 1:45 p.m. **Captain David H. Hart Award Luncheon**

2:00 – 5:00 p.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
Other Participants: Kaelin, McNamee, Kersey
Chair: Ballou
Staff: Ware

1. Welcome/Call to Order *(R. Ballou)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Review Timeline of Menhaden Activities through 2019 *(M. Ware)*

5. Set 2017 Atlantic Menhaden Fishery Specifications **Final Action**
    - Review Stock Projections and Recent Juvenile Abundance Indices Trends *(J. McNamee)*
    - Consider Postponed Motion to Set the 2017 Total Allowable Catch (TAC)
        - *Motion to set the 2017 Coastal TAC for the Atlantic Menhaden Fishery at 225,456 metric tons (20% Increase)*
6. Consider Draft Amendment 3 Public Information Document for Public Comment **Action**
    - Overview of Public Information Document *(M. Ware)*
    - Advisory Panel Report *(J. Kaelin)*
7. Technical Committee Report *(J. McNamee)*
    - Review of "The Fate of an Atlantic Menhaden Year Class"
8. Biological Ecological Reference Points Working Group Progress Report *(S. Madsen)*
9. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
10. Other Business/Adjourn

Thursday October 27, 2016

8:00 – 10:30 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 August 2016
3. Public Comment
4. Executive Committee Report *(D. Grout)*
5. Review Revisions to the Conservation Equivalency Guidance Document *(T. Kerns)* **Final Action**
6. Update on the Climate Change Working Group *(T. Kerns)*
7. Discuss Risk and Uncertainty Policy Workgroup White Paper *(J. McNamee)*
8. Habitat Committee Report *(T. Kerns)* **Action**
    - Review and Consider the Sciaenid Habitat Source Document
    - Review State Reports on Climate Change Initiatives
    - Review the Draft Letter to BOEM regarding Seismic Testing
9. Atlantic Coastal Fish Habitat Partnership Report (*P. Campfield)*
10. Law Enforcement Committee Report *(M. Robson)*
11. Discuss and Consider Comment on the National Park Service Management Policies (*J. Gilmore*)
12. Review Non-Compliance Findings, If Necessary **Possible Action**
13. Other Business/Adjourn

10:45 a.m. – 12:15 p.m. Atlantic Herring Section

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey
Chair: White
Other Participants: Eastman, Kaelin, Zobel
Staff: Harp

1. Welcome/Call to Order *(R. White)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2016
3. Public Comment
4. Elect Vice-chair **Action**
5. Review and Discuss White Paper on Fishery Performance and Alternative Management Tools *(A. Harp, R. White)* **Possible Action**
6. Set 2017 Atlantic Herring Specifications for Area 1A **Final Action**
7. Other Business/Adjourn

12:30 – 4:00 p.m. American Lobster Management Board *(Lunch to be provided)*

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
Other Members: NMFS
Chair: Borden
Other Participants: Cornish, Reardon
Staff: Ware

1. Welcome/Call to Order *(D. Borden)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Consider American Lobster Draft Addendum XXV for Public Comment *(M. Ware)* **Action**
5. Discuss Trap Caps Included in Addenda XXI and XXII *(M. Ware)*
6. American Lobster Reporting Work Group Report *(M. Ware)* **Possible Action**
7. Consider Jonah Crab Draft Addendum II for Public Comment **Action**
   - Jonah Crab Working Group Report *(M. Ware)*
8. Consider 2016 American Lobster Fishery Management Plan Review and State Compliance *(M. Ware)* **Action**
9. Update on the Atlantic Marine Monument Designation *(M. Ware)*
10. Update on New England Fishery Management Council Deep-Sea Coral Amendment *(M. Ware)*
11. Other Business/Adjourn

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 20, 2016

To: Council

From: Jason Didden

Subject: Spiny Dogfish 2017 Specifications Review

On October 5, 2016, the Council will review the 2017 fishing year specifications for spiny dogfish. Multiyear specifications are currently in place for May 2016-April 2019.

After reviewing the information developed for and considered by the Spiny Dogfish Advisory Panel (AP), the Scientific and Statistical Committee (SSC), and the Spiny Dogfish Monitoring Committee, Council staff recommends that no changes be made to the 2017 fishing year specifications. Although all relevant parameters are within expected ranges, we note that the NEFSC survey and landings rate are both higher for 2016 compared to 2015.

The following supporting documents are included in this Tab:
(a running page number has been added for reference)

-Monitoring Committee Summary
-SSC Report
-Staff Memo on Acceptable Biological Catch (ABC)
-AP Fishery Performance Report

The Data Update provided by NMFS and the Fishery Information Document used by the AP are also available at: http://www.mafmc.org/ssc-meetings/2016/september-14-2016.

Mid-Atlantic Fishery Management Council
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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 20, 2016

To: Council

From: Jason Didden

Subject: Spiny Dogfish 2017 Specifications Review, Monitoring Committee Summary

On October 5, 2016, the Council will review the 2017 fishing year specifications for spiny dogfish. Multiyear specifications are currently in place for May 2016-April 2019. This memo summarizes the results of the September 16, 2016 Spiny Dogfish Monitoring Committee (MC) meeting (webinar). The purpose of the meeting was to review management measures for the upcoming fishing years and make recommendations as appropriate. Monitoring Committee members in attendance included Jason Didden (MAFMC staff, Chair), Fiona Hogan (NEFMC staff), Willie Whitmore (NMFS-GARFO), Eric Schneider (RI-DEM), Dan McKiernan (MADMF), Angel Willey (MDDNR), Jack Musick (VIMS), Beth Egbert (NCDENR), and Kathy Sosebee (NMFS-NEFSC). Others in attendance included Greg DiDomenico, Katie Almeida, Rob O'Reilly, John Whiteside, and Max Appelman (ASMFC).

Jason Didden summarized the data update provided by the NMFS Northeast Fisheries Science Center, the Advisory Panel input, and the Scientific and Statistical Committee's decision to endorse the already-set multiyear spiny dogfish specifications (Table 1 next page). Based on a review of the available information, the Monitoring Committee saw no reason to recommend any changes to the 2017 specifications and management measures. The Monitoring Committee noted that the NEFSC survey and landings rate are both higher for 2016 compared to 2015 (Figures 1 and 2 next page). The relevant background materials may be accessed at http://www.mafmc.org/ssc-meetings/2016/september-14-2016.

Table 1. May 2016 to April 2019 Spiny Dogfish Specifications

Specifications	Basis	2016 (pounds)	2016 (mt)	2017 (pounds)	2017 (mt)	2018 (pounds)	2018 (mt)
OFL	Projected Catch at Fmsy	64,414,664	29,218	na	na	na	na
New ABCs	Council Risk Policy	52,066,572	23,617	50,805,528	23,045	49,901,633	22,635
Canadian Landings	= avg last 3 years (10,11,12)	143,300	65	143,300	65	143,300	65
Domestic ABC	= ABC – Canadian Landings	51,923,272	23,552	50,662,228	22,980	49,758,333	22,570
ACL	= Domestic ABC	51,923,272	23,552	50,662,228	22,980	49,758,333	22,570
Mgmt Uncert. Buffer	Ave pct overage since 2011	0	0	0	0	0	0
ACT	= ACL - mgmt uncertainty	51,923,272	23,552	50,662,228	22,980	49,758,333	22,570
U.S. Discards	=3 year average 12-13-14	11,494,167	5,214	11,494,167	5,214	11,494,167	5,214
TAL	ACT – Discards	40,429,105	18,338	39,168,060	17,766	38,264,165	17,356
U.S. Rec Landings	= 2014 estimate	68,343	31	68,343	31	68,343	31
Comm Quota	TAL – Rec Landings	40,360,761	18,307	39,099,717	17,735	38,195,822	17,325

OFL = Overfishing Level; ABC = Acceptable Biological Catch; ACL = Annual Catch Limit; ACT = Annual Catch Target; TAL = Total Allowable Landings; Rec = Recreational; Comm = Commercial.

Figure 1. NEFSC Spring Survey Spiny Dogfish Index - 1991-2016

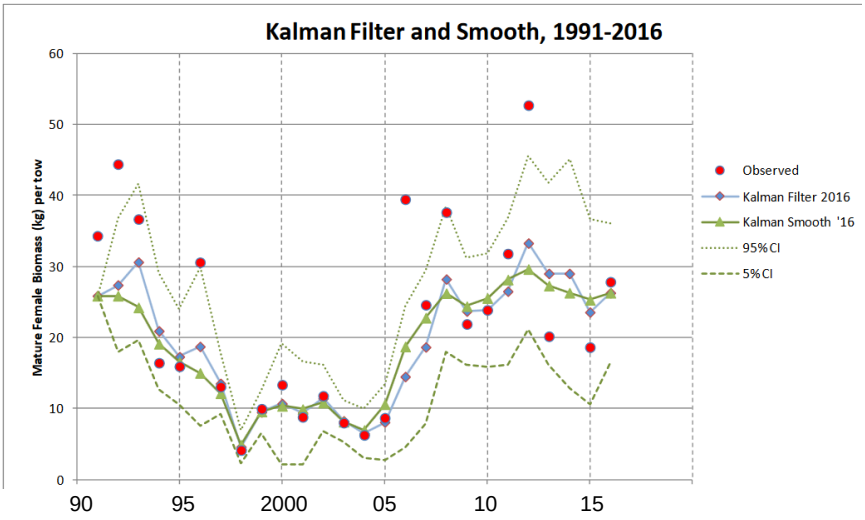
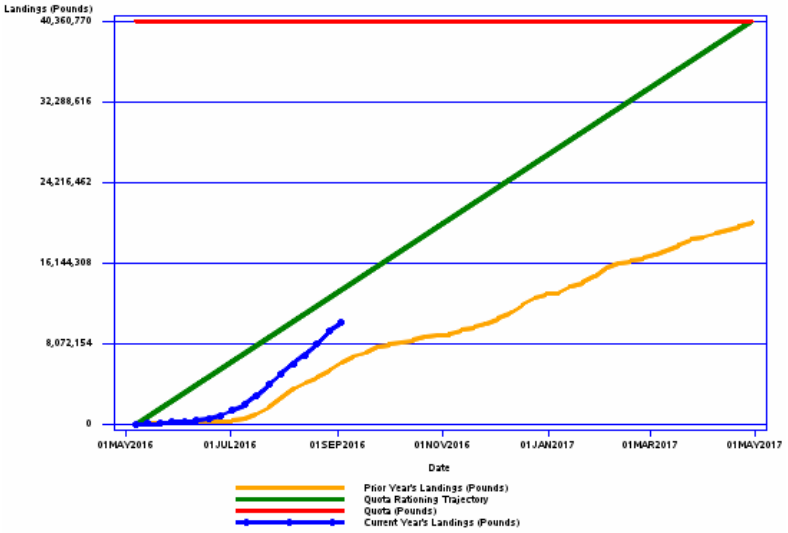


Figure 2. Current Fishing Year (through 9/3/2016) Versus Previous Year Spiny Dogfish Landings



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Michael Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

M E M O R A N D U M

DATE: 21 September 2016

TO: Michael Luisi, MAFMC Chairman

FROM: John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee

SUBJECT: Report of the September 2016 SSC Meeting

The SSC met in Baltimore, MD, on 14 September 2016 for the main purpose of reviewing the 2017 and 2018 ABC recommendations for Spiny Dogfish to determine if they should be changed, continuing discussion of criteria for assigning coefficients of variation (CVs) for overfishing limits (OFLs), and reviewing a draft of the State of the Ecosystem Report being prepared by the Northeast Fisheries Science Center. The final meeting agenda is attached (Attachment 1).

A total of 16 SSC members were in attendance, which constituted a quorum (Attachment 2). Also in attendance, beside you, were MAFMC staff, staff from NMFS HQ, and a representative from the Pew Charitable Trust. Documents cited in this report can be accessed via the MAFMC SSC website: http://www.mafmc.org/sscmeetings/2016/september-14-2016.

Spiny Dogfish

Jason Didden presented the data update for Spiny Dogfish prepared by the Northeast Fisheries Science Center (NEFSC) and a summary of the Fishery Performance Report prepared by the Spiny Dogfish Advisory Panel. The stock is in the second year of a three-year specification period. Recent landings, discards, and trawl survey indices are all within the expected range, although the trawl survey was delayed. The NEFSC data update states that "estimated total catches in 2015 were less than half of the ABC, and the index of female spawning stock abundance increased in 2016. Hence, the primary metrics that underlie the assessment revealed no major causes for concern. Various indicators of stock status also suggest no causes for concern. Recent changes in average size of landed fish and an increase in the fraction of male

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 6, 2016

To: Chris Moore, Executive Director

From: Jason Didden, Staff

Subject: Dogfish Specifications Review for 2017 Fishing Year

Dogfish is in multi-year specifications for 2016-2018. The Council's Scientific and Statistical Committee (SSC) is scheduled to review the 2017 dogfish ABCs during its September 2016 meeting.

A data update from NMFS' Northeast Fisheries Science Center (NEFSC), a fishery information document that supported the Advisory Panel's meeting, and the Advisory Panel's Fishery Performance Report have been posted to http://www.mafmc.org/ssc-meetings/2016/september-14-2016.

Staff recommends no changes to 2017 dogfish ABCs because recent landings, discards, and trawl indices have fluctuated within expected ranges. We expect another data update in 2017 followed by an assessment update in 2018.

2016 Spiny Dogfish Advisory Panel (AP)
Fishery Performance Report (FPR)

The Spiny Dogfish Advisory Panel (AP) (http://www.mafmc.org/advisory-panels/) met September 6, 2016 to develop the Fishery Performance Report (FPR) below. The meeting was conducted via internet webinar and facilitated by Jason Didden, the Mid-Atlantic Fishery Management Council's Dogfish Fishery Management Plan (FMP) coordinator. The advisors who participated were:

Bonnie Brady
James Sulikowski
Jan McDowell
Greg DiDomenico
Sonja Fordham
James Fletcher
Douglas Feeney
Claire Fitz-Gerald
Chris Hickman
Scott MacDonald

Additional participants included:

Max Appleman
Rob O'Reilly
John Whiteside
Wendy Gabriel
Fiona Hogan
William Whitmore
John Boreman
Ray Kane

The fishery performance report's primary purpose is to contextualize catch histories for the Scientific and Statistical Committee (SSC) because of the potential importance of this and related information for determining Acceptable Biological Catches (ABCs). The goal is to allow comparing and contrasting of the most recent year's conditions and fishery characteristics with previous years. First an overview of recent fishery data was provided by Jason Didden, and then trigger questions were posed to the AP to generate discussion. The trigger questions were:

*What factors have influenced recent catch?
– Markets/economy? – Environment?
– Fishery regulations? – Other factors?
*Are the current fishery regulations appropriate? How could they be improved?
-Gear regulations and exemptions? -Trip Limits? -Others?
*Where should the Council and Commission focus their research priorities?
*What else is important for the Council and Commission to know?
*Are there any recent major changes in this fishery?

The input from the AP begins on the following page. The information in this FPR does not represent a consensus, but rather a summary of the perspectives and ideas that were raised at the meeting.

General

- Quality is critical for maintaining price and the existing market. Large trips may have trouble maintaining product quality.
- The regional differences in the fishery mean that any changes (e.g. trip limits) have the potential to differentially impact different areas.
- Flooding processors with lots of spiny dogfish will harm the market. The fishery appears stable. See what happens with new rules (higher trip limits and rules allowing dual-targeting of monkfish and dogfish).
    - A contrary, minority perspective was also voiced: Developing new markets (Asia/Africa) will require lower, not higher prices, and manipulating price (by limiting catch) to address small boat concerns hinders the possibility of greater overseas markets.

Factors Influencing Catch

- Markets are crucial to getting prices high enough to stimulate fishing activity. Low catches relative to the quota in recent years are due to low prices/effort. Some European markets constraints have been mitigated, others persist.
- There may be some spiny dogfish landings in Europe in the near future related to retention rules, which may impact demand for imports.
- Abundance does not currently drive catches; boats have no problem obtaining their trip limits.
- There are relatively few boats willing to go out for dogfish at current prices, but a small price increase could change that (see Cape Cod info below)
- European markets are shifting away from sharks, limiting US dogfish exports to Europe.
    - The Shark Alliance did not promote European boycotts of US spiny dogfish/other legally caught sharks (though other entities seek/have sought to do this).
    - Europe seems to have the U.S. figured out in terms of pricing, while traditional European demand may be declining due to changing tastes.
- General sentiment about sharks and shark fins have hurt the market and created barriers to shipping (about 19 container lines have adopted internal policies to not carry any shark products and there are bans in several states). There is interest in purchasing spiny dogfish internationally but ENGO opposition as well, despite MSC certification and the sustainability of the U.S. East Coast spiny dogfish fishery.
- Market & regulatory issues discourage new processors. The one New York processor closed after Hurricane Sandy – market issues discouraged their re-entry.
- The web of federal, state, and international rules (on fishing and sales) discourage entry into the processing sector generally. The Council processes, and favoring of small boats and a few processors, have exacerbated and perpetuate these issues.
- Virginia had mild winter and boats fished through the winter (including Jan & Feb), improving early 2016 landings.
- On Cape Cod:
    - In 2013, the price for dogfish was extremely low (~10 cents/lb) and processors instituted forced days off.

    - In 2014, the price was much better (upper 20s cents/lb) and there were no days off.
    - 2015: 18-22 cents per pound; 2016: 20-24 cents, 30-34 cents if trucked to New Bedford. They have seen more vessels participating.
    - It is not clear what exactly is driving these price changes, but they have a big impact on fishing/total catches.

Input on Regulations

- Some advisors would like to see a slow and steady approach that does not create large changes in catches and/or prices.
- Raising trip limits may collapse prices if additional markets are not developed.
- An occasional trip limit for trawlers (once or twice a month) around 30,000 pounds could help provide fish to any markets that develop.
    - A double limit once a week was raised as an alternative possibility
    - Regarding different kinds of trip limits, enforcement/monitoring needs to be ensured.
    - Some in Massachusetts are interested in a seasonal (October through December) trip limit increase that would not hurt smaller boats in the summer or crash the market. Discussions are considered preliminary, but may be in the 7,500 – 10,000 pound trip limit range.
    - There was concern that such adjustments could hurt more southern ports, and more details would be needed to evaluate.
- At least one advisor is interested in allowances to harvest male dogfish in excess of the typical trip limit and possibly a separate quota (which is currently made up of mostly female dogfish). A male only fishery would need an Amendment and/or benchmark assessment but recent research suggests it may be feasible. An advisor noted that males can be targeted currently.
- It would be useful to have a NE permit covering smooth dogfish to reduce regulatory burdens.

Research Priority Ideas

- Domestic and/or non-European markets.
    - Lack of southern processor(s) is an issue restricting southern landings.
- Separation of spiny and smooth dogfish in NOAA trade database (buyers in particular may want to know) and ground-truthing of this database by NOAA Fisheries/Council, etc. NOAA cannot separate spiny and smooth dogfish – this is a code by another international trade agency – a petition could be made but may not be successful given the relatively low value of dogfish.
- Longer term tracking of export trends. https://www.st.nmfs.noaa.gov/commercial-fisheries/foreign-trade/applications/trade-by-product

- Better tracking of dogfish used/sold as fertilizer.
- Investigate ways to increase the quality of meat (i.e. how can it be processed on deck, etc.), which in turn would increase the price of the product. There is no shortage of dogfish and if we can get the price higher I think this would have a snow ball effect on the market.
- New benchmark assessment needed including:
    - Exploration of how spiny dogfish recovered so much faster than predicted (Could be useful for managing multiple other shark fisheries).
    - Increased engagement with fishermen as part of scientific research.
    - Better estimate of the population of male dogfish and availability of dogfish to the relevant surveys generally.
    - Obtain reproductive and other biological information across the range of the species before the next assessment.
    - Prioritize the biological information that needs updating before the next assessment.

Other Issues Raised

- There needs to be a clear division of male and female dogfish in terms of the assessment versus catch limits versus monitoring.
- Consider having NAFO manage the fishery outside the EEZ to facilitate the creation of a male-only fishery.
- There was a concern voiced over the process used to change the trip limit on the ASMFC side of things in terms of public notice – this was passed along to ASMFC staff.
- A name change for spiny dogfish ("chipfish" has been suggested in addition to "cape shark") could help the market, and could allow access to a prison protein market (http://www.wsj.com/articles/SB122907204390964 81).
    - Massachusetts advisers noted that "Cape Shark" is an approved market name (http://www.accessdata.fda.gov/scripts/fdcc/?set=seafoodlist&id=Squalus_acanthias&sort=SLSN&order=ASC&startrow=1&type=basic&search=dogfish)

October 2016 Council Meeting Report

October 4 – 6, 2016

Galloway, New Jersey

The following summary highlights actions taken and issues considered at the Mid-Atlantic Fishery Management Council's October 2016 meeting in Galloway, New Jersey. Presentations, briefing materials, and audio recordings are available on the Council's website at www.mafmc.org/briefing/october-2016.

River Herring and Shad

The Council met to develop recommendations on whether to develop an amendment to consider adding RH/S as Council-managed stocks. Based on a comprehensive review of existing and planned conservation and management efforts, the Council determined that management of river herring and shad (RH/S) through a Council fishery management plan (FMP) is not warranted. However, the Council reaffirmed its commitment to participating with partners in the conservation and management of RH/S, noting that it will continue to protect RH/S stocks by proactively using the tools provided in the recently-approved Ecosystem Approaches to Fisheries Management (EAFM) Guidance Document. The Council will also continue to use catch caps to incentivize harvesters to reduce river herring and shad bycatch.

The Council's decision not to add these stocks to the fishery management plan for Atlantic mackerel, squid, and butterfish was largely based on the fact that RH/S are already managed by the Atlantic States Marine Fisheries Commission and that the catch caps set by the Council have kept incidental catch very low compared to historic levels. There is no evidence that RH/S are targeted in Federal fisheries, and the Council concluded that an FMP would not substantially improve the condition of RH/S stocks.

More details about this decision can be found in the press release at http://www.mafmc.org/s/pr16_16_RHS-Management.pdf. For additional background information and documents about river herring and shad, go to http://www.mafmc.org/rhs/.

Spiny Dogfish – 2017 Specifications

The Council reviewed spiny dogfish specifications for 2017, which will be year 2 of 2016-2018 multi-year specifications. After considering input from the Scientific and Statistical Committee and the Spiny Dogfish Advisory Panel and Monitoring Committee, the Council made no changes to the previously-recommended specifications, which are described at:
https://www.greateratlantic.fisheries.noaa.gov/nr/2016/August/16dogfish20162018specsphl.pdf.

Blueline Tilefish Framework

The Council met at the first framework meeting to consider modifying the recreational measures for blueline tilefish. The measures previously selected by the Council for 2017 are a season of May-October with a possession limits of 7 fish per-person for inspected for-hire vessels, 5 fish for uninspected for-hire vessels, and 3 fish for private vessels. During the meeting, staff presented an overview of possible options. The Council confirmed that it wants to proceed with development of the framework and requested that staff develop a range of alternatives that include a 5-fish uniform limit, extending the season later in the year, and/or a higher possession limit for multi-day trips by inspected for-hire vessels.

New Jersey Special Management Zone Consideration

In November 2015 the New Jersey Department of Environmental Protection (DEP) petitioned the Council to designate 13 artificial reef sites as Special Management Zones (SMZs) in the Exclusive Economic Zone (EEZ) under provisions of Amendment 9 to the Summer Flounder, Scup and Black Sea Bass FMP. The justification for

this request was based on the need to ameliorate gear conflicts between hook and line fishermen and fixed pot/trap gear at those sites.

During the meeting the Council received a report from the SMZ Monitoring Team (MT), which was formed to evaluate the NJDEP request. The report concluded that the designation of the NJDEP 13 reef sites appears to be compatible with the Magnuson-Stevens Act and other applicable federal laws. Based on evaluation of all relevant factors, the MT recommended that the Council designate all 13 New Jersey's artificial reefs located in the EEZ as SMZs. This designation would stipulate that no fishing vessel or person on a fishing vessel may fish in the 13 New Jersey Special Management Zones with any gear except hook and line and spear fishing (including the taking of fish by hand). The MT analysis indicated that commercial fishing vessels deploying pot/trap gear off the coast of New Jersey would likely face minimal to no losses in ex-vessel revenue if the artificial reefs are designated as SMZs. The Council discussed the MT's recommendations and decided to hold public hearings in November 2016 in NJ and NY to solicit public comments on the NJ SMZ request. The Council will review the public comments and take final action at its December 2016 meeting.

Draft Environmental Assessment for Amendment 10 to the Highly Migratory Species FMP

The Council received a presentation on Draft Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan. Draft Amendment 10 would update and revise existing HMS EFH, modify existing HAPCs or designate new HAPCs for several species, and analyze fishing and non-fishing impacts on EFH by considering environmental and management changes and new information since 2009. NMFS will conduct public hearing conference calls and webinars to allow for opportunities for interested members to submit verbal comments on Draft Amendment 10. Instructions for providing written comments are available at https://www.federalregister.gov/d/2016-21621.

Communication and Outreach

Council staff presented an overview of the Council's communication and outreach program and a proposed list of additional activities to be undertaken in 2017 and 2018. The Council provided input and suggestions which will be incorporated into a formal communication plan.

Executive Committee – 2017 Implementation Plan

The Executive Committee reviewed a draft list of priorities and activities for the 2017 implementation plan. The Committee recommended adding two items to the list of "Possible Additions." These include an action to address squid trimester issues and an action to change harvest regulations in the surfclam and ocean quahog fisheries. Council staff will incorporate the Committee's recommendations and present a revised draft for Council consideration at the December meeting. As part of this discussion, the Council reviewed a document which outlines the general process and timeline for development of an original FMP or amendment. This document is available on the Council's website at http://www.mafmc.org/s/FMP-Work.pdf.

Greater Atlantic Region Bulletin

National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930

For Information Contact:
Sustainable Fisheries Division
(978) 281-9315

http://www.greateratlantic.fisheries.noaa.gov
Date Issued: 8/15/2016

New Spiny Dogfish Measures Approved and Implemented Through 2018

Commercial Trip Limit Increased to 6,000 lb

Effective Date: August 15, 2016

The 2016 through 2018 spiny dogfish management measures, including catch limits, are now effective. These limits were developed and recommended by the Mid-Atlantic and New England Fishery Management Councils.

Commercial Spiny Dogfish Quotas Through Fishing Year 2018

Fishing Year	ACL (millions of lb)	Commercial Quota (millions of lb)	Percent Change from 2015
2016	51.9	40.4	-20%
2017	50.7	39.1	-23%
2018	49.8	38.2	-25%

We are increasing the Federal trip limit from 5,000 lb to 6,000 lb, effective immediately.

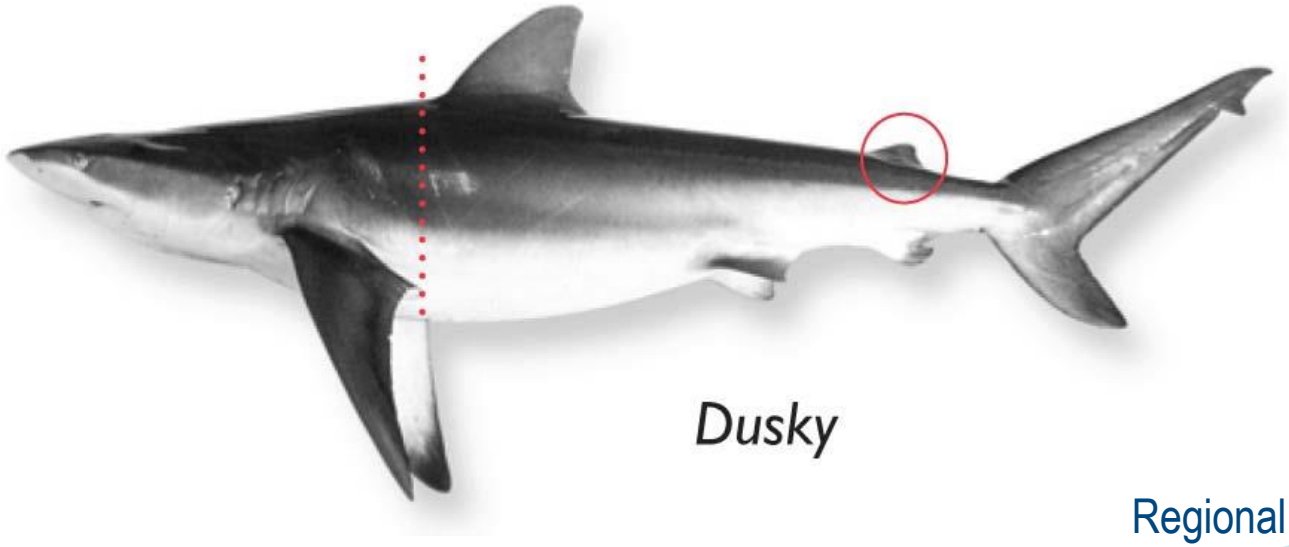
Additional information can be found online at: www.greateratlantic.fisheries.noaa.gov/. Please contact the Sustainable Fisheries Division at 978-281-9315 with any questions.

For small entity compliance guides, this bulletin complies with section 212 of the Small Business Regulatory Enforcement and Fairness Act of 1996. This notice is authorized by the Regional Administrator of the National Marine Fisheries Service, Greater Atlantic Region.

Atlantic Highly Migratory Species

Amendment 5b - Dusky Shark Management Measures:

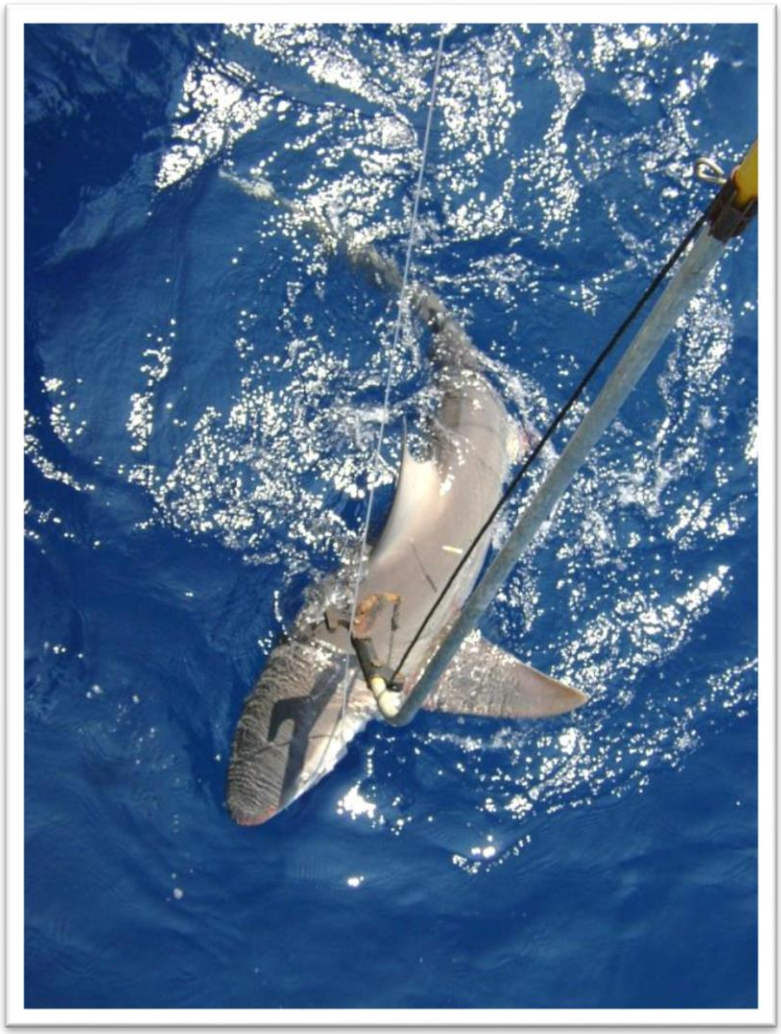
Proposed Rule



Presented to
Regional Fishery Management Councils
and Marine Fisheries Commissions
Oct. – Dec. 2016

Outline

- Background
  - Management History
  - SEDAR 21 Update and Addendum
- Alternatives Considered
  - Recreational
  - Commercial
- ACLs and AMs for Prohibited Species
- Request for Comments

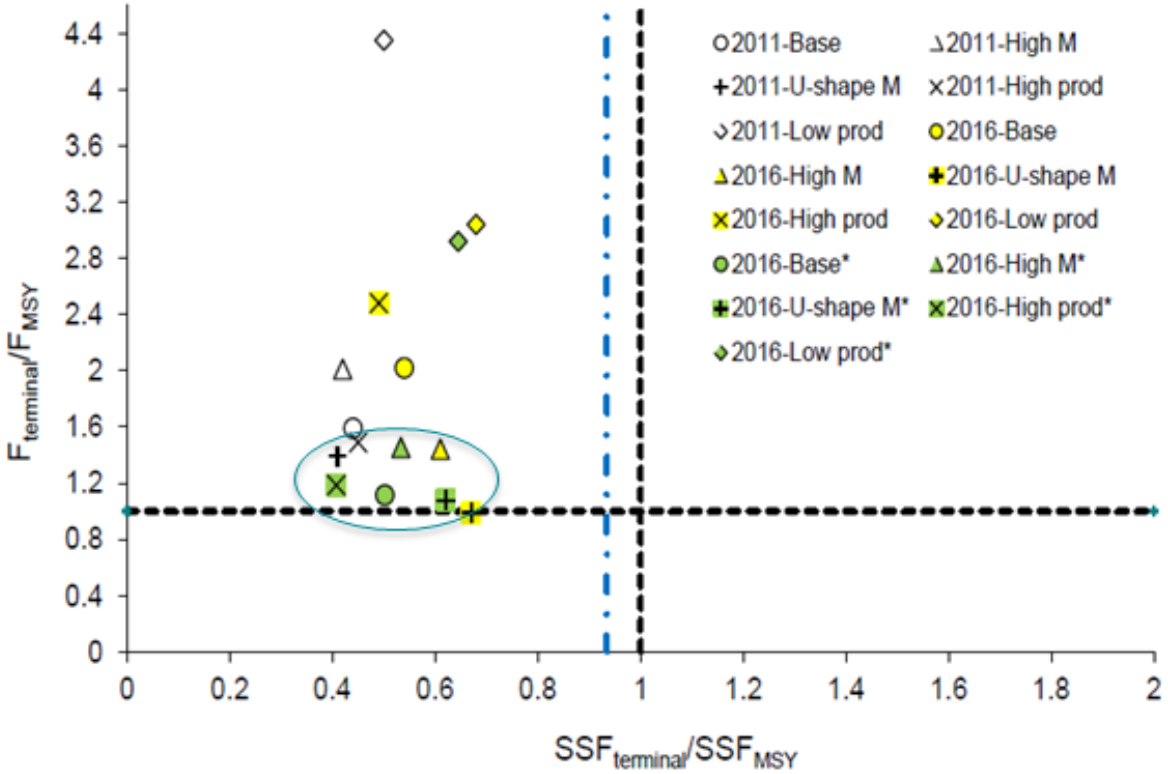


Management History

- 2000: Dusky sharks become a prohibited species
- 2006: First dusky shark assessment – overfished/overfishing
- 2008: Amendment 2 – rebuilding plan established (rebuild by 2108)
- Aug. 2011: SEDAR 21 – still overfished/overfishing
- Nov. 2012: Draft Amendment 5 & Proposed rule - multiple shark species
- April 2013: Notice of Intent for Amendment 5b – dusky shark specific
- March 2014: Amendment 5b Predraft released for comment
- Oct. 2015: Oceana filed complaint regarding dusky shark management
- May 2016: Settlement agreement reached --
  - Submit proposed rule to the Federal Register by 10/14/2016
  - Submit final rule to the Federal Register by 3/31/2017
- Oct. 2016:
  - SEDAR Update and addendum results - still overfished/overfishing
  - Draft Amendment 5b and proposed rule released

SEDAR 21 Update and Addendum

- Status determination published 10/5/2016 (81 FR 69043)
- Still overfished and experiencing overfishing
- Need to reduce fishing mortality by 35%
- Rebuild by 2107



The Preferred Alternatives

- The preferred alternatives should:
  - End overfishing on dusky sharks by reducing fishing mortality levels by at least 35% relative to 2015 levels
  - Ensure that fishing mortality levels on dusky sharks are maintained at or below levels that would result in rebuilding by 2107

Preferred Recreational Alternatives
Alternative A2 Require HMS permit holders fishing for sharks recreationally to obtain a shark endorsement, which requires completion of an online shark identification and fishing regulation training course, plus additional recreational fisheries outreach.
Alternative A6a Require the use of circle hooks by all HMS permit holders fishing for sharks recreationally and when using natural baits and using wire or heavy (200 lb or greater test) monofilament or fluorocarbon leaders.

Preferred Commercial Alternatives
Alternative B3 Fishermen with an Atlantic shark limited access permit with pelagic longline gear onboard must release all sharks not being retained using a dehooker or cutting the gangion less than three feet from the hook.
Alternative B5 Require completion of a shark identification and fishing regulation training course as a new part of all Safe Handling and Release Workshops for HMS pelagic longline, bottom longline, and shark gillnet vessel owners and operators.
Alternative B6 Increase dusky shark outreach and awareness through development of additional outreach materials, and require HMS pelagic longline, bottom longline, and shark gillnet vessels to abide by a dusky shark fleet communication and relocation protocol.
Alternative B9 Require the use of circle hooks by all HMS directed shark permit holders using bottom longline gear.

Other Recreational Alternatives Considered

- **Alternative A1**: No action. Do not implement management measures to end overfishing and rebuild dusky sharks in the Atlantic recreational shark fishery
- **Alternative A3**: Require HMS permit holders fishing for sharks recreationally to have a NMFS – approved shark identification placard onboard when fishing for and/or retaining sharks
- **Alternative A4**: Prohibit retention of all ridgeback sharks, including oceanic whitetip, tiger, and smoothhound sharks, in the Atlantic recreational shark fishery
- **Alternative A5**: Increase the recreational minimum size to 89 inches fork length for all sharks
- **Alternative A6b**: Require the use of circle hooks by all HMS permit holders with a shark endorsement when fishing for sharks recreationally (when deploying natural bait while using a 5/0 or larger hook size)
- **Alternative A6c**: Require the use of circle hooks by all Atlantic HMS permit holders participating in fishing tournaments when targeting or retaining Atlantic sharks
- **Alternative A7**: Allow only catch and release of all Atlantic sharks by HMS permit holders. Anglers could fish for and target sharks but retention of all recreationally-caught sharks would be prohibited

Other Commercial Alternatives Considered

- **Alternative B1**: No action. Do not implement additional management measures to end overfishing and rebuild dusky sharks in commercial HMS fisheries
- **Alternative B2**: Fishermen with an Atlantic shark limited access permit and pelagic longline gear onboard would be limited to 750 hooks per pelagic longline set and no more than 800 assembled gangions onboard at any time
- **Alternatives B4a-h**: Prohibit the use of pelagic longline gear in HMS fisheries in various hotspot closures – Charleston Bump, Hatteras Shelf, Mid-Atlantic Bight Canyons, Southern Georges Bank
- **Alternative B4i**: Allow conditional access to dusky shark hotspot closure areas for HMS vessels fishing with pelagic longline gear
- **Alternative B4j**: Implement dusky shark bycatch caps in the pelagic longline fishery
- **Alternative B7**: Request that certain states (NJ, DE, MD, VA) and the ASMFC extend the end of existing Mid-Atlantic shark time/area closure from July 15 to July 31
- **Alternative B8**: Close the Atlantic HMS Pelagic Longline Fishery
- **Alternative B10**: Implement Individual Dusky Shark Bycatch Quotas (IDQs) for the commercial pelagic and bottom longline fisheries

Annual Catch Limits (ACLs) & Accountability Measures (AMs)

- Draft Amendment 5b clarifies ACLs and AMs for the 19 prohibited sharks

ACL = 0

Basking	Dusky	Sand Tiger	Sevengill	Bigeye Sand Tiger
Bigeye Thresher	Galapagos	Whale	Sixgill	Bigeye Sixgill
Bignose	Longfin Mako	White	Narrowtooth	Smalltail
Caribbean Reef	Night	Atlantic Angel	Caribbean Sharpnose	

- Small amounts of bycatch are permissible where the ACL is set to zero and the bycatch is small and does not lead to overfishing
- There is a small amount of bycatch and illegal landings of prohibited sharks; this bycatch is not causing overfishing for most species
- For dusky sharks, the small levels of bycatch are causing overfishing
- The measures proposed in Draft Amendment 5b are AMs
- Additional AMs are not needed for dusky sharks and other prohibited sharks

Specific Request for Public Comments

- **Mortality reduction and rebuilding objectives based upon SEDAR 21 update**
- **ACL and AM approach for prohibited sharks**
- **Alternative A2**
  - How can NMFS effectively implement the shark endorsement?
    - Appropriate effective date
    - Implementation strategy
- **Alternatives A6a and A6b**
  - Will the circle hook approach ensure the measure applies to the shark fishery?
    - Should different indicators of the recreational shark fishery be adopted?
    - Are ≥ 200 lb test monofilament or fluorocarbon leaders good indicators?
    - Is 5/0 or greater size hook a good indicator?
- **Paperwork Reduction Act collection of information necessity**

Request for Public Comments

Comment period closes on:

December 22, 2016

Please submit comments to:
http://www.regulations.gov
Keyword - "NOAA-NMFS-2013-0070"

Comments can also be submitted via fax: 301-713-1917, Attn: Tobey Curtis

Or Mail: NMFS SF1, 1315 East-West Highway, Silver Spring, MD 20910

Please identify comments with NOAA-NMFS-2013-0070

For more information go to: http://www.nmfs.noaa.gov/sfa/hms/ or contact Tobey Curtis **tobey.curtis@noaa.gov** or Karyl Brewster-Geisz **karyl.brewster-geisz@noaa.gov** at (301) 427-8503

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

October 18, 2016

To: **Coastal Sharks Management Board**

From: **Tina Berger, Director of Communications**

RE: **Advisory Panel Nominations**

Please find attached a nomination to the Coastal Sharks Advisory Panel – Roger Wolleyhan, a commercial gillnetter/potter from Maryland. Please consider approval of this nomination at next Board meeting.

COASTAL SHARKS ADVISORY PANEL

Bolded names await approval by the Coastal Sharks Management Board

October 18, 2016

New Hampshire
Vacancy - commercial

Rhode Island
Francis W. Blount Jr. (charterboat)
390 Bridgetown Road
Saunderstown, RI 02883
Phone (day): 401.783.4988
Phone (eve): 401.789.2374
FAX: 401.782.8520
Email: francesflt@aol.com
Appt. Confirmed 2/20/06
Appt Reconfirmed 5/10

Stephen C. Segerson (rec)
37 Myrna Road
Warwick, RI 02818
Phone (day): 401.467.3143 ext. 108
Phone (eve): 401.439.5349
FAX: 401.941.2453
Email: ssegerson@etco.com
Appt. Confirmed 2/20/06
Appt Reconfirmed 5/10

New York
Steve Witthuhn (charterboat)
118 Kenneth Ave.
Greenlawn, NY 11740
Tel. 631.368.1315
Appt. Confirmed 2/20/06
Appt Reconfirmed 5/10

New Jersey
Marty Buzas (comm./longline & gillnet)
558 Shunpike Road
Cape May Courthouse, NJ 08210
Phone (day): 609.827.2626
Phone (eve): 609.465.5776
Email: MBEileenB@yahoo.com
Appt. Confirmed 5/19/06
Appt Reconfirmed 5/17/10

Peter Grimbilas (rec/for-hire)
3 Oakwood Court
Towaco, NJ 07082
Phone (day): 973.696.1200
Phone (eve): 973.454.0315
FAX: 973.696.1411
Email: peterg@njoutdooralliance.org
Appt Confirmed 8/3/10

Delaware
Daniel T. Dugan (rec)
20 South Woodward Avenue
Wilmington, DE 19805
Phone: 302.636.9300
Email: dugan@delanet.com
Appt. Confirmed 2/20/06
Appt Reconfirmed 5/10

Maryland
Mark Sampson (for-hire)
10418 Exeter Road
Ocean City, MD 21842
Phone (home): 410.213.2442
Phone (cell): 410.726.7946
SharkQuest2@gmail.com
Appt Confirmed 8/3/10

Roger B. Wooleyhan Jr. (comm gillnet/pots)
25605 Rogers Road
Millsboro, DE 19966
Phone (day): 302.542.3613
Phone (eve): 302.542.9417
FAX: 302.945.65794wooleys@msn.com

Virginia
Ernest L. Bowden Jr. (comm./gillnet)
4219 School Street
Chincoteague, VA 23336
Phone (day): 757.894.1243
Phone (eve): 757.336.5792
Appt. Confirmed 2/20/06
Appt Reconfirmed 5/10

Chair, Lewis Gillingham (rec)
968 South Oreo Drive
Virginia Beach, VA 23451
Phone: 757/491-5160
FAX: 757/491-5172Email:
lewis.gillingham@mrc.virginia.gov

COASTAL SHARKS ADVISORY PANEL

Bolded names await approval by the Coastal Sharks Management Board

October 18, 2016

Appt. Confirmed 3/19/08

North Carolina
Dewey Hemilright (comm./longline & gillnet)
P.O. Box 667
Wanchese NC 27981
Phone: 252.255.5791
Email: fvtarbaby@aol.com
Appt. Confirmed 5/19/06
Appt Reconfirmed 5/10

South Carolina
Terry Annibale (comm)
1511 Holly Drive
North Myrtle Beach, SC 29582
Phone: 843.224.2104
Email: Capt-terry@hotmail.com
Appt Confirmed 8/3/10

Reese (Chip) Michalove (charterboat)
PO Box 6257
Hilton Head Island, SC 29938
Phone: 843.290.0371
Email: outcastfishing@yahoo.com
Appt Confirmed 8/3/10

Georgia
Capt. Greg Hildreth (charterboat/rec)
477 Midway Circle
Brunswick, GA 31523
Phone: 912.261.1763
Email: hildrethcharters@bellsouth.net
Appt. Confirmed 2/20/06
Appt Reconfirmed 5/10

Florida
Russell Howard Hudson (comm. hook & line/for-hire captain)
1045 West International Speedway Boulevard
Daytona Beach, FL 32114
Phone: 386.239.0948
FAX: 386.253.2843
Email: DSF2009@aol.com
Appt. Confirmed 5/19/06
Appt Reconfirmed 4/22/10

Stephen R. Haigis (rec)
101 Ridge Circle
Fort Pierce, FL 34982
Phone (day): 772.225.1700
Phone (eve): 772.343.7983
FAX: 772.225.2253
Email: shaigis@adelphia.net
Appt. Confirmed 5/19/06
Appt Reconfirmed 4/22/10

Non-Traditional Stakeholders
Sonja Fordham
Shark Advocates International
Rue Franz Merjay, 14
1050 Brussels
Belgium
+32 495 101468
Email: sonja@sharkadvocates.org
OR
The Ocean Foundation
1990 M Street, NW, Suite 250
Washington, DC 20036
Phone: 202.436.1468
Email: sonjaviveka@gmail.com
Appt. Confirmed 5/19/06

Katie Westfall
1875 Connecticut Avenue, NW
Washington, DC 20009
Phone (day): 202.572.3376
Phone (eve): 202.607.6775
kwestfall@edf.org
Appt Confirmed 8/2/16

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Roger B Wooleyhan Jr (your name) State: ~~Delaware~~ Maryland

Name of Nominee: Roger B Wooleyhan Jr

Address: 25605 Rogers Rd

City, State, Zip: Millsboro, Delaware 19966

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 302-542-3613 Phone (evening): 302-542-9417

FAX: 302-945-6579 Email: 4wooleys@msn.com

. . . . . .

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. ASMFC Coastal Sharks Advisory Panel
   2. _____
   3. _____
   4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no X

3. Is the nominee a member of any fishermen's organizations or clubs?

   yes _____ no X

   If "yes," please list them below by name.

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Sharks, Menhaden
Conchs, Butterfish
Monkfish, Skates
Croaker, Spot,Rockfish
Bluefish, Spanish & King Mkrl
Dog Sharks, Smooth & Horn

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Lobsters, Jonah Crab
Boston,Spanish & King Mkrl
Shad
Bonita
Trout

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 40 years
2. Is the nominee employed only in commercial fishing? yes _____ no X
3. What is the predominant gear type used by the nominee? Gillnets & Pots
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? OFFSHORE & INSHORE

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 40 years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no X

   If "no," please list other type(s)of business(es) and/occupation(s):_____

3. How many years has the nominee lived in the home port community? 40 years

   If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? 40 years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no x

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? 40 years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no x If "no," please list other type(s) of business(es) and/or occupation(s):

   COMMERCIAL fISHERMAN

   COMMERCIAL fISHERMAN

   COMMERCIAL fISHERMAN

3. How many years has the nominee lived in the home port community? 40 years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? 40 years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes _____ no x

   If "no," please list other type(s) of business(es) and/or occupation(s):

   COMMERCIAL fISHERMAN

   COMMERCIAL fISHERMAN

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

Nominee Signature: Roger B. Wooleyhan Jr. Date: 9-21-2016

Name: Roger B. Wooleyhan Jr.
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

State Director

State Legislator

Governor's Appointee

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

Striped Bass Advisory Panel
Meeting Summary

Conference Call
April 21, 2016

Advisory Panel Members: Louis Bassano (Chair, NJ), Arnold Leo (NY), David Sikorski (MD), John Pedrick (PA), John McMurray (NY), William Hall, Jr. (VA), Kelly Place (VA), Pete Whelan (NH), Edwin Cook (RI), Ed O'Brien (MD)

ASMFC Staff: Max Appelman, Deke Tompkins

The Striped Bass Advisory Panel (AP) met via conference call to receive an update from staff on two striped bass management issues that are currently not being discussed at the Management Board-level: 1) the EEZ Transit Zone Clarification and Access Act (H.R. 3070), and 2) the western North Atlantic squid resource. Also, the AP elected a Chairman and Vice-chairman.

"EEZ Transit Zone Clarification and Access Act" (H.R. 3070)

Although the current draft of the bill does not convert the Block Island Sound Transit Zone to state waters or permit striped bass fishing within the zone, nor does it change the current process to permit striped bass fishing in any part of the EEZ in the future, the consensus of the AP is that the passing of H.R. 3070 would set unfavorable precedence for the use of legislative procedures to override the current fishery management and conservation framework. AP members noted that, regardless of the final language, this is not the proper avenue for addressing issues related to prohibited fishing for striped bass in uniquely located federal waters. The AP is in support of fishery management processes that are scientifically sound, are based on technical expertise, and provide ample opportunity for public participation. Additionally, in light of a declining spawning stock, AP members expressed concern regarding insufficient data to support the implementation of a recreational striped bass fishery in currently prohibited waters. It was noted that considerable action was taken prior to the 2015 fishing season in order to reduce fishing mortality back to target levels, and stabilize (or reverse) the downward trend in spawning stock biomass. Management has not yet had the opportunity to respond to the performance of those measures, thus it is the consensus of the AP that the precedence of this bill is not only unwarranted, but is also ill-timed.

Western North Atlantic Squid Resource

Longfin squid (squid) fishing and harvest have increased recently in Nantucket Sound and the surrounding areas. Squid are a well-known food source for striped bass, and the Nantucket Sound uniquely supports large concentrations of both prey and predator during the summer

months. Some AP members (and other fishermen) in the region have reported a decline of migratory striped bass during that time. It is believed that the above average harvest of squid may be a contributing factor to the decreased availability of striped bass during summer/fall fishing seasons. The Mid-Atlantic Fishery Management Council (Council) is currently drafting a Squid Capacity Amendment which considers options for a squid buffer zone beyond state waters in the area south of Nantucket, as well as addressing the potential for increased effort in the squid fishery. Staff will track the progress of the amendment and provide updates to the AP as necessary. Since squid are of great importance to the striped bass resource, the AP noted that it would appreciate the opportunity to submit comment on the draft amendment, collectively, in support of a squid buffer zone surrounding Nantucket Sound.

Elect Chair and Vice Chair

The AP elected Captain Louis Bassano to the position of AP Chair, and Kelly Place to the position of AP Vice-Chair.

Other Business

The AP would like to meet more frequently and become more proactive regarding conservation and management of Atlantic striped bass. The AP Chair and staff, in consultation with the Board Chair, will discuss the AP's options moving forward.

Chesapeake Bay Ecological Foundation, Inc.
Easton, MD 21601
410-822-4400

MENHADEN CRUCIAL TO STRIPED BASS HEALTH IN CHESAPEAKE BAY

Striped Bass & Menhaden Management Disrupts Chesapeake Bay Ecosystem

Chesapeake Bay Ecological Foundation (CBEF) conducted the only long-term (2005-2015), year-round nutritional and food habit study on adult striped bass, examining over 15,000 fish and major prey consumed – primarily Atlantic menhaden. Study areas included Choptank River, Chesapeake Bay & Atlantic Coast from Montauk, NY to Oregon Inlet, NC.

Chesapeake Bay is the largest nursery and production area for striped bass and menhaden. In the Bay, menhaden are crucial prey for striped bass over 12" and essential to the ecosystem as filter feeders and key prey for many predatory fish and birds. In 1990, the Atlantic States Marine Fisheries Commission (ASMFC) reopened the Maryland striped bass fishery after being closed during a five year moratorium. At the same time, ASMFC raised the striped bass minimum size from 14" to 18" in MD's portion of the Bay, increasing prey demand on the depressed menhaden population. In 1991, concern that the Atlantic menhaden stock was being overfished appeared in a National Marine Fisheries Service publication "Marine Fisheries Review" ("Assessment and Management of Atlantic & Gulf Menhaden Stocks", D.S. Vaughan & J.V. Merriner). The summary cautioned: *"The expansion of fishing on the spawning stock in New England waters concurrently with increasing fishing pressure on pre-spawning menhaden off Virginia and North Carolina in the fall prompts concern for maintenance of the Atlantic menhaden resource".* By the time the Bay's striped bass population reached ASMFC's abundance objective in the late 1990s, a high percentage were malnourished and diseased. Recent striped bass tagging studies indicate high natural mortality rates.

Striped bass management must utilize multi-species approaches. Prey shortages in the Bay are not factored in ASMFC management of striped bass. Poor health and survival from the predator/prey imbalance may be undercutting striped bass management goals. ASMFC has failed to protect small, young menhaden, crucial prey for non-migratory adult Chesapeake Bay striped bass. Management of the menhaden harvest should be based on quotas and size limits that protect the Chesapeake Bay's striped bass prey supply, rather than the size of the estimated menhaden spawning stock, which is uncorrelated to recruitment.

CBEF's research enhances knowledge of Chesapeake Bay & mid-Atlantic ecosystems and the life cycle of striped bass & menhaden. Our study determined that lowering the striped bass size limit and/or establishing a menhaden minimum size for the purse seine fishery is essential for maintenance of healthy Chesapeake Bay adult striped bass.

MEETING SUMMARY OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

EXECUTIVE COMMITTEE

Westin Alexandria
Alexandria, VA
August 2, 2016

INDEX OF MOTIONS

ATTENDANCE

Committee Members

Pat Keliher, ME (AA)
Doug Grout, NH (AA)
Dennis Abbott, NH (LA Chair)
David Pierce, MA (AA)
David Simpson, CT (AA)
Jason McNamee, RI (AA)
Jim Gilmore, NY (AA)
Brandon Muffley, NJ (AA proxy)
Andy Shiels, PA (AA proxy)
John Clark, DE (AA proxy)
Roy Miller, DE (GA Chair)
David Blazer, MD (AA)
John M.R. Bull, VA (AA)
Braxton Davis, NC (AA)
Robert Boyles, SC (AA)
Spud Woodward, GA (AA)
Jim Estes, FL (AA proxy)

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

Other Commissioners

Ed O'Brien, MD (LA proxy)

Staff

Bob Beal
Laura Leach
Toni Kerns
Pat Campfield
Deke Tompkins

Others

Peter Aarrestad
Michelle Duval
Steve Heins
Wilson Laney
Dan McKiernan
Mike Millard
Derek Orner

CALL TO ORDER

The Executive Committee of the Atlantic States Marine Fisheries Commission convened in the Bell Room of the Westin Alexandria on August 2, 2016. It was called to order at 8:00 a.m. by Chair Doug Grout.

APPROVAL OF AGENDA

The agenda was approved with the addition of a discussion on Saltonstall/Kenendy (SK) funding, and deferring the discussion of health benefits for retired ASMFC employees to the Annual Meeting.

APPROVAL OF PROCEEDINGS

The summary minutes from the May 2, 2016 meeting were approved as presented.

PUBLIC COMMENT

There was no public comment.

ASMFC LEAD STAFF ON ASSESSMENTS

The Executive Committee discussed the practice of having ASMFC staff stock assessment scientists take the lead on stock assessments; concerned that this might cause less engagement of state technical staff. The Committee supported having ASMFC Stock Assessment Scientists take the lead on assessments. The Executive Committee committed to encouraging their technical staff members to be fully engaged in the stock assessment process.

CONSERVATION EQUIVALENCY

At the Spring Meeting, the Executive Committee tasked staff to update the Conservation Equivalency Guidance Document to reflect the current practices of the Commission. The Management and Science Committee (MSC) and Assessment and Science Committee (ASC) reviewed proposed revisions and made recommendations to the Executive Committee for its review. The Executive Committee discussed the proposed revisions and tasked staff to make changes to the guidance document. The revised document will be presented for approval at the Annual Meeting in October.

PDT MEMBERSHIP

The Executive Committee discussed the composition of Plan Development Teams (PDT), specifically the question of whether or not Board members should be eligible to sit on PDTs. After much discussion, the Committee did not recommend any changes to PDT membership at this time.

COMMISSION-SPECIFIC MEETING PROCEDURES

The Committee initiated development of Commission-specific meeting procedures and will follow-up on this issue at the Annual Meeting in October.

RENAMING THE HART AWARD

At the Spring Executive Committee meeting Mr. Keliher requested that the Committee consider renaming the Captain David H. Hart Award, in light of Pat White's untimely death. At the Spring Meeting, Chair Grout suggested that this be a topic on the August agenda. After considerable discussion, the Executive Committee referred this issue to the Awards Committee for a recommendation. The Awards Committee will report back at the Annual Meeting in October.

FUTURE ANNUAL MEETINGS

The Commission's 75th annual meeting will be held October 23 – 27, 2016 in Bar Harbor, Maine; in 2017 we'll meet in Virginia; and in 2018 we'll meet in New York.

OTHER BUSINESS - SK FUNDING

The Committee discussed the allocation of the SK funding for FY17, as it decreased from a preliminary estimate of $500,000 to $200,000. The Committee agreed that the trawl surveys are the highest priorities, and unanimously passed the following motion: "Move to accept the SK funding priorities as follows: SEAMAP-SA Coastal Trawl Survey; Georgia, South Carolina and North Carolina Longline Surveys, with the remainder going to support the ME/NH portion of the NEAMAP Survey. Motion by Mr. Boyles; seconded by Mr. Keliher.

ADJOURN

CHAIR DOUG GROUT adjourned the Executive Committee meeting at 10:25 a.m.

ASMFC Standard Operating Procedures for Meetings

October 18, 2016

As established by the Interstate Fisheries Management Program Charter, the Atlantic States Marine Fisheries Commission (Commission) generally uses Roberts Rules of Order to conduct its business. There are some deviations from Roberts Rules adopted by the Commission. The following operating procedures are proposed to help make Commission meetings more effective and efficient.

Quorum – The following quorum provisions are included in the Commission guiding documents. These provisions are not subject to the chair's discretion.

- The presence of Commissioners representing a majority of the state members (>50%) constitute a quorum at a meeting of the Commission.
- Any state shall be recorded as present when represented by one or more of its Commissioners.
- A quorum for any Commission group shall be a majority of the members of such body, provided that any such body may petition the Executive Committee in advance for approval of an alternative quorum procedure.

Voting – The following voting provisions are included in the Commission guiding documents. These provisions are not subject to the chair's discretion.

- The Commission's Business Session, and management boards and sections shall be by state (or by jurisdiction or federal agency) with one vote per state. A state's vote shall be determined by the majority of that state's delegation of Commissioners who are present. Based on the number of delegates present, votes may be cast in favor, in opposition, in abstention, or null. A null vote occurs when only two state delegates are present and they do not agree on a position. A null vote can also occur if three state delegates are present and one delegate abstains from participating in the state caucus and the other two delegate do not agree on a position.
- No person may, by proxy, vote more than once on any issue.
- Any Commissioner or Commissioner Proxy or duly authorized representative of a jurisdiction or agency that is a member of a management board/section may make or second any motion; provided the maker of the motion and second (when necessary) must each come from a different state, jurisdiction, or agency.

- Any meeting-specific proxy appointed by a Legislative or Governors' Appointee Commissioner may not vote on a final action being considered by a management board/section. Meeting-specific proxies may vote on preliminary decisions such as issues to be included in a public hearing draft or approval of public information documents.
- A final action is defined as: fishery specifications (including but not limited to quotas, trip limits, possession limits, size limits, seasons, area closures, gear requirements), allocation, final approval of FMPs/amendments/addenda, emergency actions, conservation equivalency plans, and non-compliance recommendations. A meeting-specific proxy may participate in the deliberations of the meeting, including making and seconding motions.
- The roll must be called for all final actions unless there is no objection to the motion.

ASMFC Standard Operating Procedures for Meetings

October 18, 2016

- A two-thirds majority, which is required for an emergency action, extending a management action, or amending/rescinding a final action, is defined by the entire voting membership. However, federal agency abstentions do not count when determining the total number of votes.

Process – The following are meeting best management practices for use by the chair to effectively and efficiently run Commission meetings. The chair has the discretion to manage the meeting conduct and application of the best management practices.

- All board members should have the opportunity to speak once prior to anyone speaking a second time.
- An individual may not be recognized to speak on a motion more than two times during a single board meeting.

Options for use of "one in favor/one against":

Option 1: At any time in the meeting based on concern regarding limited time availability to conduct the full business of the board/section or in cases when extensive debate on an issue has occurred, the chair can limit debate to one in favor/one against.

Option 2: After all members have had the opportunity to speak on an motion twice, the chair will limit debate to one in favor/one against. If there is no one left to speak in favor/against the chair will call the vote on the motion.

- If the chair believes there may not be opposition to the motion, he/she will seek board consent of the action by asking "If there is no objection, this item will be adopted." After pausing for any objections, the chair states "As there are no objections, this item is adopted unanimously." It is not necessary to ask for a show of hands.
- If the chair determines too much time is being consumed by speakers, he/she can set a time limit on such speeches.

Definitions

Postpone Indefinitely – This action is taken when a board/section member intends to stop any further discussion of the issue at the meeting. The issue may be reintroduced at a later meeting.

Postpone to Time Certain – This action is used to delay action on a pending question until a specific day, meeting, hour or after a certain event. Then, when that time comes, the motion is brought forward for reconsideration by the board/section.

Table – This action is used to postpone discussion of an item until later in the meeting or at a later date. Many people think tabling a motion is tantamount to killing it, but it is used to set a pending motion aside temporarily in order to address a more pressing or urgent issue.

Call the Question – A board member may request "debate be limited". Once the request is made, the chair must get board approval to terminate a debate.

Divide the Question – If a motion has several parts, and a board/section member wishes to vote differently on these parts, that member should move to divide the motion, addressing each issue separately.

Amend – This action is used to change a motion after it has been debated. Amendments enable you to affect changes to pending questions in the following four ways:

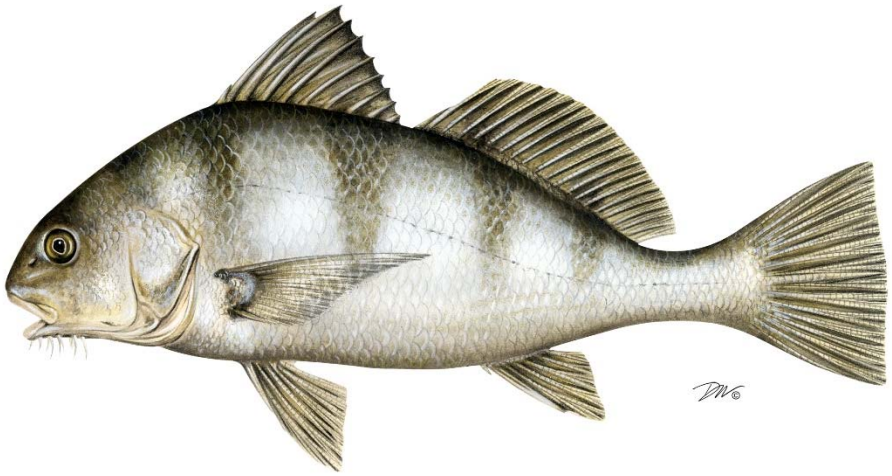
- By inserting (or adding, if placing at the end) words, sentences, or paragraphs
- By striking out words, sentences, or paragraphs
- By striking out and inserting words (with the words inserted replacing the words struck out)
- By amending by substitution (a form of strike out and insert applied to paragraphs or entire motions)

Substitute – A substitute motion is a form of amendment. If a motion is on the floor, first recourse should be to work with the motion and try to amend it through normal protocol. If, however, the motion is poorly worded, if new information comes to light during course of debate, or if other pressing circumstances develop, it may be necessary to substitute a new motion for the original motion or significant parts of a motion.

2016 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR

BLACK DRUM
(*Pogonias cromis*)

2014 and 2015 FISHING YEARS



The Black Drum Plan Review Team
Jordan Zimmerman, Delaware Division of Fish and Wildlife
Chris Stewart, North Carolina Division of Marine Fisheries
Chris McDonough, South Carolina Department of Natural Resources
Amy Hirrlinger, Atlantic States Marine Fisheries Commission

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – June 2013
Management Areas:	The entire Atlantic coast distribution of the resource from New Jersey through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Black Drum Technical Committee, Stock Assessment Subcommittee, Plan Review Team; South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an interstate Fishery Management Plan (FMP) for Black Drum in 2013. Prior to the FMP, management was state-specific, from no regulations in North Carolina to various combinations of size limits, possession limits, commercial trip limits, and/or annual commercial quotas from New Jersey to Florida. The Maryland portion of the Chesapeake Bay was closed to commercial fishing in 1998.

The FMP requires all states with a declared interest in the species to have established a maximum possession limit and minimum size limit of at least 12 inches by January 1, 2014, and to have increased the minimum size limit to at least 14 inches by January 1, 2016. The FMP also includes a management framework to adaptively respond to future concerns or changes in the fishery or population.

There are four plan objectives:

- Provide a flexible management system to address future changes in resource abundance, scientific information, and fishing patterns among user groups or area.
- Promote cooperative collection of biological, economic, and sociological data required to effectively monitor and assess the status of the black drum resource and evaluate management efforts.
- Manage the black drum fishery to protect both young individuals and established breeding stock.
- Develop research priorities that will further refine the black drum management program to maximize the biological, social, and economic benefits derived from the black drum population.

The management unit for black drum under the FMP is defined as the range of the species within U.S. waters of the northwest Atlantic Ocean, from the estuaries eastward to the offshore boundaries of the Exclusive Economic Zone (EEZ).

II. Status of the Stocks

In the 2015 Black Drum Benchmark Stock Assessment, the Stock Assessment Subcommittee (SAS) selected the Depletion-Based Stock Reduction Analysis (DB-SRA; Dick and McCall 2011) as the preferred method for estimating catch reference points. The SAS considered the Depletion-Corrected Average Catch (DCAC; McCall 2009) analysis, but ultimately rejected this method. DCAC did not incorporate removals into a population dynamics process, and uncertainty existed over how changes in the exploitation rate time series may impact the sustainable yield relative to the current stock condition.

Based on the DB-SRA results, black drum life history, indices of abundance, and history of exploitation, the black drum stock is not overfished and not experiencing overfishing (ASMFC 2015). Median biomass exhibited slow and steady decline from 135.2 million pounds in 1900 to 90.78 million pounds in 2012, though the median biomass estimate in 2012 is still well above the necessary level to produce maximum sustainable yield (B_{MSY}; 47.26 million pounds). The median maximum sustainable yield (MSY) estimate is 2.12 million pounds and provides an annual catch target that can be used to sustainably manage the fishery. The median overfishing limit (OFL) estimate is 4.12 million pounds and provides a catch threshold that indicates overfishing when exceeded. The OFL is the maximum exploitation rate at the current biomass that does not lead to overfishing.

III. Status of the Fishery

The following discussion utilizes results from direct queries of the Marine Recreational Information Program (MRIP) data through their website. Adjustments needed to make these consistent through time (convert pre-2004 MRFSS data, adjust for changes in for-hire component of survey, and deletion of 1981-1985 headboat data) have not been made here.

Total black drum landings from New Jersey through the east coast of Florida are estimated at 1.42 million pounds in 2014, a 21% decrease from total harvest in 2013, and 1.49 million pounds in 2015, a 5% increase from 2014 total harvest (Tables 2 and 3, Figure 2). 2015 harvest is 32% below the previous ten-year (2005-2014) average. The commercial and recreational fisheries harvested 18.5% and 81.5% of the 2014 total, and 16% and 84% of the 2015 total, respectively.

Commercial landings of black drum span from New Jersey through Florida, excluding the Maryland portion of the Chesapeake Bay (Table 2). Coastwide commercial landings show no particular temporal trends, ranging from approximately 120,000 to 400,000 pounds annually over the last 14 years (Figure 2). Black drum commercial landings in 2014 were estimated at 262,926 pounds, an 8% decrease from those of 2013, and 238,239 pounds in 2015, a 9% decrease from 2014. Virginia led commercial harvest with 39% of the landings, followed by North Carolina and Florida with 21% each (Table 2). Virginia and North Carolina have historically been the major commercial harvesters, with Florida experiencing recent increases.

Recreational harvest of black drum peaked in 2008 at 789,000 fish (or 5.2 million pounds; Tables 3 and 4). Since 2000, the number has fluctuated without trend between 166,000 and 789,000 fish (744,000 to 5.2 million pounds; Figures 2 and 3). However, 2015 recreational landings in number of fish have been lowest on record since 1993. Recreational harvest decreased from 613,590 fish in 2013 to 295,773 fish in 2014, and again to 166,344 fish in 2015.

A different trend is seen in recreational harvest in pounds. After 1.5 million pounds were harvested in 2013, the poundage decreased in 2014, along with harvest in number, to 1.16 million pounds. In 2015, poundage increased to 1.25 million pounds, while number harvested continued to decrease. This indicates that fewer but larger fish are being caught. A few recent events could be responsible for this trend. First, the decreasing number of fish caught can be attributed to the establishment of minimum sizes in every state since the FMP took effect in 2013, requiring many drum which would have been

previously harvested to be released as undersized. The increase seen in poundage between 2014 and 2015 is likely due to more accurate monitoring achieved by increased sampling and the establishment of nighttime intercepts in the Mid-Atlantic region, an area which targets adult spawning aggregations and harvests heavy adult fish during May and June.

The 2015 recreational harvest represents a 62% decrease in numbers and a 35% decrease in pounds from the previous ten year (2005-2014) average. Florida anglers landed the largest share of the coastwide recreational harvest in numbers (60%), followed by North Carolina (21%) and South Carolina (10%). Over the past decade, recreational anglers generally released a little over 50% of their catch, but this has increased drastically in the past two years. In 2014, 71% (720,038 fish) of the recreational catch was released, and in 2015, 90% (1,708,423 fish) of the recreational catch was released (Figure 3, Table 5). Again, it is worth noting that the FMP took effect in 2013, establishing minimum sizes in every state, requiring that undersized drum be released for the first time. High release rates can be attributed to these measures, as well as encouragement of catch and release practices.

It should be noted that depending on the state, percent standard error (PSE) annually ranged widely, from 27.1-100% in 2014 and 16.1-67.2% in 2015. Values in most years were greater than 50%. PSE values above 50% are regarded as uncertain and are typically attributed to a high level of variability in the harvest estimates. Since harvest estimates are expansions of field intercepts and phone surveys, these high PSE levels indicate higher levels of uncertainty in the expansion estimates for harvest as well as B2 (released alive) estimates. However, this is common for many recreational fisheries and the data trends indicated are still reliable for general management advisement.

IV. Status of Assessment Advice

Current stock status information comes from the 2015 benchmark stock assessment (ASMFC 2015) completed by the ASMFC Black Drum Stock Assessment Subcommittee and Technical Committee, peer reviewed by an independent panel of experts, and approved by the South Atlantic State-Federal Fisheries Management Board for use in management decisions.

The stock assessment could be improved by applying a more complex, data-rich assessment method such as a statistical catch-at-age model. Data limitations that need to be addressed to successfully make this transition are biological sampling (length and age) of recreational and commercial fisheries and a fishery-independent survey to track abundance and age structure of the mature stock. Additionally, information about commercial discards and movement of fish along coast and between water depths would improve the assessment.

V. Status of Research and Monitoring

There are no monitoring or research programs required annually of the states except for the submission of a compliance report. The following fishery-dependent (other than catch and effort data) and fishery-independent monitoring programs were reported in the 2014 and 2015 reports.

Fishery Dependent Monitoring

- Delaware DFW- Sampled from commercial and recreational fisheries for the 8th consecutive year. Total length, weight, and sex were recorded, and otoliths collected (2014: commercial n=58, recreational n=23; 2015: commercial n=91, recreational n=26).
- Maryland DNR – Conducted commercial pound net survey from late spring through summer. (2014: 14 fish, mean TL 1080mm; 2015: 4 fish, mean TL 993mm).
- Virginia MRC –
    - Conducted a biological monitoring program to sample commercial and recreational harvest (2014: commercial n=32 with 9 otoliths, recreational n=115 with 115 otoliths; 2015: commercial n=16 with 7 otoliths, recreational n=62 with 62 otoliths).
    - Conducted Virginia Game Fish Tagging Program with volunteer anglers (2014: 131 fish tagged and 6 recaptured; 2015: 115 fish tagged and 7 recaptured).
- North Carolina DMF- Conducted commercial sampling of black drum bycatch, an increasing mean TL is seen (2011: 13 inch low; 2014: 17 inches; 2015: 19 inch high).
- South Carolina DNR – terminated the state finfish survey and took over MRIP intercept sampling in 2013 (information reported through MRIP).
- Georgia CRD – Collected age, length, and sex data through the Marine Sportfish Carcass Recovery Project (2014: 48 black drum out of 3,659 fish, mean length 405.9mm CL; 2015: 17 black drum out of 3,696 fish, mean length 483.1mm CL).
- Florida FWC – Conducted random survey of licensed anglers on the sizes of kept and released fish (conducted through MRIP).
- NMFS – Collected recreational catch, harvest, release, and effort data, as well as length measurements via MRIP.

Fishery Independent Monitoring

- New Jersey DEP -
    - Ocean Trawl Survey: 27-year time series average is 0.15 (2014: 0.15; 2015: 0.28).
    - Delaware Bay Trawl: 25-year time series average is 0.13 (2014 and 2015 indices were both 0.11)
    - Delaware River Seine: 36-year time series average is 0.06 (2014: 0.20; 2015: 0.15).
- Delaware DFW - Conducted two finfish trawl surveys (16ft for juveniles; 30ft for adults). Older than young-of-year (YOY) black drum are rarely captured, and no long term trend is evident.
- Maryland DNR - Conducted the Coastal Bays Fisheries Seine Survey in Maryland's coastal bay and generally catches juvenile fish. Annual mean catch per haul exhibits no trend and high variation.
- North Carolina DMF - Conducted a gill net survey in Pamlico Sound to characterize size and age distribution, and to produce an abundance index (2014: n=309, CPUE of 0.76; 2015: n=306, CPUE of 1.04).
- South Carolina DNR – Conducted an estuarine trammel net survey for subadults in 7 estuarine strata (2014: CPUE of 0.297, plateau from 2013; 2015: CPUE of 0.414, increase from 2014).
- Georgia CRD –
    - Conducted an estuarine trammel net survey for subadult biological data and abundance index (2014: n=17, CPUE of 0.19 Altamaha, 0.05 Wassaw; 2015: n=20, CPUE of 0.16 Altamaha, 0.08 Wassaw).

  - Conducted an estuarine gill net survey for YOY biological data and abundance index (2014: n=2, CPUE of 0.02 Altamaha, 0.00 Wassaw; 2015: n=4, CPUE of 0.01 Altamaha, 0.03 Wassaw).
- Florida FWC-FWRI – Conducted two seine surveys monthly in northeast and central southeast Florida to develop annual estimates of adult relative abundance. Declining trend is seen in the northeast, while the southeast exhibits an increasing trend.

VI. Status of Management Measures and Issues

Fishery Management Plan
The Black Drum FMP requires all states with a declared interest in the species to have established a maximum possession limit and minimum size limit of at least 12 inches by January 1, 2014, and to have increased the minimum size limit to no less than 14 inches by January 1, 2016.

De Minimis
The black drum FMP allows states to request *de minimis* status if, for the preceding three years for which data are available, their average combined commercial and recreational landings (by weight) constitute less than 1% of the average coastwide commercial and recreational landings for the same three-year period. A state that qualifies for *de minimis* will qualify for exemption in both their commercial and recreational fisheries.

De Minimis Requests
No state requested *de minimis* status through the annual reporting process.

VII. Implementation of FMP Compliance Requirements for 2014 and 2015

The PRT finds that all states have implemented the requirements of the Fishery Management Plan.

VIII. Recommendations of the Plan Review Team

<u>Management and Regulatory Recommendations</u> (H) =High, (M) =Medium, (L) =Low

- Develop management mechanism (e.g., traffic light analysis) to evaluate annual fishery independent and dependent indices to assess stock status and recommend management action if needed. (H)

<u>Prioritized Research and Monitoring Recommendations</u> (H) =High, (M) =Medium, (L) =Low

Stock Assessment and Population Dynamics

- Age otoliths that have been collected and archived. (H)
- Collect information to characterize the size composition of fish discarded in recreational fisheries. (H)
- Collect information on the magnitude and sizes of commercial discards. Obtain better estimates of black drum bycatch in other fisheries, especially juvenile fish in south Atlantic states. (H)
- Increase biological sampling in commercial fisheries to better characterize the size and age composition of commercial fisheries by state and gear. (H)

- Increase biological sampling in recreational fisheries to better characterize the size and age composition by state and wave. (H)
- Obtain estimates of selectivity-at-age for commercial fisheries by gear, recreational harvest, and recreational discards. (H)
- Continue all current fishery-independent surveys and collect biological samples for black drum on all surveys. (H)
- Develop fishery-independent adult surveys. Consider long line and purse seine surveys. (H)
- Collect age samples, especially in states where maximum size regulations preclude the collection of adequate adult ages. (H)
- Conduct reproductive studies, including: age and size-specific fecundity, spawning frequency, spawning behaviors by region, and movement and site fidelity of spawning adults. (M)
- Conduct a high reward tagging program to obtain improved return rate estimates. Continue and expand current tagging programs to obtain mortality and growth information and movement at size data. (H)
- Conduct tagging studies using implanted radio tracking tags that are compatible with coastal tracking arrays along the Atlantic coast in order to track movement and migration of adults. (H)
- Improve sampling of night time fisheries. (M)
- Conduct studies to estimate catch and release mortality rates in recreational fisheries. (H)
- Collect genetic material (i.e., create “genetic tags”) over a long time span to obtain information on movement and population structure, and potentially estimate population size. (H)
- Obtain better estimates of harvest from the black drum recreational fishery, especially in states with short seasons. (M)

IX. References

ASMFC. 2013. Interstate Fishery Management Plan for Black Drum. Arlington, VA.

ASMFC. 2015. Black Drum Stock Assessment for Peer Review. Atlantic States Marine Fisheries Commission, Stock Assessment Report. 352 p.

Dick, E.J. and MacCall, A.D. 2011. Depletion-Based Stock Reduction Analysis: A catch-based method for determining sustainable yields for data-poor fish stocks. Fisheries Research, 110: 331-341

MacCall, A.D. 2009. Depletion-Corrected Average Catch: a simple formula for estimating sustainable yields in data-poor situations. ICES Journal of Marine Science, 66: 2267-2271.

X. Figures

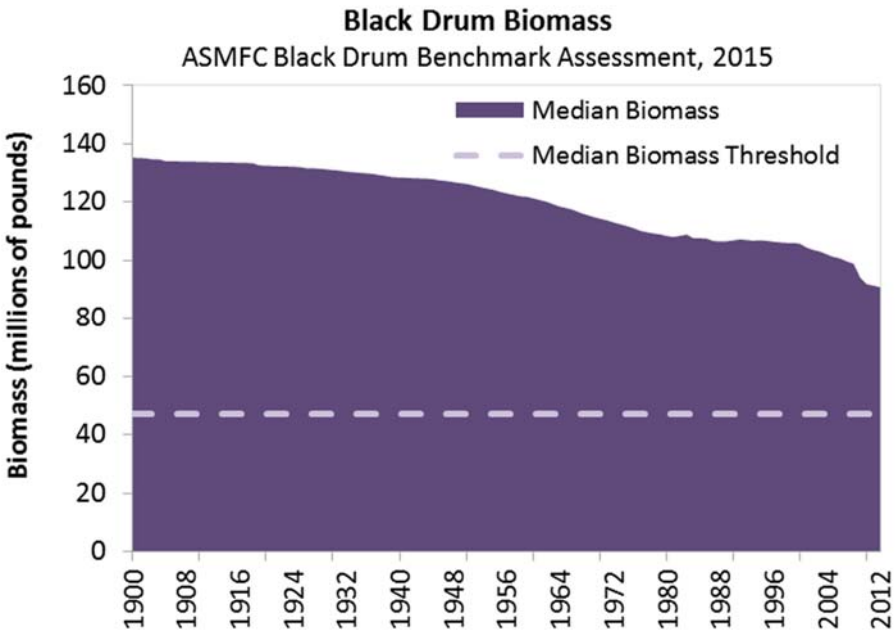


Figure 1. DB-SRA estimates of Median biomass and threshold 1900-2012 (Source: ASMFC 2015).

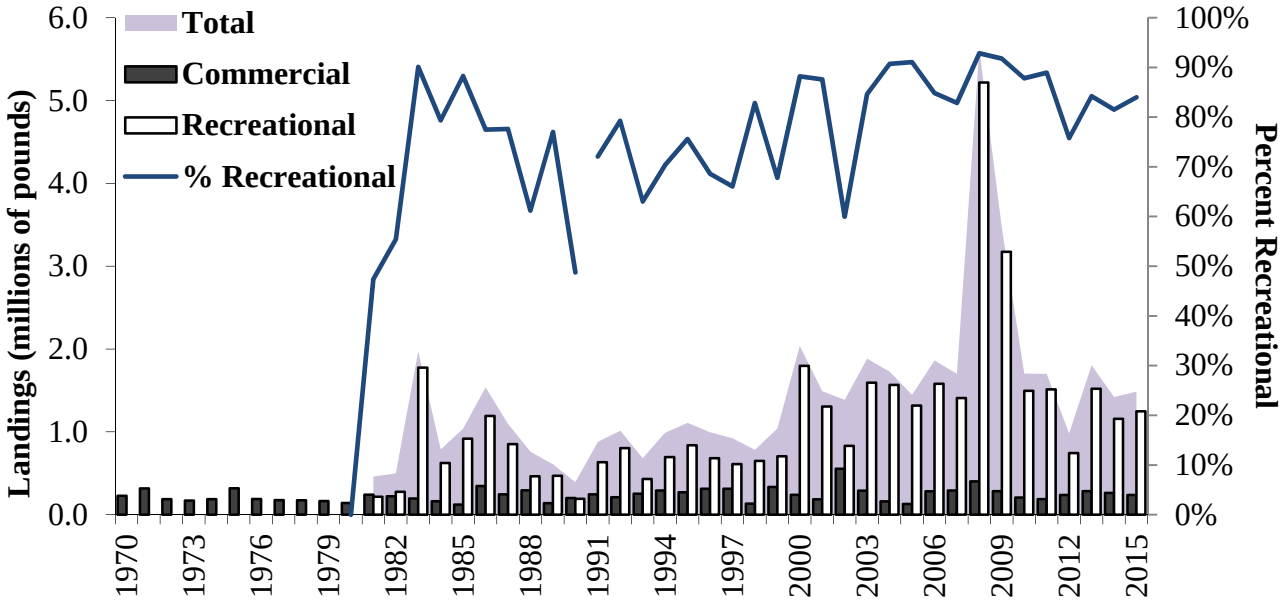


Figure 2. Commercial and recreational landings (pounds) of black drum. Recreational data not available prior to 1981. See Tables 2 and 3 for values and data sources.

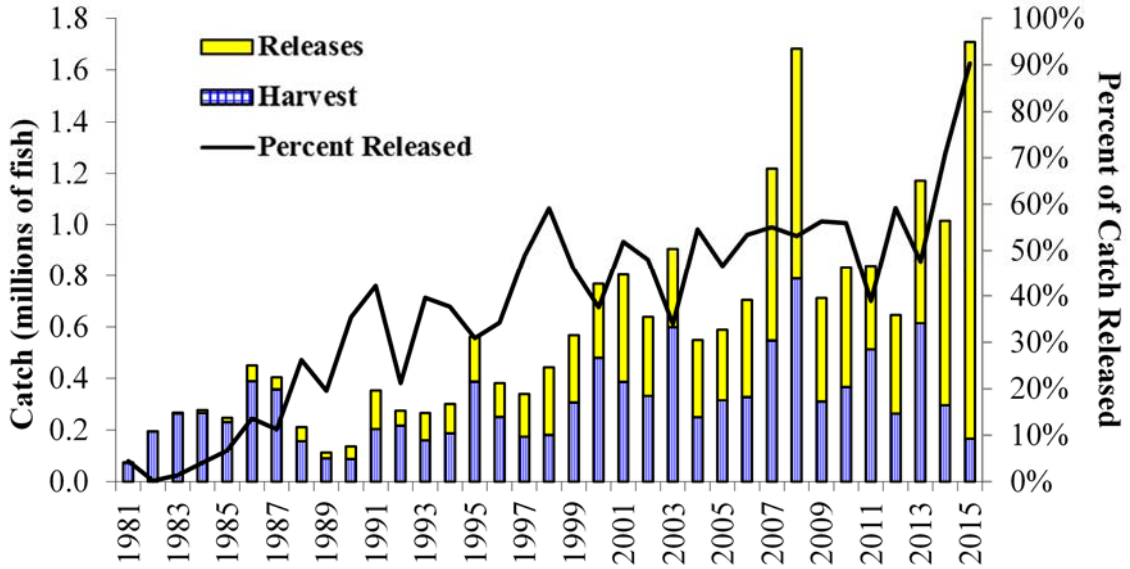


Figure 3. Recreational catch (harvest and alive releases) of black drum (numbers) and the proportion of catch that is released. See Tables 4 and 5 for values and data sources.

XI. Tables

Table 1. Black drum regulations for 2015. The states of New Jersey through Florida are required to meet the requirements in the FMP. All size limits are total length.

State	Recreational		Commercial			Notes
	Size limit	Bag limit	Size limit	Trip Limit	Annual Quota	
ME - NY	-	-	-	-	-	
NJ	16” min	3/person/day	16” min	10,000 lbs	65,000 lbs	
DE	16” min	3/person/day	16” min	10,000 lbs	65,000 lbs	
MD	16” min	1/person/day 6/vessel (Bay)	16” min		1,500 lbs Atlantic Coast	Chesapeake Bay closed to commercial harvest
VA	16” min	1/person/day	16” min	1/person/day*	120,000 lbs	*without Black Drum Harvesting and Selling Permit
NC	14” min - 25” max; 1 fish > 25” may be retained	10/person/day	14” min - 25” max	500 lbs		
SC	14” min - 27” max	5/person/day	14” min - 27” max	5/person/day		Commercial fishery primarily bycatch
GA	14” min	15/person/day	14” min	15/person/day		
FL	14” min - 24” max; 1 fish >24” may be retained	5/person/day	14” min - 24” max	500 lbs/day		

Table 2. Commercial landings (pounds) of black drum by state, 2003-2015. (Source: personal communication with NMFS Fisheries Statistics Division, Silver Spring, MD and ACCSP, Arlington, VA, except where noted below)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
2003			631	111,554	90,525		*	9505	289,312
2004	15,202	4,092	1,039	64,823	62,445		*	12,653	160,254
2005	1,970	10,059	165	66,660	44,989		*	5,249	129,092
2006	16,454	70,097	552	65,973	125,214		*	3,975	282,265
2007	1,218	37,704	172	91,385	148,231		*	12,770	291,480
2008	1,487	9,563	*	69,825	301,998	*	*	19,348	402,221
2009	6,408	30,551	*	82,437	148,995	*	*	15,671	284,062
2010	3,079	49,535	*	69,659	69,195	*	*	15,677	207,145
2011	3,130	49,514	*	56,747	56,084	*	*	22,333	187,808
2012	19,017	10,828	*	98,789	94,353	*	*	14,302	237,847
2013	16,251	24,507	*	87,730	127,170	*	*	28,450	284,632
2014	14,731	18,498	*	86,711	51,216	*	*	91,585	262,741
2015	3,865	39,282	*	93,552	51,089	*	*	50,447	238,235

*indicates confidential landings because less than three dealers reported.

Table 3. Recreational landings (pounds) of black drum by state, 1981-2015. (Source: personal communication with NMFS Fisheries Statistics Division, Silver Spring, MD)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981	0	0	0	95,051	0	3,495	7,614	111,369	217,529
1982	0	0	0	0	2,720	13,222	6,278	253,705	275,925
1983	69,193	0	603,101	706,113	0	61,594	6,765	328,922	1,775,688
1984	0	0	0	38,672	0	5,452	31,848	549,047	625,019
1985	0	50	43,946	301,264	3,838	63,206	37,646	467,715	917,665
1986	103,942	3,220	219,916	395,311	62,146	24,503	52,558	330,239	1,191,835
1987	0	623	0	462,348	51,463	61,011	45,848	230,085	851,378
1988	0	0	0	36,203	79,484	60,861	28,804	258,667	464,019
1989	0	0	192,996	54,086	2,170	44,234	44,715	131,163	469,364
1990	0	2,378	0	8,147	3,767	22,270	51,723	103,101	191,386
1991	0	1,399	0	83,090	10,558	13,878	96,295	428,316	633,536
1992	0	0	0	237,596	20,082	30,276	30,037	485,267	803,258
1993	0	1,153	0	1,087	31,474	43,092	26,842	326,596	430,244
1994	0	0	0	2,807	92,749	15,801	99,814	484,657	695,828
1995	0	0	149,158	20,685	227,582	66,787	53,721	319,812	837,745
1996	0	4,027	0	97,782	172,959	68,865	8,635	330,368	682,636
1997	0	11,372	0	36,130	156,981	190,835	28,366	186,417	610,101
1998	0	15,499	0	91,296	102,534	51,655	19,004	368,574	648,562
1999	0	2,203	8,498	0	170,793	81,777	12,058	430,690	706,019
2000	0	6,381	17,207	12,097	259,623	276,622	188,957	1,036,211	1,797,098
2001	165,041	356	0	331	188,201	16,813	32,496	903,239	1,306,477
2002	9,492	5,930	10,246	14,554	474,619	58,679	24,880	233,136	831,536
2003	214,250	0	12,282	96,730	355,717	243,887	135,127	535,717	1,593,710
2004	809,306	2,592	20,891	11,880	221,925	30,190	57,953	411,968	1,566,705
2005	519,635	25,945	0	83,349	63,161	58,997	46,485	520,948	1,318,520
2006	792,896	23,607	25,212	26,834	162,932	63,057	33,147	452,507	1,580,192
2007	202,375	14,830	0	238,718	220,454	71,471	84,495	576,048	1,408,391
2008	2,998,236	19,795	0	497,913	524,138	115,043	244,350	817,806	5,217,281
2009	1,435,892	43,001	0	1,036,270	121,038	42,903	30,203	464,661	3,173,968
2010	251,577	76,316	48,166	8,203	305,517	120,224	169,331	516,412	1,495,746
2011	126,647	15,844	0	284,264	151,407	46,847	19,504	867,708	1,512,221
2012	13,718	2,869	0	5,508	243,965	103,088	59,278	315,841	744,267
2013	36,406	6,832	0	30,749	713,047	102,429	59,219	571,489	1,520,171
2014	3,567	9,144	20,822	26,213	60,406	79,185	66,955	891,379	1,157,671
2015	184,862	12,169	11,157	17,538	115,609	35,668	15,761	855,328	1,248,092

Table 4. Recreational landings (numbers) of black drum by state, 1981-2015. (Source: personal communication with NMFS Fisheries Statistics Division, Silver Spring, MD)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981	0	1,502	0	2,874	0	8,642	3,665	54,969	71,652
1982	0	0	0	0	1,682	11,028	8,464	172,414	193,588
1983	2360	0	13,308	30,797	0	27,161	9,867	179,691	263,184
1984	0	0	1,915	1,886	0	7,575	14,239	240,470	266,085
1985	0	114	937	5,630	5,196	16,810	38,835	163,720	231,242
1986	2,798	14,605	5,668	11,767	18,697	21,108	55,040	259,168	388,851
1987	0	943	3,019	11,760	41,644	27,347	40,390	233,092	358,195
1988	0	0	0	1,225	10,553	15,568	21,525	107,293	156,164
1989	0	0	4,284	1,188	394	9,125	39,162	36,922	91,075
1990	0	1,704	0	840	2,112	15,048	16,227	52,741	88,672
1991	0	2,240	0	1,153	8,712	5,121	32,697	154,133	204,056
1992	0	0	0	5,330	7,877	13,600	19,021	171,190	217,018
1993	0	3,786	0	1,827	32,184	16,136	20,736	85,739	160,408
1994	0	0	0	1,411	53,345	8,635	18,254	106,267	187,912
1995	0	0	4,064	3,505	272,426	26,774	25,056	56,086	387,911
1996	0	206	0	3,993	134,926	28,033	6,718	77,295	251,171
1997	0	411	0	643	53,107	43,432	9,997	66,691	174,281
1998	0	412	649	3,271	44,822	14,073	5,378	112,404	181,009
1999	0	714	528	10,403	116,407	50,997	5,572	122,718	307,339
2000	0	1,194	964	2,708	113,205	63,284	62,637	235,869	479,861
2001	7,983	1,385	0	1,200	144,088	11,570	13,360	207,575	387,161
2002	5,496	3,314	3,358	4,547	197,211	28,376	23,074	67,024	332,400
2003	15,828	0	2,158	11,431	273,024	114,905	43,902	137,191	598,439
2004	15,152	320	2,351	2,485	97,262	18,384	18,568	94,967	249,489
2005	19,998	1,303	0	9,439	75,924	83,874	20,355	103,462	314,355
2006	42,070	11,462	701	1,556	92,956	93,384	20,080	66,415	328,624
2007	21,095	4,152	0	21,697	209,372	96,494	50,670	144,434	547,914
2008	74,982	6,973		26,097	359,702	54,490	91,777	175,195	789,216
2009	35,782	1,151		21,535	92,058	18,613	15,610	126,384	311,133
2010	8,593	1,450	2,731	730	122,709	34,383	69,547	127,214	367,357
2011	8,590	918	0	30,386	211,396	13,660	10,590	236,625	512,165
2012	526	111	0	1,577	139,363	28,006	19,134	74,596	263,313
2013	4,207	1,111	0	1,944	363,466	35,994	18,290	188,578	613,590
2014	150	506	1,881	3,071	24,058	30,238	15,304	220,565	295,773
2015	4,917	320	733	824	35,529	16,017	8,287	99,717	166,344

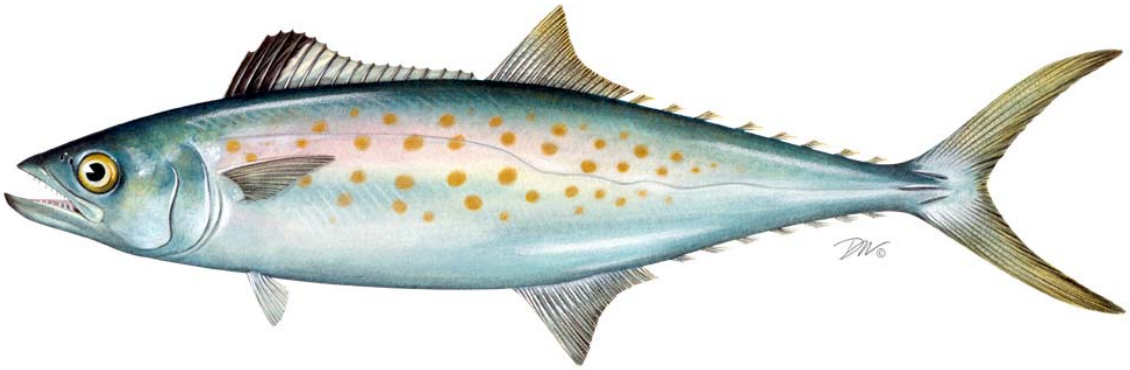
Table 5. Recreational alive releases and dead discards (numbers) of black drum by state, 1981-2015. (Source: personal communication with NMFS Fisheries Statistics Division, Silver Spring, MD.)

Year	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981		0		0		0	1,008	2,300	3,308
1982					0	417	0	0	417
1983	0		0	0		0	852	2,832	3,684
1984			646	0		1,360	0	9,296	11,302
1985		0	564	0	0	0	3,250	12,677	16,491
1986	0	0	138	0	7,659	1,091	8,988	43,219	61,095
1987		452	0	0	473	485	6,519	37,558	45,487
1988				0	6,186	892	2,975	45,339	55,392
1989			0	0	213	1,575	8,892	11,455	22,135
1990		752		0	3,291	824	2,002	41,648	48,517
1991	996	273		0	1,931	0	11,664	134,080	148,944
1992				0	731	0	5,998	51,623	58,352
1993		2,270		4,214	6,053	2,375	2,487	87,653	105,052
1994				2,601	4,969	5,655	2,241	98,061	113,527
1995			1,250	19,077	101,866	2,829	1,114	47,413	173,549
1996		0	2,534	14,945	55,227	2,214	363	55,446	130,729
1997		0	1,106	6,671	35,537	6,380	213	115,821	165,728
1998		2,893	0	17,432	50,208	1,548	6,312	182,776	261,169
1999		0	0	1,859	75,409	14,086	2,504	166,416	260,274
2000		0	0	886	56,741	47,605	20,643	162,054	287,929
2001	6,319	21,271	1,173	28,902	139,525	7,219	13,820	198,900	417,129
2002	20,246	3,332	7,998	44,056	82,297	11,697	18,851	117,831	306,308
2003	1,003	3,132	0	20,588	128,873	4,051	27,804	122,288	307,739
2004	0	524	0	16,093	98,385	19,076	42,326	123,266	299,670
2005	21,172	12,960	2,525	19,620	95,255	17,847	10,458	94,682	274,519
2006	29,024	1,031	0	81,509	93,229	27,296	29,285	114,635	376,009
2007	27,550	3,980	470	27,351	226,463	37,763	34,869	311,372	669,818
2008	223,332	5,961	0	9,327	188,680	124,748	65,881	274,681	892,610
2009	105,053	1,111	0	10,594	69,484	35,395	22,622	155,665	399,924
2010	25,592	1,575	1,744	19,637	102,348	25,677	39,981	249,265	465,819
2011	1,775	5	7,971	60,724	104,286	20,483	4,671	126,563	326,478
2012	10,498	356	19,351	7,182	91,895	67,242	19,765	165,569	381,858
2013	0	27,135	6,414	22,192	121,306	78,262	10,066	291,543	556,918
2014	10,669	4,886	0	63,623	361,514	66,209	8,248	204,889	720,038
2015	172,650	2,439	4,969	69,560	559,251	483,046	13,087	237,077	1,542,079

2016 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

SPANISH MACKEREL
(*Scomberomorus maculatus*)

2015 FISHING YEAR



Prepared by the
Spanish Mackerel Plan Review Team
Mike Schmidtke, Atlantic States Marine Fisheries Commission, Chair
Randy Gregory, North Carolina Division of Marine Fisheries
Dustin Addis, Florida Fish and Wildlife Conservation Commission
BJ Hilton, Georgia Department of Natural Resources
Kari Maclauchlin, South Atlantic Fishery Management Council

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I. Status of the Plan

Date of FMP Approval:	Original FMP – November 1990
Amendments:	Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout (Amendment 2)- August 2011 Addendum I- August 2013
Management Area:	The Atlantic coast distribution of the resource from New York through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Spanish Mackerel Plan Review Team; South Atlantic Species Advisory Panel

The Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources (1983 and subsequent amendments) and the Interstate Fishery Management Plan for Spanish Mackerel (1990) manage Atlantic migratory group Spanish mackerel (Atlantic Spanish mackerel) in federal and state Atlantic waters from New York through the east coast of Florida. All states in that range, excluding Pennsylvania, have a declared interest in the Interstate FMP for Spanish mackerel. The South Atlantic State/Federal Fisheries Management Board serves to manage Spanish mackerel for the Commission. The Interstate FMP for Spanish mackerel is a flexible document intended to track the federal FMP; thus, the South Atlantic Fishery Management Council (SAFMC) has the lead on Atlantic group Spanish mackerel management.

The SAFMC manages Atlantic Spanish mackerel based on guidance from its Scientific and Statistical Committee (SSC). The SAFMC determines needed adjustments to regulatory measures, including allowable catch, bag limits, size limits, and trip limits. The SAFMC deliberations are assisted by a Mackerel Cobia Committee that includes representatives from the Mid-Atlantic Fishery Management Council, and an Advisory Panel with South Atlantic and Mid-Atlantic industry representation. Since the Coastal Migratory Pelagic Resources FMP is a joint plan with the Gulf of Mexico Fishery Management Council (GMFMC), any amendments to this FMP must be approved by both Councils. The FMP also includes a framework procedure that allows each Council to make some changes to the management of stocks in that Council's jurisdiction without the other Council's approval through a framework amendment.

The SAFMC and GMFMC approved Amendment 18 to the Coastal Migratory Pelagic Resources FMP in December 2011 which established a new Allowable Biological Catch (ABC) based on the SSC recommendation of using median landings of the last 10 years (2001-2011). With this change, the ABC was set equal to the Annual Catch Limit (ACL) and Optimum Yield (OY) [ABC=ACL=OY] at approximately 5.29 million lbs. With this the commercial ACL was 3.13 million lbs and the recreational ACL was 2.56 million lbs.

Under the federal FMP, the 2013-2014 fishing year ran from March 1, 2013 to February 28, 2014. The 2014-2015 fishing year began on March 1st, 2014. The federal FMP divides the commercial

fishery into a quota system between the Atlantic and Gulf migratory groups. Within the Atlantic migratory group, there are two zones- the Northern (consisting of the states from New York through North Carolina) and the Southern (South Carolina to Florida). For the Atlantic migratory group, the 2013/2014 year, the full quota was 3.13 million pounds and the adjusted quota was 2.88 million pounds. The adjusted quota is used to determine trip limit reductions. For the 2014/2015 fishing season, the full quota was increased to 3.33 million pounds following CMP Framework Amendment 1 (See *Section VI*).

The federal commercial trip limit was a year-round 3,500 pound daily possession/landings limit for the states from New York through Georgia, with Florida's commercial trip limit varying depending on the percent of quota remaining. Following the implementation of Amendment 20B and CMP Framework Amendment 2, the federal trip limit for the Southern zone (SC through FL) decreases as quota is caught. When 75% of the "adjusted" Southern Zone quota[1] (1,812,998 lbs ww) is caught, the trip limit is reduced from 3,500 lbs to 1,500 lbs. When 100% of the adjusted Southern Zone quota (2,417, 330 lbs ww) is caught, the commercial trip limit is further reduced to 500 lbs. When 100% of the Southern Zone quota is met, harvest is prohibited for the remainder of the fishing year. In both the Northern and Southern zones, the recreational bag limit is set at 15 fish. The minimum size limit for both fisheries is 12" fork length or 14" total length.

The goals of the interstate FMP are to complement federal management in state waters, to conserve the Atlantic group Spanish mackerel resource throughout its range, and to achieve compatible management among the states that harvest Spanish mackerel. In accordance with the 2011 Omnibus Amendment, the updated FMP's objectives are to: (1.) Manage the Spanish mackerel fishery by restricting fishing mortality to rates below the threshold fishing mortality rates to provide adequate spawning potential to sustain long-term abundance of the Spanish mackerel populations. (2.) Manage the Spanish mackerel stock to maintain the spawning stock biomass above the target biomass levels. (3.) Minimize endangered species bycatch in the Spanish mackerel fishery. (4.) Provide a flexible management system that coordinates management activities between state and federal waters to promote complementary regulations throughout Spanish mackerel's range which minimizes regulatory delay while retaining substantial ASMFC, Council, and public input into management decisions; and which can adapt to changes in resource abundance, new scientific information and changes in fishing patterns among user groups or by area. (5.) Develop research priorities that will further refine the Spanish mackerel management program to maximize the biological, social, and economic benefits derived from the Spanish mackerel population. See Table 1 for state Spanish mackerel regulations in 2014.

II. Status of the Stocks

The resource is not overfished, nor experiencing overfishing (SEDAR 2012). The SEDAR 28 Stock Assessment Report estimates current stock biomass at $SSB_{2011}/MSST=2.29$, and current fishing level (exploitation rate) at $F_{2009\text{-}2011}/F_{MSY}=0.526$, with $F_{2011}/F_{MSY}=0.521$. The overfished ratio (B/B_{MSY}) shows that high fishing mortality caused a decline in biomass, though biomass has increased in recent years and remains above B_{MSY} (Figure 1). The overfishing ratio (F/Fmsy) shows that fishing mortality increased from the late 1970s through 1994 but has since declined (Figure 2).

[1] The adjusted quota is the Southern Zone quota minus 250,000 lbs.

Fishery-dependent data also indicate increasing biomass, excepting the decline seen over the last four years. The current fishing mortality rate does not seem to be inhibiting stock growth.

III. Status of the Fishery

Spanish mackerel are an important recreational and commercial fishery in South Atlantic waters, with recreational landings north of Maryland limited and sporadic (Tables 2 and 4). Trip limits implemented in state and federal waters continue to prevent premature closure of the commercial fishery. Total landings of Spanish mackerel in 2015 are estimated at 3 million pounds (compared to the 6.063 million pound ACL). The commercial fishery harvested approximately 70.5% of the total, and the recreational fishery about 29.5%.

From 1960 to 2015, commercial landings of Atlantic coast Spanish mackerel have ranged between 1.9 and 11.1 million pounds, although that range is limited to between 1.9 and 6.0 million pounds if the unusually large harvests in 1976-77 and 1980 are excluded. Since 1981, total landings have averaged 5.09 million pounds. Coastwide commercial landings have generally been below 4 million pounds since 1995 (exception of 2010; landings of 4.53 million pounds); this coincided with the entanglement net ban in Florida. Gill nets were the dominant commercial gear in Florida prior to the ban. After the ban was instituted, the use of cast nets increased. The 2015 commercial landings were 2.32 million pounds (Figure 3), of which 1.74 million pounds were landed in Florida (75% of the harvest). North Carolina harvested approximately 24% of the total 2014 landings (Table 2).

Recreational anglers harvested 628,379 Spanish mackerel (695,208 pounds) in 2015, a decrease from the 886,235 fish caught in 2014 (Tables 3 and 4). The number of recreationally harvested fish appears to show a cyclical trend, with low harvests in the early to mid-80s and mid to late 90s, interspersed with higher harvests (Figure 4). Florida and North Carolina have historically accounted for the majority of recreational landings in both number and weight. In 2015, South Carolina harvested an increased proportion of recreational landings in both number (21.2%) and weight (15.6%), relative to their average annual proportions since 1981 (7.5% of numbers and 7.9% of weight). Florida harvested 13.2% and North Carolina harvested 61.8% of recreational fish. The number of recreational releases of Spanish mackerel has generally increased over time, reaching a peak of over one million fish in 2008 (Table 5, Figure 4). Recreational releases in 2015 were 406,535 fish, decreasing from 490,261 fish in 2014.

IV. Status of Assessment Advice

The most recent stock assessment was completed in 2012 through the Southeast Data, Assessment, and Review (SEDAR) process (SEDAR, 2012). The input data (through 2011) were applied to two assessment models, with the primary model being a statistical catch at age model called the Beaufort Assessment Model (BAM); while a secondary surplus-production model (ASPIC) provided a comparison of model results. The Review Panel concluded that the statistical catch at age model was the most appropriate model to characterize the stock status for management purposes.

The SSC reviewed the assessment during its December 2012 meeting and accepted the SEDAR 28 Spanish mackerel stock assessment as best available science. The SSC concurred with the Review Panel's conclusion that the stock is not experiencing overfishing and the stock is not overfished.

V. Status of Research and Monitoring

The National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) continues to monitor length and weight at age and size frequencies, fishing mortality, and migration; collect age data and catch per unit effort by area, season, fishery, and gear; monitor shrimp trawl bycatch; investigate methods to predict year class strength; calculate estimates of recruitment, and develop conservation gear to reduce bycatch. The NMFS is also collecting discard data through a bycatch logbook in the mackerel and snapper-grouper fisheries. The Gulf and South Atlantic Fisheries Development Foundation and several states (North Carolina, South Carolina, Georgia, and Florida) have evaluated finfish bycatch in the southeastern shrimp trawl fishery, including bycatch of Spanish mackerel. The South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP) collects Spanish mackerel data in its coastal trawl survey from Cape Hatteras to Cape Canaveral. Additionally, the Northeast Area Monitoring and Assessment Program (NEAMAP) began regular spring and fall surveys between Martha's Vineyard and Cape Hatteras in the fall of 2007.

Abundance trends continue to be monitored primarily through fishery-dependent sources. The states and the SEFSC monitor catch data through the cooperative commercial statistics collection program and the recreational fisheries survey. Commercial trip reports are tallied more frequently in the winter and early spring by the state of Florida and NMFS as the commercial quota is approached.

North Carolina also conducts fishery independent monitoring. Three fishery independent gill net surveys were initiated by the North Carolina Division of Marine Fisheries in May of 2001, 2003 and 2008, respectively. These surveys utilize a stratified random sampling scheme designed to characterize the size and age distribution for key estuarine species in Atlantic Ocean and Pamlico Sound as well as the Pamlico, Pungo, Neuse, Cape Fear and New rivers. The overall Spanish mackerel CPUE was very low for all areas except the Atlantic Ocean where the 2015 CPUE was 0.36 (n=4).

VI. Status of Management Measures

2008 Framework Adjustment (Federal)
In February 2008, NOAA Fisheries finalized a framework adjustment to change the beginning date for trip limits in the Atlantic Spanish mackerel fishery off the east coast of Florida. The 3,500 pound trip limit begins March 1 each year to correspond with the beginning of the fishing year (as changed in Amendment 15).

Omnibus Amendment (Interstate)
In August 2011, the Management Board approved an amendment to the Spanish Mackerel FMP to address three issues: compliance measures, consistency with federal management in the exclusive economic zone, and alignment with Commission standards. Through the Omnibus

Amendment, the following fisheries management measures are required for states within the management unit range;

Recreational Fishery

- 12" Fork Length (FL) or 14" Total Length (TL) minimum size limit
- 15 fish creel limit
- Must be landed with head and fins intact
- Calendar year season
- Prohibited gear: Drift gill nets prohibited south of Cape Lookout, NC
- Decrease in the recreational quota the following year via reduced bag limits if the Total Annual Catch Limit (ACL) is exceeded and stock is overfished.

Commercial Fishery

- Prohibited: purse seines; drift gill nets south of Cape Lookout, NC
- 12" FL or 14" TL minimum size limit
- March 1 – end of February season
- Trip limits (per vessel, per day)
  NY-GA: 3500 lbs
  FL: 3500 lbs, 3/1-11/30;
  3500 lbs Mon-Fri & 1500 lbs Sat-Sun, 12/1 until 75% adjusted quota taken;
  1500 lbs, when 75% adjusted quota taken until 100% adjusted quotas taken;
  500 lbs after 100% of adjusted quotas taken (the adjusted quota compensates for estimated catches of 500 lbs per vessel per day to the end of the season)
- Commercial quotas decreased the following year if Total ACL is exceeded and stock is overfished

Amendment 18 (Federal)

In August 2011, the Gulf of Mexico and South Atlantic Fishery Management Councils approved Amendment 18 to the joint FMP for Coastal Migratory Pelagics. The primary action under consideration established Annual Catch Limits (ACLs) and Accountability Measures (AMs) for Gulf and Atlantic stocks of cobia, king mackerel, and Spanish mackerel. The amendment designates ACLs and Annual Catch Targets (ACTs) for each of the two migratory groups of Spanish mackerel (Atlantic and Gulf). For the Atlantic migratory group, the commercial sector ACL is set equivalent to the commercial sector quota of 3.13 million pounds. The AM for the commercial sector is that the commercial sector will close when the commercial quota is reached or projected to be reached. In addition, current trip limit adjustments will remain in place. When the commercial sector closes, harvest and possession of Spanish mackerel would be prohibited for persons aboard a vessel for which a commercial permit for Spanish mackerel has been issued. If stock ACL is exceeded and the stock is designated as overfished, the following year's commercial ACL will be reduced by the amount over the commercial ACL.

For the recreational sector, the ACT is set to 2.32 million pounds, while the ACL is set at 2.56 million pounds. Regarding the AM, if the stock ACL is exceeded in any year, the bag limit will be reduced the next fishing year by the amount necessary to ensure recreational landings achieve the recreational ACT, but do not exceed the recreational ACL in the following fishing year. A

payback will be assessed if the Atlantic migratory group Spanish mackerel is determined to be overfished and the stock ACL is exceeded. The payback will include a reduction in the sector ACL for the following year by the amount of the overage by that sector in the prior fishing year.

Addendum I
In August 2013, the Commission's South Atlantic State-Federal Fisheries Management Board approved Addendum I to the Omnibus Amendment to for Spanish mackerel, Spot, and Spotted Seatrout.

Addendum I to the Omnibus Amendment establishes a pilot program that would allow states to reduce the Spanish mackerel minimum size limit for the commercial pound net fishery to 11 ½ inches during the summer months of July through September for the 2013 and 2014 fishing years only. The measure is intended to reduce waste of these shorter fish, which are discarded dead in the summer months, by converting them to landed fish that will be counted against the quota.

The Addendum responds to reports about the increased incidence of Spanish mackerel ¼ to ½ inch short of the 12 inch fork length minimum size limit in pound nets during the summer months. While the fish are alive in the pound, once the net is bunted and bailing commences, they die before being released. This may be due to a combination of temperature, stress and crowding. While individual fishermen have experimented with different wall or panel mesh sizes depending on the target species, there is no consistent use of cull panels. Those who have used cull panels have noted the difficulty and lack of success in being able to release the undersized fish quickly enough to prevent dead discards during this time of year.

The measures in Addendum I only applied for the 2013 and 2014 fishing seasons. In August 2015, the South Atlantic Board formally extended the provisions of Addendum I for the 2015 and 2016 fishing seasons. Reports by North Carolina, the only state to reduce their minimum size, will be reviewed annually.

Amendment 20A (Federal)
Effective July 2014, this Amendment addresses the sale of bag limit caught Spanish mackerel. The amendment rose from concerns that the recreational sales of bag limit caught fish, which are counted toward commercial quotas, are contributing to early closures of the commercial sector. In addition potential double counting of these fish could be causing erroneous landings estimates. In response, the Amendment prohibits bag limit sales with the exception of recreationally caught fish from state permitted tournaments in the South Atlantic region. This amendment also included an action to remove income requirements for federal CMP permits.

South Atlantic CMP Framework Action 2013 (Federal)
Effective December 2014, this action allows Spanish mackerel, harvested with gillnet gear in the South Atlantic in excess of the trip limit, to be transferred to another federally permitted vessel that has not yet harvested the trip limit. The Framework Action stipulates that the transfer can only occur if: 1) allowable gillnet gear was used to harvest Spanish mackerel; 2) the transfer takes place in federal waters between vessels with valid commercial permits; 3) the receiving vessel does not have more than 3 gillnets aboard after the transfer; 4) all fish remain entangled in the

meshes of the net until the transfer; 5) the quantity of the fish transferred does not exceed the daily trip limit; and 6) there is only one transfer per vessel per day.

CMP Framework Amendment 1 (Federal)
This Framework Amendment, effective December 2014, increases the Atlantic Spanish mackerel ACL to 6.063 million pounds. The modification to the ACL followed the 2013 stock assessment which concluded that the stock is not overfished and overfishing is not occurring. The Amendment divides the ACL between the commercial sector (3.33 million pounds) and the recreational sector (2.727 million pounds).

Amendment 20B (Federal)
Effective March 2015, this Amendment separates commercial quotas of Atlantic Spanish mackerel between a Northern zone (north of NC/SC line) and a Southern zone (South of NC/SC line). The Amendment rose from concerns that the commercial quota could be filled by fishermen in one state before fish are available to fishermen in another state. In order to prevent this from happening, a zone is closed when its respective quota is met. Quota for each zones was based on landings from 2002/2003-2011/2012.

CMP Framework Amendment 2 (Federal)
Implemented July 2015, this Amendment modifies the commercial trip limit system in the Southern zone. The rule establishes a trip limit of 3,500 lbs for Spanish mackerel in Federal waters offshore of South Carolina, Georgia, and Florida. When 75% of the adjusted southern zone commercial quota is caught, the commercial trip limit is reduced to 1,500 lbs. When 100% of the adjusted southern zone commercial quota is met, the commercial trip limit is further reduced to 500 lbs. This limit remains until the end of the year or the quota is met.

VII. Implementation of FMP Compliance Requirements for 2015

All states must implement the requirements specified in section 5 (5.1 Mandatory Compliance Elements for States; 5.1.1 Mandatory Elements of State Programs; 5.1.1.1 Regulatory Requirements). The PRT finds all states in compliance.

De Minimis Requests
A state qualifies for *de minimis* status if its previous three-year average combined commercial and recreational catch is less than 1% of the previous three-year average coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, as none are included in the plan.

The states of New Jersey, Delaware, and Georgia request *de minimis* status. The PRT notes that all three states meet the requirements of *de minimis*.

Regulation Changes
North Carolina
One proclamation was issued under rule 15A NCAC 03M .0512 to remain in compliance with the Atlantic States Marine Fishery Commission. Addendum I to the Omnibus Amendment establishes a pilot program that would allow states to reduce the Spanish mackerel minimum size limit for

the commercial pound net fishery to 11 ½ inches during the summer months of July through September. The measure is intended to reduce waste of these shorter fish, which are discarded dead in the summer months, by converting them to landed fish that will be counted against the quota. The Division issued a proclamation suspending the 12-inch fork length size limit and adopting the 11 ½ inch fork length size limit in the commercial pound net fishery from July 4, 2016 to September 30, 2016.

Florida
Effective October 12, 2015:
68B-23.006 Other Prohibitions.

(1) It is unlawful for any person to possess, transport, buy, sell, exchange or attempt to buy, sell or exchange any Spanish mackerel harvested in violation of this chapter.

(2) The Commission shall issue a permit pursuant to Rule 68B-2.010, F.A.C., to authorize Spanish mackerel caught in an organized tournament to be donated to a licensed wholesale dealer.

(3) The prohibitions of this chapter apply as well to any and all persons operating a vessel in state waters, who shall be deemed to have violated any prohibition which has been violated by another person aboard such vessel.

VIII. Recommendations of the Plan Review Team

Research and Monitoring Recommendations

High Priority

- Length, sex, age, and CPUE data are needed for improved stock assessment accuracy. Simulations on CPUE trends should be explored and impacts on VPA and assessment results determined. Data collection is needed for all states, particularly from Virginia north.
- Evaluation of weight and especially length at age of Spanish mackerel.
- Development of fishery-independent methods to monitor stock size of Atlantic Spanish mackerel (consider aerial surveys used in south Florida waters).
- More timely reporting of mid-Atlantic catches for quota monitoring.
- Provide better estimates of recruitment, natural mortality rates, fishing mortality rates, and standing stock. Specific information should include an estimate of total amount caught and distribution of catch by area, season, and type of gear.
- Develop methodology for predicting year class strength and determination of the relationship between larval abundance and subsequent year class strength.
- Commission and member states should support and provide the identified data & input needed to improve the SAFMC's SEDAR process.
- The full implementation of ecosystem-based management and the implementation of monitoring/research efforts needed to support ecosystem-based management needs should be conducted.

Medium Priority

- Yield per recruit analyses should be conducted relative to alternative selective fishing patterns.

- Determine the bycatch of Spanish mackerel in the directed shrimp fishery in Atlantic Coastal waters (partially met: Branstetter, 1997; Ottley et al., 1998; Gaddis et al., 2001; Page et al., 2004).
- Evaluate potential bias of the lack of appropriate stratification of the data used to generate age-length keys for Atlantic and Gulf Spanish mackerel.
- Evaluate CPUE indices related to standardization methods and management history, with emphasis on greater temporal and spatial resolution in estimates of CPUE.
- Consideration of MRFSS add-ons or other mechanisms for collection of socioeconomic data for recreational and commercial fisheries.
- Determine normal Spanish mackerel migration routes and changes therein, as well as the climatic or other factors responsible for changes in the environmental and habitat conditions which may affect the habitat and availability of stocks.
- Determine the relationship, if any, between migration of prey species (i.e., engraulids, clupeids, carangids), and migration patterns of the Spanish mackerel stock.

Low Priority

- Final identification of Spanish mackerel stocks through multiple research techniques.
- Complete research on the application of assessment and management models relative to dynamic species such as Spanish mackerel.
- Delineation of spawning areas and areas of larval abundance through temporal and spatial sampling.

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X. Figures

Figure 1. Estimated total biomass (metric tons) at start of year. Horizontal dashed line indicates B_{MSY} (SEDAR, 2012).

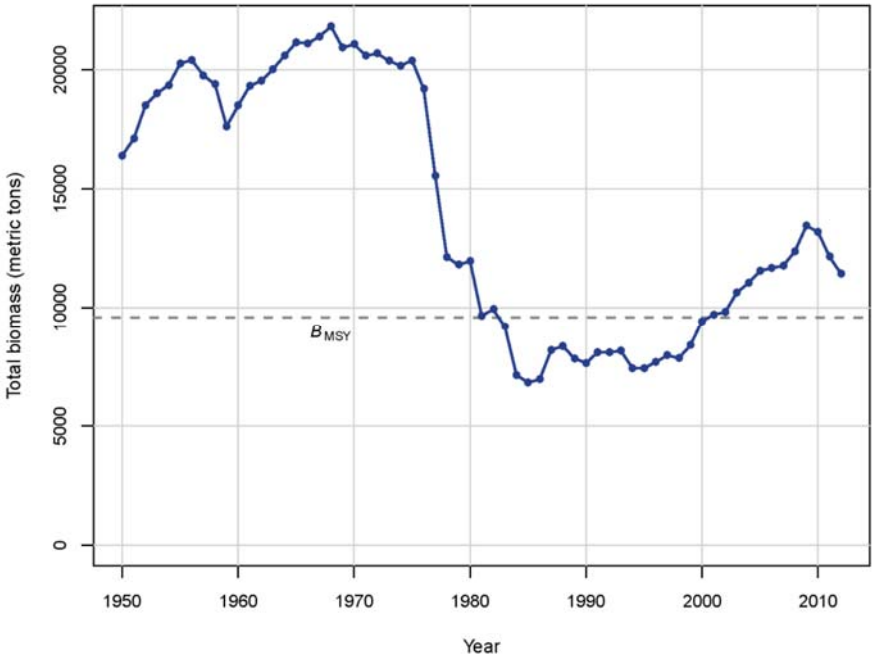


Figure 2. Estimated time series of Atlantic group Spanish mackerel fishing mortality rate (F) relative to F_{MSY} benchmark. Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5th and 95th percentiles of the Monte Carlo Bootstrap analysis trials (SEDAR, 2012).

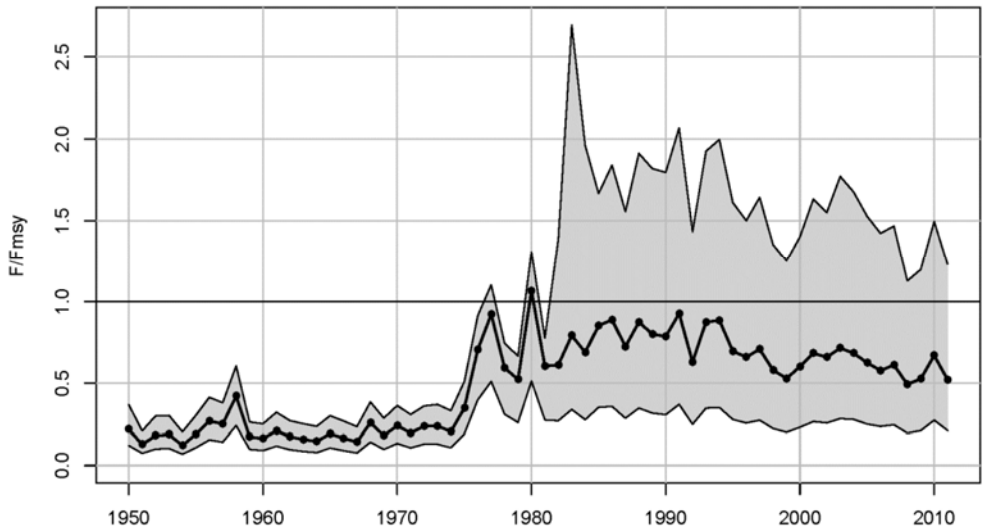


Figure 3. Commercial and recreational harvest (pounds) of Spanish mackerel, 1960-2015
(Recreational data available from 1981-present only; see Tables 2 and 4 for values and sources)

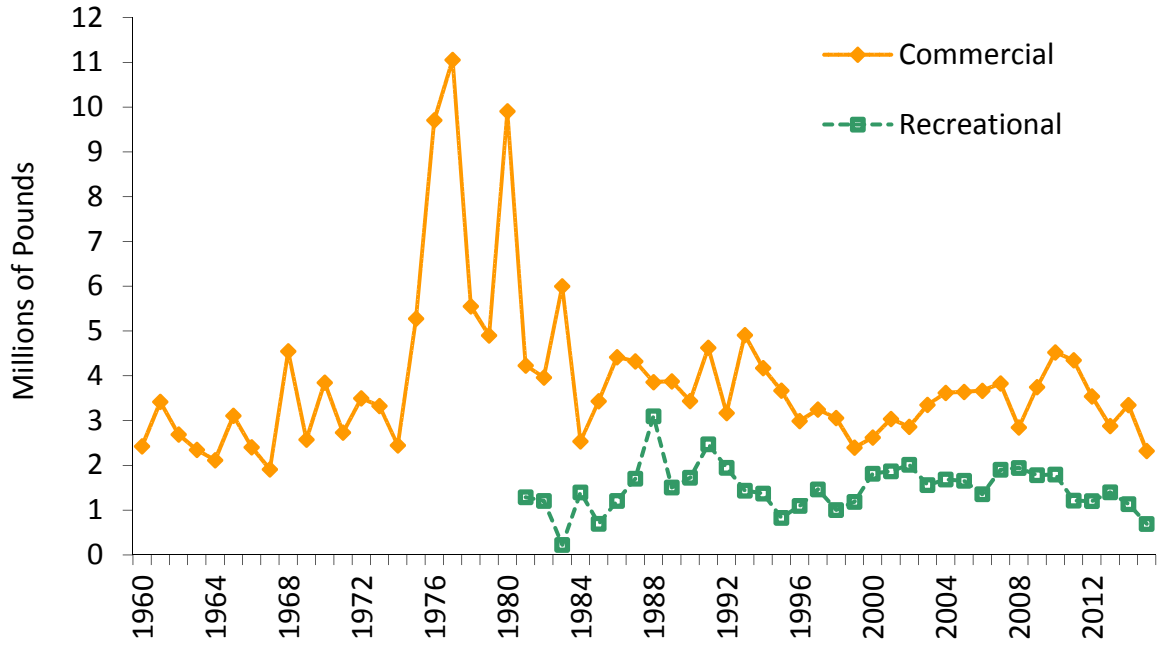
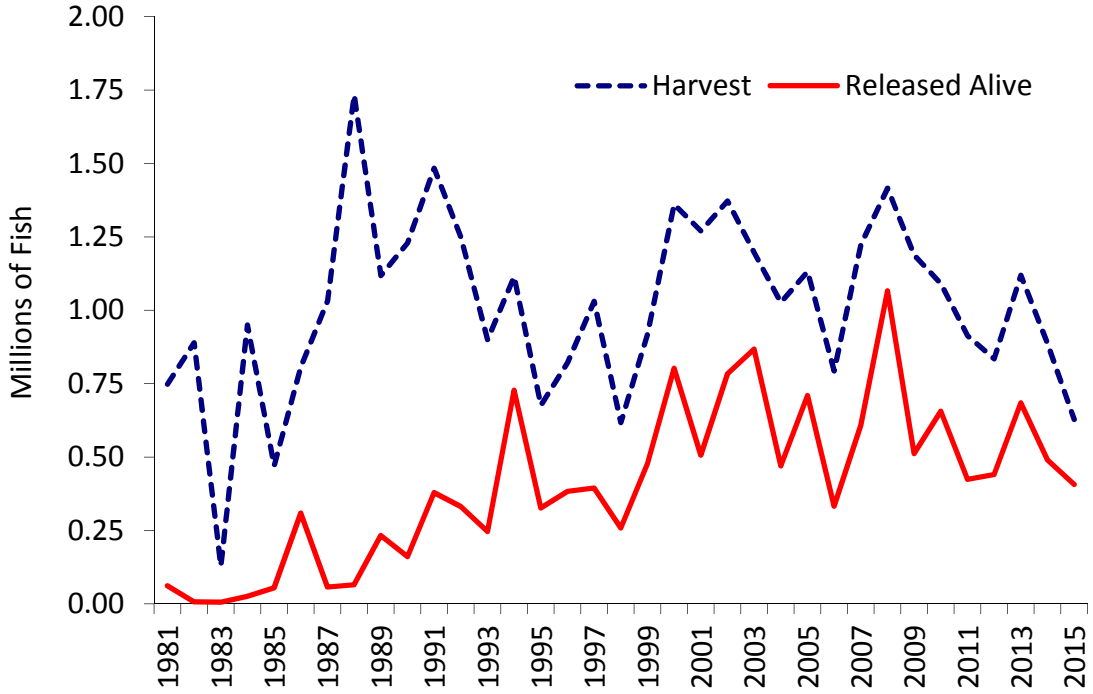


Figure 4. Recreational harvest and releases (numbers of fish) of Spanish mackerel, 1981-2015
(See Tables 3 and 5 for values and sources)



XI. Tables

Table 1. Summary of state regulations for Spanish mackerel in 2015

Notes: A commercial license is required to sell Spanish mackerel in all states; other general gear restrictions apply to the harvest of Spanish mackerel. Purse seines and drift gill nets are prohibited south of Cape Lookout, NC.

State	Recreational	Commercial
NY	14" TL, 15 fish	14" TL. 3,500 lb trip limit.
NJ	14" TL, 10 fish	14" TL. 3,500 lb trip limit.
DE	14" TL, 15 fish	14" TL. 3,500 lb trip limit.
MD	14" TL, 15 fish	14" TL. 3,500 lb trip limit. March-Feb.
PRFC	14" TL, 15 fish	14" TL. Closure if/when MD and VA fisheries close.
VA	14" TL, 15 fish	14" TL. 3,500 lb trip limit. Closure if/when federal waters close.
NC	12" FL, 15 fish	12" FL; 11.5" FL in pound net fishery July 4th – Sept 30th, 2016. 3,500 lb trip limit for combined Spanish and king mackerel landings.
SC	12" FL, 15 fish	12" FL. 15 fish. 3,500 lb trip limit. March-Feb. Closure if/when federal waters close.
GA	12" FL, 15 fish	12" FL. 3,500 lb trip limit.
FL	12" FL or 14" TL, 15 fish. Cast nets less than 14' and beach or haul seines within 2" stretched mesh allowed	12" FL or 14" TL. Trip limits: April 1 until Nov. 30 - 3500 lb; Dec. 1 until 75% of adjusted quota reached – 3500 lb Mon-Fri. & 1500 lb Sat-Sun; >75% adjusted quota until quota filled -1500 lb; > 100% of adjusted quota - 500 lb. Restricted Species Endorsement Required Allowed gear: beach or haul seine, cast net, hook and line, or spearing.

Table 2. Commercial landings (pounds, calendar year) of Spanish mackerel by state, 1981-2015
(Source: NMFS Fisheries Statistics Division)

Year	NY	NJ	MD	VA	NC	SC	GA	FL	Total
1981	500	500		3,500	51,639		518	4,174,432	4,231,089
1982	1,000	200		12,700	189,217	1,081	745	3,758,603	3,963,546
1983	600	100		3,500	41,336	706		5,947,102	5,993,344
1984	300	100		10,000	127,467	1,321		2,397,373	2,536,561
1985	100			15,300	173,186	847		3,244,980	3,434,413
1986	3,200	1,500		168,400	232,197	6,375	1,335	4,003,738	4,416,745
1987	16,600	24,000	4,800	251,200	504,063	961	255	3,497,135	4,299,014
1988	19,200	16,900	4,300	291,600	438,222	1,029	726	3,071,687	3,843,664
1989	17,700	24,100	10,400	354,400	589,383	1,605		2,853,177	3,850,765
1990	24,329	28,336	43,411	491,651	838,914	384	491	1,979,081	3,406,597
1991	149,321	77,151	62,688	447,127	858,808	444	197	2,986,871	4,582,607
1992	31,873	51,751	37,930	271,313	738,362	1,952	71	2,022,961	3,156,213
1993	42,063	23,036	9,445	335,688	589,868	480	95	3,902,240	4,902,915
1994	124,733	19,915	3,363	376,818	531,355	362		3,099,780	4,156,326
1995	9,136	2,153	3,089	168,732	402,305			3,064,926	3,650,341
1996	17,980	40,821		283,750	401,546			2,244,667	2,988,764
1997	31,107	12,122	3,033	164,639	766,901			2,269,289	3,247,091
1998	37,238	13,242	13,204	121,109	372,440			2,498,461	3,055,694
1999	47,831	17,144	21,604	251,626	459,120			1,566,706	2,364,031
2000	35,825	11,757	26,607	168,679	659,431			1,675,473	2,577,772
2001	13,851	9,401	18,899	178,849	653,491			2,115,782	2,990,273
2002	18,741	11,196	20,725	102,454	698,463			1,995,212	2,846,791
2003	18,339	5,432	5,239	103,409	456,794			2,740,632	3,329,845
2004	16,921	3,060	4,881	66,482	456,243			3,066,186	3,613,773
2005	5,197	2,074	7,750	43,126	446,013			3,133,772	3,637,932
2006	5,720	1,456	290	43,192	470,669			3,142,721	3,664,048
2007	7,244	2,075	3,734	58,064	487,891	0	0	3,264,452	3,823,460
2008	2,513	1,210	7,136	156,011	415,416	0	0	2,262,661	2,844,947
2009	3,462	3,324	11,570	138,292	961,836	0	0	2,629,343	3,747,827
2010	3,713	829	4,939	47,562	911,878	0	0	3,553,155	4,522,076
2011	1,149	305	5,054	36,314	871,217			3,432,932	4,346,971
2012	2,294	2,806	3,630	18,317	916,439			2,596,981	3,540,467
2013	4,468	265	2,397	7,746	620,752	0	0	2,247,993	2,879,153
2014	3,081	74859	1,644	7,859	673,974	17	0	2,585,473	3,346,907
2015	*	2746	2,219	14,493	561,423	*	*	1,741,726	2,322,637

Table 3. Recreational harvest (numbers) of Spanish mackerel by state, 1981-2015

(NMFS Fisheries Statistics Division)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981						231,744	25,058	1,786	485,395	743,983
1982						694,420	21,092	408	173,649	889,569
1983						6,156	3,279	2,109	117,532	129,076
1984						618,313	79,855	3,718	248,048	949,934
1985						344,965	36,606	4,809	84,226	470,606
1986		1,479		457	6,942	431,021	147,358	25,257	195,385	807,899
1987	1,417			8,036	1,520	815,920	65,846	20,925	118,184	1,031,848
1988					101,691	1,312,070	82,136	4,403	233,582	1,733,882
1989	1,010	22,067			73,236	679,360	121,115	7,444	213,665	1,117,897
1990	1,726	2,495	319	1,355	63,821	821,334	81,375	31,567	225,263	1,229,255
1991	7,608	25,071	2,054	41,250	68,102	676,717	132,198	2,391	517,290	1,472,681
1992	1,325	10,549	210	4,847	71,265	701,974	62,546	25,736	370,809	1,249,261
1993	2,681	3,457		43,050	73,832	451,523	92,621	12,979	219,458	899,601
1994		7,910		43,710	145,872	535,949	113,991	15,235	252,668	1,115,335
1995				26,216	86,899	285,882	34,355	16,726	226,334	676,412
1996		1,172			69,399	355,036	134,282	16,948	245,085	821,922
1997					68,517	585,765	101,067	28,396	246,885	1,030,630
1998		4,046	186	3,633	33,140	239,052	65,584	28,002	244,235	617,878
1999		1,335	226	1,220	75,972	476,019	27,477	9,007	327,621	918,877
2000	4,453	923		15,219	71,249	671,353	28,283	20,545	547,315	1,359,340
2001	802			8,025	29,590	400,706	43,501	11,013	774,065	1,267,702
2002					17,433	401,982	24,235	1,927	926,600	1,372,177
2003				6,975	17,063	349,170	24,879	11,235	784,385	1,193,707
2004		1,531		8,800	21,012	308,996	144,394	7,906	532,956	1,025,595
2005				20,792	20,525	331,601	70,273	12,140	676,973	1,132,304
2006		465		3,118	40	305,343	42,867	2,441	439,324	793,598
2007				12,360	16	491,357	104,741	13,795	601,335	1,223,604
2008		470		5,777	83,903	686,501	58,465	14,519	566,397	1,416,032
2009		655		24,725	16,451	703,393	60,925	6,306	375,512	1,187,967
2010				7,526	20,524	470,212	93,574	4,723	494,586	1,091,145
2011				10,554	35,054	367,086	87,109	7,486	406,068	913,357
2012				2,962	11,874	491,238	80,204	2,119	246,866	835,263
2013			31	2,905	61,237	497,329	22,414	1,299	534,042	1,119,257
2014		0	0	5,494	17,521	398,398	80,935	1,903	381,839	886,090
2015	0	0	0	11,366	12,072	388,157	133,445	527	82,811	628,379

Table 4. Recreational harvest (pounds) of Spanish mackerel by state, 1981-2015
(NMFS Fisheries Statistics Division)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981						423,801	53,292	4,306	808,808	1,290,207
1982						928,201	29,546	483	251,115	1,209,345
1983						14,725	8,274	4,198	199,331	226,528
1984						848,537	116,083	5,540	427,501	1,397,661
1985						507,545	34,445	3,547	152,113	697,650
1986		2,500		1,008	9,709	639,105	256,157	47,941	251,673	1,208,093
1987	2,890			14,345	2,011	1,296,732	117,053	40,681	230,725	1,704,437
1988					160,407	2,136,806	140,896	5,141	656,047	3,099,297
1989	3,560	35,415			81,107	877,911	197,982	6,162	303,485	1,505,622
1990	2,332	3,320	470	1,790	86,932	1,084,167	153,932	45,748	346,585	1,725,276
1991	19,612	36,096	3,062	57,249	72,708	1,056,524	291,717	3,717	887,777	2,428,462
1992	3,880	16,526	302	9,634	76,411	947,065	145,451	79,818	669,160	1,948,247
1993	7,590	5,280		68,757	93,272	664,815	135,287	22,209	439,555	1,436,765
1994		8,614		44,969	160,610	588,035	152,836	66,949	350,679	1,372,692
1995		0		34,705	110,433	329,466	40,995	12,072	302,632	830,303
1996		0			80,505	385,922	184,655	31,856	413,687	1,096,625
1997		0			22,233	862,497	143,297	37,877	400,148	1,466,052
1998		9,189	379	5,725	57,467	305,630	106,209	112,562	408,872	1,006,033
1999		2,207	240	1,715	79,602	469,258	44,917	10,031	578,123	1,186,093
2000	10,798	1,119		20,642	83,297	671,616	30,543	47,137	946,395	1,811,547
2001	1,168	0		14,526	42,047	499,829	46,945	23,056	1,232,506	1,860,077
2002		0			12,163	475,742	47,057	4,795	1,475,232	2,014,989
2003		0		9,762	22,030	446,052	29,107	34,855	1,021,204	1,563,010
2004		2,150		14,434	36,497	558,968	147,609	11,799	915,099	1,686,556
2005		0		38,946	14,459	359,927	138,517	16,296	1,088,720	1,656,865
2006		2,914		6,400	70	454,749	83,069	2,487	807,327	1,357,016
2007	0	0	0	25,276	29	729,687	119,207	26,513	1,003,340	1,904,052
2008	0	513	0	11,550	112,619	783,330	75,583	31,041	930,923	1,945,559
2009	0	302	0	42,300	24,663	892,632	101,614	13,272	708,270	1,783,053
2010		0		13,995	26,338	582,550	136,648	5,168	1,034,480	1,799,179
2011		0		22,630	41,325	194,521	72,631	9,439	873,604	1,214,150
2012		0		5,223	17,806	665,168	98,316	4,536	412,001	1,203,050
2013	0	0	43	6,949	68,146	625,035	50,856	2,158	646,996	1,400,183
2014	0	0	0	12,440	19,522	441,511	126,345	2,356	534,575	1,136,749
2015	0	0	0	16,820	10,746	431,082	108,423	1,879	126,258	695,208

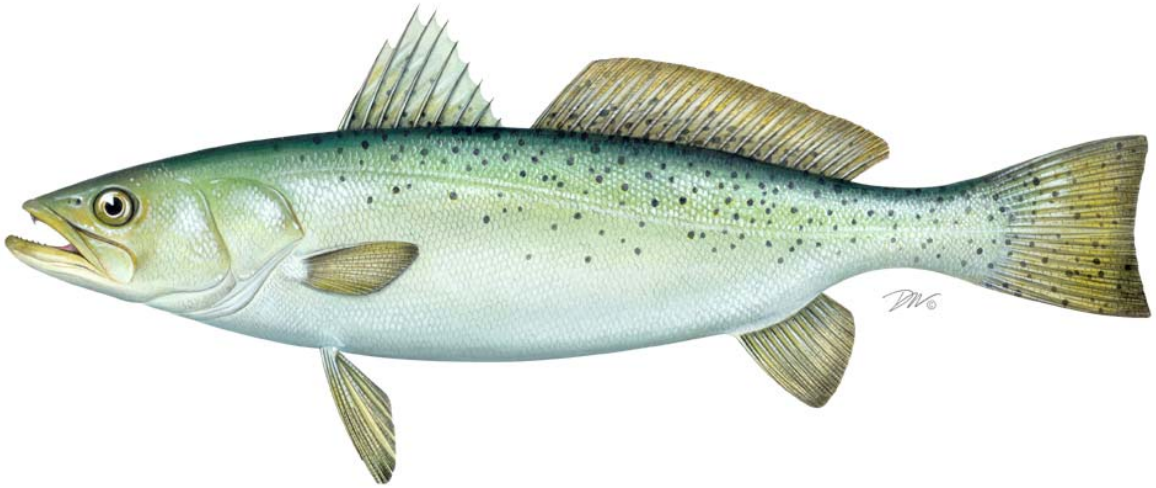
Table 5. Recreational releases (numbers) of Spanish mackerel by state, 1981-2015
(NMFS Fisheries Statistics Division)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
1981						5,616			56,374	61,990
1982									6,613	6,613
1983								515	4,929	5,444
1984						2,931	1,300		21,797	26,028
1985						27,753	3,862		23,316	54,931
1986					74	280,252	7,879	605	20,469	309,279
1987					13,947	28,136	5,506	2,916	7,197	57,702
1988						17,413	27,019	2,456	18,334	65,222
1989					10,286	64,749	73,983	391	83,682	233,091
1990	257				21,094	76,940	26,929		35,520	160,740
1991		2,674	1,092	1,747	28,777	133,601	19,331	57	190,602	377,881
1992					18,072	180,235	15,515	3,859	113,062	330,743
1993		1,160		2,684	70,081	81,927	15,966		74,052	245,870
1994	1,059	50,743			91,832	241,082	207,055		136,041	727,812
1995	7,297	1,269		1,562	24,467	145,845	14,159	2,594	129,469	326,662
1996					28,951	103,067	83,543	139	167,411	383,111
1997			338		22,658	140,704	62,356		168,815	394,871
1998				1,075	49,429	80,700	32,087	7,351	87,804	258,446
1999	1,415	2,670			36,276	205,870	46,400	495	185,106	478,232
2000			608	1,656	82,227	300,384	47,273	16,479	353,042	801,669
2001	1,657	4,907	825	7,265	30,158	160,591	9,711	3,188	285,738	504,040
2002				4,449	9,923	196,967	9,206	8,641	554,743	783,929
2003				6,994	20,539	164,787	223,116	6,501	445,965	867,902
2004				753	13,738	121,531	114,157	3,527	213,577	467,283
2005				4,937		174,140	153,584	8,983	367,862	709,506
2006				1,620	8,973	89,912	33,328	6,609	192,010	332,452
2007				13,657	7,837	277,710	83,513	27,643	197,856	608,216
2008				4,672	66,593	541,764	93,009	6,823	353,098	1,065,959
2009		13,363		6,906	24,848	241,540	49,472	627	175,042	511,798
2010				0	29,586	268,356	54,297	128	303,829	656,196
2011				0	28,526	170,926	67,144	10,131	147,399	424,126
2012				0	17,150	234,905	98,371	1,724	88,592	440,742
2013			94		5,583	289,216	24,862		365,107	684,862
2014				881	3,450	240,731	36,082	851	208,266	490,261
2015	0	0	0	357	4,224	216,011	99,530	466	85,947	406,535

2016 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR

SPOTTED SEATROUT
(Cynoscion nebulosus)

2015 FISHING YEAR



The Spotted Seatrout Plan Review Team
Amy Hirrlinger, Atlantic States Marine Fisheries Commission
Chris Kalinowsky, Georgia Coastal Resources Division
Mike Murphy, Florida Fish & Wildlife Conservation Commission
Dr. Steve Arnott, South Carolina Department of Natural Resources
Steve Poland, North Carolina Department of Environment and Natural Resources
Douglas Lipton, NOAA Fisheries

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I. Status of the Fishery Management Plan

Date of FMP Approval:	Original FMP – October 1984
Amendments:	Amendment 1 – November 1991 Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout -- August 2011
Management Area:	The Atlantic coast distribution of the resource from Maryland through the east coast of Florida
Active Boards/Committees:	South Atlantic State/Federal Fisheries Management Board; Spotted Seatrout Plan Review Team; South Atlantic Species Advisory Panel

The Atlantic States Marine Fisheries Commission (ASMFC) adopted the Fishery Management Plan (FMP) for spotted seatrout in 1984. The ISFMP Policy Board approved Amendment 1 to the FMP in November 1991. In August 2011, the South Atlantic State/Federal Management Board approved the Omnibus Amendment to the Spanish Mackerel, Spot, and Spotted Seatrout FMPs, bringing the Spotted Seatrout FMP under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (Act, 1993) and the ASMFC Interstate Fishery Management Plan Charter (1995). The states of Maryland through Florida have a declared interest in the species.

The goal of the management plan is "to perpetuate the spotted seatrout resource in fishable abundance throughout its range and generate the greatest possible economic and social benefits from its harvest and utilization over time." Plan objectives include:

1. Attain optimum yield over time.
2. Maintain a spawning potential ratio of at least 20% to minimize the possibility of recruitment failure.
3. Promote conservation of the stocks to reduce inter-annual variation in availability and to increase yield per recruit.
4. Promote collection of economic, social, and biological data required to effectively monitor and assess management efforts relative to the overall goal.
5. Promote research that improves understanding of the biology and fisheries of spotted seatrout.
6. Promote harmonious use of the resource among various components of the fishery through coordination of management efforts among the various political entities having jurisdiction over the spotted seatrout resource.
7. Promote determination and adoption of standards of environmental quality and provide habitat protection necessary for the maximum natural protection of spotted seatrout.

The Omnibus Amendment added the following objectives to support compliance under the Act:

1. Manage the spotted seatrout fishery by restricting catch to mature individuals.
2. Manage the spotted seatrout stock to maintain sufficiently high spawning stock biomass.

3. Develop research priorities that will further refine the spotted seatrout management program to maximize the biological, social, and economic benefits derived from the population.

Management measures include a minimum size limit of 12 inches in total length (TL), with comparable mesh size regulations in directed fisheries, and data collection for stock assessments and monitoring of the fishery. All states with a declared interest in spotted seatrout (MD-FL) have implemented, at a minimum, the recommended minimum size limit. In addition, each state has either initiated spotted seatrout data collection programs or modified other programs to collect improved catch and effort data. Table 1 provides the states' recreational and commercial regulations for spotted seatrout through 2015.

II. Status of the Stock

A coastwide stock assessment of spotted seatrout has not been conducted, given the largely non-migratory nature of the species and the lack of data on migration where it does occur. Instead, state-specific age-structured analyses of local stocks have been performed by several states. These stock assessments provide estimates of static spawning potential ratio (SPR), a measure of the effect of fishing pressure on the relative spawning power of the female stock. The FMP recommends a goal of 20% SPR. North Carolina, South Carolina, and Georgia have adopted this goal while Florida has established a 35% SPR goal.

Spotted seatrout stock assessments have been conducted in individual states. Assessments in North Carolina, which included data from 1981-1997, and Georgia, which included data from 1986-1995, both indicated that female SPR was below the 20% goal in the terminal year (Zhao and Burns 2001, Zhao *et al.* 2001). A more recent assessment was performed in Georgia in 2002; however, it remains unpublished due to questionable results attributed to data deficiencies and changing methodologies.

North Carolina completed a peer reviewed stock assessment, which included data from 1991-2008 and included all spotted seatrout caught in North Carolina and Virginia (Jensen 2009). The assessment indicated that SPR has been below 20% in recent years. Jensen (2009) recommended management measures be implemented to account for recent increases of recreational fishing and discard mortality and to maintain a sufficiently large spotted seatrout population to buffer against future cold stun events. Based on this assessment, North Carolina approved a state FMP for spotted seatrout in April 2012.

A peer-reviewed stock assessment of spotted seatrout in Virginia and North Carolina waters was completed in 2014, incorporating data from 1991-2013 (NCDMF 2014). Results suggest that the age structure of this stock expanded during the last decade; however, there was a sharp decline in recruitment after 2010. Similarly, spawning stock biomass (SSB) declined after a peak in 2007. These declines may be attributed to cold stun events. In 2012, SSB exceeded the currently defined threshold, suggesting the stock is not overfished. Additionally, fishing mortality is below the threshold, suggesting the stock is not experiencing overfishing. The 2014 assessment will be updated with data through 2016 in anticipation of the North Carolina Spotted Seatrout FMP Review slated to start in 2017.

The South Carolina Department of Natural Resources packaged several state-specific assessments into a report in 2001, though these were not peer reviewed. The initial assessment covering 1986-1992 indicated that female SPR was just above the 20% goal in the terminal year (Zhao and Wenner 2001), leading to a minimum size limit increase and a creel limit reduction. A more recent assessment was conducted for the period 1981-2004 (de Silva, Draft 2005). Two modeling approaches were used, and both models indicated that the current SSB is below the requirement to maintain 20% SPR.

Florida conducted separate stock assessments for the northern and southern populations on their Atlantic coast. Average transitional SPR estimates during 2007-2009 were 0.67 in the northern region and 0.45 in the southern region (Murphy et al. 2011), leading to some relaxation in Florida's management of the resource (Table 1). A new statewide assessment is currently underway; completion is scheduled for March. This assessment includes stock synthesis models constructed for each of Florida's four management regions (NW, SW, NE, and SE).

III. Status of the Fishery

Spotted seatrout is regularly caught both commercially and recreationally from Maryland through the east coast of Florida. In South Carolina, spotted seatrout has been declared a gamefish and can only be taken by recreational means. Landings from states north of Maryland are minimal and/or inconsistent from year to year. All catch estimates in this section include those in the management area only (MD-FL). Total recreational landings have surpassed total commercial landings every year since recreational landings were first recorded in 1981 (Figure 1). In 2009, recreational landings totaled more than five times commercial landings. A coastwide (VA, NC, and SC) winter mortality event in 2000/2001 likely contributed to the sudden decline in commercial and recreational landings in 2001 and 2002.

Commercial Fishery

The National Marine Fisheries Service (NMFS) compiles commercial spotted seatrout landings. The data are cooperatively collected by the NMFS and state fishery agencies from state mandated trip-tickets, landing weigh-out reports from seafood dealers, federal logbooks, shipboard and portside interviews, and biological sampling of catches (Table 2).

Atlantic coast commercial landings of spotted seatrout (1960-2015) have ranged from 154,000 pounds to 1.38 million pounds (Figure 1). Historically, commercial landings primarily came from North Carolina and Florida, with Virginia and Georgia accounting for a small portion of the total. From 1960 to 1976, annual commercial landings of spotted seatrout averaged 1.07 million pounds, followed by a decline due to increased regulation and possible declines in abundance. Significant changes to regulations include the 1987 designation of spotted seatrout as a gamefish in South Carolina, and the 1995 prohibition on the use of entangling nets in Florida's coastal waters. From 2006 to 2015, commercial landings averaged approximately 339 thousand pounds. North of Florida, variability in annual harvest was typical and paralleled the climatic conditions of the preceding winter and spring. In 2015, commercial landings totaled 175,844 pounds, representing an approximate 50% decrease from 2014. North Carolina and Florida accounted for 73% and 22% of the total commercial landings, respectively.

Recreational Fishery
Recreational catch statistics are collected by the NMFS recreational fisheries survey. Effort data are collected via telephone and mail surveys. Catch and effort data are collected through access-point angler intercept surveys, which produce catch per trip estimates for each species encountered, either observed or reported. These estimates are combined with effort estimates by sampling stratum to produce the catch and harvest estimates (Tables 3, 4, and 5).

Over the last 33 years, recreational catch of spotted seatrout (kept and released) has shown an upward trend, increasing from 1.1 million fish in 1981 to a peak of 8.8 million fish in 2012. In 2015, recreational catch declined to 5.7 million fish (Figure 2). Recreational harvest has remained relatively stable throughout the time series until 2015 with an average of 1.3 million fish. Recreational harvest in 2015 dropped sharply to 534 thousand fish, with Georgia (30%) and Florida (31%) responsible for the largest shares. Due in part to recreational size and creel limits and closed seasons, as well as the encouragement of catch and release practices, the percentage of caught fish being released increased to a 10-year average of 79.6% since 2005. In 2015, the release percentage reached its highest point at 90.6%. Rod and reel is the primary recreational gear, but some spotted seatrout are taken by recreational nets and by gigging, where these methods are permitted. Most recreational fishing is conducted from private boats and the majority of the catch is taken from nearshore waters.

IV. Status of Assessment Advice

A coastwide stock assessment of spotted seatrout has not been conducted and the Plan Review Team (PRT) does not recommend that one be completed due to the life history of the fish and the availability of data. Several states have performed age-structured analyses on local stocks, and recent stock assessments provide divergent trends on the status of the species. The 2005 stock assessment in South Carolina indicated an increasing population trend but a status level that is still below target spawning stock biomass levels (de Silva 2005). The 2014 North Carolina and Virginia stock assessment showed declines in recruitment since 2010. The PRT supports the continuation of state-specific assessments, yet recognizes the difficulty most states face to attain sufficient data of assessment quality and personnel who can perform the necessary modeling exercises.

The lack of biological and fisheries data for effective assessment and management of the resource was recognized in the 1984 FMP and continues to be a hindrance. Some states are increasing their collection of biological and fisheries data, which will provide insight on stock status over time.

V. Status of Research and Monitoring

In addition to the commercial and recreational fishery-dependent data collected and/or compiled through the NMFS Fisheries Statistics Division, some states have implemented fishery-independent or additional fishery-dependent monitoring programs.

Maryland
MD DNR samples commercial pound nets weekly in the Potomac River and Chesapeake Bay from May through September (2015 n=1, 487mm TL).

A few juvenile spotted seatrout are encountered in the coastal bays seine survey and the Chesapeake Bay blue crab trawl survey, indicating seatrout utilize these areas as nursery habitat (2015 seine n=0, trawl n=25).

Virginia

The VMRC Biological Sampling Program collects commercial and recreational fishery-dependent biological data. In 2015, the VMRC collected 958 commercial lengths and weights, determined the sex of 393 individuals, and aged 308 individuals (2015 average length: 24-25 in; average age: 1 and 4). Many of these samples were taken from illegally harvested seatrout which were confiscated.

In 2015, The VMRC collected lengths and sex of 6 recreationally caught seatrout. Virginia does not have independent monitoring for spotted seatrout.

North Carolina

Commercial fish houses are sampled monthly for fishery-dependent length, weight, and age data. Very little variation is seen throughout sampling years. Gill nets are responsible for 93% of the catch, with gigs accounting for 5.5%.

A fishery-independent Estuarine Trawl Survey is conducted to measure annual juvenile recruitment for many species (2015 CPUE= 0.62±0.15 age-0 spotted seatrout per tow). Juvenile abundance index has very little annual variance. A fishery-independent gill net survey is conducted to measure age composition and develop indices of age 1+ abundance for many species. Seatrout age 1+ abundance index varies very little annually, averaging 0.075±0.01 seatrout per set, but low CPUEs in 2011 and 2015 (0.05±0.01 seatrout per set) correspond to known cold stun mortality events. The NCDMF Age Lab ages otoliths collected in part from the North Carolina Carcass Collection Program (2015 n=401).

South Carolina

The State Finfish Survey collects fishery-dependent catch, effort, and length data from private boat anglers in January and February. In 2015, 11% of 46 interviewed parties primarily targeted spotted seatrout (2015 n=6, mean catch rate of 1.2 fish per targeted fishing hour). A mandatory trip reporting system for the charter boat fishery has been in place since 1993. In 2015, 894 (6%) interviewed trips targeted seatrout, making it the second most targeted species (2015 mean catch rate of 1.22 fish per targeted fishing hour). Lastly, the Freezer Drop-Off and the Fishing Tournament programs gather biological information (2015 n=76).

South Carolina conducts two fishery-independent data collection programs. The Trammel Net Survey covers 7 monthly and 2 quarterly strata. Spotted seatrout is consistently one of the top three most abundance species encountered (2015 observed a 58% positive catch rate per net deployment). The Electrofishing survey covers 5 monthly strata, and catches relatively low numbers of mostly YOY seatrout.

It should be noted that SCDNR stocks spotted seatrout in the Charleston Harbor system. A total of 1.49 million fish have been stocked since the program began in 2012, of which 0.32 million were stocked in 2015.

Georgia
A Marine Sportfish Carcass Recovery Program collects recreational fishery-dependent size and age data (2015 n=3,006 comprising 81%, average length of 360.4mm, 244-510mm range).
The Marine Sportfish Population Health Study trammel net survey samples monthly from September to November since 2003 in the Wassaw and Altamaha Sounds to collect fishery-independent age- and sex-specific estimates of relative abundance (2015: Wassaw average length 339.5mm; Altamaha 339.3mm). Gillnet sampling also occurs through this study, often encountering seatrout (2015 Wassaw average length 324.4mm; Altamaha 313.1mm).

Florida
Fishery-dependent sampling includes commercial trip-ticket information and biostatistical sampling of commercial and recreational catch. A voluntary angler logbook program was implemented in 2002 to record lengths of spotted seatrout released alive by anglers. In 2011, this program changed to a 'postcard' program, enlisting anglers encountered during MRIP angler intercept interviews.

A juvenile finfish monitoring program is conducted in the northern Indian River Lagoon (since 1990) and in the estuarine St. Johns, St. Marys, and Nassau Rivers (since 2001). Florida also conducts a 183-m haul seine survey in the Indian River (since 1997) and northeast Florida (since 2001). YOY abundance declined after a strong recruitment year in 2011, though recent increases are seen. Recent relative adult abundance (>200 mm SL) has declined in the central and northern regions since 2011 and 2012, respectively (2015 lengths=357, adult otolith pairs= 222).

VI. Status of Management Measures and Issues

Changes to State Regulations
In 2015, Georgia implemented a minimum size increase from 13 inches TL to 14 inches TL, effective January 1, 2016.

De Minimis Requests
A state qualifies for *de minimis* status if its previous three-year average combined commercial and recreational catch is less than 1% of the previous three-year average coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, as none are included in the plan.

The states of New Jersey and Delaware request continuation of *de minimis* status. The PRT notes these states meet the requirements of *de minimis*.

VII. Implementation of FMP Compliance Requirements for 2015

The PRT notes that all states have met the compliance requirements.

VIII. Recommendations of Plan Review Team

Management and Regulatory Recommendations

- Increase observer coverage in states that have a commercial fishery for spotted seatrout.

Prioritized Research Recommendations

High Priority

- Conduct state-specific stock assessments to determine stock status relative to the plan objective of maintaining a spawning potential of at least 20%.
- Collect data on the size or age of spotted seatrout released alive by anglers and the size and age of commercial discards.
- Research release mortality and how this changes with season and depth.
- Continue work to examine the stock structure of spotted seatrout on a regional basis, with particular emphasis on advanced tagging techniques.
- Research effects of winter on the population.
- Utilize telemetry technology to better understand life history characteristics.
- Conduct additional research on the significance of age-specific fecundity changes (ie: environmental impacts on spawning output of population)
- Develop state-specific juvenile abundance indices.

Medium Priority

- Identify essential habitat requirements.
- Initiate collection of social and economic aspects of the spotted seatrout fishery.

IX. References

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X. Figures

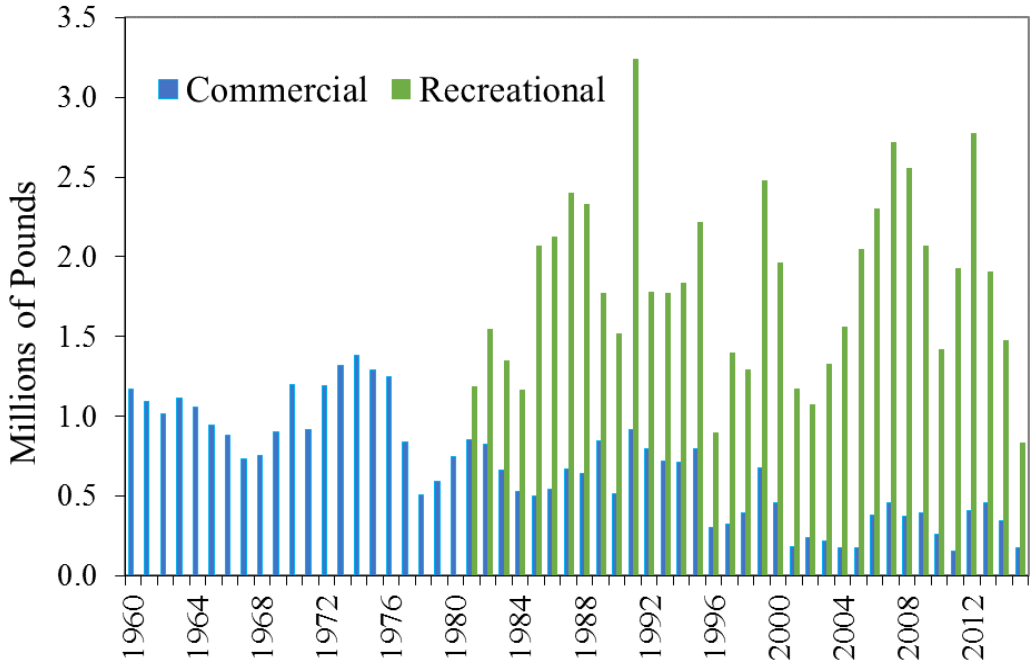


Figure 1. Commercial landings (1960-2015) and recreational landings (1981-2015), in pounds, from Maryland to Florida (See Tables 2 and 4 for values and sources).

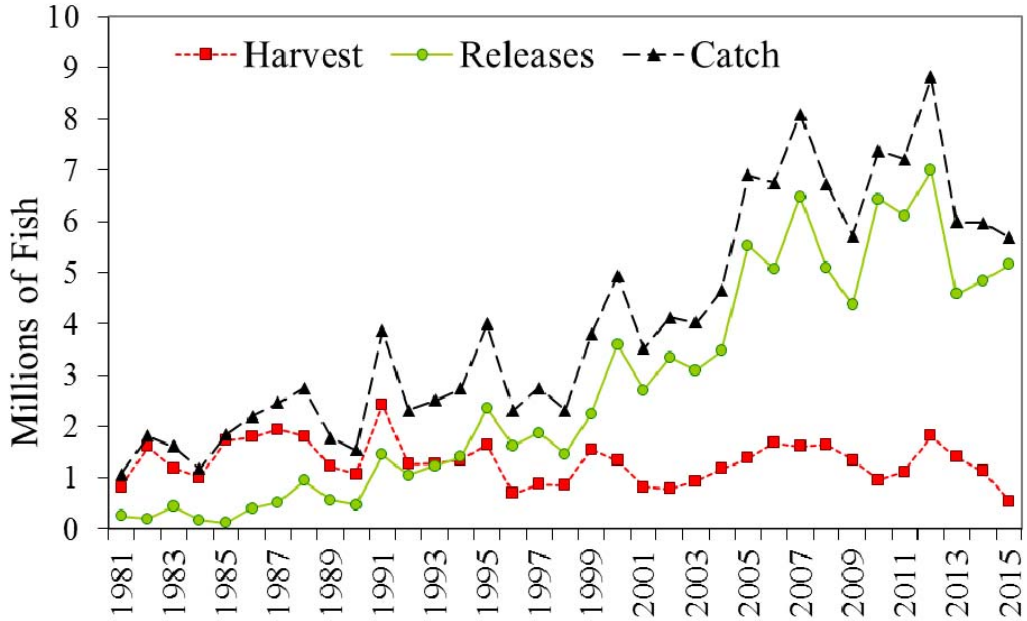


Figure 2. Recreational catch, harvest, and releases (numbers), 1981-2015, from Maryland to Florida (See Tables 3 and 5 for values and sources).

XI. Tables

Table 1. Summary of state regulations for spotted seatrout in 2015.

State	Recreational	Commercial
New Jersey	13" TL; 1 fish	Gill net, trawl, and pound net: 13"; 100 lb/vessel/day possession and bycatch limit; seasonal closures; monthly reporting. Trawl and gill net mesh size restrictions. Hook & line fishermen must follow rec limits.
Delaware	12" TL	12" TL
Maryland	14" TL; 4 fish	14" TL. 150 lb limit per day or trip (whichever is longer). Trawl and gill net mesh size restrictions.
PRFC	14" TL; 10 fish	14" TL
Virginia	14-24" TL; 1 fish >24" allowed; 5 fish; closed season March-July.	14" TL; pound nets/seines allowed 5% by weight less than 14". Hook & line fishermen must follow rec limits. Quota: 51,104 lbs (Sept-Aug). After 80% reached, 100 lb/vessel/day possession and bycatch limit.
North Carolina	14" TL; 4 fish	14" TL; 75 fish limit. Unlawful to possess or sell Friday 12:00am-Sunday 12:00am.
South Carolina	14" TL; 10 fish. Gig March-Nov.	Gamefish status since 1987; native caught fish may not be sold.
Georgia	13" TL; 15 fish	13" TL; 15 fish. BRD requirement for trawl; gear mesh regulations.
Florida	15-20" TL slot; 1 fish >20" allowed; northeast 6 fish; northwest 5 fish; south 4 fish; hook & line/cast net only.	15-24" TL; Season varies by region; 75 fish limit or 150 fish limit with two or more licensed fishermen on board; hook & line/cast net only.

Note: A commercial fishing license is required to possess spotted seatrout for sale in all states with a fishery.

Table 2. Commercial landings (pounds) of spotted seatrout by state, 1981-2015 (Source: State Compliance Reports, 2015). Starred boxes represent confidential data.

Year	MD	VA	NC	SC	GA	FL	Total
1981	0	4,000	113,304		629	736,026	853,959
1982	0	3,400	83,847	1,944	4,994	732,278	826,463
1983	0	4,400	165,360	4,479	5,795	481,535	661,569
1984	0	3,000	152,934	2,374	4,348	367,541	530,197
1985	0	8,302	109,048	1,770	7,149	369,756	496,025
1986	0	18,500	191,514	12,214	8,691	307,261	538,180
1987	0	13,300	315,380	11,941	10,739	317,044	668,404
1988	0	15,500	296,538	486	9,110	315,947	637,581
1989	0	18,500	451,909	33	10,565	361,973	842,980
1990	0	21,435	250,634	1,095	5,942	236,453	515,559
1991	98	21,200	660,662	0	7,380	225,812	915,152
1992	0	10,395	526,271	0	11,310	247,189	795,165
1993	868	38,033	449,886	0	8,550	223,931	721,268
1994	690	44,636	412,458	0	5,112	247,666	710,562
1995	668	28,722	574,410	0	8,482	184,269	796,551
1996	12,742	3,897	226,668	0	7,501	48,254	299,062
1997	15,199	11,639	232,583	0	7,621	57,316	324,358
1998	16,993	21,235	307,777	0	2,845	41,556	390,346
1999	29,419	35,055	546,775	0	3,244	61,802	676,295
2000	18,419	15,463	376,657	0	1,997	45,392	457,928
2001	25,161	19,039	105,797	0		30,234	180,231
2002	*	8,792	175,643	*	*	44,640	240,357
2003	*	5,299	181,529	*	*	27,075	214,719
2004	*	10,705	130,961	*	*	29,605	172,487
2005	*	7,341	129,601	*	*	36,762	176,043
2006	*	30,218	312,620	*	*	36,687	379,820
2007	*	34,166	374,722	*	*	46,838	455,740
2008	*	44,275	304,430	*	*	20,887	369,861
2009	*	23,880	320,247	*	*	46,297	390,600
2010	*	17,271	200,822	*	*	39,374	258,492
2011	*	14,728	75,239	*	*	63,592	154,144
2012	*	76,963	265,017	*	*	61,664	405,534
2013	*	28,223	367,412	*	*	58,221	456,284
2014	*	66,504	241,995	*	*	37,710	346,587
2015	*	7,815	128,761	*	*	39,231	175,844

Table 3. Recreational harvest (numbers of fish) of spotted seatrout by state, 1981-2015 (Source: NMFS Fisheries Statistics Division).

Year	MD	VA	NC	SC	GA	FL	Total
1981			30,037	20,934	189,080	576,847	816,898
1982			112,023	849,634	226,758	426,378	1,614,793
1983			91,956	121,940	325,655	645,120	1,184,671
1984			90,262	95,281	114,403	700,876	1,000,822
1985			263,878	347,851	251,764	866,162	1,729,655
1986	7,507	82,671	270,867	477,136	401,490	550,591	1,790,262
1987	29,295	17,415	320,977	392,329	439,782	744,330	1,944,128
1988	20,769	288,705	420,115	355,547	389,276	331,709	1,806,121
1989	151,986	66,033	181,149	174,011	448,767	198,617	1,220,563
1990	20,416	67,939	251,088	113,160	368,787	249,824	1,071,214
1991	17,995	69,032	316,895	438,502	1,204,116	385,817	2,432,357
1992	3,235	30,091	333,990	200,030	338,175	363,238	1,268,759
1993	7,038	103,131	206,523	222,144	463,702	274,118	1,276,656
1994	33,511	115,025	457,636	139,551	337,965	255,216	1,338,904
1995	19,198	90,838	325,927	223,751	607,095	381,884	1,648,693
1996	35,765	46,098	151,380	137,530	171,676	148,571	691,020
1997	19,951	92,725	256,719	111,576	167,287	228,096	876,354
1998	13,620	34,623	294,501	125,038	197,293	189,621	854,696
1999	2,112	138,492	410,321	101,260	655,407	241,096	1,548,688
2000	1,634	90,135	250,450	219,740	486,673	288,443	1,337,075
2001	0	13,447	182,124	63,452	309,487	250,987	819,497
2002	0	16,303	197,484	84,777	271,357	206,310	776,231
2003	2,091	102,484	106,415	123,027	425,993	169,587	929,597
2004	0	68,409	316,894	247,156	336,254	199,523	1,168,236
2005	1,954	22,062	512,262	268,467	231,429	337,744	1,373,918
2006	4,860	43,530	577,537	294,096	453,394	299,337	1,672,754
2007	0	159,244	525,156	122,419	499,709	302,625	1,609,153
2008		103,880	584,024	175,975	623,619	160,455	1,647,953
2009	7,933	22,635	509,416	147,266	478,895	182,752	1,348,897
2010	3,146	17,417	195,065	101,053	384,077	251,455	952,213
2011	3,058	247,736	215,922	66,207	289,950	286,501	1,109,374
2012	6,032	125,627	500,522	234,921	526,604	427,469	1,821,175
2013	0	55,151	649,158	126,351	237,551	335,547	1,403,758
2014	4,755	46,524	433,978	77,669	256,068	308,133	1,127,127
2015	4,870	8,697	87,396	106,216	162,772	164,248	534,199

Table 4. Recreational harvest (pounds of fish) of spotted seatrout by state, 1981-2015 (Source: NMFS Fisheries Statistics Division).

Year	MD	VA	NC	SC	GA	FL	Total
1981			63,036	14,808	138,720	967,921	1,184,485
1982			120,045	588,999	177,847	660,295	1,547,186
1983			96,359	138,442	323,889	784,531	1,343,221
1984			39,861	116,118	141,306	866,077	1,163,362
1985			288,088	509,551	234,704	1,032,344	2,064,687
1986	4,960	64,394	328,439	587,570	440,774	695,168	2,121,305
1987	22,511	38,495	366,442	592,612	491,317	883,707	2,395,084
1988	36,629	460,378	390,836	448,473	536,959	453,063	2,326,338
1989	184,318	112,344	259,726	277,489	608,009	328,338	1,770,224
1990	39,059	121,136	282,872	174,845	423,815	475,045	1,516,772
1991	34,753	121,604	472,397	628,011	1,449,853	534,371	3,240,989
1992	7,802	56,685	508,760	227,210	430,946	543,491	1,774,894
1993	12,800	201,562	307,151	268,055	586,426	392,827	1,768,821
1994	26,764	175,184	679,996	183,343	412,392	357,441	1,835,120
1995	31,464	148,544	478,674	247,987	667,379	642,670	2,216,718
1996		77,269	197,261	171,727	196,487	249,898	892,642
1997	32,963	261,911	311,891	163,771	242,506	380,276	1,393,318
1998	37,189	61,888	444,441	151,718	262,896	329,793	1,287,925
1999		290,694	690,606	146,277	916,860	428,061	2,472,498
2000	2,972	195,544	385,190	267,297	565,903	545,202	1,962,108
2001		26,733	213,438	58,885	369,083	502,254	1,170,393
2002		28,882	274,100	111,954	302,559	353,693	1,071,188
2003	3,494	218,061	145,936	140,276	502,278	316,279	1,326,324
2004		138,841	386,918	168,468	383,237	482,853	1,560,317
2005	5,491	55,901	721,914	326,501	273,204	665,467	2,048,478
2006	10,674	107,770	794,372	369,165	444,228	574,081	2,300,290
2007	0	380,281	927,942	278,529	615,694	512,885	2,715,331
2008	0	239,743	936,652	242,405	777,690	354,409	2,550,899
2009	9,006	44,761	940,769	172,848	596,182	303,281	2,066,847
2010	6,724	30,176	404,438	138,514	425,854	411,495	1,417,201
2011	4,664	550,157	435,954	116,979	353,472	464,863	1,926,089
2012	10,257	226,556	810,589	388,105	518,189	819,009	2,772,705
2013		126,291	626,628	228,014	282,362	637,881	1,901,176
2014	10,633	84,838	433,978	111,194	283,282	546,335	1,470,260
2015	10,972	13,924	148,926	161,394	179,911	314,993	830,120

Table 5. Recreational releases (number of fish) of spotted seatrout by state, 1981-2015 (Source: NMFS Fisheries Statistics Division).

Year	MD	VA	NC	SC	GA	FL	Total
1981				5,522	36,853	209,059	251,434
1982				8,007	17,645	171,093	196,745
1983			16,579	32,860	12,038	367,881	429,358
1984			30,173	44,436	16,174	76,346	167,129
1985			16,578	6,409	22,917	66,960	112,864
1986	13,639	28,606	19,792	115,315	189,798	35,646	402,796
1987		30,070	136,104	130,253	176,415	41,391	514,233
1988	26,999	148,934	74,818	78,568	182,628	431,665	943,612
1989	52,859	11,977	82,909	54,279	167,025	187,406	556,455
1990	4,874	23,435	84,235	35,223	114,624	203,439	465,830
1991	21,811	40,550	169,921	51,415	369,972	789,779	1,443,448
1992	701	19,855	139,616	97,813	192,261	597,254	1,047,500
1993		65,605	149,744	92,101	146,665	780,573	1,234,688
1994	32,466	243,463	207,262	220,941	125,421	574,629	1,404,182
1995	157,530	327,643	277,896	194,996	327,835	1,074,703	2,360,603
1996	51,594	165,169	153,051	107,691	63,585	1,081,893	1,622,983
1997	4,826	168,964	98,377	89,147	61,148	1,449,278	1,871,740
1998	49,460	74,569	73,024	151,935	100,059	1,005,443	1,454,490
1999	7,082	152,120	253,442	92,792	160,801	1,577,378	2,243,615
2000	4,805	264,550	90,070	368,332	547,765	2,310,491	3,586,013
2001		110,308	194,982	38,709	365,140	1,995,635	2,704,774
2002		136,265	385,162	147,962	357,953	2,326,420	3,353,762
2003		207,270	131,619	314,642	737,730	1,707,957	3,099,218
2004	9,430	257,996	300,025	333,537	608,193	1,969,884	3,479,065
2005	4,612	192,091	817,036	395,483	678,057	3,446,336	5,533,615
2006	9,721	82,935	559,786	666,865	872,395	2,889,495	5,081,197
2007	2,231	362,809	973,516	560,272	957,682	3,623,247	6,479,757
2008		366,566	1,005,298	850,006	719,622	2,140,752	5,082,244
2009	30,381	171,028	1,213,526	398,971	915,301	1,641,702	4,370,909
2010	107,017	550,118	1,684,872	407,228	742,215	2,937,411	6,428,861
2011	7,685	1,214,620	1,916,249	279,969	552,123	2,141,212	6,111,858
2012	55,183	428,540	1,646,512	817,017	1,029,479	3,025,556	7,002,287
2013	0	291,070	1,427,410	600,607	321,461	1,939,475	4,580,023
2014	26,438	291,070	960,570	389,153	773,940	2,399,792	4,840,963
2015	73,379	478,687	1,813,052	392,765	398,418	1,997,168	5,153,469

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

October 18, 2016

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

From: **Tina Berger, Director of Communications**

RE: **Advisory Panel Nominations**

Please find attached nominations to the South Atlantic Species Advisory Panel – Aaron Kelly, a for-hire captain from North Carolina; Bill Parker, a recreational fishing guide from South Carolina; Glenn Ulrich, a recreational angler from South Carolina; and Lee Southward, a recreational fishing guide from Georgia. All four nominees have cobia experience. Please consider approval of these nominations at the next Board meeting.

SOUTH ATLANTIC SPECIES ADVISORY PANEL

Bolded names await approval by the South Atlantic Management Board

October 18, 2016

Delaware
Daniel T. Dugan (rec)
20 South Woodward Avenue
Wilmington, DE 19805
Phone: (302)636-9300
dtdugan@verizon.net
Appt. Confirmed 11/1/07
Appt Reconfirmed 10/18/16

New Jersey
Jeffrey Reichle (comm.)
PO Box 830
Cape May, NJ 08204
Phone: (day): (609)884-7600
Phone (eve): (609)884-0661
FAX: (609)884-0664
jreichle@lundsfish.com
Appt. Confirmed 11/1/07

Chris McCurdy (for-hire)
10 Birch Drive
Swainton, NJ 08210
Phone (day): (609)463-6760
Phone (cell): (609)374-4604
capt.curd@verizon.net
Appt. Confirmed 11/1/07
Expertise: Red drum, black drum, Atlantic croaker

Maryland
Vacancy (rec & comm)

Virginia
Vice-Chair, Thomas J. Powers (rec)
311 Hunts Neck Road
Poquoson, VA 23662
Phone: 757-269-7660
powers@jlab.org
Appt. Confirmed 11/1/07
Expertise: Atlantic croaker

Vacancy (comm.)

North Carolina
Captain James Ruhle (comm. dragger)
P.O. Box 302
Wanchese, NC 27981-0302
Phone: (252)473-3210
fvdaranar@aol.com
Appt. Confirmed 11/1/07
Expertise: Mixed species

Charles Bernard (Bernie) McCants, Jr (rec)
2325 Windy Woods Dr
Raleigh, NC 27607
Phone (day): 919.602.4516
Phone (evening): 919.602.4516
FAX: 919.668.7064
bernie.mccants@duke.edu
Appt Confirmed 8/9/12
Expertise: Red drum, black drum

Aaron Kelly (for-hire)
112 Jimmy Court
Kill Devil Hills, NC 27948
Phone (day): 252.202.6046
Phone (eve): 252.441.6575
info@rocksolidfishing.com
Expertise: Cobia

South Carolina
Captain Bill Parker (rec fishing guide)
28 Eagle Claw Dr.
Hilton Head, SC 29926
Phone: 843.384.6511
runfish1@roadrunner.com
Expertise: Cobia

Glenn Ulrich (rec)
843.793.8712
ulrichg@bellsouth.net
Expertise: Mixed species

Georgia
Lee Southard (rec fishing guide)
222 Crosswind Drive
Richmond Hill, GA 31324
Phone: 912.727.3402; 912.312.1210
leesouthard1801@comcast.net
Expertise: Mixed species

SOUTH ATLANTIC SPECIES ADVISORY PANEL

Bolded names await approval by the South Atlantic Management Board

October 18, 2016

Florida

James R. Stockton, Jr. (guideboat)
P.O. Box 1069
Ponte Vedra Beach, FL 32004
Phone: (904)285-4884
Appt. Confirmed 11/1/07
Expertise: Red drum

William R. Bird, Jr. (rec)
P.O. Box 2809
Orlando, FL 32802
Phone (day): 407-418-6237
Phone (eve): (407) 257-7480
Fax: 407-843-4444
bill.bird@lddkr.com and wbird2@cfl.rr.com
Appt. Confirmed 11/1/07
Expertise: Red drum and black drum

Tim Adams (Sp. Mackerel comm.)
426 S.W. Maple St.
Sebastian, FL 32958
Phone (eve): (772) 589-9846
Phone (cell): (772)473-6580
Appt. Confirmed 11/1/07
Expertise: Spanish Mackerel

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Aaron Kelly (your name) State: NC

Name of Nominee: Aaron Kelly

Address: 112 jimmy court

City, State, Zip: kill devil hills , NC,27948

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 252-202-6046 Phone (evening): 252-441-6575

FAX: _____ Email: info@rocksolidfishing.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. Cobia
   2. _____
   3. _____
   4. _____
2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no x
3. Is the nominee a member of any fishermen's organizations or clubs?

   yes _____ no x

   If "yes," please list them below by name.

_____ _____

_____ _____

_____ _____

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

all inshore and nearshore species _____

_____ _____

_____ _____

_____ _____

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

_____ _____

_____ _____

_____ _____

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 20 years

2. Is the nominee employed only in commercial fishing? yes _____ no x

3. What is the predominant gear type used by the nominee? _____

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? inshore

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 18 years

2. Is the nominee employed only in the charter/headboat industry? yes _____ no x

If "no," please list other type(s)of business(es) and/occupation(s): fishing tackle company

_____

3. How many years has the nominee lived in the home port community? 42 years

If less than five years, please indicate the nominee's previous home port community.

_____

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? 40 years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes x no _____

   If "yes," please explain.
   charter captain full time

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

FOR OTHER INTERESTED PARTIES:

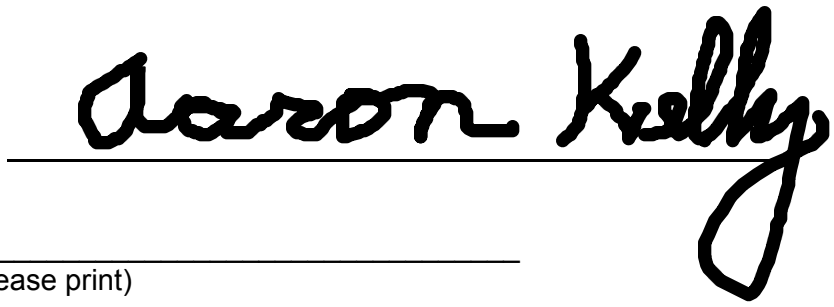
1. How long has the nominee been interested in fishing and/or fisheries management? 40 years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes x no _____

   If "no," please list other type(s) of business(es) and/or occupation(s):

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

Nominee Signature:  Date: 10-4-2016

Name: Aaron Kelly
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

_____ State Director

_____ State Legislator

_____ Governor's Appointee

ATLANTIC STATES MARINE FISHERIES COMMISSION

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Form submitted by: William Parker (your name) State: SC

Name of Nominee: William Parker

Address: 28 Eagle Claw Dr.

City, State, Zip: Hilton Head Island, SC 29926

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 843 384-6511 Phone (evening): 843 384-6511

FAX: _____ Email: runfish1@roadrunner.com

. . . . . .

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. Mackeral/Cobia
   2. _____
   3. _____
   4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no X

3. Is the nominee a member of any fishermen's organizations or clubs?

   yes X no _____

   If "yes," please list them below by name.

Hilton Head Island Sportfishing Club

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

cobia
tarpon
snapper/grouper complex
spanish mackeral
shark
king mackeral

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

same as above

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? _____ years
2. Is the nominee employed only in commercial fishing? yes_____ no*_____
3. What is the predominant gear type used by the nominee?_____
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)?_____

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 31 years
2. Is the nominee employed only in the charter/headboat industry? yes X no*_____

   If "no," please list other type(s)of business(es) and/occupation(s):_____

3. How many years has the nominee lived in the home port community? 46 years

   If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? _____ years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no ✗_____

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no ✗_____ If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes _____ no _____

   If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

Presently serving on South Atlantic Habitat and Ecosystem-based Management AP (5 years)

Served on SEDAR 28 (COBIA ASSESSMENT) DATA Workshop

Nominee Signature: William Parker Date: Oct. 4, 2016

Name: William J. Parker
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

State Director

State Legislator

Governor's Appointee

ATLANTIC STATES MARINE FISHERIES COMMISSION

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Form submitted by: Lee Southard (your name) State: Georgia

Name of Nominee: Lee Southard

Address: 222 Crosswinds Dr

City, State, Zip: Richmond Hill, Georgia 31324

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 912-727-3402 Phone (evening): 912-312-1210

FAX: _____ Email: leesouthard1801@comcast.net

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. Cobia Fishery
   2. _____
   3. _____
   4. _____
2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no X
3. Is the nominee a member of any fishermen's organizations or clubs?

   yes X no _____

   If "yes," please list them below by name.

Southern Kingfish Association

Fort McAllister Sport Fishing Club

Kilkenny Fishing Club

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Kingfish

Cobia

Spanish Mackerel

Sailfish

Dolphin

Black Sea Bass

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Trout

Redfish

Flounder

Trigger fish

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? _____ years

2. Is the nominee employed only in commercial fishing? yes _____ no X

3. What is the predominant gear type used by the nominee? _____

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? _____

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 2 years

2. Is the nominee employed only in the charter/headboat industry? yes _____ no X

If "no," please list other type(s)of business(es) and/occupation(s): _____

Professor Strayer University, Retired Professor University system of Georgia

3. How many years has the nominee lived in the home port community? 26 years

If less than five years, please indicate the nominee's previous home port community.

_____

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? 60 years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes X no _____

   If "yes," please explain.

Charter Captain

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no x If "no," please list other type(s) of business(es) and/or occupation(s):

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? 60 years

2. Is the nominee employed in the fishing business or the field of fisheries management?
   yes _____ no x

   If "no," please list other type(s) of business(es) and/or occupation(s):

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

Nominee Signature: _____ Date: 10/5/2016

Name: Lee D. Southard.
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

_____
State Director

_____
State Legislator

_____
Governor's Appointee

Lee Southard

Atlantic States Marine Fisheries Commission

Additional information being provided. I am retired from the military and the University System of Georgia where I taught Computer Science for over 25 years. I currently hold a Master's Degree from Boston university in Information Systems. I currently teach part time for Strayer University and part time Charter fish but fish two to three times per week when the weather permits thus have time to concentrate on the tasks at hand.

I grew up in Miami where I fished from about 8 years old to the present and have fished from Georgia/South Carolina to Mississippi for many species over the years. I currently serve as president of the Fort McAllister Fishing club where I have assisted in fishing tournaments both inshore and offshore.

I have attached my Certificate of Participation for the successful completion Marine Resource Education Program Southeast (MREP) completed in April 2016.

Certificate of Participation

Awarded to:

Lee Southard

for the successful completion of

Marine Resource Education Program
SOUTHEAST

Fisheries Science and Management Program
April 2016

Gulf of Maine Research Institute
Science. Education. Community

Program Manager

Program Moderator

TAUTOG BOARD MEETING
October 2016

Provide Plan Development Team Guidance on Draft Amendment 1

The Tautog Plan Development Team is writing Draft Amendment 1 and seeks Board guidance on regional reference point determinations and projection timeframes, as described below.

Issue 1	**Reference Points (Refer to Table 1a & 1b)**
Background	The tautog benchmark assessments proposed different types of reference points for different regions. Because longer, more robust data series exist for states in the northern range, the TC was able to calculate **maximum sustainable yield (MSY) based reference points** for the MARI and LIS regions. This approach uses a combination of spawning potential ratio (SPR), yield-per-recruit (YPR), and the stock-recruitment relationship to calculate the SSB and F targets, SSB_{MSY} and F_{MSY}. The F threshold, $F_{75\%MSY}$, was calculated by projecting the population forward assuming the same stock-recruitment (S-R) relationship and finding the fishing mortality (F) that maintains the population at the SSB threshold, 75% SSB_{MSY}. MSY-based reference points are generally preferred for management, since they incorporate information on the relationship between spawning stock biomass and future recruitment, while SPR-based reference points assume recruitment will remain constant regardless of SSB size. However, MSY-based reference points require a reliable stock-recruitment relationship. The assessment proposed **SPR-based reference points** for NJ-NYB and DelMarVa regions because the shorter time-series of the data resulted in unrealistic estimates of steepness for the stock-recruitment relationship. The F target was defined as $F_{40\%SPR}$ and the F threshold was defined as $F_{30\%SPR.}$ The corresponding SSB target and threshold, $SSB_{40\%}$ and $SSB_{30\%}$ were calculated by projecting the population forward until equilibrium was reached while fishing at the F target or threshold with recruitment randomly drawn from the observed historical recruitment. For the LIS region, the MSY-based reference points were very similar to the SPR-based reference points, and stock status was not changed. For the MARI region, the SPR-based F reference points were higher than the MSY-based reference points and the SPR-based reference points were lower (Table 1a).

Technical Committee Recommendation	1. MSY-based reference points are recommended by the TC for the MARI and LIS regions and coastwide. a. Targets: SSB_{MSY} and F_{MSY} b. Thresholds: 75% SSB_{MSY} and $F_{75\%MSY}$ 2. SPR-based reference points are recommended by the TC for the NJ-NYB and DeMarVa regions. a. Targets: $F_{40\%SPR}$ and $SSB_{40\%}$ b. Thresholds: $F_{30\%SPR}$ and $SSB_{30\%}$
Board Guidance Sought	Does the Board approve the reference points as recommended by the TC?

Table 1a. Regional Stock Status

Stock Region	MSY or SPR	SSB Target (mt)	SSB Threshold (mt)	SSB 2015 (mt)	F Target	F Threshold	F 3-year Avg (2013-15)	Stock Status
MARI	MSY	3,631	2,723	**2,196**	0.14	0.28	**0.23**	Overfished, Overfishing not occurring
	SPR	2,684	2,004	**2,196**	0.28	0.49	**0.23**	Stock not overfished, Overfishing not occurring
LIS	MSY	2,865	2,148	**1,603**	0.28	0.49	**0.51**	Overfished, Overfishing
	SPR	2,980	2,238	**1,603**	0.27	0.46	**0.51**	Overfished, Overfishing
NJ-NYB	SPR	3,154	2,351	**1,809**	0.20	0.34	**0.54**	Overfished, Overfishing
DelMarVa	SPR	1,919	1,447	**621**	0.16	0.24	**0.16**	Overfished, Overfishing not occurring

Table 1b. Coastwide Stock Status

Stock Region	MSY or SPR	SSB Target (mt)	SSB Threshold (mt)	SSB 2015 (mt)	F Target	F Threshold	F 3-year Avg (2013-15)	Stock Status
Coastwide	MSY	14,944	11,208	**6,014**	0.17	0.24	**0.38**	Overfished, Overfishing
	SPR	9,448	7,091	**6,014**	0.25	0.43	**0.38**	Overfished, Overfishing not occurring

Issue 2	Short-term Projections to Reduce F (Refer to Tables 2.1-5)
Background	The assessment update conducted short term (2016-2020) projection scenarios to determine constant harvest levels that would result in 50% chance and 70% chance of achieving the regional F targets in 2020, as well as to project trends under status quo removals.
Technical Committee Recommendation	The TC does not have a recommendation because the probability of achieving F target is a management decision. The probability of achieving F target that is chosen will be used to determine the harvest reduction options that will be included in Draft Amendment 1, therefore a decision at the Annual Meeting is preferred.
Board Guidance Sought	Does the Board want the regional projections to incorporate a 50% or a 70% probability of achieving F target by 2020?

Table 2.1 MARI region short-term projection results

	MARI MSY Reference Points		
MSY	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (390 mt)	0%	0.00%
	151 mt	50%	2.20%
	148 mt	70%	2.30%

	MARI SPR Reference Points		
SPR	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (390 mt)	0%	4.10%
	257 mt	50%	23.2%
	253 mt	70%	24.3%

Table 2.2 LIS region short-term projection results

	LIS MSY Reference Points		
MSY	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (500 mt)	1.70%	0.60%
	264 mt	50%	34%
	237 mt	70%	40%

Table 2.2 continued. LIS region short-term projection results

	LIS SPR Reference Points		
SPR	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (500 mt)	0%	0.60%
	255 mt	50%	28%
	229 mt	70%	33%

Table 2.3 NJ-NYB region short-term projection results

	NJ-NYB SPR Reference Points		
SPR	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (461 mt)	45%	85%
	450 mt	50%	86%
	410 mt	70%	88%

Table 2.4. DelMarVa region short-term projection results

	DelMarVA SPR Reference Points		
SPR	2018-2020 Landings Scenario	Probability of being at or below F Target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (77 mt)	100%	18%
	139 mt	50%	10%
	125 mt	70%	12%

Table 2.5 Coastwide short-term projection results

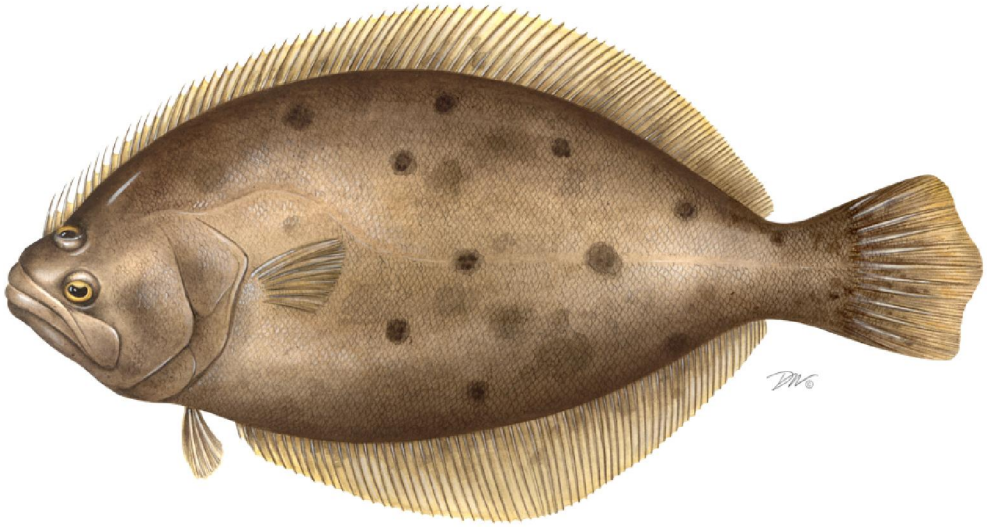
	Coastwide MSY Reference Points		
MSY	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (1270	0%	0.6%
	737 mt	50%	0.9%
	682 mt	70%	1.0%

	Coastwide SPR Reference Points		
SPR	2018-2020 Landings Scenario	Probability of being at or below F target in 3 years	Probability of being at or above SSB threshold in 3 years
	Status quo (1270	3%	29.4%
	968 mt	50%	50.2%
	895 mt	70%	55.3%

Issue 3	Rebuilding Plan
Background	The short-term projection scenarios address overfishing by reducing removals (see Issue 2). Given each region is overfished, the Board can also consider a SSB rebuilding plan. The following regions have a less than 40% chance of achieving the SSB threshold in 2020 with the proposed harvest reductions: MARI (MSY & SPR), LIS (MSY & SPR), DelMarVA and coastwide (MSY). The Board can establish a rebuilding plan that focuses on increasing stock abundance to achieve SSB target or threshold. To establish stock rebuilding projections the Board would need to task the TC to begin this work, as well as provide the following information: - Does the Board want to rebuild to SSB_{target} or $SSB_{threshold}$ - Specify a rebuilding timeframe (e.g. 10 years) - Specify the probability of achieving SSB threshold (e.g. 80%, 100%) -
Board Guidance Sought	Does the Board want to establish a SSB rebuilding plan?

2016 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR THE 2015 SUMMER FLOUNDER FISHERY

SUMMER FLOUNDER
(Paralichthys dentatus)



Prepared by

Kirby Rootes-Murdy (ASMFC)

Summer Flounder Plan Review Team
Kirby Rootes-Murdy (ASMFC), Chair
Kiley Dancy (MAFMC)
John Maniscalco (NYSDEC)

October 2016

2015 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR SUMMER FLOUNDER *(Paralichthys dentatus)*

I. Status of the Fishery Management Plan

The summer flounder (*Paralichthys dentatus*) fishery of the Atlantic Coast is managed jointly by the ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board (Board) and the Mid-Atlantic Fishery Management Council (MAFMC or Council). The original ASMFC Fishery Management Plan, established in 1982, recommended a 14 inch minimum size. The MAFMC Plan, prepared in 1988 and based on the ASMFC plan, established a 13" minimum size. Since then, fourteen amendments have been developed and approved, except Amendment 1 which would have required a 5–1/2" minimum mesh size in the codend of trawls and Amendment 11 which would have reallocated commercial quota shares.

The objectives of the FMP have not changed and are to: 1) reduce fishing mortality of summer flounder to assure overfishing does not occur; 2) reduce fishing mortality on immature summer flounder to increase spawning stock biomass; 3) improve yield from the fishery; 4) promote compatible management regulations between State and Federal jurisdictions; 5) promote uniform and effective enforcement of regulations; and 6) minimize regulations to achieve the stated objectives.

The management unit includes summer flounder in US waters in the western Atlantic Ocean from the southern border of North Carolina northward to the US - Canadian border. States and jurisdictions with a declared interest in the summer flounder FMP include all those from North Carolina through Massachusetts except Pennsylvania and the District of Columbia, as well as NMFS and USFWS. An ASMFC plan review team, Technical Committee, and species board, and the MAFMC Demersal Species Committee are actively working on this plan. A joint ASMFC-MAFMC Technical Monitoring Committee provides annual framework adjustment advice.

Amendment 2 (approved in August 1992) provided a strategy for reducing fishing mortality to Fmax, balanced against reasonable impacts on the fishermen. Commercial management measures included a federal (EEZ) moratorium on entry into the commercial fishery, vessel and dealer permitting and reporting requirements, an annual commercial quota, and minimum mesh requirements (5.5” diamond or 6” square mesh in the net’s codend) with an exemption program. Recreational fishery measures include for-hire permit requirements, size limits, possession limits, and seasonal closures.

The management system established under Amendment 2 has been modified by the following amendments, framework actions, and addenda. Amendment 3 (approved in July 1993) revised the mesh requirement exemption program and modified the poundage thresholds for the mesh requirements (change to 2 seasonal thresholds instead of year-round 100 lbs). Amendment 4 (approved in September 1993) revised the state-specific shares of the coastwide quota allocation in response to a reporting issue in Connecticut. Amendment 5 (approved in December 1993) allows states to transfer or combine their commercial quota shares. Amendment 6 (approved in May 1994) allows properly stowed nets with a cod end mesh size less than that stipulated in the plan to be aboard vessels in the summer flounder fishery. Amendment 7 (approved May 1995) adjusted the stock rebuilding schedule and capped the 1996-1997 commercial quotas at 18.51 million pounds. There is no Amendment 8 or 9 to the ASMFC FMP. The Council adopted Scup management measures as Amendment 8 and Black Sea Bass measures as Amendment 9, while the Board adopted separate Scup and Black Sea Bass Management Plans.

Amendment 10, approved by the Board in May 1997, initially sought to examine the commercial quota management system. Its scope was expanded to address a number of federal and state issues in the

fishery, including: 1) allow framework adjustments to the minimum mesh for any portion of the net; 2) require 5.5" diamond or 6" square mesh in the entire net of trawls; 3) continue the federal moratorium on entry; 4) remove the requirement that federally permitted vessels must land summer flounder every year; 5) modify the federal vessel replacement criteria; 6) implement state *de minimis* criteria; 7) prohibit transfer at sea; 8) require states to report summer flounder landings from state waters to the NMFS; and 9) allow states to implement a summer flounder filet at sea permit system. The amendment also proposed alternative commercial quota schemes, including 1) a trimester quota with state-by-state shares during summer, 2) a trimester coastwide quota of equal periods, and 3) a revision to the allocation formula. Ultimately, the Board and Council decided to maintain the current state-by-state quota allocation system.

Amendment 12, approved by the Board in October 1998, was developed to bring the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan in to compliance with the new and revised National Standards and other required provisions of the Sustainable Fisheries Act. Specifically, the amendment revised the overfishing definitions (National Standard 1) for summer flounder, scup and black sea bass and addressed the new and revised standards relative to the existing management measures (National Standard 8-consider effects on fishing communities, National Standard 9-reduce bycatch, National Standard 10-promote safety at sea). The Amendment also identified essential habitat for summer flounder, scup and black sea bass. Finally, Amendment 12 added a framework adjustment procedure that allows the Council to add or modify management measures through a streamlined public review process. Amendment 12 was partially approved by NMFS on April 28, 1999.

In December 2000, the Board approved Amendment 13. Although there were some management alternatives included in public hearing drafts of the document that could have resulted in changes to summer flounder management measures, none were approved for implementation. As a result, Amendment 13 has no impact on the summer flounder fishery.

Framework Adjustment 2 to the Summer Flounder, Scup and Black Sea Bass FMP, adopted in January 2001, provided the information and analyses necessary to implement a system of conservation equivalency for the recreational summer flounder fishery. Based on a coastwide recreational harvest limit, Framework 2 allows states to customize summer flounder recreational management measures in order to address issues associated with the availability of summer flounder on spatial and temporal scales.

Addenda III and IV were approved on January 29, 2001. Addendum IV provides that, upon the recommendation of the relevant monitoring committee and joint consideration with the Council, the Board will make a decision concerning what state regulations will be rather than forward a recommendation to NMFS. The states will then be responsible for implementing the Board's decision. Addendum III established specifications for the 2001 recreational summer flounder fishery.

The Board approved Addendum VIII in December of 2003. Under this addendum, state-specific targets for recreational landings are derived from the coastwide harvest limit based on each state's proportion of landings reported in 1998.

The Board approved Addendum XIII in August of 2004. This addendum modifies the FMP so that, within a given year, TALs for the summer flounder, scup, and/or black sea bass can be specified for up to three years. Multi-year TALs do not have to be constant from year to year, but instead are based upon expectations of future stock conditions as indicated by the best available scientific information during the year in which specifications are set.

The Board approved Addendum XV in December of 2004. The addendum was developed to allow for a change in the allocation scheme for the increase commercial quota from 2004 to 2005, approximately 1.3 million pounds, as well as the additional quota from 2004 to 2006, approximately 1.6 million pounds. For the fishing years 2005 and 2006, the associated quota increases were allocated to the following states as a bycatch allocation. 75,000 pounds of summer flounder will be allocated each to Maryland, New York, Connecticut, and Massachusetts; 15,000 lbs to Delaware; 5,000 lbs to Maine; and 90 lbs to New Hampshire.

The Board approved Addendum XVII in August of 2005. Addendum XVII established a program wherein the Board could sub-divide the recreational summer flounder coastwide allocations into voluntary regions. This is an additional management tool in the management toolbox. This addendum also allowed the averaging or combination of multiple years of data (i.e. landings-per-angler, length-frequency distributions) in analyses to determine the impacts of proposed recreational management programs. The programs also included minimum fish sizes, possession limits, and fishing seasons. The averaging of annual harvest estimates will not be allowed.

The Board approved Addendum XVIII in February of 2006. The addendum sought to stabilize fishing rules close to those that existed in 2005, in part, to minimize the drastic reductions that were facing three states at the time. The addendum allowed the three states (NY, CT, and MA) facing large reductions in their harvest targets to capitalize on harvest opportunities that are foregone by states that chose to maintain their 2005 recreational fishing rules in 2006.

Addendum XIX, approved in August 2007, broadened the descriptions of stock status determination criteria contained within the Summer Flounder, Scup, and Black Sea Bass FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable status determination criteria for identifying when stocks or stock complexes covered by the FMP are overfished. It establishes acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Commission directly into the annual management measures for each species, rather than requiring a modification to the FMP.

The Board approved Addendum XXV in February of 2014. The addendum implemented regional conservation equivalency for the 2014 fishing year, and sought to respond to the unintended consequence of using conservation equivalency (e.g., state-specific recreational management measures) to stay within the annually established coastwide recreational harvest limit for summer flounder through regional management. For 2014, the regions were the following: Massachusetts; Rhode Island; Connecticut through New Jersey; Delaware through Virginia; and North Carolina. All states within a region have same minimum size, bag limit, and season length. A continuation of Addendum XXV was codified in Addendum XXVI by the Board ASMFC Winter Meeting in February 2015. Addendum XXVI continued the regional management measures established in 2014 through 2015.

II. Status of the Stock

The most recent summer flounder assessment update was the June 2016 Stock Assessment Update.

Relative to the biological reference points established during the 2013 benchmark assessment, the stock is not overfished and but overfishing is occurring. Fishing mortality (F) on fully selected age 4 fish ranged between .793 and 1.776 from 1982-1996 and then decreased to .284 in 2007. Since 2007 the fishing

mortality has increased to .390 in 2015, 26% above the SAW 57 maximum fishing mortality threshold (F Threshold= F_{MSY}=$F35_{\%}$ = 0.309).

Spawning stock biomass (SSB) decreased from 55.16 million lbs in 1982 to 15.58 million lbs in 1989 and then increased to peaks of 101.48 million lbs in 2003 and 104.73 million lbs in 2010. SSB was estimated to be 36,240 metric tons (mt) = 79.90 million lbs in 2015, 58% of the biomass target reference point = SSBMSY = SSB35% = 62,394 mt = 137.555 million lbs, and 16% above the 2013 SAW 57 ½ SSB_{MSY} proxy = ½ $SSB_{35\%}$ = 31,197 mt =68.78 million lb. NMFS previously declared the summer flounder stock rebuilt based on the 2011 assessment update, which included stock status determinations using data through 2010. A new rebuilding plan would be triggered in the event that estimated biomass falls below the minimum stock size threshold.

Average recruitment from 1982 to 2015 is 41 million fish at age 0. The 1983 and 1985 year classes are the largest in the assessment time series at 75 and 62 million fish, while the 1988 year class is the smallest at only 10 million fish. The update shows that recruitment of age 0 fish was below the time series average each year from 2010 through 2015. The 2015 year class is estimated to be below average at 23 million fish.

III. Status of the Fishery

Commercial landings peaked in 1984 at 37.77 million lbs, and reached a low of 8.8 million lbs in 1997. From 2005 through present commercial landings have been variable, with two peak years (16.91 million lbs in 2005 and 16.57 million lbs in 2011) that have been followed by steady declines. Over the last four years landings have continued to decline in part due to annual quota limits. From 2012-2014 the landings have exceeded the commercial coastwide quota. 2015 commercial landings declined to 10.6 million pounds, approximately 96% of the coastwide quota. The principle gear used in the fishery is the otter trawl. Commercial discard losses in the otter trawl and scallop dredge fisheries are estimates from observer data and recently account for 5 to 10% of the total commercial catch.

Recreational harvest from 2005 to present have also shown steady declines in part due to the coastwide recreational harvest limit. From 2009 through 2013 harvest was below the recreational harvest limit (RHL); in 2014 coastwide harvest exceeded the RHL by 5% at 7.39 million lbs. In 2015, the coastwide harvest was significantly lower than previous years despite similar regulations, at 4.72 million lbs. Recreational discard losses have recently accounted for 15 to 20% of the total catch.

IV. Status of Assessment Advice

The 2016 assessment updates indicates that while catch in recent years has not been substantially over the ABCs, the projected fishing mortality rates have been exceeded and projected spawning stock biomass target has not been achieved. These results appear to be largely driven by poor recruitment, an underestimation of the fishing mortality level in the last years of the assessment, and declining biomass indices. Harvest limits were adjusted for 2016 and beyond to address overfishing.

Biological Reference Points (SSB and F estimates updated by the 2016 Stock Assessment Update)

- F Threshold= F_{MSY}=$F35_{\%}$ = 0.309
- Current (2015) F=0.390 overfishing is occurring
- Spawning Stock Biomass (SSB) threshold = 68.8 million lbs
- SSB target = 137.6 million lbs
- Current SSB (2015) =79.9 million lbs stock is not overfished

V. Status of Research and Monitoring

Several states and NMFS conduct seasonal sampling cruises using an otter trawl to assess the condition of summer flounder populations inshore and in the Exclusive Economic Zone (EEZ). Massachusetts collects sex and maturity samples and local abundance indices from spring and fall otter trawl surveys, as well as young of the year information in its winter flounder juvenile seine survey. The Commonwealth monitored the commercial fishery through the observation of six directed trawl fishery trips, as well as through dealer Integrated Voice Response (IVR) systems and mandatory fishermen's logbook. Rhode Island monitors the commercial quota for summer flounder using an automated IVR system and dealers are required to provide weekly reports through the IVR of summer flounder landings. Connecticut commercial summer flounder landings are monitored through monthly commercial fishermen logbooks, and weekly and monthly dealer reports. These reports contain daily records of fishing and dealer purchase activity. There was no sea sampling or port sampling activity for summer flounder in 2004. New York conducts a survey of recreational anglers on open boats throughout the marine district to collect additional data on size composition of kept and discarded fish and also a small mesh otter trawl survey in the Peconic Bays that samples summer flounder. New York requires trip level reporting from all of its commercial fishermen and monitors quota through a combination of trip reports and dealer reports. New Jersey collects data from the commercial trawl fishery and conducts an ocean trawl survey from which data on summer flounder are collected and catch-per-unit-of-effort and distribution information are generated for juveniles and adults. Delaware's commercial landings are monitored through a mandatory monthly harvest report from all state-licensed fishermen. Maryland constructs a juvenile index from trawl data collected in the ocean side bays and is also compiling data on population age, sex, and size from summer flounder taken in pound nets. A statewide voluntary angler survey is conducted and records location, time spent fishing, number of fish caught, number kept, and lengths of the first 20 fish caught. Virginia prepares a young-of-the-year index from data collected from beach seine and trawl surveys. North Carolina conducts two otter trawl surveys for juvenile fluke, conducts tagging programs to determine migrations and to assess mortality, and collects information on age and growth and catch-per-unit-of-effort for the winter trawl fishery, the estuarine gill net fishery, pound net fisheries, the ocean sink net fishery and the long haul seine fishery.

VI. Status of Management Measures and Issues

Management measures imposed upon harvesters of summer flounder include an annual commercial quota and recreational harvest limit, minimum sizes, minimum mesh requirements for trawls, permits and administrative fees for dealers and vessels, a moratorium on entry into the fishery, mandated use of sea samplers, monitoring of sea turtles in the southern part of the management unit, and collection of data and record keeping by dealers and processors. Fishing mortality has been controlled by a Total Allowable Landings (TAL) since 1983, allocated into a commercial quota (60% of the TAL) and a recreational harvest limit (40% of the TAL). The commercial quota is allocated to each state based on landings during a baseline period, and any overages are subtracted from a state's quota for the following year. The state allocations of the commercial quota are included in table 1.

Summer Flounder Compliance Criteria

The PRT found no compliance issues.

De Minimis

Delaware requests *de minimis* status. The PRT notes that they meet the requirement of *de minimis*.

COMMERCIAL FISHERY

The following measures may change annually. The 2015 measures are indicated.

Minimum size: 14”
Minimum mesh and threshold: 5.5 diamond, 6” square
Regulation of mesh beyond the codend: 5.5” diamond or 6” square throughout the mesh
2015 Commercial quota: 11.07 million pounds

The following measures are not subject to annual adjustment.

Quota management provisions: States are required to adopt appropriate measures to manage their quota shares. States may transfer or combine their quota shares as specified in Amendment 5. States must document through a vessel and dealer reporting system all landings that are not otherwise included in the federal monitoring of permit holders. States are required to forward all landings information to the NMFS for inclusion in quota reporting.

Transfer at Sea: States must prohibit permitted summer flounder vessels from transferring summer flounder from one vessel to another at sea. (As specified in Amendment 10)

De minimis status: States having commercial landings less than 0.1% of the coastwide total will be eligible for *de minims* status. (As specified in Amendment 10). Delaware has requested de minimis status and meets the requirements.

RECREATIONAL FISHERY

The Management Board chose to adopt regional management through conservation equivalency for the 2015 recreational fishery under the provisions of Framework 2 (see table 3 for state measures). As such, the Federal recreational bag limit and minimum fish size were waived and the fishing season and vessel owners were subject only to the regulations in their states.

2015 recreational harvest limit: 7.38 million lbs.

OTHER MEASURES

Filet at sea permit: Party or charter vessels in state waters will be allowed to filet at sea if they obtain a state issued permit allowing such activity. (As specified in Amendment 10)

Reporting:

1. States must submit a commercial fishery management proposal by October 1 of each year. The proposal must detail the specific management measures that the state intends to use to manage their commercial quota allocation. The proposal must be reviewed and approved by the Management Board.

2. States must submit an annual compliance report to the Chairman of the Summer Flounder Plan Review Team by June 1 of each year. The report must detail the state’s management program for the current year and establish proof of compliance with all mandatory

management measures and all framework changes specified for the current year. It should include landings information from the previous year, and the results of any monitoring or research program.

This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Summer Flounder FMP and Amendments thereto.

VII. Current State-by-State Implementation of FMP Requirements

1993 - 2015 Summer Flounder FMP Compliance Schedule

COMMERCIAL:

14" minimum size	3/1/97
5.5" codend mesh	1/1/98
Ability to regulate mesh in any portion of the net	1/1/98
5.5” diamond or 6” square mesh, body	6/3/98
Prohibition of transfer at sea	1/1/98
Mandatory reporting to NMFS of landings from state waters	1/1/98
Small mesh exemption program	1/21/93
Flynet minimum mesh size exemption	1/21/93

RECREATIONAL:

Regional Management Measures under conservation equlivency	2/2015

GENERAL

Submission of annual commercial management plan	10/1/97, annually thereafter
Submission of annual landings and compliance report	6/1/98, annually thereafter

Table 1. State by state allocation for annual commercial quota

State	Allocation (%)
Maine	0.04756%
New Hampshire	0.00046%
Massachusetts	6.82046%
Rhode Island	15.68298%
Connecticut	2.25708%
New York	7.64699%
New Jersey	16.72499%
Delaware	0.01779%
Maryland	2.03910%
Virginia	21.31676%
North Carolina	27.44584%
Total	100%

Table 1. Summer Flounder Commercial Landings by State (2005-2015) in pounds.

Source: ACCSP. 2014-2015. Commercial Landings Summaries (Dealer Reports)- Confidential; generated by K.Rootes-Murdy; using ACCSP Data Warehouse, Arlington, VA. & State Compliance Reports (2016)

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015**
MA	1,274,429	920,549	659,784	644,404	731,174	851,889	1,132,192	891,495	859,150	694,777	748,731
RI	2,925,365	2,122,528	1,515,684	1,473,439	1,793,891	2,289,379	2,824,032	2,064,076	1,799,394	2,054,951	1,714,143
CT	448,594	316,533	205,115	220,510	256,768	308,341	401,377	298,849	280,652	253,442	291,997
NY	1,172,279	1,219,842	929,132	832,415	1,119,093	1,330,015	1,483,785	1,237,126	999,206	833,577	829,187
NJ	2,156,909	2,379,733	1,697,472	1,540,811	1,798,903	2,165,325	2,830,686	2,268,793	1,995,298	1,826,455	1,687,859
DE	5,427	4,376	2,261	1,213	2,952	1,858	836	677	913	1,687	1,349
MD	337,652	247,743	228,809	208,219	213,564	263,302	259,392	139,824	165,134	164,384	175,285
VA	3,869,171	2,756,952	1,853,693	1,651,575	1,978,754	2,589,786	4,050,998	4,111,708	4,868,842	2,049,045	2,274,329
NC	4,064,474	3,981,430	2,670,122	2,406,611	2,859,048	6,622,004	5,708,254	1,087,427	543,247	2,906,789	2,878,753
Total	17,073,033	13,949,754	9,774,075	9,002,613	10,774,754	16,455,427	18,724,801	11,801,702	11,511,836	10,785,107	10,601,633

**2015 Landings are still preliminary

Table 2. Recreational Landings by State (2005-2015) in weight (pounds).

Source: "Personal Communication with National Marine Fisheries Service, Statistics Division October 2016"

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
MA	642,865	608,499	368,084	635,196	121,120	137,611	202,665	175,110	64,365	238,604	146,532
RI	509,931	783,010	553,056	831,062	348,603	458,873	511,544	335,506	372,672	636,207	600,597
CT	434,796	424,539	371,907	567,132	195,883	132,013	186,834	191,119	888,906	391,168	337,194
NY	3,738,023	2,343,908	3,249,126	2,738,108	1,449,759	1,612,298	1,718,121	1,760,650	1,954,821	1,668,848	1,569,139
NJ	3,200,427	3,860,756	2,727,838	2,113,217	2,466,799	1,614,357	2,116,951	3,063,723	3,286,543	3,608,939	1,442,827
DE	209,842	247,811	330,307	147,895	259,169	159,976	182,733	141,935	159,185	227,913	114,638
MD	303,459	71,625	206,522	169,323	168,025	91,834	55,686	61,514	108,690	179,313	103,613
VA	1,730,817	2,005,412	1,311,429	883,168	917,153	789,856	880,639	658,476	449,002	370,230	342,545
NC	145,175	156,842	218,441	64,571	103,867	111,539	100,543	101,642	70,874	67,791	64,065
Total	10,915,335	10,502,402	9,336,710	8,149,672	6,030,378	5,108,357	5,955,716	6,489,675	7,355,058	7,389,013	4,721,150

Table 4. 2015 recreational management measures for summer flounder by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16	5 fish	May 22-September 23
Rhode Island	18	8 fish	May 1-December 31
Connecticut*	18	5 fish	May 17-September 21
*At 41 designated shore sites	16		
New York	18	5 fish	May 17-September 21
New Jersey*	18	5 fish	May 22-September 26
*NJ Pilot shore program 1 site	16	2 fish	May 22-September 26
Delaware	16	4 fish	All year
Maryland	16	4 fish	All year
PRFC	16	4 fish	All year
Virginia	16	4 fish	All year
North Carolina	15	6 fish	All Year

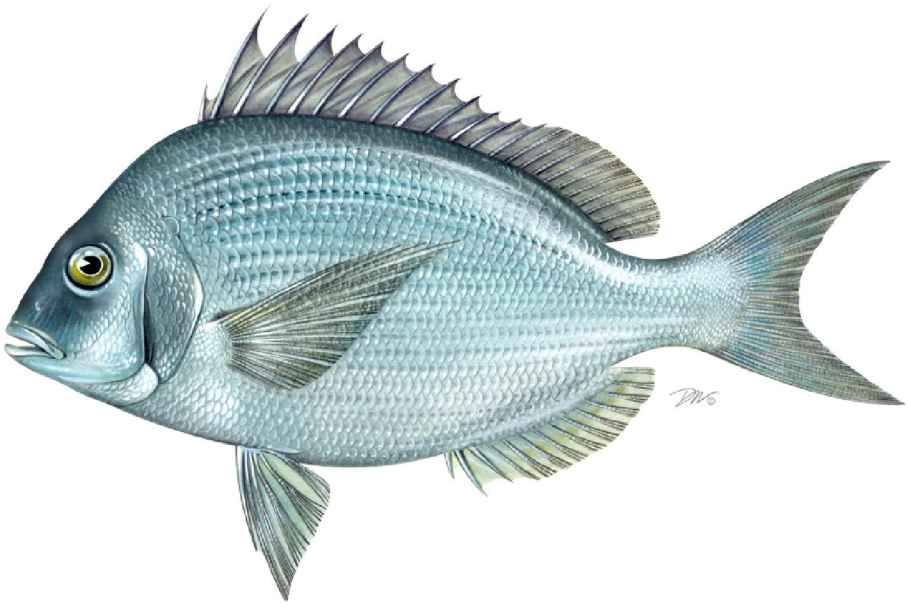
Table 3. 2016 recreational management measures for summer flounder by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	16	5 fish	May 22-September 23
Rhode Island	18	8 fish	May 1-December 31
Connecticut	18	5 fish	May 17- September 21
CT shore program (46 designed shore sites)	16		
New York	18	5 fish	May 17- September 21
New Jersey*	18	5 fish	May 21- September 25
NJ Shore program site (ISBSP)	16	2 fish	May 21-September 25
New Jersey/Delaware Bay COLREGS**	17	4 fish	May 21-September 25
Delaware	16	4 fish	January 1- December 31
Maryland	16	4 fish	January 1- December 31
PRFC	16	4 fish	January 1- December 31
Virginia	16	4 fish	January 1- December 31
North Carolina	15	6 fish	January 1- December 31

*New Jersey east of the COLREGS line at Cape May, NJ will have management measures consistent with the northern region of Connecticut – New York.

**New Jersey west of the COLREGS line at Cape May, NJ inside Delaware Bay will have a similar size limit to the southern region (DE-VA), the same possession limit as the southern region (DE-VA), and the same season length as the northern region of Connecticut – New York.

2016 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN for the 2015 SCUP FISHERY
SCUP *(Stenotomus chrysops)*



Prepared by:

Kirby Rootes-Murdy, ASMFC

Scup Plan Review Team
Kirby Rootes-Murdy, Chair
Kiley Dancy, MAFMC
Julia Beaty, MAFMC

October 2016

2016 Review of the Atlantic States Marine Fisheries Commission

Fishery Management Plan for Scup for the 2015 Fishing Year

I. Status of the Fishery Management Plan

ASMFC management of scup was initiated as one component of a multi-species FMP addressing summer flounder, scup and black sea bass. The Commission approved the Fishery Management Plan for Scup in March 1996. Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass FMP, which established revised overfishing definitions, identification and description of essential fish habitat, and defined the framework adjustment process, was approved by the Commission in October 1998.

The FMP included a seven-year plan for reducing fishing effort and restoring the stock. The primary concerns were excessive discarding of scup and near collapse of the stock. Management measures implemented in the first year of the plan (1996) included: dealer and vessel permitting and reporting, 9-inch commercial minimum size, 4-inch mesh restriction for vessels retaining over 4,000 pounds of scup, and a 7-inch recreational minimum size. The biological reference point to define overfishing when the plan was initially developed was F_{MAX}, or F=0.25. To allow flexibility in addressing unforeseen conditions in the fishery, the plan contained provisions that allow implementation of time and area closures. The plan also specified the option for changes in the recreational minimum size and bag limit, or implementation of a seasonal closure on an annual basis.

Addendum 1 to the Summer Flounder, Scup, and Black Sea Bass FMP explains the quota management procedure for management and distribution of the coastwide commercial quota that was approved in September 1996 and implemented as a coastwide Total Allowable Catch (TAC) in 1997. Addendum 1 also details the state-by-state quota system for the summer period (May through October) that was implemented in 1997. Each state receives a share of the summer quota based on historical commercial landings from 1983-1992.

In June 1997, the Commonwealth of Massachusetts filed a lawsuit against the Secretary of Commerce stating that the historical data used to determine the quota shares underestimated the commercial landings of scup. Massachusetts also stated that the resulting quota share discriminated against Commonwealth of Massachusetts residents. On April 27, 1998, the U.S. District Court voided the state-by-state quota allocations for the summer quota period in the federal fishery management plan, and ordered the Secretary of Commerce to promulgate a regulation that sets forth state-by state quotas in compliance with the National Standards. The court order does not technically affect the state-by-state quota allocations that are included in the ASMFC Addendum 1 to the Summer Flounder, Scup, and Black Sea Bass FMP. The Summer Flounder, Scup, and Black Sea Bass Management Board developed three Emergency Rules to address the quota management during the summer quota period during 1999, 2000 and 2001.

Amendment 12 to the Summer Flounder, Scup and Black Sea Bass FMP established a biomass threshold for scup based on the maximum value of the 3-year moving average of the NEFSC spring bottom trawl survey index of spawning stock biomass. The Amendment stipulated that

the scup stock was overfished when the spawning stock biomass index fell below this value. Amendment 12 also defined overfishing for scup to occur when the fishing mortality rate exceeded the threshold fishing mortality. Subsequent addenda modified the reference points.

In 2002, the Board developed Addendum V to the FMP in order to avoid the necessity of developing annual Emergency Rules for summer period quota management. Addendum V established state shares of the summer period quota based on historical commercial landings from 1983-1992, including additional landings from Massachusetts added to the NMFS database in 2000. State shares implemented by this addendum will remain in place until the Board takes direct action to change them.

Another significant change to scup management occurred with the approval of Addendum VII in February 2002. This document established a state specific management program for the 2002 recreational scup fishery based on the average landings (in number of fish) for 1998-2001. Only Massachusetts through New York (inclusive) were permitted to develop individual management programs. Due to the extremely limited data available, the Board developed specific management measures for the states of New Jersey, Delaware, Maryland, Virginia, and North Carolina. The addendum had no application after 2002.

Addendum IX established a state specific management program for the 2003 recreational scup fishery based on the average landings (in number of fish) for 1998-2001. Only Massachusetts through New York (inclusive) were permitted to develop individual management programs. Due to the extremely limited data available, the Board developed specific management measures for the states of New Jersey, Delaware, Maryland, Virginia, and North Carolina. The addendum had no application after 2003.

Addendum XIX, approved in August 2007, broadened the descriptions of stock status determination criteria contained within the Summer Flounder, Scup, and Black Sea Bass FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable criteria for identifying when stocks are overfished. It establishes acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Commission directly into the annual management measures for each species.

Addendum XX sets policies to reconcile quotas overages to address minor inadvertent quota overages. It was approved in November 2009. It streamlines the quota transfers process and establishes clear policies and administrative protocols to guide the allocation of transfers from states with underages to states with overages. It also allows for quota transfers to reconcile quota overages after the year's end.

States with a declared interest in the Scup FMP are Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina. The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board serves as the species management board, and the Demersal Species Committee guides plan development for the MAFMC. The Summer Flounder, Scup, and Black Sea Bass Technical Committee addresses

technical issues. Industry advice is solicited through the Scup and Black Sea Bass Advisory Panel, and annual review and monitoring is the responsibility of the Scup Plan Review Team.

II. Status of the Stock

The most recent benchmark stock assessment for scup took place in 2015. Based on information through 2014, the scup stock was not overfished or experiencing overfishing relative to the new reference points defined in 2015 SAW 60 assessment. The stock assessment model for scup changed in 2008 from a simple index-based model to a complex statistical catch at age model. The model now incorporates a broader range of fishery and survey data than was used previously.

Since 1984, recruitment (e.g., the number of fish entering the population) estimates are influenced mainly by the fishery and survey catches-at-age, and averaged 109 million fish during 1984-2014. The 1999, 2006, and 2007 year classes are estimated to be the largest of the time series, at 222, 222, and 218 million age 0 fish. Below average recruitment occurred in 2012 and 2013. The 2014 year class is estimated to be above average at 112 million age 0 fish.

The reference points are F MSY =$F_{40\%}$ = 0.220. $F_{40\%}$ is the rate of fishing that will result in 40% of the spawning potential of an unfished stock. The spawning stock biomass target is equal to $SSB_{40\%}$ = 87,302 mt or 192.47 million pounds. The 2015 stock assessment indicates the 2014 F was 0.127 and SSB was 403 million pounds, therefore overfishing is not occurring and the stock is rebuilt.

III. Status of the Fishery

Commercial scup landings, which had declined by over 33% to 8.8 million pounds in 1988 from peak landings (approximately 49 million lbs) in 1960, increased to 15.6 million pounds in 1991, then steadily dropped to the lowest value in the time series, 2.7 million pounds in 2000. Since 2001, commercial landings have continued to increase nearly every year to about 15.03 million pounds in 2011. Since 2011 commercial landings have varied, ranging from 14.88 million lbs in 2012, to 17.87 million pounds in 2013. In 2015 commercial landings were 15.86 million lbs, about 75% of the commercial quota (Table 3). Since 1979 approximately 80% of the commercial landings have been landed in Rhode Island (38%), New Jersey (26%), and New York (16%). Otter trawl is the principal gear, accounting for 65%-90% of commercial landings since 1979.

The recreational fishery for scup is significant, with the greatest proportion of the catches taken in states of Massachusetts through New York. Since 1981, recreational harvest has averaged 32% of total landings (commercial and recreational). From 2005 to 2014, recreational harvest has ranged from 2.69 million lbs in 2005 to 5.11 million lbs in 2013. In 2015 recreational harvest was 4.61 million lbs, about 74% of the recreational harvest limit (Table 4).

IV. Status of Assessment Advice

The 2015 Benchmark Stock Assessment indicated that while the scup biomass is nearly 200% the biomass target, the trend moving forward is likely a decreased from a recent year's peak. As such, the Board and Council moved to decrease commercial quotas and recreational harvest limits from 2015 levels in 2016 and 2017 based on the biomass projections outlined in the stock assessment.

V. Status of Research and Monitoring

Commercial landings data are collected by the NMFS Vessel Trip Report system and by state reporting systems. The NEFSC sea sampling program collects commercial discard information. Biological samples (age, length) from the commercial fishery are collected through NEFSC weighout system and by the state of North Carolina. Recreational landings and discard information is obtained through the Marine Recreational Information Program. The Commonwealth of Massachusetts collected length frequency information for the recreational fishery in 2001 as part of a federally funded effort to monitor the recreational and commercial directed fisheries. One non-directed fishery assumed to have substantial scup bycatch was also monitored. This monitoring effort decreased substantially in 2002 as the study received funding for one year. Fishery independent abundance indices are available from surveys conducted by the NEFSC, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and the Virginia Institute of Marine Science.

VI. Management Measures and Developing Issues

Addendum 1 to the Scup FMP specifies the commercial quota management scheme. The annual coastwide quota is divided among three periods. The Winter I period is January through April, the summer period is May through October, and November and December make up Winter II. During the winter periods, the quota is coastwide and is limited by trip limits. The summer allocation is divided into state shares. When a winter period allocation is landed, the states and the NMFS must prohibit landings. When a state lands it summer allocation it is expected to close its fishery and the NMFS will close that state for landings by federally permitted vessels. The quota, as well as accompanying trip limits, will be set annually. [Note: The Federal FMP currently contains a coastwide commercial quota during the summer period due to the court decision described in Section I]. The Board has expressed interest in exploring alternative quota programs for scup. In December 2015 the Board recommended that the Technical Committee develop an analysis to support future considerations related to possibly changing the length of each of the three quota periods. This work is ongoing.

Scup FMP Compliance Criteria:

<u>COMMERCIAL FISHERY for 2015</u>

The following management measures may change annually.

<u>Minimum size of possession</u>: 9" Total Length

Minimum mesh and threshold: Otter trawls must have a minimum mesh size of 5" for the first 75 meshes from the terminus of the net and a minimum mesh size of 5" throughout the net for codends constructed with fewer than 75 meshes.
Threshold to Trigger Minimum Mesh Requirements: 500 pounds of scup from November 1 through April 30 and 200 pounds or more of scup from May 1 through October 31.**
Maximum roller rig trawl roller diameter: 18"
Pot and trap escape vents: 3.1" round, 2.25" square
Pot and trap degradable fastener provisions: a) untreated hemp, jute, or cotton string 3/16" (4.8 mm) or smaller; b) magnesium alloy timed float releases or fasteners; c) ungalvanized, uncoated iron wire of 0.094" (2.4mm) or smaller
Commercial quota: 21.23 million pounds (adjusted for overages and research set-asides)
ASMFC Summer Quota: 8,270,083 lbs (State by State Shares in Table 1)
Winter I and II landing limits: Winter I = 9,578,008 lbs, 1,000 lbs trip limits when the quota reaches 80%; Winter II = 5,468,728 lbs
**Starting in 2016, the threshold to trigger minimum mesh requirements will be increased from 500 pounds to 1,000 pounds
The following required measures are not subject to annual adjustment:

Vessel and dealer permitting requirements: States are required to implement a permit for fishermen fishing exclusively in state waters, and for dealers purchasing exclusively from such fishermen. In addition, states are expected to recognize federal permits in state waters, and are encouraged to establish a moratorium on entry into the fishery.

Vessel and dealer reporting requirements: States are required to implement reporting requirements for state permitted vessels and dealers and to report landings from state waters to the NMFS.

Scup pot or trap definition: A scup pot or trap will be defined by the state regulations that apply to the vessels principal port of landing.

Quota management requirements:
Winter I and II: States are required to implement landing limits as specified annually, States are required to notify state and federal permit holders of initial period landing limits, in-period adjustments, and closures. States are required to prohibit fishing for, and landing of, scup when a period quota has been landed, based on projections by NMFS. States must report landings from state waters to the NMFS for counting toward the quota

Summer: States are required to implement a plan of trip limits or other measures to manage their summer share of the scup quota. States are required to prohibit fishing for, and landing of, scup when their quota share is landed. States may transfer or combine quota shares. States must report all landings from state waters to the NMFS for counting toward the state shares.

RECREATIONAL FISHERY for 2015
Addendum IX (2003) established a state-specific management program for Massachusetts through New York (inclusive), and specific management measures for the states of New Jersey, Delaware, Maryland, Virginia, and North Carolina. The states have continued this approach since 2004 to present.

The following measures may change annually:**2015 Recreational Measures**
2015 Minimum size, possession limits and seasonal closure: Table 5
2015 Recreational Harvest Limit: 6.80 million pounds

2016 Minimum size, possession limits and seasonal closure: Table 6

OTHER MEASURES
Reporting: States are required to submit an annual compliance report to the Chair of the ASMFC Scup Plan Review Team by June 1 of each year. This report should detail the state's management program for the current year and establish proof of compliance with all mandatory management measures. It should include landings information from the previous year, and the results of any monitoring or research programs.

De minimis: States having commercial landings during the summer period that are less than 0.1% of the summer period quota are eligible for *de minimis* consideration. States desiring *de minimis* classification must make a formal request in writing through the Plan Review Team for review and consideration by the Scup Management Board.

This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Scup FMP and any Amendments thereto.

Compliance Issues

The PRT found no compliance issues.

De Minimis

The state of Delaware request *de minimis* status. The PRT notes Delaware meets the *de minimis* requirements.

VII. State Compliance with Required Measures

Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina are required to comply with the provisions of the Scup FMP. All states implemented regulations in compliance with the requirements approved by the Board.

Scup FMP Compliance Schedule

Commercial Fishery

Management Measures	
ability to implement and enforce period landing limits	1/1/97
ability to notify permit holders of landing limits and closures 1/1/97	5/1/97
ability to close the summer fishery once the state share is harvested	5/1/97
ability to close the winter fisheries once the period quota is harvested	5/1/97
9" total length minimum size limit	6/30/96
Minimum mesh size of 5" diamond mesh throughout codend	1/1/05
Pot and trap escape vents (min 3.1" square/rectangular; each side at least 2.25" in length), degradable fasteners	6/30/96
Roller diameter restriction	6/30/96
Vessel permit and reporting requirements, state	1/1/97
Dealer permit and reporting requirements, state	1/1/97

Recreational Fishery

Management Measures	
Size limit	6/30/96
Possession limit	6/30/96

General

States submit annual monitoring and compliance report	6/1 annually

Annual Specifications

Commercial		
Winter I Landing Limits	11/1/05	1/1/15
Winter II Landing Limits	11/1/05	11/1/15

Recreational

Massachusetts– New York (inclusive)	
State specific minimum size, possession limit and season	3/15
New Jersey – North Carolina (inclusive)	
Federal coastwide minimum size, possession limit and season	12/14

Table 1. 2015. State by State Quota (Summer Period)

State	Share	2015 ASMFC Quota
ME	0.00121	10,007
MA	0.21585	1,785,122
RI	0.56189	4,646,910
CT	0.03154	260,814
NY	0.15823	1,308,592
NJ	0.02916	241,189
MD	0.00012	984
VA	0.00165	13,646
NC	0.00025	2,059
Total	0.99991	8,269,322

Table 2. Summary of scup management measures, 2005-2015.

Harvest Limits and measures	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ABC (m lbs)								40.88	38.71	35.99	33.77
TAC (m lbs)	18.65	19.79	13.97	9.9	15.54	17.09	31.92				
Commercial ACL (m lbs)	-	-	-	-	-	-	-	31.89	30.19	28.07	26.35
Commercial quota–adjusted (m lbs)[a]	12.23	11.93	8.9	5.24	8.37	10.68	20.36	27.91	23.53	21.95	21.23
Commerical. landings	8.18	9.00	9.24	5.22	8.20	10.73	15.03	14.88	17.87	15.93	15.85
Recreational ABC (m lbs)	-	-	-	-	-	-	-	8.99	8.52	7.92	7.43
Recreational harvest limit-adjusted (m lbs)[a]	3.96	4.15	2.74	1.83	2.59	3.01	5.74	7.55	7.55	7.03	6.8
Recreational landings	2.69	3.72	4.56	3.79	3.23	5.97	3.67	4.17	5.11	4.12	4.61
Commercial fish size (in)	9	9	9	9	9	9	9	9	9	9	9
Min. mesh size (in, diamond)	5	5	5	5	5	5	5	5	5	5	5
Mesh threshold	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200	500/ 200

[A] 2005-2014 commercial quotas and recreational harvest limits were adjustted for the Research Set Aside (RSA) program. The RSA program was suspended for 2015.

Table 3. Scup commercial landings by state 2005-2015 in pounds.
Source: ACCSP. 2014-2015. Commercial Landings Summaries (Dealer Reports)- Confidential; generated by K. Rootes-Murdy; using ACCSP Data Warehouse, Arlington, VA. & State Compliance Reports (October 2016)

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015**
MA	1,134,759	1,088,148	1,104,316	527,325	718,751	1,030,688	1,243,810	2,005,268	1,094,975	1,185,816	1,187,763
RI	3,423,611	3,671,250	3,892,671	2,133,001	1,785,994	4,298,595	6,335,391	6,309,321	4,689,540	6,932,462	6,948,847
CT	327,861	297,912	255,884	283,101	203,607	323,757	644,030	905,060	1,194,949	811,106	811,106
NY	2,185,836	2,305,161	2,280,112	1,203,661	1,845,908	2,689,443	3,542,538	4,306,621	4,407,231	3,190,433	3,174,868
NJ	1,914,358	1,392,868	1,575,144	773,829	1,528,545	1,550,249	1,966,479	978,531	2,033,083	1,925,591	2,351,643
DE	0	0	3	0	0	0	9	1	4	4	8
MD	927				9,000	27,183	54,229	8,263		230,104	530,761
VA	287,891	80,292	22,579	95,939	211,576	371,376	620,480	339,868	913,113	660,324	694,281
NC	351,609	139,420	66,856	205,703	244,337	102,745	308,907	4,098	28,394	159,930	160,508
Total	9,627,665	9,065,404	9,259,713	5,222,559	6,547,718	10,394,036	14,715,873	14,857,031	14,361,289	15,095,770	15,859,785

**2015 Landings are still preliminary

Table 4. Scup recreational landings, 2005-2015, by state in weight.

Source: "Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. October 2016"

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
MA	203,201	218,996	75,860	150,031	874,952	1,023,248	836,156	1,795,634	1,850,909	1,634,104	1,286,537
RI	430,747	470,286	353,450	632,839	139,576	398,178	567,697	497,505	816,837	975,812	591,693
CT	213,131	107,479	108,528	115,821	359,845	1,346,631	1,194,680	921,010	2,126,257	561,182	497,495
NY	859,156	1,677,998	1,596,391	1,450,861	1,460,314	1,990,339	714,789	592,238	978,444	1,132,448	2,211,709
NJ	70,952	241,567	86,073	72,697	141,861	610,660	42,223	113,332	100,419	45,847	29,501
DE	3,870	319	2,365	1,338	821	0	40	86	0	35	589
MD	85,192	58,386	157,360	89,729	36	11	7	0	0	0	204
VA	8,507	0	586	3,920	527	5,284	10,413	1,425	1,238	0	1,846
NC	0	0	0	0	0	0	27	148	0	769	87
Total	**1,874,756**	**2,775,031**	**2,380,613**	**2,517,236**	**2,977,932**	**5,374,351**	**3,366,032**	**3,921,378**	**5,874,104**	**4,350,197**	**4,619,661**

Table 5. 2015 State Scup Recreational Measures

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts For Hire	10	45 fish from May 1- June 30; 30 fish from July 1- Dec 31	May 1- December 31
Private Angler	10	30 fish; private vessels with 6 or more persons aboard are prohibited from possessing more than 150 scup per day	May 1- December 31
Rhode Island For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10"; and 9" or greater for shore mode at 3 designated sites	30 fish	May 1- December 31
Connecticut For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10; and 9" for shore mode at 46 designated sites	30 fish	May 1- December 31
New York For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10	30 fish	May 1- December 31
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
Delaware	8	50 fish	All Year
Maryland	8	50 fish	All Year
Virginia	8	30 fish	All Year
North Carolina	8	50 fish	All Year

Table 6. 2016 State Scup Recreational Measures

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts For Hire	10	45 fish from May 1- June 30; 30 fish from July 1- Dec 31	May 1- December 31
Private Angler	10	30 fish; private vessels with 6 or more persons aboard are prohibited from possessing more than 150 scup per day	May 1- December 31
Rhode Island For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10"; and 9" or greater for shore mode at 3 designated sites	30 fish	May 1- December 31
Connecticut For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10; and 9" for shore mode at 46 designated sites	30 fish	May 1- December 31
New York For Hire	10	30 fish from May 1-Aug 31 and Nov 1-Dec 31; 45 fish from Sept 1-Oct 31	May 1- December 31
Private Angler	10	30 fish	May 1- December 31
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
Delaware	8	50 fish	All Year
Maryland	8	50 fish	All Year
Virginia	8	30 fish	All Year
North Carolina	8	50 fish	All Year

Table 7. Scup Landings by period.

Year	Period	Commercial Quota	Trip Limits	Landings (lbs)	Date Closed	% of Quota Landed
2005	Winter I	5,518,367	15,000/1,000	3,684,768	--	66.8
	Summer	4,764,806	--	4,001,662	--	89.5
	Winter II	1,987,718	1,500	1,380,444	--	74.6
2006	Winter I	3,554,991	30,000/1,000	3,626,237	--	102
	Summer	4,647,569	--	3,219,929	--	69.3
	Winter II	3,729,581	2,000/1,000	2,115,323	--	56.7
2007	Winter I	4,012,895	30,000/1,000	3,400,934	--	84.8
	Summer	3,464,914	--	4,254,987	21-Sep	122.8
	Winter II	1,417,991	2,000/1,000	1,590,747	--	112.2
2008	Winter I	2,291,699	30,000/1,000	2,356,716	--	102.8
	Summer	1,437,558	--	1,935,074	16-Jul	134.6
	Winter II	940,948	2,000/1,000	892,318	--	94.8
2009	Winter I	3,777,443	30,000/1,000	3,774,583	--	99.9
	Summer	2,930,733	--	3,072,340	--	104.8
	Winter II	1,334,791	2,000/1,000	1,356,961	--	101.7
2010	Winter I	4,964,716	30,000/1,000	4,740,681	--	95.4
	Summer	4,286,759	--	4,175,206	--	97.4
	Winter II	1,754,325	2,000/1,000	1,482,669	--	84.5
2011	Winter I	6,897,648	30,000/1,000	5,648,867	--	81.9
	Summer	7,930,504	--	6,349,749	--	80.1
	Winter II	3,245,500	2,000/1,000	2,556,214	--	78.8
2012	Winter I	12,589,558	50,000/1,000	5,190,370	--	41.2
	Summer	10,870,390	--	6,326,576	--	58.2
	Winter II	11,635,321	8,000	2,484,470	--	21.4
2013	Winter I	10,613,157	50,000/1,000	7,431,296	--	70.0
	Summer	9,163,877	--	7,684,995	--	83.9
	Winter II	6,932,998	8,000	2,324,250	--	33.5
2014	Winter I	9,900,000	50,000/1,000	5,833,858	--	58.9
	Summer	8,548,364	--	7,146,612	--	83.6
	Winter II	7,232,471	12,000	2,318,732	--	32.1
2015	Winter I	9,578,008	50,000/1,000	6,681,081	--	69.8
	Summer	8,269,322	--	7,703,455	--	93.1
	Winter II	5,468,726	12,000	1,904,529	--	34.8

2016 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR the 2015 BLACK SEA BASS FISHERY
Black Sea Bass *(Centropristis striata)*

Prepared by:

Kirby Rootes-Murdy (ASMFC)

Black Sea Bass Plan Review Team
Kirby Rootes-Murdy, Chair
Kiley Dancy, MAFMC
John Maniscalco, NYSDEC

October 2016

2016 Review of the Atlantic States Marine Fisheries Commission
Fishery Management Plan for Black Sea Bass

I. Status of the Fishery Management Plan

ASMFC management of black sea bass was initiated as one component of a multi-species fishery management plan (FMP) addressing summer flounder, scup, and black sea bass. In 1990, summer flounder was singled out for immediate action under a joint ASMFC and Mid-Atlantic Fishery Management Council (MAFMC or Council) plan. Further action on the scup and black sea bass plan was delayed until 1992 to expedite the summer flounder FMP and subsequent amendments. The joint Black Sea Bass FMP was completed and approved in 1996. The MAFMC approved regulations for black sea bass as Amendment 9 to the Summer Flounder FMP in May 1996.

The management unit of the Black Sea Bass FMP includes all black sea bass in U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina north to the Canadian border. Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina have declared an interest in black sea bass. The Commission's Summer Flounder, Scup, and Black Sea Bass Management Board and the MAFMC Demersal Species Committee guide development of the FMP. Technical issues are addressed through the Summer Flounder, Scup, and Black Sea Bass Technical Committee and the Black Sea Bass Monitoring Committee. The Black Sea Bass Plan Review Team conducts annual reviews and monitors compliance and the Scup and Black Sea Bass Advisory Panel provide industry input and advice.

The objectives of the FMP are to reduce fishing mortality to assure overfishing does not occur, reduce fishing mortality on immature black sea bass to increase spawning stock biomass, improve yield from the fishery, promote compatible regulations among states and between federal and state jurisdictions, promote uniform and effective enforcement, and to minimize regulations necessary to achieve the stated objectives. The initial black sea bass FMP was designated to reduce fishing mortality by a coastwide commercial quota allocated by state, and a recreational harvest limit constrained through the use of minimum size, possession limit, and seasonal closures.

Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass FMP was approved by the Commission in October 1998 and established revised overfishing definitions, identification and description of essential fish habitat, and defined the framework adjustment process.

Addendum IV, approved on January 29, 2001, provides that upon the recommendation of the relevant monitoring committee and joint consideration with the Council, the Board will decide the state regulations rather than forward a recommendation to NMFS. Addendum IV also made the states responsible for implementing the Board's decisions on regulations.

Starting in 1998, the fishery was subject to lengthy closures and had some significant quota overages in the commercial sector. Fishery closures occurring as a result of exceeded quotas resulted in increased discards of legal sized black sea bass in mixed fisheries for the remainder of the closed period. A significant financial hardship for the fishing industry resulted from a decrease in market demand caused by a fluctuating supply. To address these issues, the Management Board enacted a series of Emergency Rules in 2001 that established initial possession limits, triggers, and adjusted possession limits. These measures helped reduce the length of fishery closures, but the rapidly changing regulations confused fishermen and added significant administrative burden to the states. To simplify the process for all parties, the Board approved Addendum VI to provide a mechanism for initial possession limits, triggers, and adjusted possession limits to be set during the annual specification setting process without the need for further Emergency Rules.

Amendment 13, approved by ASMFC in May 2002, implemented a federal, coastwide annual commercial quota that is managed by ASMFC using a state-by-state allocation system. The Amendment was implemented in 2003 and 2004. State-specific commercial shares are listed in Table 1.

Amendment 13 also removed the necessity for fishermen who have both a Northeast Region (NER) Black Sea Bass permit and a Southeast Region (SER) Snapper Grouper (S/G) permit to relinquish their permits for a six-month period prior to fishing south of Cape Hatteras during a northern closure.

Addendum XII, approved in 2004, continued the use of a state-by-state allocation system, managed by the ASMFC on an annual coastwide commercial quota.

Addendum XIII approved in 2004, modified the FMP so that Total Allowable Landings (TALs) for the summer flounder, scup, and/or black sea bass can be specified for up to three years.

Addendum XIX continued the state-by-state black sea bass commercial management measures, without a sunset clause. This addendum also broadened the descriptions of stock status determination criteria contained within the Summer Flounder, Scup, and Black Sea Bass FMP to allow for greater flexibility in those definitions, while maintaining objective and measurable status determination criteria for identifying when stocks or stock complexes covered by the FMP are overfished. It establishes acceptable categories of peer-review for stock status determination criteria. When these specific peer-review metrics are met and new or updated information is available, the new or revised stock status determination criteria may be incorporated by the Commission directly into the annual management measures for each species, rather than requiring a modification to the FMP.

Addendum XX, approved in November 2009, set policies to reconcile commercial quota overages to address minor inadvertent quota overages. It streamlined the quota transfers process and established clear policies and administrative protocols to guide the allocation of

transfers from states with underages to states with overages. It also allowed for commercial quota transfers to reconcile quota overages after year's end.

Addendum XXV continued the use of ad-hoc regional recreational management measure options to alleviate the differences between state by state measures among the states along the coast. It was approved in February 2014 and was in place for 2014 and 2015. The addendum allowed northern states (MA-NJ) to adjust management measures annually to best meet the needs of their state while constraining harvest to the overall coastwide recreational harvest limit (RHL). In years of overages, the northern states- which harvest the largest percentage- adjust their management measures to account for harvest reductions in subsequent years. The southern states have also had their management measures adjusted in recent year.

II. Status of the Stock

The assessment model for black sea bass changed in 2008 from a simple index-based model to a complex statistical catch at length model incorporating a broad range of fishery and survey data. The fishery catch is modeled as a single fleet with indices of stock abundance from Northeast Fisheries Science Center (NEFSC) winter, spring, and autumn surveys. A model averaging approach was adopted using the average of results from ten candidate models.

Black sea bass (i.e. black sea bass north of Cape Hatteras, North Carolina) was designated as overfished in 2000, and was under a stock rebuilding strategy from 2000-2009. In 2009, that the stock was declared rebuilt after the 2008 stock assessment indicated that the stock was not overfished and overfishing was not occurring in 2007.

The last stock assessment update for black sea bass was completed in July 2012. The biological reference points were updated as part of this update, as the result of several changes made to the information incorporated into the model. The fishing mortality threshold for black sea bass is $F_{MSY} = F_{40\%}$ (as F_{MSY} proxy) = 0.44, and SSB_{MSY} is 24.00 million lb (10,880 mt). The minimum stock size threshold, one-half SSB_{MSY} is estimated to be 12.00 million lb (5,440 mt). The 2012 update indicated that the black sea bass stock was not overfished and overfishing was not occurring in 2011, relative to the biological reference points. Fishing mortality (F_{MULT}) in 2011 was estimated at F=0.21, below the fishing mortality threshold of F=0.44. Total stock biomass in 2011 was estimated at 28.0 million lb (12,700 mt), above B_{MSY}. Spawning stock biomass (SSB) in 2011 was estimated at 24.57 million lb (11,145 mt), and was at 102% of SSB_{MSY}.

In the absence of a peer-review stock assessment in recent years, the Mid-Atlantic Council's Science and Statistical Committee has not found the Biological Reference Points from any recent assessment suitable for management and have utilized methods such as Constant Catch and an analysis based upon the Data Limited Toolkit to set catch limits. The next benchmark stock assessment is currently in development and is scheduled for peer review in late 2016.

III. Status of the Fishery

The commercial fishery is allocated 49% of the total allowable landings (TAL) for black sea bass. The principle gears used in the fishery are pots, otter trawls and handline. After peaking at 21.8 million pounds in 1952, commercial landings markedly decreased in the '60s and have since ranged from 1.17 to 3.6 million pounds since 1981. In 1998 a commercial quota system was incorporated into management and state-by-state shares were introduced in 2003. From 2005-2014 commercial landings have remained stable, with a range from 2.87 million lbs in 2005 to 1.17 million lb in 2009 (Table 2 and 3). In 2014, commercial landings exceeded the coastwide commercial quota by approximately 8,896 lbs. In 2015 commercial landings were approximately 2.35 million lb, exceeding the coastwide quota of 2.17 million lbs by approximately 6% (Tables 2 and 3). Once final landings are available the reduction to the 2017 quota will be applied. Commercial discards are generally less than 441,000 pounds per year.

The recreational fishery is allocated 51% of the TAL for black sea bass. After peaking in 1985 at 12.35 million pounds, recreational harvest averaged 3.75 million pounds annually from 1988 to 1997. Recreational harvest limits were put in place in 1998 and harvest ranged from 1.1 to 3.88 million pounds from 1998 to 2014 (Table 4). From 2012-2014, the recreational harvest limit has been exceeded annually- by 142%, 9%, and 59%, respectively. In 2015 the recreational harvest was 3.88 million pounds (inclusive of south of Cape Hatteras), exceeding the harvest limit by 67%. Recreational discards are significantly higher than commercial, ranging from 3 to 10 million fish per year(1.2 million to 12.4 million lb, respectively) .

IV. Status of Research and Monitoring

Commercial landings information is collected by the Vessel Trip Reporting system and dealer reports. States are also required to collect and report landings data. Sea sampling data from the NEFSC sea sampling program are used to estimate discards. The NEFSC weigh-out program provides commercial age and length information. Recreational landings and discards were estimated through the Marine Recreational Fisheries Statistics Survey (MRFSS) until 2008, with the Marine Recreational Information Program (MRIP) replacing it for all data collected from 2008 to present.

Fishery-independent surveys are conducted in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland, Virginia, and North Carolina. The Virginia Game Fish Tagging Program has targeted black sea bass since 1997. Data from the tagging program will be used to develop an analytical, age-based model. Recruitment and stock abundance data are provided by the NEFSC spring, autumn, and winter trawl surveys.

V. Status of Assessment Advice

The next benchmark stock assessment is scheduled for 2016.

VI. Status of Management Measures and Developing Issues

In December 2015, the Board and Council initiated the development of an Amendment to the Black Sea Bass FMP. There has been no work completed on this to date.

VII. Black Sea Bass Compliance Criteria

2015 Commercial Fishery Requirements

Minimum size of possession: 11”
Minimum mesh: larger nets are required to possess a minimum of 75 meshes of 4.5” diamond mesh in the codend or the entire net must have a minimum mesh size of 4.5” throughout; smaller nets must have 4.5" mesh or larger throughout
Mesh Threshold: 500 lbs for January-March and 100 lbs for April-December
Maximum roller rig trawl roller diameter: 18”
Pot and trap escape vents: 2 ½” for circular, 2" for square, and 1-3/8 x 5-3/4" for rectangular. Must be 2 vents in the parlor portion of the trap
Pot and trap degradable fastener provisions: a) untreated hemp, jute, or cotton string 3/16” (4.8 mm) or smaller; b) magnesium alloy timed float releases or fasteners; c) ungalvanized, uncoated iron wire of 0.094” (2.4mm) or smaller. The opening covered by a panel affixed with degradable fasteners would be required to be at least 3” x 6”.
Commercial quota: 2.21million pounds
Pot and trap definition: A black sea bass pot or trap is defined as any pot or trap used by a fisherman to catch and retain black sea bass.

2015 Recreational Fishery Requirements

See Table 6.
Recreational harvest limit: 2.33 million pounds

Other Measures

Reporting: States are required to submit an annual compliance report to the Chair of the Black Sea Bass Plan Review Team by June 1st. The report must detail the state’s management program for the current year and establish proof of compliance with all mandatory management measures. It should include landings information from the previous year, and the results of any monitoring or research programs.

This summary of compliance criteria is intended to serve as a quick reference guide. It in no way alters or supersedes compliance criteria as contained in the Black Sea Bass FMP and any Amendments thereto. Also please note that the management measures may change annually.

VII. Compliance

States and jurisdictions required to comply with the provisions of the Black Sea Bass FMP are: Massachusetts**,** Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Potomac River Fisheries Commission, Virginia, and North Carolina. All states implemented regulations in compliance with the requirements approved by the Board.

All states appear in compliance with the FMP provisions for fishing year 2015.

Black Sea Bass FMP Compliance Schedule

Commercial	
11" Size Limit	1/1/02
4.5" diamond minimum mesh throughout codend and threshold provisions	1/1/02
Pot and trap escape vents and degradable fasteners	1/1/97
Roller diameter restriction	1/1/97
States must report to NMFS all landings from state waters	1/1/98

Recreational	
Size Limit	1/1/97
Harvest Limit	1/1/98
Ability to implement possession limits and seasonal closures	1/1/98

General

Annual compliance report — Annually, 7/1

Table 1. State by state allocation for annual quota.

State	% Allocation
Maine	0.50%
New Hampshire	0.50%
Massachusetts	13%
Rhode Island	11%
Connecticut	1%
New York	7%
New Jersey	20%
Delaware	5%
Maryland	11%
Virginia	20%
North Carolina	11%

Table 2. Black Sea Bass Commercial Landings by State (2005-2015) in pounds.

Source: State Compliance Reports (October 2016) & ACCSP. 2014-2015. Commercial Landings Summaries (Dealer Reports)- Confidential; generated by K.Rootes-Murdy; using ACCSP Data Warehouse, Arlington, VA.

State	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015**
ME												
MA	382,389	510,162	596,480	442,136	316,722	148,470	260,181	287,666	248,463	329,223	277,276	347,964
RI	435,733	293,976	273,161	356,542	226,925	128,053	241,892	185,709	187,806	237,951	245,268	238,522
CT	24,867	17,522	10,445	10,123	15,554	17,854	21,422	20,485	17,677	22,735	27,036	24,699
NY	240,517	244,074	295,078	265,940	201,222	123,287	200,463	177,997	153,347	180,947	188,436	150,479
NJ	697,085	543,733	494,352	480,112	424,667	204,213	305,294	293,609	310,427	494,075	486,073	471,008
DE	83,728	72,931	87,381	63,431	60,700	50,259	76,913	82,436	82,351	104,937	102,279	111,508
MD	283,605	336,662	350,385	170,909	159,453	125,643	203,088	182,711	140,861	219,321	235,689	349,271
VA	393,269	443,644	305,871	189,875	211,500	164,524	263,563	274,446	391,384	493,153	410,162	421,150
NC*	881,261	690,043	777,659	472,931	484,507	614,734	400,879	272,189	61,187	88,242	210,989	241,538
Coastwide	3,422,790	3,152,747	3,190,812	2,451,999	2,101,250	1,577,037	1,973,695	1,777,248	1,593,503	2,170,584	2,183,208	2,356,139

** Landings are from both north and south of Hatteras from 2004-2011*

***2015 Landings are still preliminary*

Table 3. 2014 Landings and 2015 Black Sea Bass Commercial State by State Quotas (pounds)

State	% Allocation	Final 2014 Landings	2015 ASMFC Initial Quota
Maine	0.005	0	11,065
New Hampshire	0.005	0	11,065
Massachusetts	0.13	277,276	287,680
Rhode Island	0.11	245,268	243,422
Connecticut	0.01	27,036	22,129
New York	0.07	188,436	154,905
New Jersey	0.2	486,073	442,585
Delaware	0.05	102,279	110,646
Maryland	0.11	235,689	243,422
Virginia	0.2	410,162	442,585
North Carolina	0.11	210,989	243,422
Coastwide Total	100%	2,183,208	2,212,923
2014 Coastwide Quota		2,174,312	
Overage		8,896	

Table 5. Black Sea Bass Recreational Landings by State (2005-2015) in pounds.

Source: "Personal Communication with National Marine Fisheries Division October 2016"

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
NH								4,587	19,227		
MA	365,186	149,993	153,869	365,108	626,082	999,914	318,379	1,049,251	660,797	1,087,847	718,101
RI	164,960	67,076	59,566	82,072	50,290	238,039	85,912	226,130	144,722	370,531	444,337
CT	119	4,684	41,941	99,848	1,025	23,029	13,758	261,163	262,392	586,113	495,675
NY	230,832	455,213	563,199	528,613	844,746	965,767	399,030	542,688	734,729	847,181	1,531,493
NJ	80,214	140,931	136,564	26,378	36,190	28,357	46,609	993,093	515,176	631,457	428,319
DE	904,999	690,651	1,086,652	827,511	763,593	779,105	181,695	49,967	44,365	30,962	26,893
MD	93,475	136,064	49,002	32,603	40,681	41,386	51,714	42,173	39,170	87,086	78,052
VA	49,312	105,134	64,954	51,974	112,339	28,987	26,753	2,599	33,660	24,433	63,694
NC*	229,893	151,075	196,134	90,977	145,208	138,961	95,004	7,082	17,970	132,351	100,146
Coastwide	**2,118,990**	**1,900,821**	**2,351,881**	**2,105,084**	**2,620,154**	**3,243,545**	**1,218,854**	**3,178,733**	**2,338,461**	**3,797,961**	**3,886,710**

** Landings are from both north and south of Hatteras*

Table 6. 2015 recreational management measures for black sea bass by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18-December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	14	8 fish	May 23-August 27
Rhode Island	14	1 fish	July 2- August 31
		7 fish	September 1-December 31
Connecticut (Private & Shore)	14	3 fish	June 1-August 31
		5 fish	September 1-December 31
Connecticut (Authorized party/charter monitoring program vessels)	14	8 fish	June 21-December 31
New York	14	8 fish	July 15-October 31
		10 fish	November 1- December 31
New Jersey	12.5	2 fish	July 1-July 31
		15 fish	May 27-June 30; October 22-December 31
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

Table 6. 2016 recreational management measures for black sea bass by state

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18- December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	15	5 fish	May 21-August 31
Rhode Island	15	3 fish	June 24- August 31
		7 fish	September 1-December 31
Connecticut (Private & Shore)	15	5 fish	May 1-December 31
CT (Authorized party/charter monitoring program vessels)		8 fish	
New York	15	3 fish	June 27-August 31
		8 fish	September 1-October 31
		10 fish	November 1-December 31
New Jersey	12.5	10 fish	May 23-June 19
		2 fish	July 1-August 31
	13	15 fish	October 22-December 31
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

October 7, 2016

To: **Shad and River Herring Management Board**

From: **Shad and River Herring Technical Committee**

RE: **Review of the Nemasket River Sustainable Fishery Management Plan**

In August 2016, the Shad and River Herring Technical Committee (TC) received a request to review the Nemasket River Sustainable Fishery Management Plan (SFMP) from the Commonwealth of Massachusetts. It was developed in response to a 2013 request from the Middleborough-Lakeville Herring Fishery Commission to open the Nemasket River for the recreational harvest of river herring. The Nemasket River has been closed to fishing since 2006.

On October 2, the TC met via conference call to review the SFMP and provide comments. Brad Chase, Massachusetts Department of Marine Fisheries (DMF) presented the SFMP, and together with Dave Cavanaugh, Herring Fishery Commission, responded to TC questions. The questions and responses are in Appendix 1 (TC Call Summary).

Three management alternatives were presented to the TC for consideration: 1) use the measures prior to the fishery closure, 2) harvest target management or 3) open access with reduced harvest. The TC preferred DMF develop language that combined options 2 and 3 because it would reduce the chance of overharvest while allowing local residents access to the resource. Following the call DMF revised the document to include only one preferred management approach which includes an allowance of unlimited local permits (residents of the towns of Middleborough and Lakeville) and restricts the non-resident permits to 250 per year. It also restricts the harvest period to 3 days of fishing per week over 5 weeks and a weekly catch limit of 20 fish per person. **The TC approved the Nemasket River SFMP with the revised management option (page 7 in the SFMP).** This revised management approach was also presented to the Herring Fishery Commission members and was approved.

The primary sustainability measure to monitor run status is the ongoing run count. Harvest will be capped at 10% of the time series mean (TSM) and recalculated each year. Action thresholds such as, exceeding the catch cap or a run count that is below the 25th percentile, will trigger management action. Potential management responses include an allowable harvest reduction from 10% to 5% of the TSM or a three-year closure. Refer to the SFMP for a complete overview of the sustainability measures.

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Shad & River Herring Technical Committee
Call Summary

October 2, 2016

Technical Committee Members: Brad Chase, Ken Sprankle, Mike Brown, Mike Dionne, Bryant Bowen, Brian Neilan, Genine Lipkey, Bill Post, Joe Swann, Jeremy McCargo, Eric Hilton, Holly White, Phil Edwards, Jacque Benway Roberts, Ruth Hass-Castro, Bob Adams

ASMFC Staff: Jeff Kipp and Ashton Harp

Public: Dave Cavanaugh, Middleborough-Lakeville Herring Fishery Commission, Wes Eakin

The Shad and River Herring Technical Committee (TC) met via conference call to discuss the following items: 1) 2017 update of existing Shad and River Herring Sustainable Fishery Management Plans, 2) review the Nemasket River Sustainable Fishery Management Plan, and 3) provide a spring 2016 update on run counts and harvest from each state.
Below is a summary of their discussion.

1) 2017 Update of Existing Shad and River Herring Sustainable Fishery Management Plans (SFMP)

Commercial harvest of river herring or shad is allowed as long as the respective state has a sustainable fishery management plan (SFMP) to demonstrate a stock can support a commercial (or recreational) harvest that will not diminish potential future stock reproduction and recruitment. Data to substantiate these claims can include repeat spawning ratio, SSB, juvenile abundance levels, fish passage counts, bycatch rates, etc.

Currently Maine, New Hampshire, New York, North Carolina and South Carolina have SFMPs for river herring harvest. They were approved by the Board in 2011. Although the FMP does not require a review of river herring SFMPs at certain time intervals, the states with SFMPs agreed to review and update their SFMPs by March 15, 2017. Individual SFMP reviews (i.e. were monitoring targets met, etc) and updated SFMPs will be presented to the Technical Committee (TC) in April and the Shad and River Herring (SRH) Board at the May 2017 meeting.

Currently Connecticut, Delaware River Basin (a cooperative between Delaware, New Jersey, Pennsylvania and New York), Potomac River Fisheries Commission (a cooperative between Maryland, Virginia and the District of Columbia), North Carolina, South Carolina, Georgia and Florida have SFMPs for shad harvest. They were approved by the Board at in 2011/2012. Amendment 3 (American Shad Management) to the Shad and River Herring FMP requires SFMPs to be reviewed and updated on a five-year basis. States with a Shad SFMP agreed to review and update their SFMPs by March 15, 2017. Individual SFMP reviews (i.e. were monitoring targets met each year/within the five year timeframe, are run counts increasing,

etc) and updated SFMPs will be presented to the Technical Committee (TC) in April and the Shad and River Herring (SRH) Board at the May 2017 meeting.

2) Review of the Nemasket River Sustainable Fishery Management Plan

The Commonwealth of Massachusetts prepared a Sustainable Fishery Management Plan for river herring recreational harvest in the Nemasket River in response to a 2013 request from the Middleborough-Lakeville Herring Fishery Commission. The primary sustainability measure to monitor run status is the ongoing run count. Harvest will be capped at 10% of the time series mean (TSM), to be calculated each year. The plan also details a threshold that will trigger management action (exceeding cap or below the 25th percentile) and the resulting management action (harvest reduced from 10% to 5% of the TSM or three-year closure)

Brad Chase, DMF, reviewed the details of the plan with the TC, then Brad and Dave Cavanaugh, Herring Fishery Commission, responded to TC questions, summary below:

- *Do stakeholders support a conservative approach or do people want to see the fishery managed as it was prior to 2006 (i.e. before the fishery shut down)?*
  DMF and the Herring Commission met several times over the last two years to develop the SFMP. Stakeholders are conscious of the need to approach management differently this time.
- *Describe the reporting process*.
  Permits and daily trip cards will be issued to each harvester. The permit holder will need to have the physical daily trip card in hand when in possession of a river herring.
- *Is there an American Indian harvest?*
  Yes, tribes harvest SRH throughout Massachusetts including the Nemasket River. It is typically a couple of thousand fish per year. Tribal harvest is not included in the SFMP. DMF is working with tribes on reporting, however they are not bound to the SFMP requirements.
- *Prior to the fishery closure, the residents of Middleborough and Lakeville were allowed unlimited permits. How many residents were harvesting river herring?*
  Generally 600-700 permits were issued for local residents, in addition to the 300 non-resident permits.
- *What was the average weekly harvest?*
  The high number of fish harvested was ~50,000 fish per year and right before the fishery closure in 2006 it was ~30,000 fish per year.
- *Will visual run counts continue?*
  Yes, it is the primary index and serves as the basis for determining the harvest cap. Visual counts are not preformed at night and DMF is now realizing a lot of fish move at night. So the day visual counts could be a conservative number.
- *Thoughts on a biological metric?*
  DMF has collected annual biological sampling of alewife and blueback sex, size and age data since 2004. They collect 100 samples per week during runs. DMF has decided not to employ a biological metric at this point because the time series is not long enough yet

(11 yrs of data only tracks 2 generations) and at this time it is not possible to clearly identify thresholds associated with the biological data.

- *What is the breakout between alewife and blueback herring?*
  The river appears to be dominated by alewives, but sampling is only done once per week. Generally the larger alewives are the first to arrive. If there was a delayed opening then the harvest might consist of more blueback herring. Of it was a short season then minimal amounts of blueback herring would be harvested. Wardens from the Herring Commission will be out each day of the harvest, but the wardens will not be able to discern between the two species in all cases.

DMF presented three potential management options, 1) use the measures prior to the fishery closure, 2) harvest target management or 3) open access with reduced harvest. The TC preferred a combination of options 2 and 3. Following the call DMF revised the document to include only one preferred management approach which includes an allowance of unlimited resident permits and limits the non-resident permits to 250 per year. The harvest period includes 3 days of fishing per week over 5 weeks and a weekly catch limit of 20 fish. The TC approved the SFMP with the revised management option.

3) Spring 2016 Update on Run Counts and Harvests from Each State on the Call

Maine – 2016 was a unique year because of the weather, there was a cold snap during the spring that affected the runs. There were a lot of river herring this year, but overall harvest was down because the market for river herring as lobster bait was lower than normal. Commercial harvesters are required to collect scale samples once per week from 25 fish; DMR gets 2000-3000 commercial samples each year. They also get a handful of recreational samples.

New Hampshire –Did not see fish until around May 1 this year due to colder weather in the spring. In 2015, improvements were made to the Cocheco River fish ladder, resulting in a record of ~100,000 river herring returning in 2016. Also had a record run from on the Lamprey River with ~92,000 river herring. Both runs are primarily alewives. Exeter River fish ladder had 6,600 river herring, which is the second highest run on this fish ladder. In 2016 the Exeter River dam and fish ladder were removed so there will not be a head of tide count in spring 2017, but there is a fish way on the second dam on that river where run counts will continue. Blueback herring do not seem to be doing as well, they had an all-time low of 800 fish at the Oyster River which is a blueback herring dominated run. The Winnicut River also did poorly, they did not see any fish pass. Only 10,000 fish can be harvested annual as dictated in the SFMP. Harvester reports are collected annually so a 2016 harvest cannot be estimated yet.

Massachusetts – Runs were better in early April but then a cold snap mid-April slowed the run. There are ~80 active herring runs, 33 have a counting group underway, 14 involve video/electronic counting and 8 of those have biological sampling. DMF tries to have at least 1 counting station at each of the 6 major coastal drainage areas that has an electronic counter and biological sample. Since the moratorium has been in place there have been modest and steady improvement since then 2011-2014 there was sharp improvement at most sites. In

some areas there have been some decreases since the 2011-2014 peaks which seem to be regional and mostly below Cape Cod. Areas above Boston did quite well in 2015/2016.

Rhode Island – In 2015, all major runs decreased. In 2016, runs started fairly early in late February but the cold snap in March/April slowed them down. Runs are not what they were between 2010-2014. There are active projects that involve dam removals and nature like fishways.

Connecticut – The only proxy for the shad population in the Connecticut River is the Holyoke Dam. Over the past 5 years the Holyoke run has seen an increase. In 2016, the run count was around 385,000 fish which is a higher number than 10 years ago. Connecticut aged ~600 scale samples; the bulk of the age structure is age 4-5. Juvenile American shad and blueback herring samples are collected weekly at 7 stations; in 2016 they collected over 24,000 juvenile shad and ~2,000 blueback herring. The relative abundance of BBH from electrofishing efforts was low in 2016. Seeing an increase in mean size which can be attributed to a strong year class in 2010. Commercial fishery operates in the lower portion of the river with 12 permits and about 7 active boats. Harvest ranges from 12,000-14,000 shad.

New York – Also tracking the strong 2010 blueback herring year class, 2014 had the biggest YoY in the blueback herring index. Have been collective samples for a river herring spawning stock index since 2012. They do not have a spawning stock index for shad. Commercial river herring fishery had increased restrictions in 2015, mainly no nets in the tributaries of the Hudson River. They receive commercial reports monthly from commercial fishermen which indicate this restriction has decreased landings.

New Jersey – River herring is closed to the commercial and recreational fishery in New Jersey. There is a shad commercial/recreational fishery on the Delaware River basin. American shad is closed on the coast. Paper harvest reports are collected and indicate low effort in the past couple of years. Recently started an adult and juvenile river herring survey.

Maryland – Alewife run started early this year then there was a cold snap which stopped everything and it tricked from there. The run of blueback was subpar compared to last three years. In 2015, shad showed the highest juvenile index on record and river herring also had above average juvenile indices.

District of Columbia – There is a monthly electrofishing survey. Adult number for river herring are average in 2016. The juvenile indices look low in comparison to the adult indices.

Virginia – Shad sampling on Rappahannock, James and York River which is continuation of the time series since 1998; 2016 numbers are the lowest in the time series for American shad adult spawning stock. In 2015, a fishery independent river herring anchored gill net survey began in the Chickahominy River, a Rappahannock survey began in 2016. Run a night time surface trawls once a week from June- September for river herring to get a better handle on the YoY in the Chickahominy to complement the adult sampling.

North Carolina – There is a gillnet survey in the Albemarle Sound. There are reduced commercial landings due to low effort or lack of fish due to environmental factors. The electrofishing surveys for shad are on the spawing grounds. The Roanoke River has been on a

decreasing trend and 2016 was the lowest CPUE on record. On Cape Fear there is an increasing trend in electrofishing abundance. A fish passage was added to the first dam on the Cape Fear River in 2012 and it appears to be helping shad upstream. On the Neuse River they are seeing alewife further south than they have before.

South Carolina – The 1000 year flood in October 2015 complicated things, it kept the water table high throughout the spring flows. The commercial catches and passage numbers were down most likely due to environmental factors such as cooler and turbid water that stayed in the system and deposited huge amounts of sediment. Shad numbers are average or slightly increasing in terms of YoY surveys.

Florida - Florida currently has 14 years of continuous fishery independent data for the shad and river herring runs in the St. Johns River. These data include electrofishing CPUE, length, and sex. The CPUE index is based on two representative strata that together cover about 40 river kilometers of spawning habitat. The 2016 American Shad run was near the median value for the time series with one stratum having a CPUE that was the 3rd lowest on record and the other stratum having a CPUE that was the 2nd highest on record. The average total length of males and females has increased during the last six years. This is reflected in a higher representation of 5 and 6 year old fish in the runs. There is no significant trend in American Shad YOY CPUE in either sample stratum. The CPUE for blueback herring has been above the median in each of the last 3 years. Catches of post-larval Blueback Herring in the YOY survey indicated that the Blueback Herring spawning grounds may extend well below the American Shad spawning grounds where the spawning stock survey occurs. Recreational effort increased from 2011 to 2014 as run sizes increased and word got out the fishing was improving. Effort decreased sharply in 2015 and 2016 but that was likely driven by environmental factors that made fishing difficult. Catch and release remains the primary mode of fishing.

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

PRESS RELEASE

FOR IMMEDIATE RELEASE
October 12, 2016

PRESS CONTACT: Mary Clark
(302) 674-2331 (ext. 261)

Council Votes to Continue Collaborative Efforts on River Herring and Shad

GALLOWAY, NJ – Based on a comprehensive review of existing and planned conservation and management efforts, last week the Council determined that management of river herring and shad (RH/S) through a Council fishery management plan (FMP) is not warranted. However, the Council reaffirmed its commitment to participating with partners in the conservation and management of RH/S, noting that it will continue to protect RH/S stocks by proactively using the tools provided in the recently-approved Ecosystem Approaches to Fisheries Management (EAFM) Guidance Document. The Council will also continue to use catch caps to incentivize harvesters to reduce river herring and shad bycatch.

The four species under consideration included two species of river herrings (blueback herring and alewife) and two species of shads (American shad and hickory shad). These stocks are currently managed by the Atlantic States Marine Fisheries Commission (ASMFC).

In the late 2000s concerns were brought to the Council that bycatch in high-volume fisheries such as Atlantic mackerel may be negatively impacting RH/S populations. These concerns led the Council to implement a limit on the catch of RH/S in the Atlantic mackerel fishery. The Council has also worked to improve data by increasing vessel and dealer reporting requirements and collaborating with NOAA Fisheries on an amendment to increase observer coverage in the Atlantic mackerel fishery. The New England Fishery Management Council has taken similar steps to address RH/S catch in the Atlantic herring fishery.

The Council has also worked to address RH/S conservation through participation on an interdisciplinary River Herring Technical Expert Working Group (TEWG). The TEWG has provided and compiled information used by NOAA Fisheries and the ASMFC in the development and execution of a proactive conservation plan focused on river herring. The TEWG has funded several important projects to enhance our understanding of RH/S bycatch and the species' overall population health.

Prior to the meeting the Council received a large number of public comments on the issue, all of which supported the development of a Council FMP for RH/S. The Council considered these comments thoroughly but ultimately determined that the management of RH/S under a Council FMP is not appropriate at this time.

The Council's decision not to add these stocks to the fishery management plan for Atlantic mackerel, squid, and butterfish was largely based on the fact that RH/S are already managed by the ASMFC and that the catch caps set by the Council have kept incidental catch very low compared to historic levels. There is no evidence that RH/S are targeted in Federal fisheries, and the Council concluded that an FMP would not substantially improve the condition of RH/S stocks.

Additional background information and documents about river herring and shad can be found at http://www.mafmc.org/rhs/.

October 2016 Motions
Stockton Seaview
Galloway, NJ

Blueline Tilefish FW

Move to have staff continue to work on the Framework for blueline tilefish recreational measures.
Nowalsky/deFur (18/1/1)
Motion carries

River Herring/Shad

Motion on Behalf of Committee:
Move to recommend that the Council not act to add RH/S as stocks in the MSB FMP and that it shall be the policy of the MAFMC to aggressively protect river herring and shad stocks by proactively using the tools provided in the recently approved EAFM Guidance Document and continuing to use the catch caps to provide strong incentives to harvesters such that they will change the "when where and how" they fish so as to reduce river herring and shad bycatch.
(13/6/1)
Motion carries with the RA abstaining

Move to substitute:
Move that the Council initiate an amendment to add American Shad, Hickory Shad, Alewife and Blueback Herring as stocks in the mackerel, squid and butterfish fishery management plan.
Shiels/Michels (6/13/1)
Roll Call Vote
Motion fails

Move that the Council task the RH/S Committee, working with Council and NMFS staff to develop measurable criteria by which the Council will be better able to decide on management action once the ASMFC has completed the stock assessment update.
deFur/Bullard

Move to table
Elliott/King (10/1/0)
Motion carries

ASMFC Horseshoe Crab and Delaware Bay Ecosystem Technical Committees Meeting

October 5, 2016
ASMFC Conference Room
1050 N. Highland, Suite 200A-N, Arlington, VA 22201

Attendees: Kirby Rootes-Murdy (ASMFC), Kristen Anstead (ASMFC), Michael Schmidtke (ASMFC), Jeff Brust (NJ), Steve Doctor (MD), Greg Breese (USFWS), Derek Perry (MA), Amanda Dey (NJ), Eric Hallerman (Virginia Tech University), Wendy Walsh (USFWS), Rachel Sysak (NY), Adam Kenyon (VA), Audrey DeRose-Wilson (DE), Jeff Dobbs (NC), Jordan Zimmerman (DE)

Conference Call attendees: Tiffany Black (FL), Penny Howell (CT), Derek Orner (NOAA), Chris Wright (NOAA), John Sweka (USFWS), Jeff Brunson (SC), Scott Olszewski (RI)

1) **ARM Framework Optimal Harvest Recommendation for 2017 Fishing Year**
   - ARM Model Review: Kristen Anstead presented a basic review of the Adaptive Resource Management (ARM) model that is used to set harvest levels in the Delaware Bay. The TCs reviewed the utility function that establishes the population thresholds for red knot (81,900) and horseshoe crabs (11.2 female crabs), as well as the 2 males to 1 female operational sex ratio on spawning beaches. If both population estimates are below threshold, there is likely to be no female horseshoe crab harvest recommended in the region. The five current harvest packages available to be selected by the model were reviewed, as well as the population estimates for 2015/2016.

   - 2015 Horseshoe crab population estimates: In 2015, the ARM Subcommittee developed a horseshoe crab abundance index based on three trawl surveys in the Delaware Bay region: Delaware 30 foot trawl survey, the New Jersey Delaware Bay trawl survey, and the New Jersey Ocean trawl survey. This composite index was developed because the Virginia Tech trawl survey, which was used to estimate horseshoe crab abundance, lost funding and did not occur. The ARM workgroup showed that the composite index from the three other trawl surveys correlated well with the Virginia Tech Trawl survey for years in which data overlapped and could be used as a substitute for the Virginia Tech (VT) Trawl survey when estimating the abundance of male and female horseshoe crabs. The VT Trawl survey also did not run in 2015, so the composite index was used to estimate the 2015 population to be used in the ARM model. Population estimates of horseshoe crabs for 2015 are 16.4 million males and 8.1 million females. This is an increase from the 2014 estimates of 15.2 million males and 7.9 million females.

     - VT Trawl Survey Update: Eric Hallerman provided an update of the TV Trawl Survey for 2016. Despite some setbacks due to challenging weather this year, the survey is currently underway and has completed 5 trips and 30 of the 53 coastal stations thus far and it has not yet started the 16 Delaware Bay stations. Anecdotally, the number of crabs is comparable to previous years, but any conclusions should be made after the survey and analysis is completed and made available in the spring of 2017. The gear and boat are the same as previous years. The survey spatial extent will not include NY APEX this year. The request for a gear efficiency study to determine how many crabs the survey may be missing by using a trawl

instead of a dredge will not be completed this year; depending on remaining funds in the current grant the survey is using this year, the gear efficiency study could be performed in the summer 2017. The gear efficiency study could potentially lead to the development of a correction factor for crabs that may be buried in the mud and thus missed in the population estimates from the trawl survey. Additionally, there has been interest from other states and surveys in expanding current sampling programs to collect more data for horseshoe crabs- specifically the biological sampling that current done on the VT trawl survey. Having additional data from other surveys could provide more data for the years when the VT trawl survey does not run, as well as potentially support the development of a catch survey model in the region. Both Delaware and New Jersey have indicated that their surveys could be modified for the 2017 sampling year if requested.

  - The group recommended that, in addition to Eric sharing his protocol for assigning crabs to age/sex classes with the group, other states or programs with sampling protocols for identifying males and females, age, maturity stage, presence/absence of eggs, and similar biological data, should share it with ASMFC staff so they can compile protocols and circulate them.

- 2016 Red Knot mark-resight population estimates: Kristen Anstead presented the mark-resight data and stop-over population estimate for red knots that Jim Lyons (ARM subcommittee member) developed for the ARM model. The stopover population for 2016 was estimated to be 47,254 birds (95% CI, 44,873-50,574), a decrease from the 2015 estimate (60,727) and a similar estimate as 2014 (44,010).

- Review of model output & Recommendation to Board/Discussion: Based on the red knot and horseshoe crab population estimates, the ARM model recommends harvest package #3 (500,000 male crabs and 0 female crabs). This is consistent with the last several years (2014-2017).

Recommended harvest package	Male harvest (×1,000)	Female harvest (×1,000)
3	500	0

Quota of horseshoe crab harvest for Delaware Bay region states. Allocation of allowable harvest under ARM package 3 (500K males, 0 females) was conducted in accordance with management board approved methodology in *Addendum VII to the Interstate Fishery Management Plan for Horseshoe Crabs*. Note: Maryland and Virginia total quota refer to that east of the COLREGS line.

	Delaware Bay Origin HSC Quota		**Total Quota**	
State	**Male**	**Female**	**Male**	**Female**
Delaware	162,136	0	162,136	0
New Jersey	162,136	0	162,136	0
Maryland	141,112	0	255,980	0
Virginia	34,615	0	81,331	0

- The TCs were in agreement with maintaining these harvest levels and recommending harvest package #3.

2) **Review draft Addenda VIII for Board Review**

- ARM Model Review Process: Kristen gave a brief presentation to remind the TCs that the ARM model underwent an extensive review by the ARM subcommittee. The TCs previously received and reviewed a copy of the report summarizing the recommended changes and endorsed the review items for Board consideration. Among their recommended changes were two options for incorporating biomedical mortality into the ARM framework, a source of mortality that was formerly omitted from the model. The group reviewed the two options for including biomedical data, a preferred option that adjusts the harvest packages and a minority opinion which adjusts the population dynamics model.

- Addendum VIII: Kirby Rootes-Murdy gave a presentation regarding the proceedings of the August 2016 Board meeting. During that meeting, the Board tasked the ARM subcommittee with preforming a sensitivity analysis around the proposed methods for incorporating biomedical mortality into the ARM framework, as well as consider alternative harvest packages that would provide for the possibility of female bait harvest in the region. This task initiated an Addendum because the preferred option for incorporating the biomedical data adjusts the harvest packages which were previously outlined in Addendum VII. The ARM subcommittee recently met to address these tasks, but expressed concern about the timetable for the sensitivity analysis, as well as formulating alternative harvest packages. The two TCs offered the following comments regarding this process:

    - While the TCs still endorse the preferred option for the incorporation of biomedical mortality in the ARM model, if the minority option is explored and ultimately chosen, an addendum should not be needed since the harvest packages would not be altered.
    - Wendy Walsh recommended that the Shorebird AP be re-engaged and invited to provide comment during the process to develop the Addendum, citing the need for non-agency shorebird scientists and the conservation sector to be involved as the ARM undergoes its first revisiting of the ARM process since 2012. Most members of the TC agreed.
    - Some members of the group suggest that the Addendum be tabled until the benchmark stock assessment is completed in 2018. At that time, there may be revised biomedical mortality, a revised value for carrying capacity, or a more extensive modelling effort in the Delaware Bay that could affect the ARM model and necessitate further changes. Additionally, the earliest that any of these revisions in the ARM would be used for management is 2018, thus waiting for the benchmark or working in tandem would be the most beneficial and efficient.
    - Other TC members suggested moving forward sooner. They felt that the ARM sensitivity runs could be completed by May 2017 and there would still be time to develop the Addendum and submit it to the Board by the annual meeting next year.
    - Jeff Brust suggested that, in order to address the concerns that harvest package #2 and #4 are rarely chosen in simulation testing, the ARM subcommittee should perform simulations around multiple harvest packages and population estimates to determine more appropriate harvest packages. He stated that the harvest packages were not biologically based but rather the consensus of many stakeholders. Others

agree that this should be considered in the future, recognizing that the task would be time consuming. It was also suggested that a simulation be done using the actual harvest (to reflect that NJ does not allow the harvest of their quota) of the Delaware Bay states in the population dynamics model, not the harvest package as the assumed level of harvest.

3) Review horseshoe crab surveys for report and summary to Board
   - Delaware Surveys: Jordan Zimmerman provided updates on the Delaware Bay spawning survey and Delaware 16' and 30' trawl surveys. For the Delaware Bay spawning survey, surveys were conducted in Delaware and New Jersey in May and June. The percent of females spawning on the beaches were 77% in Delaware and 81% in New Jersey, noting that New Jersey has had a higher proportion for 13 out of the 17 years. For the timeseries, the baywide index of spawning activity, males have a slightly positive slope, although it is not significant, and females have no increase or decrease over time (Figures 1-2). Additionally, the sex ratio was the same as it was in 2014. Jordy also presented the abundance indices for juveniles in the 16' trawl survey and the abundance indices for both the 16' and the 30' for adults (Figures 3-5).

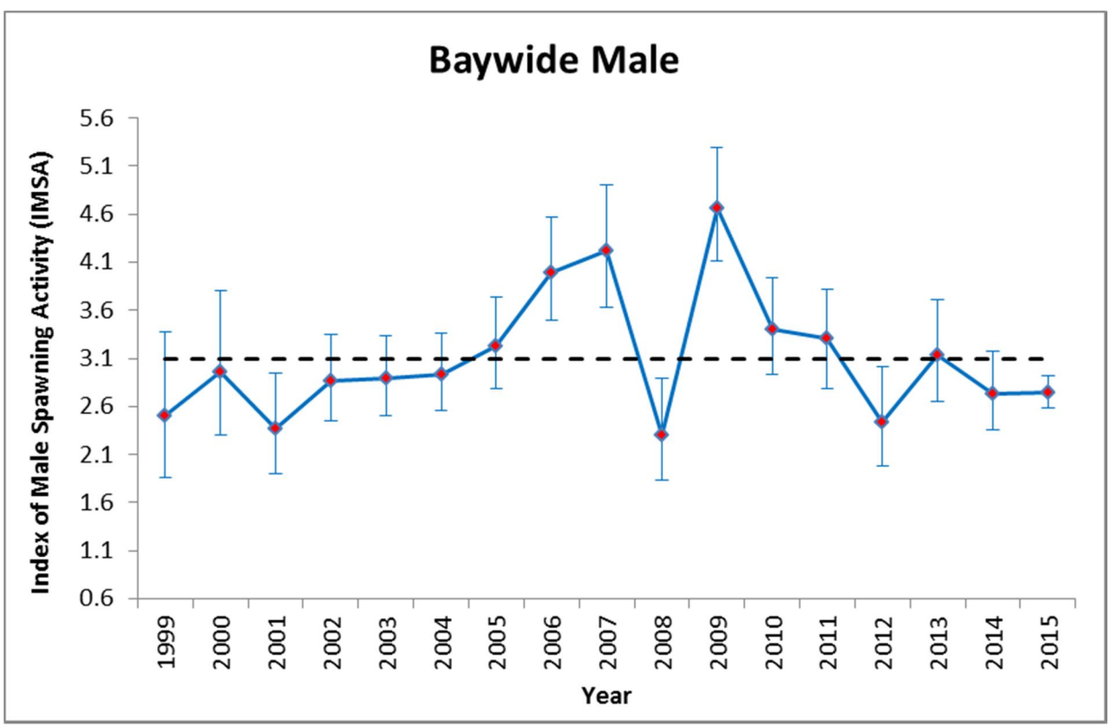


Figure 1. Index of male spawning activity in the Delaware Bay (New Jersey and Delaware combined).

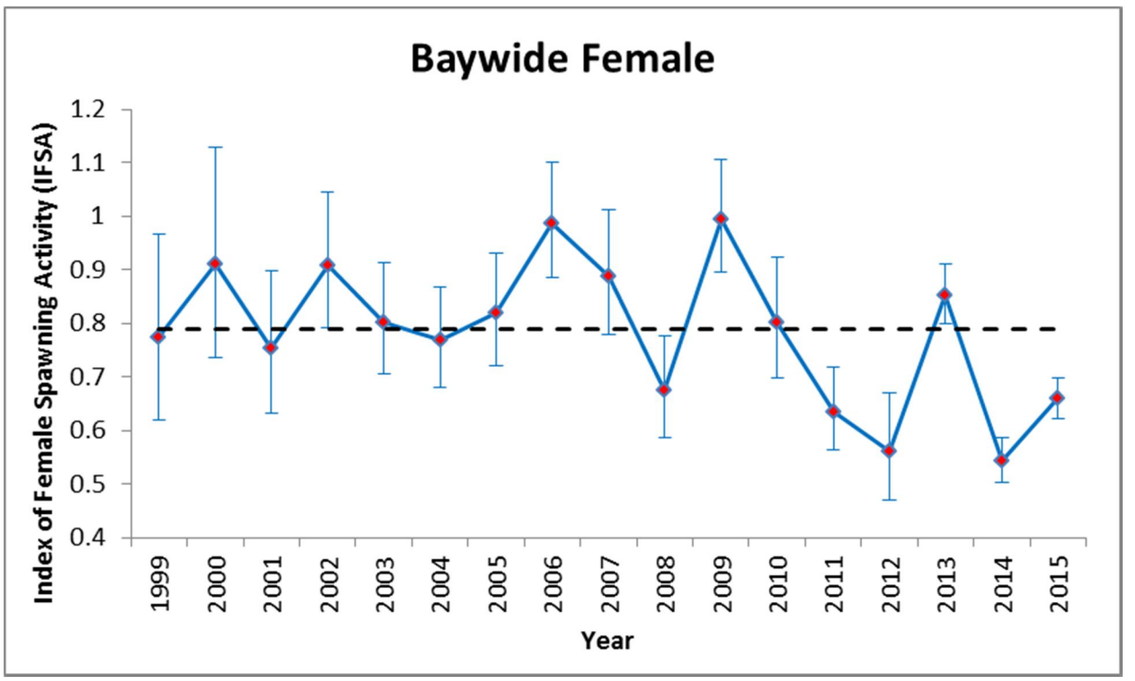


Figure 2. Index of female spawning activity in the Delaware Bay (New Jersey and Delaware combined).

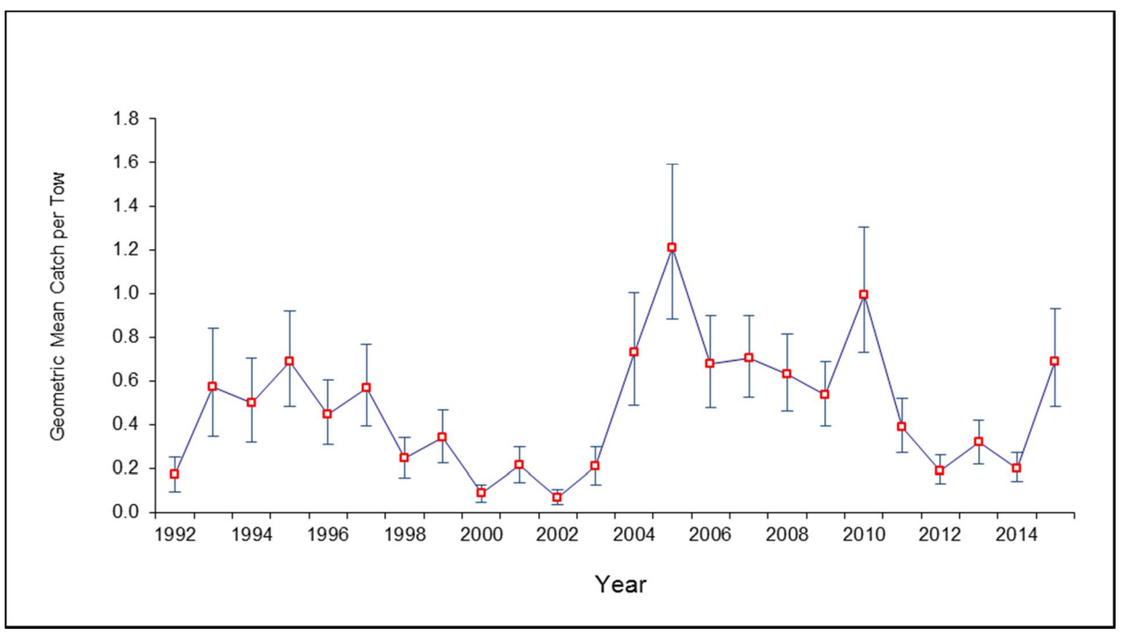


Figure 3. Index of juvenile horseshoe crab relative abundance from Delaware's 16ft trawl survey (all months sampled)

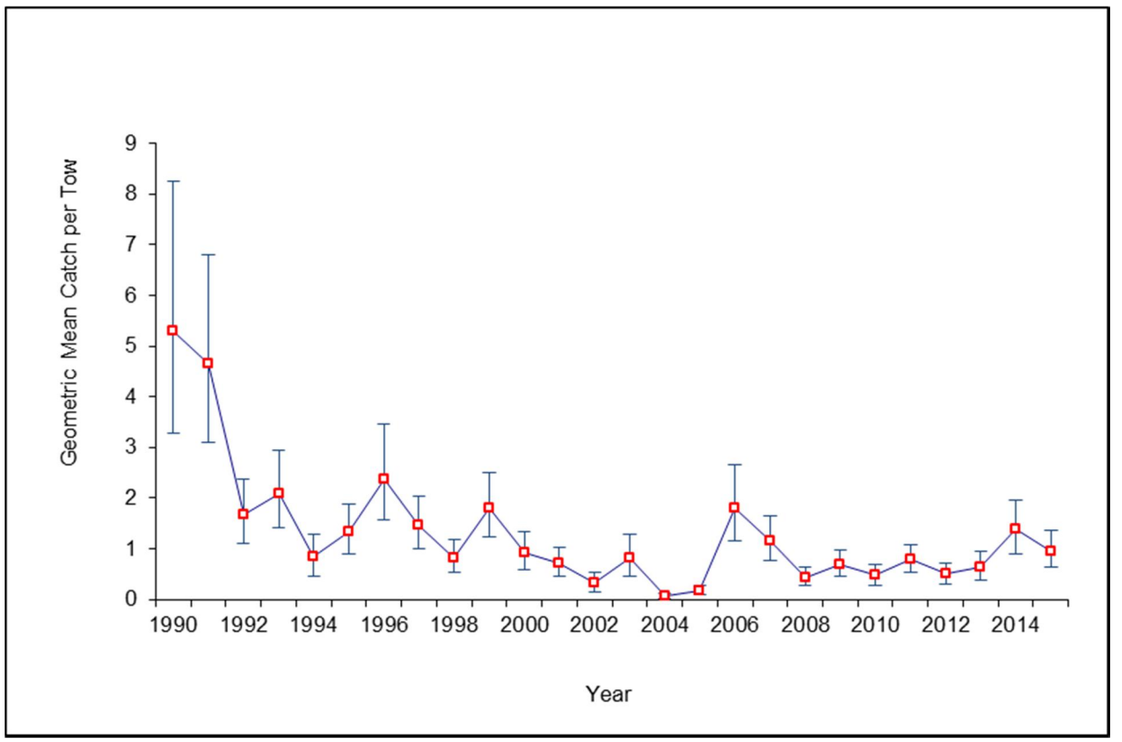


Figure 4. Index of adult horseshoe crab relative abundance from Delaware's 30ft trawl survey (all months sampled)

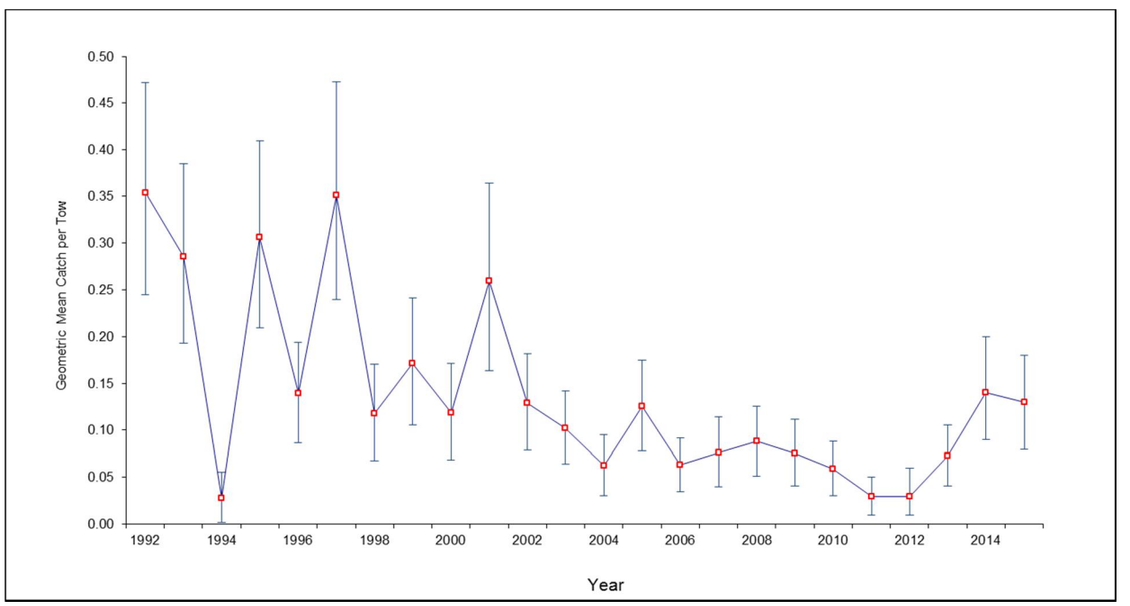


Figure 5. Index of adult horseshoe crab relative abundance from Delaware's 16ft trawl survey (all months sampled)

- Maryland Surveys: Steve Doctor presented the abundance index developed from Maryland's offshore commercial trawlers (Figure 6). These data are collected from cooperating commercial trawlers from April to December. He noted that in 2008 the fleet started fishing at night to reduce the stress on the horseshoe crabs and because they catch better at night. A change in the catch rate is evident in the data and if this index is used going forward, a split in the index at 2008 should be considered. The TCs discussed whether this could be used as an abundance index for the region, expressing concerns when using fishery dependent data, but agreed that it should be considered more thoroughly in the future. Steve also noted that the Maryland spawner survey had a slight uptick in 2015 from the year before but that 2016 has not been added to the dataset yet.

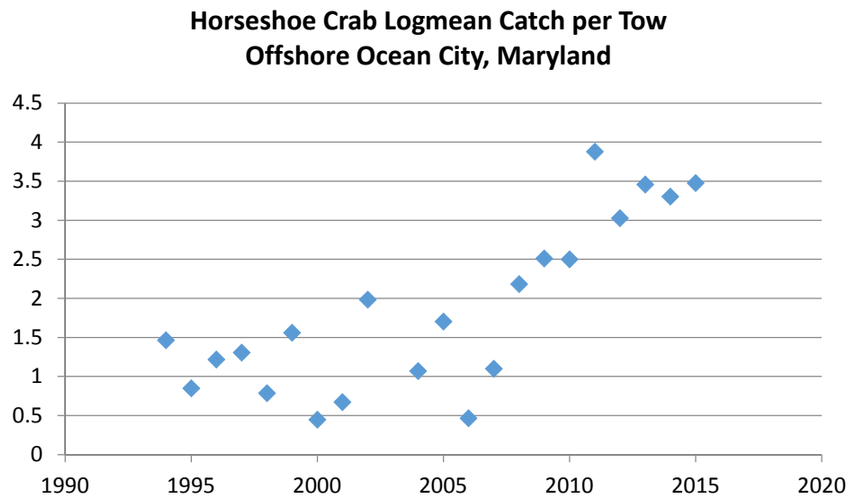


Figure 6. Horseshoe crab index developed from Maryland's offshore commercial trawlers. The data are log transformed and the values are equivalent to a range of one to 60 horseshoe crabs per minute. Note that due to the change from day to night sampling, indices from 2008 forward are not comparable to the previous indices.

- New Jersey Surveys: Jeff Brust presented the results from NJ's Delaware Bay trawl survey and the NJ ocean trawl survey. For the Delaware Bay trawl survey, the female, male, and juvenile indices appear to be increasing since the early 2000s, although all are variable (Figures 7-9). For the ocean trawl survey, NJ started counting crabs (sexing them) in 1999 and have done so through the present. He showed the indices for male and female horseshoe crabs which appear to have a slight uptick in 2015 (Figures 10-11), but noted that there is no juvenile index since they are not caught in this survey. Jeff also noted that NJ lost funding for the surf clam dredge survey from 2012-2014, but got funding to do it in 2015 and 2016. A gear change occurred in 2015, when the survey transitioned from using a 6 ft knife to a 10 ft knife. A new index for the 2015 data has not yet been developed due to need to create conversion factors for different gear and vessel.

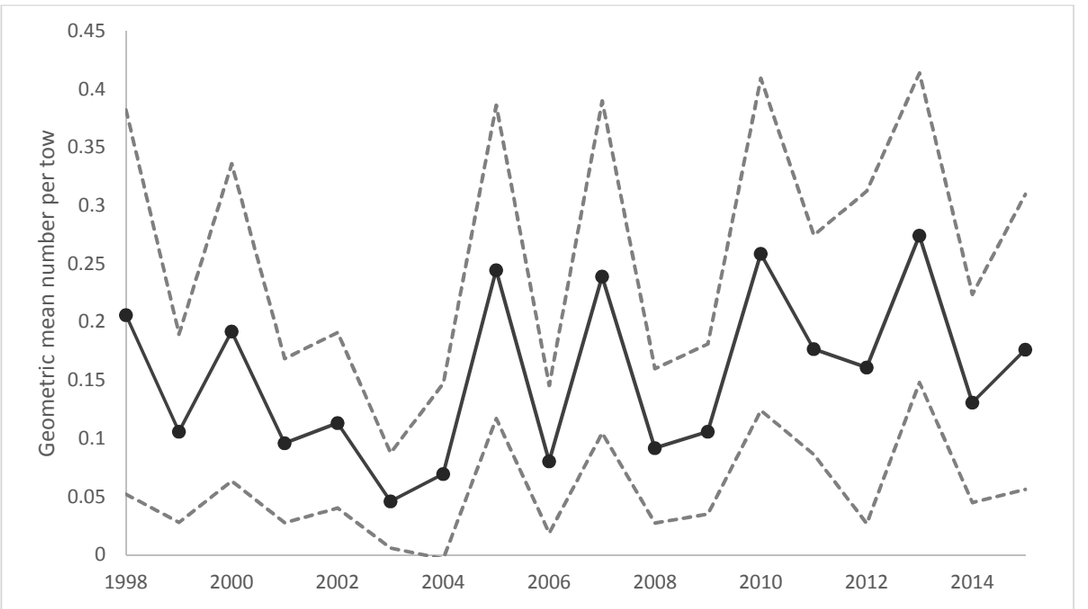


Figure 7. Female horseshoe crab index developed from New Jersey's Delaware Bay trawl survey with 95% confidence intervals.

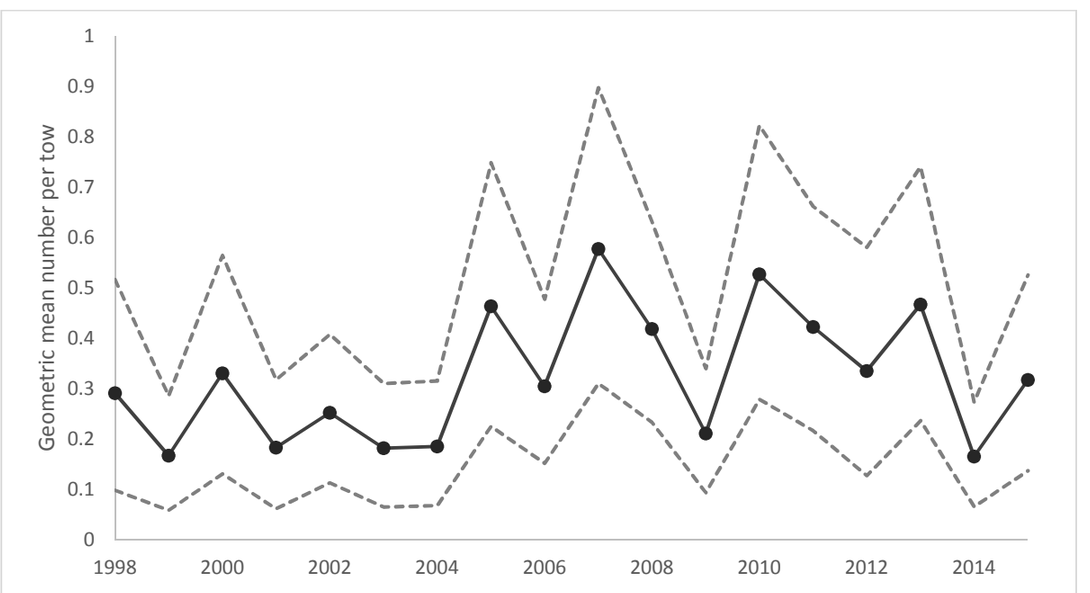


Figure 8. Male horseshoe crab index developed from New Jersey's Delaware Bay trawl survey with 95% confidence intervals.

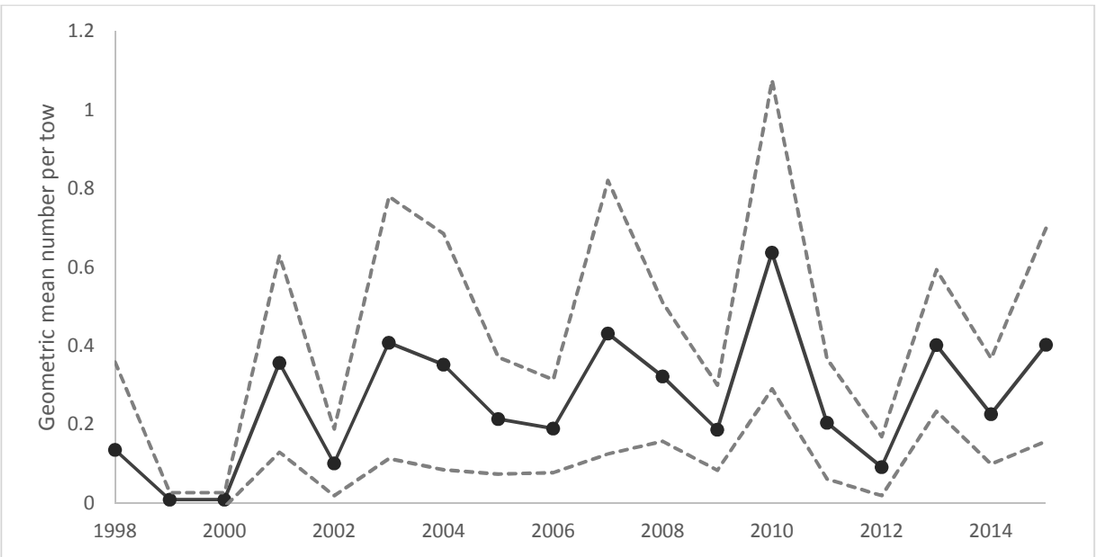


Figure 9. Juvenile horseshoe crab index developed from New Jersey's Delaware Bay trawl survey with 95% confidence intervals.

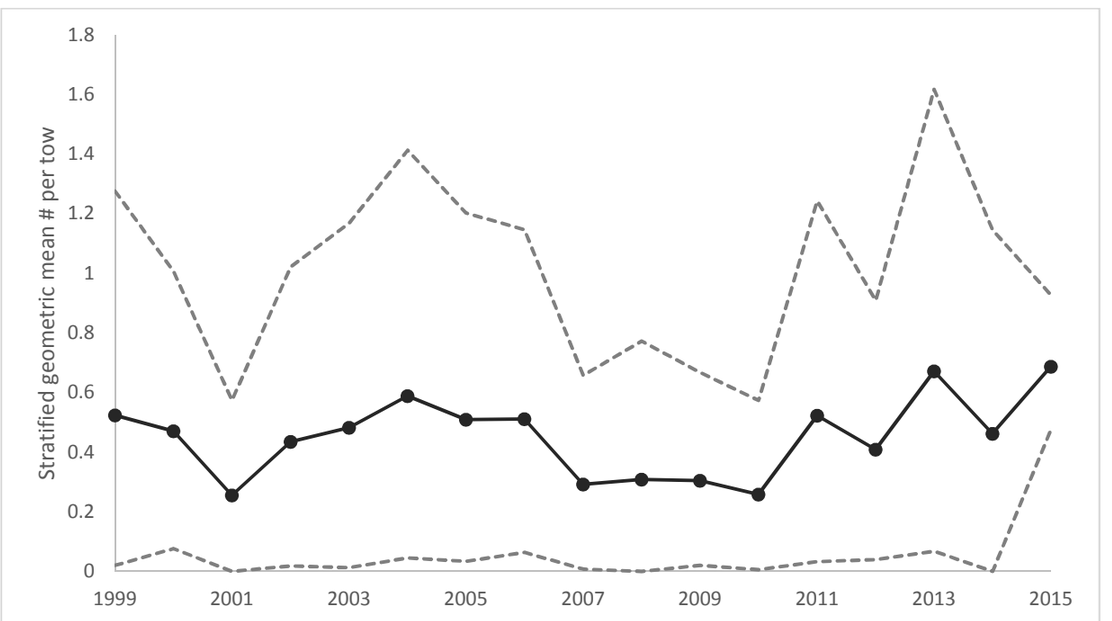


Figure 10. Female horseshoe crab index developed from New Jersey's ocean trawl survey with 95% confidence intervals, all months combined.

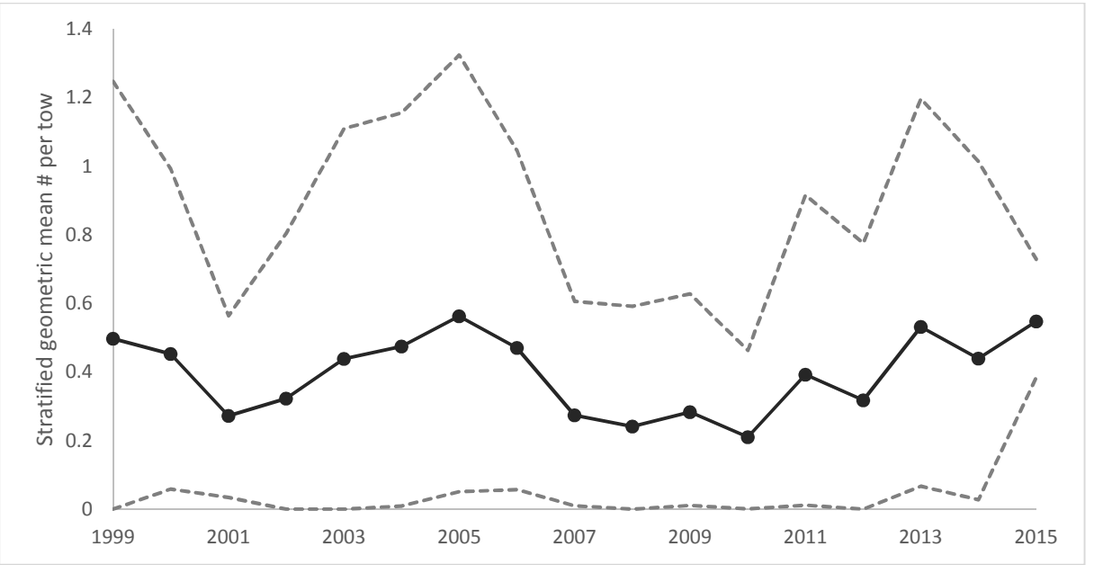


Figure 11. Male horseshoe crab index developed from New Jersey's ocean trawl survey with 95% confidence intervals, all months combined.

- <u>Other states:</u>
  - Virginia and North Carolina have no updates, as there are no state surveys that specifically target horseshoe crabs currently.
  - Rachel Sysak reported that New York has 3 sites for their spawning surveys that have been performed with the same methodology since 2007 and that they have recently expanded to 16 sites. New York also has fishery independent surveys, all of which have trends that bounce around except for one which consistently experiences declines.
  - Derek Perry reported that surveys in Massachusetts indicate an upward trend.
  - Tiffany Black in Florida informed the TCs that the state is trying to develop more citizen-based surveys in the region, but in the meantime they have an improvement from last year regarding the power plant that was capturing and dumping crabs in a landfill. Since last year, the plant now has to submit data and release the crabs alive.
  - Penny Howell from Connecticut reported that CT indices from the Long Island Sound trawl survey and NY seine survey are flat with no trend or change in the central and western basins, however two indices for the eastern region (CT Millstone Power Station Trawl Survey and NY Peconic Bay trawl survey) have plummeted. Additionally, there have been several reports of large numbers of dead crabs over the last 5 years at spawning sites in the east and thus far the state has not been able to identify the cause. Note that the bait harvest occurs primarily in the central basin of the Sound.
  - Scott Olszewski reported that the 5 abundance indices from Rhode Island and the one spawning survey all indicate that the population is at low levels.
  - Jeff Brunson in South Carolina reported that the state does not have a targeted horseshoe crab survey but that there is shrimp trawl survey that samples horseshoe crabs and that there is a lot of variability in the data.

4) **Update from US Fish and Wildlife on Red Knot ESA Listing Response**

- Wendy Walsh updated the group on the USFWS's efforts to address the 2015 listing of red knots as threatened. She explained that USFWS is currently undergoing an overhaul in their recovery planning and moving toward a new paradigm called a species status assessment (SSA). For new listing, the SSA will be written as part of the listing and carry forward into the recovery plan, but this was not done for red knots because SSA was still too new at the time of the listing. The USFWS is considering how to adapt the SSA paradigm for red knot. Wendy will be receiving training on the SSA process and will update the TCs on how this will effect red knots in the future. In the meantime, there is a critical habitat proposal in progress, but that is a lengthy process; a proposed rule is expected in 2017 with a final rule 1 year later. Wendy also reminded the TCs that any discretionary federal action that affects the red knot is subject to consultation with the USFWS. The ASMFC management of horseshoe crabs is not subject to Section 7 review since it is not a federal body, but is still subject to Section 9 that prohibits "incidental take". In the listing, USFWS concluded they did not expect ASMFC's horseshoe crab management to cause incidental take of red knots as long as the ARM Framework is in place and functioning as intended.

5) **Draft Alternative Bait Trials Proposal**

- Kirby updated the TCs that at the August 2016 Board meeting, the Board tasked the TCs with designing alternative bait trials for 2017. TC members discussed their many concerns with the previous attempt at alternative bait trials using product from LaMonica Foods. Future trials will need to address issues concerning the availability of the bait, cost, location of delivery, fishermen participation and incentives, and whether or not the TC should be involved in testing a product for a single company which at the moment is the only commercial source of this bait. Kirby reminded the group that the current action does not necessarily involve LaMonica Foods. After Derek outlined a successful survey program in MA where fishermen provided information on baiting practices and costs in the whelk fishery, the TCs made the following recommendations:
    - Each member state should modify MA's survey to reflect the fisheries in their area and circulate to (whelk, eel, and others if appropriate) fishermen to obtain information about current practices. This will inform the TC about what type of bait mixtures the fishermen are currently using, cost per unit, amount of horseshoe crab in current bait, etc. as a context for any alternative bait practices.
    - The development of a project testing alternative baits may be better suited to a research facility, such as Sea Grant's resource advisory group or a university.

6) **Election of TC Vice-Chairs**

- Currently, the Horseshoe crab TC chair is Steve Doctor and the Delaware Bay Ecosystem TC chair is Greg Breese and neither TC has a vice-chair.
    - Rachel Sysak (NY) will serve as vice-chair for the Horseshoe crab TC.
    - Audrey DeRose-Wilson (DE) will serve as vice-chair for the Delaware Bay Ecosystem TC.

7) **Other Business**

- Kristen polled the group to see if there were any ongoing telemetry studies for horseshoe crab for the potential development of a multispecies, multilocation database in the future. Only NY (through Cornell and Stony Brook)

and MA (a project out of Wellfleet Bay) said they had ongoing telemetry projects. All other known projects were small-scale or one-time studies.

- Mandy Dey provided the group with some tagging data from Limuli that was conducted when they were granted an exempted fishing permit in the Shuster Reserve. These data provide the potential to update the current lambda values (in Addendum VII) for the percent of Delaware Bay origin crabs is in each state. Limuli's tagging study indicates that Maryland's proportion of Delaware Bay crabs is closer to 87%, not the currently used 51%. Eric offered that this is what would be expected when sampling exclusively in the Carl Shuster Reserve and others agree. The current lambda values are based on genetics and previously the tagging data from USFWS database was previously rejected for use in developing the lambda values. More data would be needed to revise the current lambda values, although the use of Limuli's data for other purposes in the benchmark stock assessment should be explored. Additionally, it is agreed that all states need more outreach to improve tag returns.
- Mandy also presented a report regarding the status of red knots that she provided to the TCs. The peak abundance of red knots stopping in Delaware Bay, as determined from aerial and ground surveys, has remained stable but low over the last decade. The proportion of red knots reaching 180 grams by late May declined in 2016 to 56% from 77% in 2015, but it was commensurate with the proportions observed in 2012-2014.

2016 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR

HORSESHOE CRAB

(*Limulus polyphemus)*

2015 Fishing Year

Horseshoe Crab Plan Review Team:

Sheila Eyler, U.S. Fish and Wildlife Service

Stewart Michels, Delaware Department of Natural Resources and Environmental Control

Mike Schmidtke, Atlantic States Marine Fisheries Commission

Kirby Rootes-Murdy, Chair, Atlantic States Marine Fisheries Commission

October 2016

Table of Contents

I. Status of the Fishery Management Plan

Date of FMP Approval:	December 1998
Amendments	None
Addenda	Addendum I (April 2000) Addendum II (May 2001) Addendum III (May 2004) Addendum IV (June 2006) Addendum V (September 2008) Addendum VI (August 2010) Addendum VII (February 2012)
Management Unit:	Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ
States With Declared Interest:	Massachusetts - Florida
Active Boards/Committees:	Horseshoe Crab Management Board, Advisory Panel, Technical Committee, and Plan Review Team; Delaware Bay Ecosystem Technical Committee

a) Goals and Objectives

The Interstate Fishery Management Plan for Horseshoe Crabs (FMP) established the following goals and objectives.

2.0. Goals and Objectives

The goal of this Plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of the coastal ecosystem, while providing for continued use over time. Specifically, the goal includes management of horseshoe crab populations for continued use by:

1) *current and future generations of the fishing and non-fishing public (including the biomedical industry, scientific and educational research);*
2) *migrating shorebirds; and,*
3) *other dependent fish and wildlife, including federally listed (threatened) sea turtles.*

To achieve this goal, the following objectives must be met:

(a) prevent overfishing and establish a sustainable population;

(b) achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit;

(c) establish the appropriate target mortality rates that prevent overfishing and maintain adequate spawning stocks to supply the needs of migratory shorebirds;

(d) coordinate and promote cooperative interstate research, monitoring, and law enforcement;

(e) identify and protect, to the extent practicable, critical habitats and environmental factors that limit long-term productivity of horseshoe crabs;

(f) adopt and promote standards of environmental quality necessary for the long-term maintenance and productivity of horseshoe crabs throughout their range; and,

(g) establish standards and procedures for implementing the Plan and criteria for determining compliance with Plan provisions.

b) Fishery Management Plan Summary

The framework for managing horseshoe crabs along the Atlantic coast was approved in October 1998 with the adoption of the Interstate Fishery Management Plan for Horseshoe Crabs (FMP). The goal of this plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of coastal ecosystems, while providing for continued use over time.

In 2000, the Horseshoe Crab Management Board approved Addendum I to the FMP. Addendum I established a state-by-state cap on horseshoe crab bait landings at 25 percent below the reference period landings (RPL's), and *de minimis* criteria for those states with a limited horseshoe crab fishery. Those states with more restrictive harvest levels (Maryland and New Jersey) were encouraged to maintain those restrictions to provide further protection to the Delaware Bay horseshoe crab population, recognizing its importance to migratory shorebirds. Addendum I also recommended that the National Marine Fisheries Service (NMFS) prohibit the harvest of horseshoe crabs in federal waters (3-200 miles offshore) within a 30 nautical mile radius of the mouth of Delaware Bay, as well as prohibit the transfer of horseshoe crabs in federal waters. A horseshoe crab reserve was established on March 7, 2001 by NMFS in the area recommended by ASMFC. This area is now known as the Carl N. Shuster Jr. Horseshoe Crab Reserve.

In 2001, the Horseshoe Crab Management Board approved Addendum II to the FMP. The purpose of Addendum II was to provide for the voluntary transfer of harvest quotas between states to alleviate concerns over potential bait shortages on a biologically responsible basis. Voluntary quota transfers require Technical Committee review and Management Board approval.

In 2004, the Board approved Addendum III to the FMP. The addendum sought to further the conservation of horseshoe crab and migratory shorebird populations in and around the Delaware Bay. It reduced harvest quotas and implemented seasonal bait harvest closures in New Jersey, Delaware, and Maryland, and revised monitoring components for all jurisdictions.

Addendum IV was approved in 2006. It further limited bait harvest in New Jersey and Delaware to 100,000 crabs (male only) and required a delayed harvest in Maryland and Virginia. Addendum V, adopted in 2008, extends the provisions of Addendum IV through October 31, 2010. In early 2010, the Board initiated Draft Addendum VI to consider management options that would follow expiration of Addendum V. The Board voted in August 2010 to extend the Addendum V

provisions, via Addendum VI, through April 30, 2013. The Board also chose to include language, allowing them to replace Addendum VI with another Addendum during that time, in anticipation of implementing an adaptive resource management (ARM) framework.

The Board approved Addendum VII in February 2012. This addendum implemented an ARM framework for use during the 2013 fishing season. The framework considers the abundance levels of horseshoe crabs and shorebirds in determining the optimized harvest level for the Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia (east of the COLREGS).

II. Status of the Stock and Assessment Advice

No definitions for overfishing or overfished status have been adopted by the Management Board. However, the majority of evidence in the most recent stock assessment, the 2013 Stock Assessment Update (available at http://www.asmfc.org/species/horseshoe-crab#stock), indicates abundance has increased in the Southeast region. In the Delaware Bay Region, increasing trends were most evident in juvenile indices, followed by indices of adult males. Over the time series of the survey, no trend in the abundance of female crabs is evident.

In contrast, continued declines in abundance were evident in the New York and New England regions. Decreased harvest quotas in Delaware Bay have potentially redirected harvest to nearby regions. Current harvest within the New England and New York Regions may not be sustainable. Continued precautionary management is therefore recommended coastwide to anticipate effects of redirecting harvest from Delaware Bay to outlying populations.

III. Status of the Fishery

Bait Fishery

For most states, the bait fishery is open year round. However, because of seasonal horseshoe crab movements (to the beaches in the spring; deeper waters and offshore in the winter), the fishery operates at different times. State waters of New Jersey and Delaware are closed to horseshoe crab harvest and landing from January 1st through June 7th each year, and other state horseshoe crab fisheries are regulated with various seasonal/area closures.

Reported coastwide bait landings in 2015 remained well below the coastwide quota (Table 1, Figure 1). Bait landings decreased 23% from the previous year, due to decreased landings in Rhode Island, Delaware, Maryland, Virginia, Georgia, and Florida. North Carolina harvested 912 crabs over their 24,036 quota, and received a quota transfer from Georgia. North Carolina is also seeking a quota transfer for the 2016 fishery pending Board approval.

Table 1 Reported commercial horseshoe crab bait landings by jurisdiction.

Jurisdiction	ASMFC Quota 2015	State Quota 2015	2010	2011	2012	2013	2014	2015
MA	330,377	165,000	54,782	67,087	106,821	128,774	106,645	108,054
RI	26,053	12,545	12,502	12,632	19,306	18,030	13,319	6,255
CT	48,689	48,689	30,036	24,466	18,958	19,645	20,634	19,632
NY	366,272	150,000	124,808	146,995	167,723	161,623	133,887	145,324
NJ*	162,136	0	0	0	0	0	0	0
DE*	162,136	154,527	61,751	95,663	100,255	163,582	168,044	151,262
MD*	255,980	255,980	165,344	167,053	169,087	240,688	148,269	27,494
PRFC	0	-	0	0	0	0	0	0
DC	0	-	0	0	0	0	0	0
VA**	172,828	172,828	146,857	121,650	151,887	156,761	145,266	99,975
NC***	24,036	25,036	9,938	27,076	22,902	26,559	21,196	24,948
SC	0	0	0	0	0	0	0	0
GA***	29,312	28,312	0	0	0	5,745	0	0
FL	9,455	9,455	993	0	0	0	2,046	264
TOTAL	1,587,274	1,028,280	607,011	662,622	756,939	921,407	759,306	583,208

***Male-only harvest**

****Virginia harvest east of the COLREGS line is limited to 81,331 male-only crabs under the ARM harvest package #3. Virginia harvest east of the COLREGS in 2013, 2014 and 2015 were 32,307, 52,638, and 24,460 respectively. The total above represents harvest on both sides of the COLREGS line.**

*****Note there was quota transfer of 1,000 crabs from Georgia to North Carolina to cover their quota overage of 912 horseshoe crabs in 2015.**

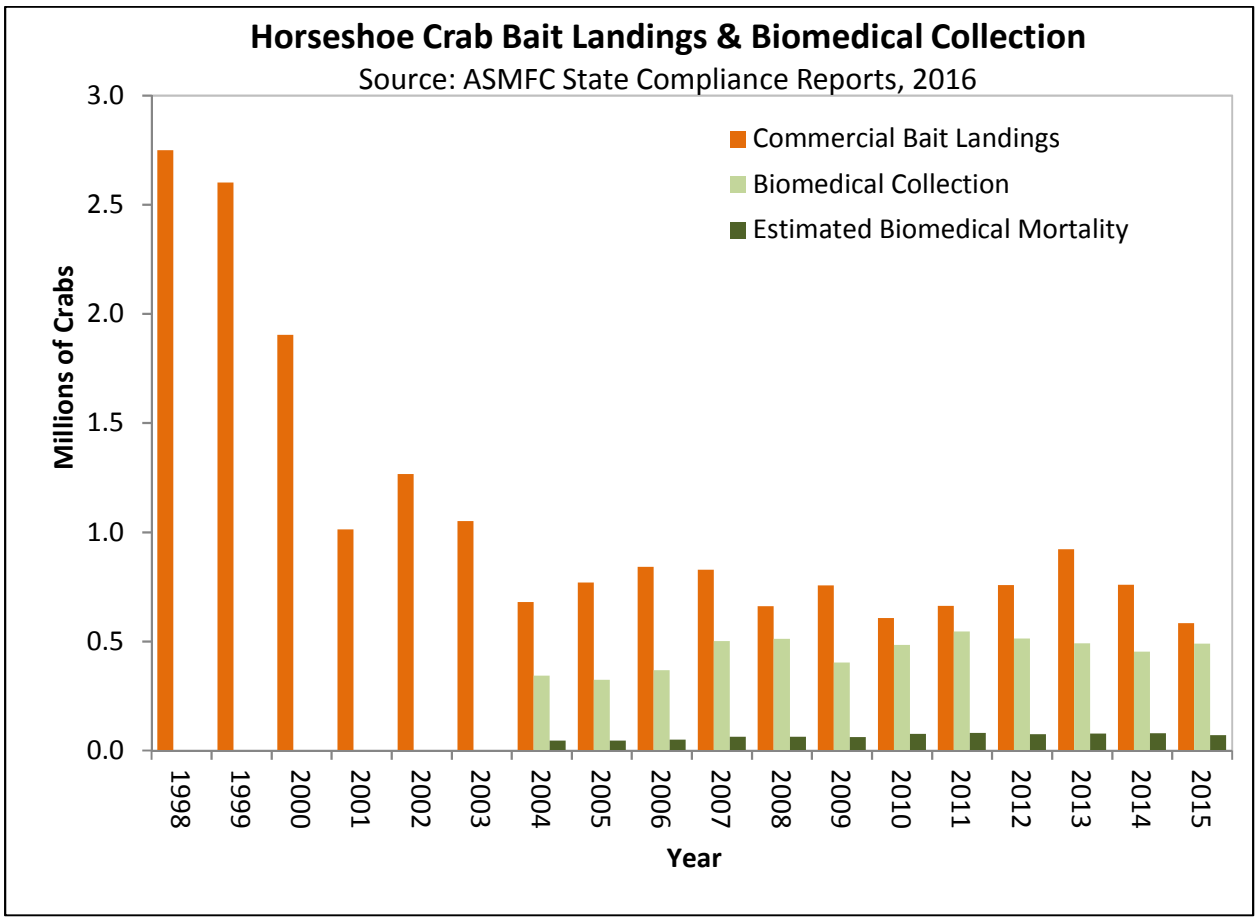


Figure 1: Number of horseshoe crabs harvested for bait and biomedical purposes, 1998 -2015. Please note the following details regarding biomedical harvest numbers:

* Biomedical collection numbers, which are annually reported to the Commission, include all horseshoe crabs brought to bleeding facilities except those that were harvested as bait and counted against state quotas.

* Most of the biomedical crabs collected are returned to the water after bleeding; a 15% mortality rate is estimated for all bled crabs. This is noted in the above graph as 'Estimated Biomedical Mortality.'

Reported coastwide landings since 1998 show more male than female horseshoe crabs were harvested annually. Several states presently have sex-specific restrictions in place to limit the harvest of females. The American eel pot fishery prefers egg-laden female horseshoe crabs as bait, while the whelk (conch) pot fishery is less dependent on females. Unclassified landings have generally accounted for around 10% of the reported landings since 2000.

The hand, trawl, and dredge fisheries typically account for over 85% of the reported commercial horseshoe crab bait landings. In 2015, these gears accounted for slightly more with 88.7% of commercial landings. Other methods that account for the remainder of the harvest include gill nets, pound nets, and traps.

Biomedical Fishery

The horseshoe crab is an important resource for research and manufacture of materials used for human health. There are five companies along the Atlantic Coast that process horseshoe crab blood for use in manufacturing Limulus Amebocyte Lysate (LAL): Associates of Cape Cod, Massachusetts; Lonza (formerly Cambrex Bioscience), Limuli Laboratories, New Jersey; Wako Chemicals, Virginia; and Charles River Endosafe, South Carolina. Addendum III requires states where horseshoe crabs are collected for biomedical bleeding to collect and report total collection numbers, crabs rejected, crabs bled (by sex) and to characterize mortality.

The Plan Review Team annually calculates total coastwide harvest and estimates mortality. It was reported that 559,903 crabs (including crabs harvested as bait) coastwide were brought to biomedical companies for bleeding in 2015 (Table 2). This represents a slight decrease from the average of the previous five years (575,019 crabs). Of this total, 56,517 crabs were reported as harvested for bait and counted against state quotas, representing a marked decrease over the average of the previous five years (Table 2: row B). These crabs were not included in the mortality estimates (Rows D, F, and G) below. It was reported for 2015 that 488,521 crabs were harvested for biomedical purposes only. Males accounted for 38% of total biomedical harvest; females comprised 26%; 34% of the harvest was unknown. Crabs were rejected prior to bleeding due to mortality, injuries, slow movement, and size (known mortality prior to bleeding is included in Row D below). Approximately 0.2% of crabs, collected solely for biomedical purposes, reportedly suffered mortality from harvest up to the point of release. Total estimated mortality of biomedical crabs for 2015 was 70,223 crabs (at 15% post-release estimated mortality), with a range of 23,383 to 140,444 crabs (5-30% post-release estimated mortality).

Table 2. Numbers of horseshoe crabs harvested, bled and estimated mortality for the biomedical industry.

	2008	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***
A. Number of crabs brought to biomedical facilities (bait and biomedical crabs)	511,478	512,552	548,751	628,476	627,790	545,191	530,778	559,903
B. Number of bait crabs bled	87,864	110,350	66,047	83,312	75,184	62,396	62,643	56,517
C. Number of biomedical-only crabs harvested (not counted against state bait quotas)	423,614	402,202	482,704	545,164	512,237	279,061	450,859	488,521
D. Reported mortality of biomedical-only from harvest to release	2,973	6,298	9,665	6,917	6,891	15,383	11,151	798
E. Number of biomedical-only crabs bled	402,080	362,291	438,417	492,734	492,859	428,614	429,951	462,832
F. Estimated mortality of bled biomedical-only crabs post-release (15% est. mortality)	60,312	54,344	65,763	73,910	73,929	64,292	64,493	69,425
G. Total estimated mortality on biomedical crabs not counted against state bait quotas (15% est. mortality)	63,285	60,642	75,428	80,827	80,820	79,675	75,644	70,223

The 1998 FMP establishes a mortality threshold of 57,500 crabs, where if exceeded the Board is required to consider action. Based on an estimated total mortality of 70,223 crabs for 2015, this threshold has been exceeded. The PRT notes that estimated mortality from biomedical use is approximately 11% of the total horseshoe crab mortality (bait and biomedical) coastwide for

2015, up from approximately 9% in 2014 year. As the combined average of the last two years represents 10% of coastwide mortality and the PRT continues to recommend including biomedical mortality in the next benchmark stock assessment.

IV. Status of Research and Monitoring

The Horseshoe Crab FMP set forth an ambitious research and monitoring strategy in 1999 and again in 2004 to facilitate future management decisions. Despite limited time and funding there are many accomplishments since 1999. These accomplishments were largely made possible by forming partnerships between state, federal and private organizations, and the support of hundreds of public volunteers.

Addendum III Monitoring Program

Addendum III requires affected states to carry out three monitoring components. All states who do not qualify for *de minimis* status report monthly harvest numbers and subsample of portion of the catch for gender and harvest method. In addition, those states with annual landings above 5% of the coastwide harvest report all landings by sex and harvest method. Although states with annual landings less than 5% of annual coastwide harvest are not required to report landings by gender, the PRT recommends all states require gender reporting for horseshoe crab harvest.

States with biomedical fisheries landings are required to monitor and report harvest numbers and mortality associated with the transportation and bleeding of the crabs.

States must identify spawning and nursery habitat along their coasts. All states have completed this requirement and a few continue active monitoring programs.

Virginia Tech Research Projects

The VT benthic survey was not conducted in 2013 - 2015, due to a lack of funding. The Adaptive Resource Management (ARM) Working Group has used a composite index from current Delaware Bay region state trawl surveys to estimate horseshoe crab abundance for the ARM model. The survey has been funded for 2016 and is in progress. Funding sources beyond 2016 as well as alternative data sources are being explored

Spawning Surveys

The redesigned Delaware Bay spawning survey was completed for the 17th year in 2015. No trend was detected in the baywide indices of spawning activity (both male and female) for the time series. A slightly negative, but significant decline was noted in the Delaware female spawning activity. No trends were detected in the Delaware male spawning activity and no trends were detected in the New Jersey male or female spawning activity. Most spawning activity was observed in May in 2015, coinciding with a period especially important for migratory shorebirds. The annual baywide sex ratio was 4.2:1, (Male: Female). The range of annual

observed sex ratios on the Delaware Bay spawning beaches over the time series has varied from 3.1:1 to 5.2:1.

Tagging Studies

The USFWS continues to maintain a toll-free telephone number as well as a website for reporting horseshoe crab tag returns and assists interested parties in obtaining tags. Tagging work continues to be conducted by biomedical companies, research organizations, and other parties involved in outreach and spawning surveys. Beginning with the 2013 tagging season, additional efforts were implemented to ensure that current tagging programs are providing data that benefits the management of the coast-wide horseshoe crab population. All existing and new tagging programs are required to submit an annual application to be considered for the tagging program and all participants must submit an annual report along with their tagging and resight data to indicate how their tagging program addresses at least one of the following objectives: determine horseshoe crab sub-population structure, estimate horseshoe crab movement and migration rates, and/or estimate survival and mortality of horseshoe crabs. The PRT recommends all tagging programs, approved by the state, coordinate with the USFWS tagging program, in order to ensure a consistent coastwide program for providing management input.

Since 1999, over 282,387 crabs have been tagged and released through the USFWS tagging program along the Atlantic coast. Approximately 12% of tagged crabs have been recaptured and reported. Crabs have been tagged and released from every state on the Atlantic Coast from Florida to New Hampshire. In the early years of the program, tagging was centered around Delaware Bay; however, in recent years, more tagging has occurred in the Long Island Sound and in the Southeast. The Technical Committee noted that recapture rates inside and outside Delaware Bay are likely not directly comparable due to increased re-sighting effort and spawning concentration in Delaware Bay compared to other areas along the coast. There may be data in the USFWS tagging database to determine differences in effort and recapture rates.

V. Status of Management Measures and Issues

ASMFC

Initial state-by-state harvest quotas were established through Addendum I. Addendum III outlined the monitoring requirements and recommendations for the states. Addendum IV set harvest closures and quotas, and other restrictions for New Jersey, Delaware, Maryland, and Virginia, which were continued in Addendums V and VI.

The Board approved Addendum VII, implementation of the ARM Framework, in February 2012 for implementation in 2013. Addendum VII includes an allocation mechanism to divide the Delaware Bay optimized harvest output from the ARM Framework among the four Delaware Bay states (New Jersey, Delaware, Maryland, and Virginia east of the COLREGS). Season closures and restrictions, present within Addendum VI, remain in effect as part of Addendum VII.

Included in this report are state-by-state charts outlining compliance and monitoring measures. The PRT recommends all jurisdictions were in compliance with the FMP and subsequent Addenda in 2015.

MASSACHUSETTS		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	330,377 (165,000)	330,377 (165,000)
- Other Restrictions	Bait: 300 crab daily limit year round; limited entry; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area	Bait: 300 crab daily limit year round; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area
- Landings	108,054	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes, plus weekly dealer reporting through SAFIS	Yes, plus weekly dealer reporting through SAFIS
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes	Yes
Monitoring Component B_4 Tagging program	Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay	Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay

Note: The daily crab possession limit in the mobile gear fishery was changed to 300 crabs in 2014. This was continued in 2015, and will continue in 2016.

RHODE ISLAND		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de minimis*	Does not qualify for *de minimis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	26,053 (12,345)	26,053 (12,545)
- Other Restrictions	None	None
- Landings	6,255	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes, though exempt, with weekly call in and monthly on paper.	Yes, though exempt, with weekly call in and monthly on paper.
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes, details within Massachusetts' reports	Captured in Massachusetts' reports
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes, since 2000 (methods unspecified)	Yes
Monitoring Component B_4 Tagging program	RI DEM 2001-2004 only Outside, independent groups currently	No

Note: Rhode Island is proposing to implement a daily possession limit during the open harvest period for the bait fishery in 2016.

CONNECTICUT		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota	48,689	48,689
- Other Restrictions	Limited entry program, possession limits, and seasonal and areas closures	Limited entry program, possession limits, and seasonal and area closures
- Landings	19,632	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No – exempt under Addendum III because landings are < 5% of coastwide total	No – exempt under Addendum III because landings are < 5% of coastwide total
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes, since 1999 (methods differ from DE Bay survey)	Yes
Monitoring Component B_4 Tagging program	Yes, in collaboration with local universities (Sacred Heart University in 2015)	Yes

NEW YORK		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary State Quota)	366,272 (150,000)	366,272 (150,000)
- Other Restrictions	Ability to close areas to harvest; seasonal quotas and trip limits; 200 crab/harvester daily quota- reduced to 100 crab on 5/29 then 30 crabs on 6/10 and then increased to 250 from 9/6-12/1; W. Meadow Beach, Cedar Beach, and Fire Island National Seashore harvest closures	Ability to close areas to harvest; seasonal quotas and trip limits; 200 crab/harvester daily quota; W. Meadow Beach, Cedar Beach, and Fire Island National Seashore harvest closures
- Landings	145,324	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (weekly April – July)	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes – adapted from DE Bay survey	Yes
Monitoring Component B_4 Tagging program	Yes, since 2007	Yes

Note: The Quota periods were reduced from 5 to 4 to help streamline quota management in 2015; quota in period 4 will be TBD depending on harvest in previous 3 periods. This will continue in 2016.

NEW JERSEY		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Qualified for *de miminis*	Qualifies but not requesting *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (Voluntary state quota)	162,136 [male only] (0)	162,136 [male only] (0)
- Other Restrictions	Bait harvest moratorium	Bait harvest moratorium
- Landings	0	--
Monitoring Component A_1		
- Mandatory monthly reporting	N/A	N/A
- Characterize commercial bait fishery	N/A	N/A
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes –surf clam survey was funded through 2012- was an indicator of HSC abundance. Continued again in 2015	Yes
Monitoring Component B_3 Implement spawning survey	Yes – since 1999	Yes
Monitoring Component B_4 Tagging program	Outside, independent groups currently	No
Monitoring Component B_5 Egg abundance survey	Yes, but removed as a mandatory component	Yes
Monitoring Component B_6 Shorebird monitoring program	Yes	Yes

Note: the Surf Clam Dredge survey continued in 2015, after hiatus in 2013 and 2014. The survey was continued with a new vessel and new survey gear. NJ Staff is still working through conversion factors between the previous gear type and one used in 2015- no new information available yet.

DELAWARE		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (State-reduced quota for overage)	162,136 [male only] (154,527)	162,136 [male only] (162,136)
- Other Restrictions	Closed season (January 1 – June 7)	Closed season (January 1 – June 7)
- Landings	151,262 males	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (daily call-in reports & monthly logbooks)	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes – updates once every 5 years or as needed	Yes – updates once every 5 years or as needed
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes	Yes
Monitoring Component B_4 Tagging program	No state program but has assisted in the past with various Delaware Bay horseshoe crab tagging initiatives	No
Monitoring Component B_5 Egg abundance survey	Removed as component	Removed as component
Monitoring Component B_6 Shorebird monitoring program	Yes	Yes

Note: The egg abundance survey has been discontinued as a mandatory monitoring element. Delaware will include information on the survey if it continues, but is no longer required to perform the survey.

MARYLAND		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota	255,980 (male only)	255,980 (male only)
- Other Restrictions	Delayed harvest and closed season/area combinations	Delayed harvest and closed season/area combinations
- Landings	27,494	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (weekly reports for permit holders; monthly for non-permit holders)	Yes (weekly reports for permit holders; monthly for non-permit holders)
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	Yes (Counts)	Yes
Monitoring Component B_4 Tagging program	Yes – through biomedical harvest	Yes – through biomedical harvest

POTOMAC RIVER FISHERIES COMMISSION		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	No horseshoe crab fishery	No horseshoe crab fishery
- Daily possession limit <25 for *de minimis* state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions	None	None
- Landings	0	0
Monitoring Component A_1		
- Mandatory monthly reporting	Yes - weekly	Yes - weekly
- Characterize commercial bait fishery	Not Applicable	Not Applicable
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Not Applicable	Not Applicable
Monitoring Component B_1 Coastwide benthic trawl survey	No	No
Monitoring Component B_2 Continue existing benthic sampling programs	Not Applicable	Not Applicable
Monitoring Component B_3 Implement spawning survey	Not Applicable	Not Applicable
Monitoring Component B_4 Tagging program	Not Applicable	Not Applicable

VIRGINIA		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de miminis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota (State-reduced quota for overage)	172,828 (81,331 male-only east of COLREGS line)	172,828 (81,331 male-only east of COLREGS line)
- Other Restrictions	Closed season (January 1 – June 7) for federal waters. Effective January 1, 2013 harvest of horseshoe crabs, from east of the COLREGS line, is limited to trawl gear and dredge gear only.	Closed season (January 1 – June 7) for federal waters. Effective January 1, 2013 harvest of horseshoe crabs, from east of the COLREGS line, is limited to trawl gear and dredge gear only.
- Landings	99,975 (24,460)	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes – new permit system; limited entry to fishery and individual quotas established	Yes
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Yes – completed	No
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	No	No
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	No	No

NORTH CAROLINA		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	Did not qualify for *de miminis*	Does not qualify for *de minimis*
Bait Harvest Restrictions and Landings		
- ASMFC Quota	24,036	24,036
- Adjusted Quota	25,036*	25,236**
- Other Restrictions	Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc.	Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc.
- Landings	24,948	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes – trip level reporting each month	Yes – trip level reporting each month
- Characterize commercial bait fishery	Yes	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Little information available Survey discontinued after 2002 and 2003 due to low levels of crabs recorded	Not specified
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	No	No

*Note: there was quota transfer of 1,000 lbs from Georgia to North Carolina to cover their quota overage of 912 horseshoe crabs in 2015.

**North Carolina has requested a quota transfer from Georgia for 2016 as well. Both states have agreed to the transfers.

SOUTH CAROLINA		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	No horseshoe crab bait fishery	No horseshoe crab bait fishery
- Daily possession limit <25 for *de minimis* state		
- HSC landing permit		
Bait Harvest Restrictions and Landings		
- ASMFC Quota	0	0
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes (Biomedical)	Yes (Biomedical)
- Characterize commercial bait fishery	Yes (Biomedical)	Yes (Biomedical)
Monitoring Component A_2		
- Biomedical harvest reporting	Yes	Yes
- Required information for biomedical use of crabs	Yes	Yes
Monitoring Component A_3 Identify spawning and nursery habitat	Completed	No
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	Yes	Yes

GEORGIA		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	Yes	Yes
- Daily possession limit <25 for *de minimis* state	25/person; 75/vessel with 3 licensees	25/person; 75/vessel with 3 licensees
- HSC landing permit	Must have commercial shrimp, crab, or whelk license; LOA permit required	Must have commercial shrimp, crab, or whelk license; LOA permit required
Bait Harvest Restrictions and Landings		
- ASMFC Quota	29,312	29,312
(State Quota)	28,312*	28,062**
- Other Restrictions	None	None
- Landings	0	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No bait landings	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Completed	Not Applicable
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	Yes	Yes
Monitoring Component B_3 Implement spawning survey	No	No
Monitoring Component B_4 Tagging program	No	No

*Note there was quota transfer of 1,000 lbs from Georgia to North Carolina to cover their quota overage of 912 horseshoe crabs in 2015.

**North Carolina has requested a quota transfer from Georgia for 2016 as well. Both states have agreed to the transfers.

FLORIDA		
	2015 Compliance Report	**2016 Management Proposal**
***De minimis* status**	*De minimis* status granted.	*De minimis* requested and meets criteria.
- Ability to close fishery if *de minimis*threshold is reached	Yes	Yes
- Daily possession limit <25 for *de minimis* state	25/person w/ valid saltwater products license; 100/person with marine life endorsement	25/person w/ valid saltwater products license; 100/person with marine life endorsement
- HSC landing permit	See above	See above
Bait Harvest Restrictions and Landings		
- ASMFC Quota	9,455	9,455
- Other Restrictions	None	None
- Landings	264	--
Monitoring Component A_1		
- Mandatory monthly reporting	Yes	Yes
- Characterize commercial bait fishery	No	Yes
Monitoring Component A_2		
- Biomedical harvest reporting	Not Applicable	Not Applicable
- Required information for biomedical use of crabs	Not Applicable	Not Applicable
Monitoring Component A_3 Identify spawning and nursery habitat	Yes	Yes
Monitoring Component B_1 Coastwide benthic trawl survey	No	VT Trawl Survey will in continue for 2016; future years and spatial scope unknown at this time
Monitoring Component B_2 Continue existing benthic sampling programs	No	No
Monitoring Component B_3 Implement spawning survey	No	Yes
Monitoring Component B_4 Tagging program	No	Yes

Note: Florida reported an additional 3,613 crabs harvested along the east coast for 'marine life' use in 2015.

Alternative Baits

Delaware, Connecticut, Rhode Island and Massachusetts attempted to participate in field trials with the Ecobait, available from LaMonica Fine Foods in New Jersey. Massachusetts and Delaware were unable to conduct the trials due to difficulties in securing the Ecobait samples from LaMonica; Connecticut and Rhode Island were able to conduct trials in fall 2014. The results of the study were presented to the Horseshoe Crab Technical Committee and Delaware Bay Ecosystem Technical in October 2015. The results demonstrated that the ecobait produced by LaMonica Fine Foods performed comparable to conventional bait used by conch fishermen in Rhode Island and Connecticut. The results were presented to Board at the 2016 ASMFC Winter Meeting. Subsequently, the Board requested that a cost comparison analysis be conducted (feedback from the Technical Committee and Advisory Panel was presented to the Board in May 2016) and that a draft prospectus for continuing alternative bait trials be developed and presented to the Board at the 2016 Annual Meeting.

Shorebird

The USFWS received petitions in 2004 and 2005 to emergency list the red knot under the Endangered Species Act. In fall 2005, it determined that emergency listing was not warranted at the time. As part of a court settlement, the USFWS agreed to initiate proposed listings of over 200 species, including the red knot. In fall 2013, the USFWS released a proposal for listing the red knot as threatened. In January 2015 the USFWS determined that red knot be designated as threatened under the Endangered Species Act.

The red knot remains listed as an endangered species in the state of New Jersey (since 2012).

VI. Research Needs/PRT Recommendations

De Minimis

States may apply for *de minimis* status if, for the last two years, their combined average horseshoe crab bait landings (by numbers) constitute less than one percent of coastwide horseshoe crab bait landings for the same two-year period. States may petition the Board at any time for *de minimis* status, if their fishery falls below the threshold level. Once *de minimis* status is granted, designated States must submit annual reports to the Board justifying the continuance of *de minimis* status.

States that qualify for *de minimis* status are not required to implement any horseshoe crab harvest restriction measures, but are required to implement components A, B, E and F of the monitoring program (Section 3.5 of the FMP; further modified by Addendum III). Since *de minimis* states are exempt from a harvest cap, there is potential for horseshoe crab landings to shift to *de minimis* states and become substantial, before adequate action can be taken. To control shifts in horseshoe crab landings, *de minimis* states are encouraged to implement one of the following management measures:

1. Close their respective horseshoe crab bait fishery when landings exceed the *de*

minimis threshold;

2. Establish a state horseshoe crab landing permit, making it only available to individuals with a history of landing horseshoe crabs in that state; or

3. Establish a maximum daily harvest limit of up to 25 horseshoe crabs per person per day. States which implement this measure can be relieved of mandatory monthly reporting, but must report all horseshoe crabs harvests on an annual basis.

The following states have been removed from the Management Board in recent years: Pennsylvania (2007), Maine (2011), and New Hampshire (2014). The Potomac River Fisheries Commission South Carolina, Georgia, and Florida are requesting *de minimis* status for the 2016 fishing season based on the 2014-2015 season landings and meet the FMP requirements for achieving this status (Table 1). The PRT recommends granting these jurisdictions *de minimis* status with the provision that marine life landings from Florida be considered in determining future *de minimis* status. Regarding the transfer requests from Georgia to North Carolina, the PRT finds that the quota transfer does not pose concerns for the regional horseshoe crab population or migratory shorebirds at this time, due to the size of the transfer.

Funding for Research and Monitoring Activities

The PRT strongly recommends the continuation of the VT benthic trawl survey in order to provide the critical information for stock assessments and the ARM model. The survey is a necessity to continue ARM implementation. This effort provides a statistically reliable estimate of horseshoe crab relative abundance

ACCSP Transition Document

July 26, 2016

Introduction

In May 2016, the ACCSP Coordinating Council and the Atlantic States Marine Fisheries Commission agreed to alter the governance structure of ACCSP. Under the new governance structure, ACCSP will be fully integrated into ASMFC and will be comparable to other ASMFC programs (e.g., ISFMP, Science). Prior to this governance change, ACCSP was an independent program with ASMFC serving as its administrative home.

This governance change will allow:

- Full integration of ACCSP with ASMFC management and science programs;
- Improved visibility among partners and stakeholders;
- Full incorporation of ACCSP activities into state and federal legislative outreach efforts;
- Consistent application of ASMFC policies for all staff;
- More consistent supervision of ACCSP Director.

This document details the plans for fully integrating ACCSP into ASMFC. An Addendum to the ACCSP Memorandum of Understanding (MOU) will also be developed to formalize all structural changes.

General

ACCSP will be fully integrated into ASMFC while maintaining its identity for stakeholders and partners as the central fisheries dependent data entity for the Atlantic coast. ACCSP will maintain its current website to provide consistency and transparency for stakeholders seeking data or other information about the program. ASMFC will modify its website homepage to provide a link to the ACCSP site on the primary menu bar. This approach will allow stakeholders easy access through either website.

Outreach efforts will be continued to inform stakeholders of ACCSP's capabilities and resources. The primary function of ACCSP's outreach is to inform users and potential users of new developments and promote program capacities. ACCSP and ASMFC outreach experts will work closely together to develop content, network, and promote ACCSP.

Under this governance change, the ACCSP committee structure and membership will not change significantly. For example, the Coordinating Council and Operations Committee will maintain their current makeup and functions. However, there will be some changes to reduce redundancy between the ASMFC and ACCSP committees. For example, there is no need to have two separate Executive Committees.

The needed modifications to the ACCSP have been divided into short, medium and long-term changes. These are detailed below.

Short-Term Changes (0-6 months)

- ACCSP Director participates in ASMFC processes consistent with other ASMFC directors
- ACCSP staff will be guided by the ASMFC Employee Handbook
- ACCSP Coordinating Council composition remains the same, with continued focus on budgetary and data policy issues
  - Responsible for spending decisions of funding allocated to the Program
    - ASMFC Executive Committee will continue to determine (with NMFS concurrence) the allocation of ACFCMA funds between ASMFC, States, and ACCSP.
    - FIN funding for ACCSP will come directly from NMFS
- ACCSP Leadership Team responsibilities shift and committee composition changes:
  - **3 – State Reps -** One Coordinating Council member or proxy from each Region (see below). These seats may be filled by the Chair, Vice Chair and past Chair of the Coordinating Council.
    - Add additional state representative(s) beyond the Chair, Vice Chair, and the former Chair, if necessary (e.g., a federal partner is chair), to maintain three state regional representatives.
    - CC immediate past Chair, Ex Officio
    - The Coordinating Council Chair and Vice Chair shall serve as the Chair and Vice-Chair of the Executive Committee, respectively. It is expected that these positions will usually be rotated among the three regions defined below: New England; Mid-Atlantic; South Atlantic.
  - 1 – NMFS and USFWS Representative
  - 1 – Council Representative for the three Councils (NEFMC, MAFMC, SAFMC)
  - ASFMC Executive Director
    - The ACCSP Director will provide staff support to the ACCSP Leadership Team meetings.
  - Serves as a 'quick response' team when Coordinating Council is not meeting or is impractical.
  - Responsibilities consistent with Coordinating Council as a whole
- ACCSP Director provides at least semi-annual updates with budget highlights to ASMFC Executive Committee
  - Promotes buy-in from state directors
- Approve Addendum to MOU

Mid-Term Changes (6-12 months)

- Continue Integration
  - Look for staff efficiencies in technical and administrative support
  - Consider integration of separate ASMFC and ACCSP outreach efforts

- Consider Information Systems changes (Phase out @accsp.org email addresses and provide ACCSP staff with @asmfc.org emails, etc.)
- Work towards ACCSP as a primary data source for ASMFC needs. Find ACCSP-based solutions to ASMFC management and science data needs.
- Update all ACCSP SOPPs to be consistent with ASMFC and reflect the new governance structure.

Long Term Changes (~24 months)

- Integrate planning
  - Incorporate ACCSP Strategic planning into next ASMFC Strategic Plan
    - Both Strategic Plans end in 2018. The ACCSP activities will be included as a new goal in the ASFMC Strategic Plan and no new ACCSP Strategic Plan will be developed.
    - Incorporate provisions to add recommendations from external reviews of ACCSP.
  - ACCSP will fully participate in the ASFMC's annual Action Planning and budgeting process, including a new ACCSP goal in the Action Plan.
  - Consider the need to continue the ACCSP administrative grant. Possibly fold ACCSP administrative funding into ASFMC programmatic budget.
  - Evaluate the impacts of governance changes and see if additional adjustments are warranted.
  - Evaluate and report to Coordinating Council if ACCSP has been invigorated, renewed engagement from State Directors and the Program is advancing in its mission.

July 8, 2016

ADDENDUM

To the
MEMORANDUM OF UNDERSTANDING

For establishment of an

ATLANTIC COASTAL COOPERATIVE STATISTICS PROGRAM

(ACCSP)

ACCSP Coordinating Council APPROVED: XXXXXXX

INTRODUCTION

When first established in May 1995, Section 8 of the Memorandum of Understanding (MOU) for the Atlantic Coastal Cooperative Statistics Program (ACCSP) provided that:

> The Atlantic States Marine Fisheries Commission (ASMFC), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS) shall agree on the appropriate method of providing support staff and executive secretarial services to the Council and the Committee established under this Section, subject to the approval of the Council. Responsibility for the day-to-day coordination, planning and implementation of tasks associated with the program shall be the responsibility of all of the partners, under the guidance of the Council and the Committee.

During the first few years of existence, the ACCSP was in a planning stage. Planning was conducted by a variety of committees, with adequate staff support provided first by the ASMFC and then a coordinator from the USFWS who was detailed to the program for a year. As the program completed planning of various modules, it began evolving into an operational stage. Additional staff were required to support planning, building of the central data warehouse, and implementation activities. The need for a permanent home for the ACCSP staff was becoming apparent.

In June 1998, the ACCSP Coordinating Council approved a motion that:

- The ASMFC should serve as the administrative body for the ACCSP and its Coordinating Council,
- The ASMFC should hire new staff under the existing Commission structure to support ACCSP Partners with planning, prototype development, research, and implementation, and
- The services provided by the ASMFC to the ACCSP should be formalized through an addendum to the ACCSP MOU.

An Administrative Assistant, Information Technology Manager, Program Manager, and finally two additional information technology staff were hired from 1999 to 2001. As the program continued to grow, and the public became more aware of the existence and purpose of the ACCSP, discussion continued concerning the structure and support of the program. Options that were considered ranged from the continuation of the status quo to complete separation of ACCSP into a stand-alone operational unit. A number of concerns influenced the choice:

- Perception – the public has concerns when data are collected by the same entity that is using the data for management. Separation of ACCSP from regulatory bodies to the extent practical was seen to help address this perception issue.
- The structure would be cost effective and meet the administrative obligations of ACCSP efficiently.
- Any structure would be within Current Legal Authority.
- The structure would reflect that the ACCSP is a partnership that includes the ASMFC, and is not just another ASMFC program.

- The structure would accommodate the continuing growth and maturity of ACCSP.
- There would be clear lines of authority within the program.

In July 2001, the Coordinating Council approved a motion that:
- The ASMFC will provide administrative support to the ACCSP.
- A new ACCSP Director position will be created to provide executive leadership for the program. The ACCSP Director will serve as overall program leader and will have executive authority to manage the continuing development and operation of ACCSP.
- The ASMFC Executive Director and ACCSP Coordinating Council Chair will conduct the performance review for the new ACCSP Director, with oversight by the ACCSP Executive Committee.

The Coordinating Council felt that this decision was the best solution for all concerns. ACCSP would be separated from other ASMFC programs, which addresses perception issues. The structure is within current authorities and would meet the ACCSP's administrative obligations in an efficient, cost-effective manner. The Director would provide leadership and management of the program and be the public view of ACCSP. The continued growth and maturity of the program would be well served with a single, strong program leader. Clear lines of authority were provided for policy/program guidance and staff performance review. This resulted in an amendment to the MOU implementing these recommendations.

In 2012, the Program conducted an Independent Program Review (IPR) that resulted in a series of recommendations. To address one of the ACCSP's 2012 IPR recommendations to "undergo a governance review" the Executive Committee formed a Governance Ad-Hoc Workgroup (Workgroup). The IPR Panel Report indicated they "realize that the situation today is very different than 1995[1] when the ACCSP was created. ACCSP needs a better relationship and interface with Atlantic States Marine Fisheries Commission (ASMFC), and linkages established and strengthened. Consideration should be given to placing ACCSP as a program under ASMFC, which could possibly re-engage the state directors. There are issues of economy of scale and potential improvements to efficiency that could be gained, working relationships strengthened, resources leveraged, etc."

It was the recommendation of the workgroup, approved by the ACCSP Coordinating Council and the ASMFC Executive Committee and Commission as a whole in May 2016, that ACCSP is folded into ASMFC as a Program. Under this alternative, the ACCSP would be incorporated into the ASMFC, and ACCSP would be congruent with existing ASMFC programs such as the Interstate Fishery Management Program (ISFMP). The ASMFC Executive Director would directly supervise the ACCSP Director, and all staff would be governed by existing ASMFC governance structures. This alternative should not have any effect on the current budget of ACCSP or ASMFC.

[1] Original Memorandum of Understanding between partners framed the ACCSP in 1995.

AMENDMENT

This Addendum incorporates the June 1998, July 2001 and May 2016 program changes into the MOU, as follows:

All references in Section Eight to *Atlantic Fisheries Statistics* are be amended to read *ACCSP*.

Section 8 is amended to read:

A. *Atlantic Fisheries Statistics Coordinating Council.* There shall be an Atlantic Fisheries Statistics Coordinating Council (hereafter: Council). The Council shall oversee the design and implementation of the ACCSP, set policy to guide the Program and the partner's participation therein, allocate funding dedicated to the Program, establish Committees as necessary, and recommend solutions for any issue related to the program raised by any of the partners to the ASMFC Executive Committee. The Council members, who shall represent the policy levels within their agencies with the ability to make policy commitments, therefore, shall be: one voting representative of each signatory partner, plus three (3) additional nonvoting representatives from NMFS. The Council shall make its decisions by consensus where possible, or by majority vote. The Council shall elect its Chair and Vice Chair.

B. *ACCSP Operations Committee.* The ACCSP Operations Committee will recommend program priorities, funding criteria, and other items as requested by the Coordinating Council, and/or ACCSP Director. It shall also be responsible for maintaining the *Program Design*, making changes to fisheries standards as needs evolve. The Operations Committee is comprised of an experienced staff person from each partner and one representative each from the National Marine Fisheries Service Headquarter Office of Science and Technology, Southeast Fisheries Science Center, Southeast Regional Office, the Greater Atlantic Fisheries Regional Office, and the Northeast Fisheries Science Center. The Operations Committee shall make its decisions by consensus.

C. *ACCSP Director*. The ACCSP Director serves as overall program leader and has authority to manage the continuing development and operation of ACCSP consistent with guidance from the Coordinating Council. The ACCSP Director reports to and receives guidance from the Executive Director of ASMFC who in turn shall abide by the data management, collection, and standards policy decisions made by the Coordinating Council with respect to the ACCSP mission. The ACCSP Director will be responsible for supervision of ACCSP staff. Specific responsibilities include providing overall guidance to all ACCSP staff, ensuring the policies of both the ASFMC and ACCSP are met by ACCSP staff, coordinating long-range planning and budget requirements, and conducting annual performance evaluations of ACCSP staff. Hiring and firing of ACCSP staff shall be consistent with ASMFC policy. The ACCSP Director will provide staff support to all ACCSP

Committees and Subcommittees and administer any grant or cooperative agreement associated with the ACCSP.

D. *ASMFC Program Support*.

The ASMFC Executive Director shall ensure that the ACCSP Director is accountable for implementation of the ACCSP program elements and for carrying out policies of the Coordinating Council. The ASMFC Executive Director, in consultation with the ACCSP Coordinating Council Chair, will conduct the annual performance review for the ACCSP Director consistent with ASMFC policy.

As a program of the ASMFC, ASMFC shall provide appropriate administrative and logistical services/support for ACCSP operations, consisent with all other ASMFC programs. The ACCSP long-term and annual planning processes shall be integrated with those already in existence for ASMFC, conform to policy as set by the Council and informed by periodic independent reviews of the ACCSP.

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

TO: Atlantic Menhaden Management Board

FROM: Atlantic Menhaden Advisory Panel

DATE: October 13, 2016

SUBJECT: Review of the Amendment 3 Public Information Document

The Atlantic Menhaden Advisory Panel (AP) met via conference call on September 30th to review a draft of the Public Information Document (PID) for Amendment 3. The purpose of this call was to make sure no major issues or options were missing from the document. Preferred management alternatives were not discussed on this call. AP members in attendance included commercial harvesters, recreational anglers, and conservation coalition members. The following is a summary of the recommendations made by AP members on the call.

AP Members in Attendance:

Donald Swanson (NH)
Patrick Paquette (MA)
Bob Hannah (MA)
David Monti (RI)
Meghan Lapp (RI)
Melissa Dearborn (NY)
Jeff Kaelin (NJ, Chair)
Paul Eidman (NJ)
John Dean (MD)
David Sikorski (MD)
Jimmy Kellum (VA)
Peter Himchak (VA)
Scott Williams (NC)
Ken Hinman (GA)

Opening Purpose and Needs Section

- Several AP members felt the stated purpose of the PID focused too heavily on Ecosystem Reference Points (ERPs) and did not appropriately reflect the bait and reduction fisheries which menhaden also support. They recommended the status of the stock be included in the introduction, the human use of menhaden be recognized, and the scale of the menhaden fisheries (e.g. the percent of the annual stock used by humans) be represented. One AP member recommended a goal of the PID be to sustain human use coastwide.
- Other AP members were happy with the stated purpose of the PID. They felt it accurately portrayed the desire of the Board to develop ERPs and address allocation issues in the fishery.
- One AP member asked the standards by which the Commission creates regulatory measures and manages species be added to the document.

Reference Points

- Four AP members presented the following ERP for inclusion in the PID:
  The Atlantic menhaden stock is managed under provisional ecological reference points (ERPs) that specify:
  - *a stock biomass (B) target of 75 percent of virgin, unfished biomass (B_{TARGET} = 0 .75B_0);*
  - *a stock biomass limit (aka threshold) of 40 percent of virgin, unfished biomass (B_{LIMIT} = 0.4B_0);*
  - *a fishing mortality (F) target determined to be consistent with achieving the target biomass (i.e., F = 0.75B_0); and,*
  - *a fishing mortality cutoff (aka threshold) (i.e., F = 0) when B ≤ 0.4B_0.*

  The stated goal of this ERP is to ensure fisheries enjoy the benefits of high biomass while aggressively responding to population declines. Proponents of this proposal noted that, if implemented, the BERP should continue work on the menhaden-specific ERPs and upon completion, the Board should consider complementing, building upon, or replacing these provisional ERPs. AP members in favor of the proposed ERP stated the 75% virgin biomass target for forage fish species has been peer-reviewed and published by Smith et al. (2011) in the journal Science. Furthermore, the reference point is applicable to menhaden as it is intended for low-trophic level species, which are characterized as forage fish which feed on phytoplankton during a significant portion of their life, are present in high abundance, and form schools or aggregations.[1]
- While not all members of the AP supported the new ERP proposal, there was no stated objection on the call to having the reference point analyzed by the PDT to determine its appropriateness for inclusion in the PID. Some members of the AP requested a technical review of the ERP.
- Another AP member asked that language be added to the PID which describes the on-going work to develop management strategies for forage fish. An AP member noted that a paper on this topic is soon to be published by Hilborn et al.

Quota Allocation

- One AP member disagreed with the statement that the current allocation scheme "does not strike an equitable balance between gear types and regions". He highlighted that the current allocation scheme is based on historic landings which represent a fair and equitable way to distribute quota and that if states want more quota, they should pursue an increase in the annual TAC. The AP member questioned what other method there could be, besides historical landings, to distribute quota.
- Several AP members recommended that in *Option G: Fleet Capacity Quotas*, the medium fleet be monitored with a hard quota as opposed to a soft quota.

[1] Anthony D.M. Smith, Christopher J. Brown, Catherine M. Bulman, Elizabeth A. Fulton, Penny Johnson, Isaac C. Kaplan, Hector Lozano-Montes, Steven Mackinson, Martin Marzloff, Lynne J. Shannon, Yunne-Jai Shin, and Jorge Tam. 2011. Impacts of Fishing Low-Trophic Level Species on Marine Ecosystems. *Science,* Vol. 333, Issues 6046: 1147-1150.

- One AP member asked that an example of a seasonal quota, such as a winter quota, be added to the document. This AP member noted a small winter fishery would allow for sampling of the adult population which has been available offshore for the last several years.
- Another AP member recommended all quota allocation options remain in the document presented during the public comment period.

Allocation Timeframe

- Several AP members highlighted the importance of a longer time-series average for the allocation timeframe since landings between 2009 and 2011 were relatively low, especially in the northeast. As a result, they recommended examples of longer time series be added to the document, such as 2006-2012 when only one reduction plan operated or 1985-2012, when accurate bait landings are available.

Quota Transfers and Overage Payback

- One AP member asked whether the Atlantic menhaden fishery has exceeded the coastwide TAC since it was implemented in 2013. He felt this information should be added to the document to provide further context on the discussion of quota reconciliation.
- Several AP members asked if quota reconciliation would encourage some states to continually exceed their allocation knowing that other states routinely underperform their quota. As a result, AP members requested a public comment question be added to the document which asks if there should be accountability measures for jurisdictions which repeatedly participate in quota transfers and quota reconciliation.

Quota Rollovers

- The AP felt the public comment questions included in this section were broad and appropriately addressed the issue.

Incidental Catch and Small-Scale Fishery Allowance

- The AP felt the management options included in this section were broad and appropriately addressed the issue.

Episodic Events Set Aside

- One AP member stated the issue of episodic events is intrinsically tied to re-allocation and asked this connection be made clear in the document.
- Another AP member asked if the current definition of an episodic event is appropriate given the geographic expansion of the stock over the last few years. As a result, the AP member requested a public comment question be added to the document which asks how the Commission should qualify an episodic event given the increase in biomass, especially in the northeast.
- One AP member asked that options be added to the PID which look at specific increases in the TAC (e.g. 2%, 5%, 10%) reserved for the episodic events program to see if small scale fishery needs could be met by increasing the set aside.

Chesapeake Bay Reduction Fishery Cap

- One AP member commented that the Chesapeake Bay reduction fishery continually under-performs its cap because the reduction fishery does not target ages-0's.
- Several AP members asked that a more detailed and historic review of the Chesapeake Bay reduction fishery be added to the document. Staff noted that much of this information is confidential.

Other Comments

- Two AP members requested that a section on research programs and priorities be added to the PID for public comment.
- One AP member asked that total landings per year be added as a column in Table 2 of Appendix 1.

Responses to Comments from the Atlantic States Marine Fisheries Commission's Atlantic Menhaden Technical Committee on "The Fate of an Atlantic Menhaden Year Class", August 18, 2016

Kindly accept the responses below that address comments by the Atlantic States Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Technical Committee (TC) as stated in a June 30, 2016 Memorandum to the Atlantic Menhaden Management Board (Board) regarding a TC review of a paper and powerpoint presentation made by webinar on June 17, 2016 on "The Fate of an Atlantic Menhaden Year Class".

The paper's author and presenter of the powerpoint on June 17, 2016 (Peter Himchak) very much appreciates the TC's investment in their time, energy, and recommendations, as well as their applauding the author's efforts to provide perspective on the impact that the reduction and bait fisheries have on the Atlantic menhaden stock.

1. **COMMENT:** The TC did not feel it was appropriate to include age 0 fish in the analysis since the reduction and bait fisheries do not harvest from this age class. By including age 0 fish, the paper fails to compare removals from the fishery to the harvestable population. As a result, the total exploitation on a year class is underestimated. The TC recommended that the analysis start with age 1 or 2 fish, and also consider the fishery selectivity of each age group when calculating the harvestable population. This change would mirror the current ages used for establishing threshold and targets in the menhaden stock assessment.

   RESPONSE: The objective of the analysis is to provide a perspective in the numbers of fish in the population at each age in context with the numbers of fish removed at each age by both the reduction and bait fisheries on a yearly basis. The author chose to start with the number of recruits to the stock at age-0 because that number represents the size of the year class for the analysis. The TC's comment on focusing on the harvestable population is most appropriate when calculating an exploitation rate and the TC stressed that fishing mortality reference points are based on age-2 through age-4 year old fish where management action would have the biggest impact on the harvestable portion of the population. **However, the analysis was not designed to compare removals from the fishery to the harvestable population. Rather, the analysis was designed to track a year class from age-0 through age-6+ and show the removals at each age by natural mortality and fishing mortality**. The author most likely confused the issues by any reference to exploitation rates in an earlier webinar on June 17, 2016 and that was not his intent. It is important to include age-0 and age-1 fish in the analysis to show the losses due primarily to natural mortality and a lesser extent fishing mortality. The calculation of the

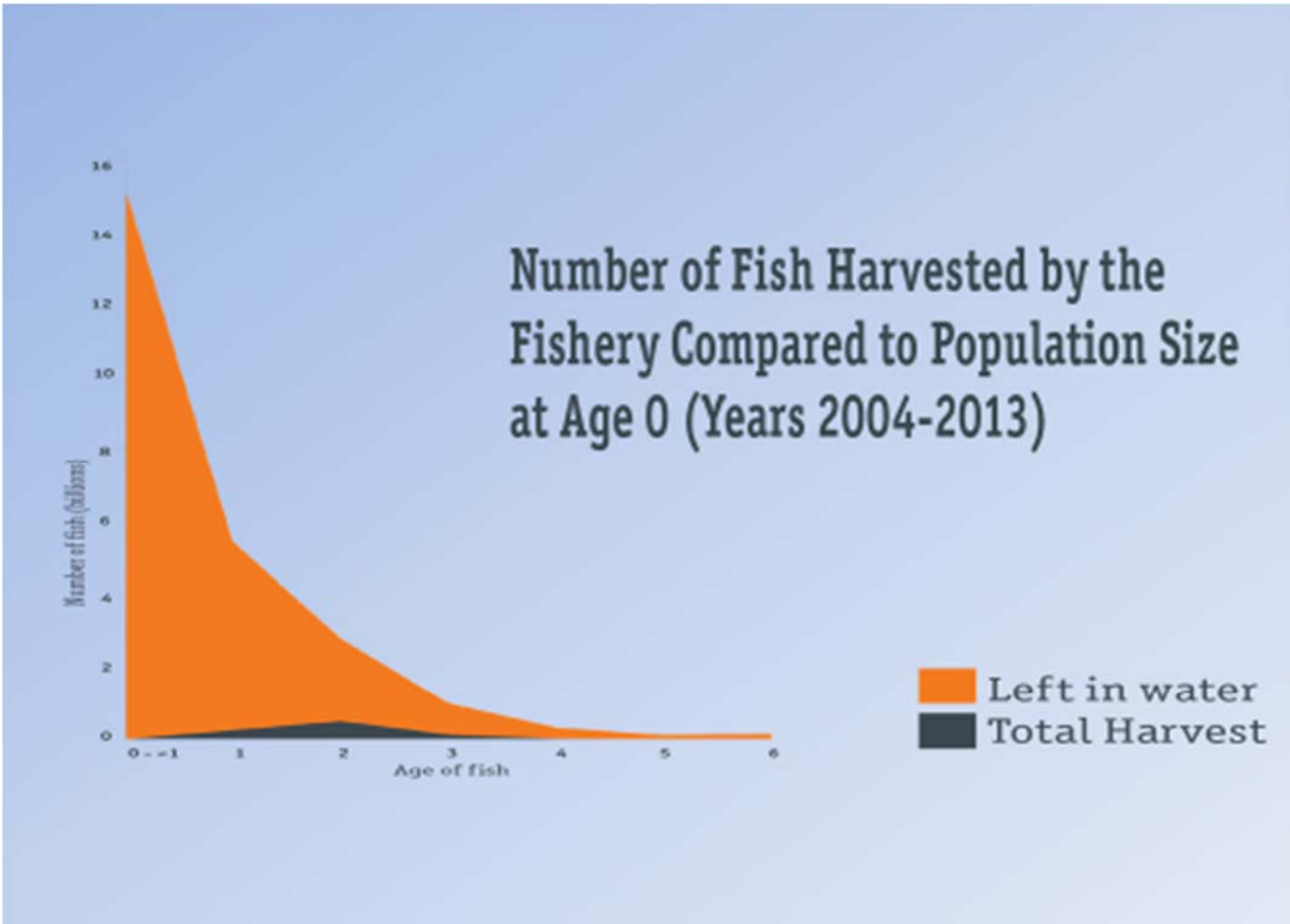
6.4% harvest simply represents the losses in numbers of fish due to both the reduction and bait fisheries on the year class as it ages from age-0 through age-6+ (see Table 1). The analysis demonstrates the varying impacts of natural and fishing mortality losses at each age throughout the life of a year class.

While there is an extremely small harvest by the reduction fishery of age-0s in 9 of the 10 years on which the analysis is based (2004-2013) and some harvest of age-1 year old fish, the reduction fishery takes every effort to avoid these small fish. There are also some losses to cast nets and beach seines largely targeting peanut bunker for bait but these landings are considered minimal in context with the population. Minimal fishing pressure on the smaller fish is important since they serve as food items for many predators and this small harvest is documented. **At the same time, however, the perspective of how many billions of age-0 and age-1 fish lost to natural mortality is an important part of the analysis and it was the author's intent to provide this perspective to the Board**.

Table 1. Average number of fish from 2004-2013 listing abundance at age, reduction fishery harvest at age, bait fishery harvest at age, total harvest at age, and abundance at age not harvested but rather lost to natural mortality.

Ages	Abundance at Age	Reduction Harvest	Bait Harvest	Total Harvest at Age	Abundance Not Harvested
0	15,264,300,000	9,494,000	120,000	9,614,000	15,254,686,000
1	5,216,100,000	243,092,000	23,240,000	266,332,000	4,949,768,000
2	2,286,900,000	447,413,000	78,700,000	526,113,000	1,760,787,000
3	870,700,000	90,154,000	47,920,000	138,074,000	732,626,000
4	312,300,000	15,842,000	13,780,000	29,622,000	282,678,000
5	148,000,000	929,000	1,440,000	2,369,000	145,631,000
Total	24,098,300,000	806,924,000	165,200,000	972,124,000	23,126,176,000

The average annual reduction fishery harvest, 806,924,000 fish, as a percentage of the starting (age-0) year class size of 15,264,300,000 fish is 5.3%. The average annual bait fishery harvest of 165,200,000 fish, as a percentage of that same year class is 1.1%. **Thus, only 6.4% of the year class starting at age-0 is removed by fishing losses as the year class ages from age-0 through age-6+.**



NOTE: At the request of the TC, the author did calculate the percentage of losses due to fishing as a percentage of the number of age-1 and age-2 fish starting out the year and those percentages are 18.6% and 42.5%, respectively. The author believes that these percentages are more applicable to the harvestable portion of population and any calculation of exploitation rates.

It is possible to follow any year class starting with 1955 using the SEDAR 40 data for number at age in billions of fish estimated from the base run of the BAM Model and estimated reduction landings in numbers at age (in millions) to show how a year class erodes as it ages, accounting for both natural and fishing mortality. The author did such an analysis for 5 separate year classes, 2003 through 2007 for which bait data were also available in millions of fish harvested at age and followed those individual year classes through age-6+. The percent of the year class, starting at age-0, harvested for the 5 year classes studied ranged from 3.7% in 2004 to 6.3% in 2006.

2. **COMMENT:** The TC noted that the analysis doesn't include calculations of natural mortality at age, and as a result, it is unclear what portion of the population is being removed due to natural causes. Furthermore, since natural mortality is constantly acting on the population, the impact of fishing mortality should be compared to a continuously diminishing stock. The TC recommended the paper clearly outline the losses due to fishing mortality, natural mortality, and fish that survive in a more than explicit way.

   RESPONSE: Subsequent to the June 17, 2016 webinar with the TC, the author has computed the natural mortality losses at each age, as requested. Equations and calculations are presented and graphed below. In the initial Webinar with the TC, graphs included terms such as "not harvested" and "fish left in the water" at each age and it was unclear how many of these fish were lost to natural mortality and how many survived each year.

CALCULATION OF NATURAL MORTALITY AT EACH AGE

Natural mortality at each age from Age-0 through Age-6+ was calculated to show the difference between the losses of natural mortality and fishing mortality at each age.

$N_{0,1,2,3,4,5,6+}$ = number of fish beginning the year at Age 0, 1, 2, 3, 4, 5, and 6+

$M_{0,1,2,3,4,5,6+}$ = number of fish lost to natural mortality at Age 0, 1, 2, 3, 4, 5, 6+

$F_{0,1,2,3,4,5,6+}$ = number of fish harvested at Age 0, 1, 2, 3, 4, 5, and 6+

The estimate of losses due to natural mortality at each age is calculated by adding the fishery losses at that age with the number of individuals alive at the start of the succeeding year and subtracting that sum of individuals from the number of individuals that were alive at the beginning of the first year.

*$\mathbf{M}_5$ is a negative number because $\mathbf{N}_{6+}$ includes more than one age group.

$\mathbf{M}_{6+}$ cannot be calculated without a discrete value for $\mathbf{N}_{7,8,9,etc.}$

$\mathbf{M}_0 = N_0 - (\mathbf{F}_0 + \mathbf{N}_1) =$ 15, 264.30 – (9.61 + 5,216.10) = 10,038.59

$\mathbf{M}_1 = N_1 - (\mathbf{F}_1 + \mathbf{N}_2) =$ 5,216.10 – (266.33 + 2,286.90) = 2,662.87

$\mathbf{M}_2 = N_2 - (\mathbf{F}_2 + \mathbf{N}_3) =$ 2,286.90 – (526.11 + 870.70) = 890.09

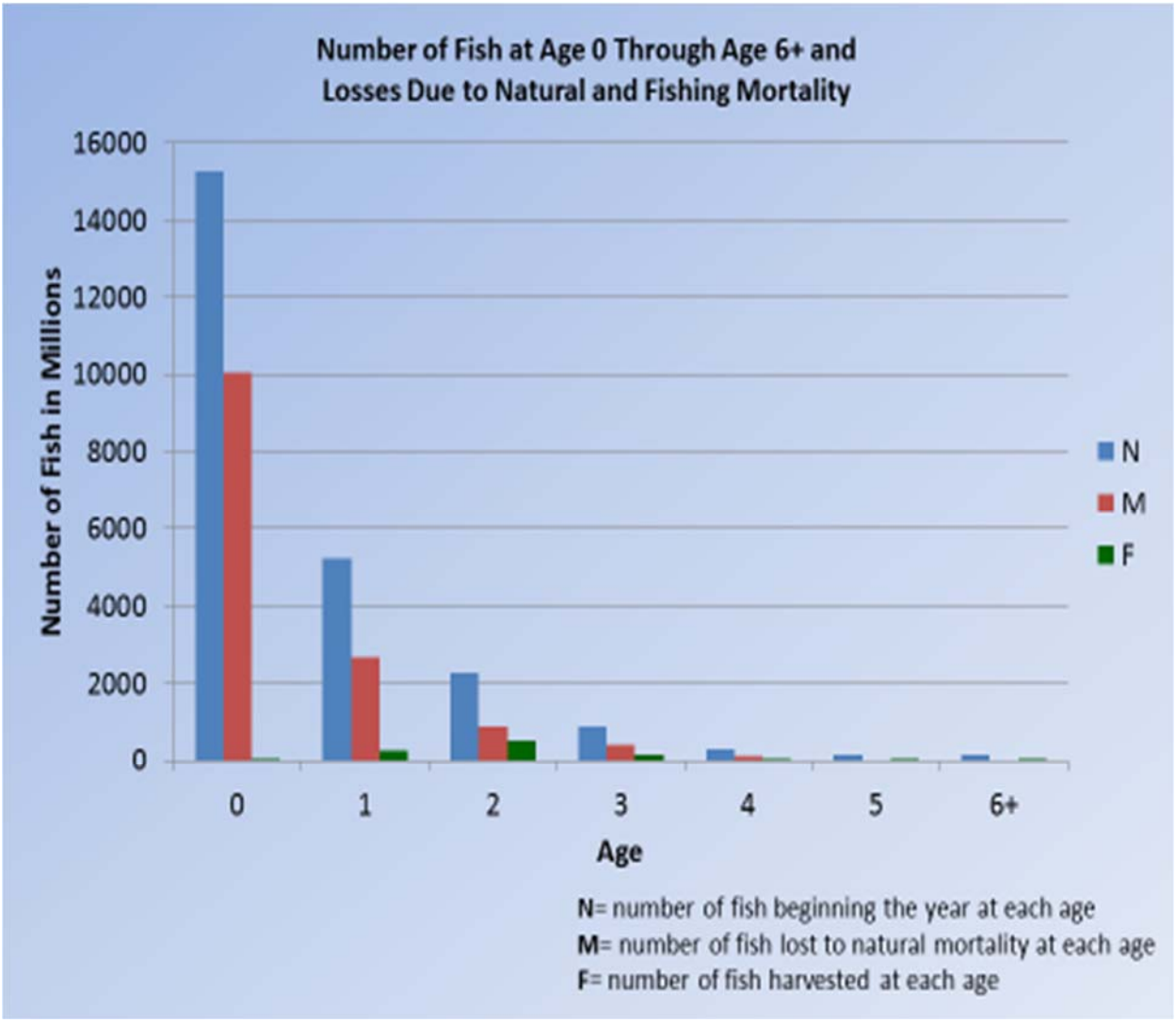
$\mathbf{M}_3 = N_3 - (\mathbf{F}_3 + \mathbf{N}_4) =$ 870.70 – (138.07 + 312.30) = 420.33

$\mathbf{M}_4 = N_4 - (\mathbf{F}_4 + \mathbf{N}_5) =$ 312.30 – (29.62 + 148.00) = 134.68

$\mathbf{M}_5 = N_5 - (\mathbf{F}_5 + \mathbf{N}_{6+}) =$ 148.00 – (2.37 + 171.00*) = -25.37*

NUMBER OF FISH AT AGE-0 THROUGH AGE-6+ (millions of fish) AND LOSSES DUE TO FISHING AND NATURAL MORTALITY

Age	0	1	2	3	4	5	6+
N	15,264.30	5,216.10	2,286.90	870.70	312.30	148.00	171.00
F	9.61	266.33	526.11	138.07	29.62	2.37	0.08
M	10,038.59	2,662.87	890.09	420.33	134.68	-25.37*	-



3. **COMMENT:** The TC recommended that, to fully understand the impact of the Atlantic menhaden fishery, the paper should include a comparison to an unfished stock. This is necessary because fish which are not removed, and then remain in the stock, continue to higher populations in subsequent years. Conversely, the impacts of fishing removals are perpetual in that they reduce the available population in following years.

   RESPONSE: The analysis in "The Fate of an Atlantic Menhaden Year Class" was an attempt to provide perspective on the natural and fishing mortality losses at age as a year class ages from age-0 through age-6+ using data from 2004 through 2013 in SEDAR 40. The analysis is not designed directly to provide guidance on developing management measures for future implementation. The author is not trying to interpret the significance of the fishing mortality losses of 6.4% on the hypothetical year class. Is 6.4% too high, low or sustainable in an ecological context? The author leaves that question up to the ASMFC Ecological Biological Reference Points Working Group.

SUMMARY STATEMENT: "The Fate of an Atlantic Menhaden Year Class" analysis shows the proportion of losses due to natural and fishing mortality at each age as the year class ages from age-0 through age-6+. It also shows that there are different age and size selectivities for both the reduction and the bait fishery. The proportion of natural and fishing mortality losses at each age is demonstrated

From: Michael Pierdinock <cpfcharters@yahoo.com>
Sent: Thursday, October 13, 2016 3:15 PM
To: Megan Ware
Cc: David Pierce; Melanie Griffin; Dave Waldrip; Barry Gibson; Rep. Sarah K. Peake; Cantwell James - Rep. (HOU)
Subject: ASMFC - Menhaden: Status Quo Alternative

Megan:

On behalf of the Recreational Fishing Alliance ("RFA") we recommend that the ASMFC maintain the status quo with no increase in the commercial landing of menhaden. It should be noted that as a result of the recent sound management of the menhaden stock that there has been an increase in the abundance of menhaden in our waters north as well as south of Cape Cod. We have observed the benefit of this critical forage fish that has returned to our waters as a result of those species that we target from striped bass to tuna. It should be noted that there is still lack of significant numbers of peanut bunker specifically north of Cape Cod in our Massachusetts waters and as far north as the coast of Maine. Any increase would be premature based upon our observations and/or lack of significant numbers of peanut bunker north of Cape Cod.

In conclusion on behalf of the RFA we recommend, the Status Quo alternative with no increase in the menhaden commercial harvest. If you have any questions please email or give me a call.

Thanks

Capt. Mike Pierdinock
RFA - Massachusetts Chairman
617-291-8914 (cell)

"To safeguard the rights of saltwater anglers, protect marine, boat and tackle industry jobs and ensure the long-term sustainability of U.S. saltwater fisheries."
www.joinrfa.org

From: Rory Geyer <Rory_Geyer@hotmail.com>

Sent: Wednesday, October 12, 2016 9:39 AM

To: Megan Ware

Subject: Re: Atlantic Menhaden Concern

Follow Up Flag: Follow up

Flag Status: Flagged

Hi Megan,

Thanks for the clarification. These schools provide a great food source for our striped bass population (among other fish populations) up here in New England. There is nothing more depressing and concerning than watching the commercial guys come in with their nets and make entire schools filled with thousands of fish disappear in a matter of hrs. I will support any endeavor that conserves these schools.

Thanks,

Rory

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

Dear Ms. Ware

On behalf of the Recreational Fishing Alliance – New England, I would urge ASMFC maintain the status quo, with no increase in landing quota, in the commercial menhaden fishery. It should be noted that as a result of recent management measures, there has been an increase in the abundance of menhaden in New England waters. Our members have witnessed the return of this important forage species to our waters and the positive benefits to species such as striped bass and bluefin tuna. It should be noted that there is still lack of significant numbers of juvenile "peanut bunker" north of Cape Cod up through mid-cast Maine. Any increase in quota would be premature based upon our observations and/or lack of significant numbers of juveniles in the northern areas.

In conclusion, on behalf of the RFA-NE, I strongly recommend, the Status Quo Alternative with no increase in the commercial harvest. If you have any questions please email or give me a call.

Thank you very much for your consideration.

Sincerely,

Barry Gibson

Capt. Barry Gibson, New England Regional Director
1`9 Royall Rd.
East Boothbay, ME 04544
(207) 633-5929
barrygibson6@aol.com

Virginia Saltwater Sportfishing Association, Inc (VSSA)
PO Box 28898
Henrico, VA 23228
www.ifishva.org

Atlantic States Marine Fisheries Commission
Menhaden Management Board (ATTN: Megan Ware)
1050 North Highland Street, Suite 200
Arlington, VA 22201

Dear Board Members October 13, 2016

The Virginia Saltwater Sportfishing Association (VSSA) requests the following be included as a public comment for the ASMFC meeting 23-27 October, 2016 for the Menhaden Management Board.

We strongly object to the appointment of Peter Himchak, an employee of Omega Protein from Virginia, representing the company's commercial vessels and processors **to the Atlantic Menhaden Advisory Panel as representative from Virginia.**

We have an expectation that all our representatives appointed on advisory panels, boards, committees appointed by ASMFC boards to represent a broad user base in an unbiased, neutral manner able to listen to discussion from all sides before making recommendations. Peter Himchak, as a direct, paid employee of Omega Protein is unable to provide neutral, unbiased advise to the board as his advice will **ALWAYS 100% of the time side to the advantage of a single company, Omega Protein.** Panel members nominated by the states and approved by the board should carry out duties in an unbiased manner that is **best for the fishery overall**, not what is best for a single company.

Additionally, we believe Peter Himchak has a clear conflict of interest and violates ASMFC's code of conduct rules to have no direct or indirect financial interest that conflicts with the fair and impartial conduct of official duties.

We strongly urge the board to disapproved Peter Himchak's nomination to the Atlantic Menhaden Advisory Panel.

Sincerely,

Mike Avery

Mike Avery, President

Stellwagen Bank Charter Boat Association
P.O.BOX 1230
Marshfield, MA 02050

Atlantic States Marine Fisheries Commission
1050 N Highland Street, Suite 200 A-N
Arlington, VA
22201

October 13, 2016

Request Status Quo for the Commercial Menhaden Fishery

Dear Megan,

The members of the Stellwagen Bank Charter Boat Association (SBCBA) based out of Marshfield, MA recommend the Atlantic States Marine Fisheries Commission vote for a status quo with no increase in the commercial landing of menhaden. For the first time in many years we are now seeing schools of menhaden located in the waters throughout Massachusetts resulting in excellent striped bass and blue fishing along with increased catches of bluefin tuna. We believe this is not a coincidence and the direct result of finally having the forage fish to hold the bass, blues and tuna. The charter boats who had a long history of running cod fishing charters have had to remodel their business plans to now target bass, blues and tuna. With the improved striped bass fishing customers are willing to go book a charter, allowing these small businesses to survive.

In summary the Stellwagen Bank Charter Boat Association members request a status quo alternative with no increase in the commercial quota.

Respectfully,

David Waldrip, President

Stellwagen Bank Charter Boat Association

October 11, 2016

Megan Ware
FMP Coordinator
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200
Arlington, VA 22201

RE: Atlantic Menhaden Quota for the 2017

Dear Ms. Ware,

We, the undersigned are representatives from a variety of conservation and angling organizations from across that state of Virginia. Despite many differences in the background of our organizations we are united in our concern about the health of the menhaden population within the Chesapeake Bay and along the Atlantic Coast.

After failing to adopt a quota for the 2017 during its August meeting the Atlantic State's Marine Fisheries Commission's (ASMFC) Atlantic Menhaden Management Board should make the adoption of the current quota for the upcoming fishing season its highest priority. In taking this action, our organizations uniformly advocate that the board not raise the current quota of 187,880 metric tons and remain consistent with the previous two fishing seasons. Adoption of the existing quota for 2017 will provide certainty for both the industrial and bait fisheries while appropriately waiting for the final adoption of Amendment III to the fishery management plan prior to making any changes in the harvest quota for this species.

Thank you for distributing these comments to members of the management board prior to the October meeting. Conservative management of these species is necessary to ensure we reverse the trend of low recruitment in the Chesapeake Bay and continue restoring the historic range of this ecologically important species along the Atlantic Coast.

Sincerely,

John Bello
Chairman

Bob Mandigo
Bob Mandigo
President

Steven Epstein
Steven Epstein
Chairman

Mariah Davis
Mariah Davis
Hampton Roads Organizer

Chris Moore
Chris Moore
Senior Scientist

Frank W. Wagner
Senator Frank W. Wagner
Senate of Virginia

200 DUKE OF GLOUCESTER STREET
ANNAPOLIS, MARYLAND 21401
PHONE: (410) 810-1381
FAX: (410) 810-8964

September 30, 2016

VIA E-Mail
Toni Kerns, Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street
Suite 200 A-N
Arlington, VA 22201
tkerns@asmfc.org

Re: Menhaden Allocation vs Bycatch

Dear Toni:

Thanks for taking the time to discuss the bycatch situation involving our menhaden fishery here in Maryland. Please use my email address: rnewberry56@yahoo.com for your letter.

Thanks again, and have a great weekend.

Sincerely,

Capt. Robert Newberry
Chairman

October 18, 2016

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

Dear Commissioners:

The Recreational Fishing Alliance (RFA) respectfully requests the Atlantic States Marine Fisheries Commission (ASMFC) vote to maintain the current 187,880 metric ton total allowable catch (TAC) for the 2017 fishing season. This TAC was set in response to the findings of the 2015 benchmark assessment and since that time, no new data has been presented and incorporated in the assessment that would justify a quota prior to the 2017 assessment update.

As you know, an assessment update is expected to be conducted in 2017. That assessment update will in part drive the development of ecological reference points to be included in the public information document for Amendment 3. It is the hope of the recreational fishing community that those reference points will reflect menhaden's important role as a forage fish along the Atlantic Coast. These reference points are expected to take into consideration the ecological value of menhaden and at what level the menhaden stock needs to be maintained to ensure that other species such as summer flounder, striped bass, and bluefish are able to meet their conservation objectives while producing maximum socioeconomic benefits to both the commercial and recreational fishing industries. As the ASMFC moves forward with the development of Amendment 3, maintaining the 2017 TAC at status quo is the most appropriate course of action.

RFA and the vast majority of the recreational fishing community do not believe that an increase to the 2017 menhaden TAC is warranted or appropriate at this time. Even at status quo, commercial removes roughly equate to half a billion pounds of menhaden which is significant especially considering some of the current challenges with striped bass and summer flounder. The impact of which is compounded by the fact that the majority of landings occur in a very small area relative to the management range. Status quo provides ample poundage for both commercial and recreational bait needs. Any TAC increase would only benefit Omega Protein executive, lobbyists and its share holders which the RFA simply cannot support. The RFA encourages you to vote to maintain the TAC at 187,880 metric tons and ensure that the public information document for Amendment 3 is approved and released in a timely manner.

Sincerely,

Jim Donofrio
Executive Director

RECREATIONAL FISHING ALLIANCE
PO Box 3080 New Gretna, NJ 08224
888 JOINRFA, www.joinrfa.org

Chesapeake Bay Ecological Foundation, Inc.
Easton, MD 21601
410-822-4400

MENHADEN CRUCIAL TO STRIPED BASS HEALTH IN CHESAPEAKE BAY

Striped Bass & Menhaden Management Disrupts Chesapeake Bay Ecosystem

Chesapeake Bay Ecological Foundation (CBEF) conducted the only long-term (2005-2015), year-round nutritional and food habit study on adult striped bass, examining over 15,000 fish and major prey consumed – primarily Atlantic menhaden. Study areas included Choptank River, Chesapeake Bay & Atlantic Coast from Montauk, NY to Oregon Inlet, NC.

Chesapeake Bay is the largest nursery and production area for striped bass and menhaden. In the Bay, menhaden are crucial prey for striped bass over 12" and essential to the ecosystem as filter feeders and key prey for many predatory fish and birds. In 1990, the Atlantic States Marine Fisheries Commission (ASMFC) reopened the Maryland striped bass fishery after being closed during a five year moratorium. At the same time, ASMFC raised the striped bass minimum size from 14" to 18" in MD's portion of the Bay, increasing prey demand on the depressed menhaden population. In 1991, concern that the Atlantic menhaden stock was being overfished appeared in a National Marine Fisheries Service publication "Marine Fisheries Review" ("Assessment and Management of Atlantic & Gulf Menhaden Stocks", D.S. Vaughan & J.V. Merriner). The summary cautioned: *"The expansion of fishing on the spawning stock in New England waters concurrently with increasing fishing pressure on pre-spawning menhaden off Virginia and North Carolina in the fall prompts concern for maintenance of the Atlantic menhaden resource".* By the time the Bay's striped bass population reached ASMFC's abundance objective in the late 1990s, a high percentage were malnourished and diseased. Recent striped bass tagging studies indicate high natural mortality rates.

Striped bass management must utilize multi-species approaches. Prey shortages in the Bay are not factored in ASMFC management of striped bass. Poor health and survival from the predator/prey imbalance may be undercutting striped bass management goals. ASMFC has failed to protect small, young menhaden, crucial prey for non-migratory adult Chesapeake Bay striped bass. Management of the menhaden harvest should be based on quotas and size limits that protect the Chesapeake Bay's striped bass prey supply, rather than the size of the estimated menhaden spawning stock, which is uncorrelated to recruitment.

CBEF's research enhances knowledge of Chesapeake Bay & mid-Atlantic ecosystems and the life cycle of striped bass & menhaden. Our study determined that lowering the striped bass size limit and/or establishing a menhaden minimum size for the purse seine fishery is essential for maintenance of healthy Chesapeake Bay adult striped bass.

Atlantic States Marine Fisheries Commission

ISFMP Policy Board

October 27, 2016
8:00-10:30 a.m.
Bar Harbor, Maine

Draft Agenda

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

1. Welcome/Call to Order *(D. Grout)* 8:00 a.m.

2. Board Consent *(D. Grout)* 8:00 a.m.
   - Approval of Agenda
   - Approval of Proceedings from August 2016

3. Public Comment 8:05 a.m.

4. Executive Committee Report (*D. Grout*) 8:15 a.m.

5. Review Revisions to Conservation Equivalency Guidance Document (*T. Kerns*) **Final Action** 8:25 a.m.

6. Update on Climate Change Working Group (*T. Kerns)* 8:40 a.m.

7. Discuss Risk and Uncertainty Policy Workgroup White Paper (*J. McNamee)* 8:50 a.m.

8. Habitat Committee Report (*T. Kerns*) 9:20 a.m.
   - Review and Consider the Sciaenid Habitat Source Document **Action**
   - Review the State Reports on Climate Change Initiatives
   - Review the Draft Letter to BOEM regarding Seismic Testing **Action**

9. Atlantic Coastal Fish Habitat Partnership Report (*P. Campfield*) 9:40 a.m.

10. Law Enforcement Committee Report (*M. Robson*) 9:50 a.m.

11. Discuss and Consider Comment on the National Park Service Management Policies (*J. Gilmore*) **Possible Action** 10:00 a.m.

12. Review Non-Compliance Findings, If Necessary **Possible Action** 10:15 a.m.

13. Other Business/Adjourn 10:05 a.m.

The meeting will be held at the Harborside Hotel, 55 West Street, Bar Harbor, Maine; 207.288.5033

MEETING OVERVIEW

ISFMP Policy Board Meeting
Thursday October 27, 2016
8:00-10:30 a.m.
Bar Harbor, Maine

Chair: Doug Grout (NH) Assumed Chairmanship: 10/15	Vice Chair: Jim Gilmore (NY)	Previous Board Meeting: August 3, 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 August 3, 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 (8:15-8:25 a.m.)

Background

- The Executive Committee will meet on October 25, 2016.

Presentations

- D. Grout will provide an update of the committees work

Board action for consideration at this meeting

- none

5. Review Revisions to Conservation Equivalency Guidance Documents (8:25-8:40 a.m.)
Final Action

Background

- The Executive Committee tasked staff to update the Conservation Equivalency Guidance Document to reflect the current practices of the Commission.
- In August MSC and ASC reviewed proposed revisions and made recommendations to the Executive Committee and Policy Board.
- Based on direction from the Executive Committee and Policy Board staff updated the Conservation Equivalency Guidance Document for review and approval by the Executive Committee and Policy Board (**Supplemental Materials)**.

Presentations

- T. Kerns will review the revised Conservation Equivalency Guidance Document

Board action for consideration at this meeting

- Approve the Conservation Equivalency Guidance Document (2016)

6. Update on Climate Change Working Group (8:40-8:50 a.m.)

Background

- The Climate Change Work Group was tasked with developing science, policy and management strategies to assist the Commission with adapting its management to changes in species abundance and distribution resulting from climate change impacts.
- The Work group met via conference call to brainstorm how to address the Policy Board task (**supplemental materials**)

Presentations

- T. Kerns will review the Climate Change Workgroup Progress

Board action for consideration at this meeting

- none

7. Discuss Risk and Uncertainty Policy Workgroup White Paper (8:50-9:20 a.m.)

Background

- Previously, the Board approved the purpose statement for the Commission's Risk and Uncertainty Policy.
- The Risk and Uncertainty Policy Workgroup met to develop their recommended decision-tree framework for a Commission policy and created an example for the Board to review. (**Meeting Materials**)

Presentations

- J. McNamee will review Risk and Uncertainty Policy Workgroup White Paper

Board guidance for consideration at this meeting

- Provide feedback on the decision-tree framework

8. Habitat Committee Report (9:20-9:40 a.m.) Action

Background

- The Habitat Committee met October 20 – 21 in Portland, Maine. They welcomed their newest member, Oliver Cox, from Maine, finalized updates to the 2017 Action Plan, and discussed ideas for new management series documents, among other topics.
- The Habitat Committee finalized the Sciaenid Habitat Source Document (**Meeting Materials**), the State Reports on Climate Change Initiatives document (**Meeting Materials**), and the draft letter to BOEM regarding seismic testing (**Supplemental Materials**).
- The Artificial Reef Committee welcomed Michael Malpezzi from Maryland Department of Natural Resources, who will be replacing Erik Zlokovitz.

- The Artificial Reef Committee will be serving on the steering committee for an artificial reef symposium at the 2017 American Fisheries Society Meeting in Tampa, Florida.

Presentations

- T. Kerns will present the Habitat Committee updates.

Board action for consideration at this meeting

- Approve the Sciaenid Habitat Source Document
- Approve the Letter to BOEM regarding Seismic Testing

9. Atlantic Coastal Fish Habitat Partnership Report (9:40-9:50 a.m.)

Background

- ACFHP met October 18-20 in Portland, Maine. Highlights include presentations on local projects, reports on science and data mapping initiatives, and a full day workshop dedicated to updating the Conservation Strategic Plan.
- ACFHP's chair, Kent Smith, is currently attending the NFHP Science and Data Committee Workshop and Board Meeting in Pensacola, FL. Discussion topics include the NFHAP-USFWS funding allocation methodology, Beyond the Pond 501(c)3 capacity, and an update on the fish habitat legislation. ACFHP will report on discussions at the winter meeting.
- ACFHP received 9 proposals for FY2017 NFHAP-USFWS funding, and has evaluated and ranked the projects for recommendation to the USFWS.

Presentations

- P. Campfield will present ACFHP updates.

Board action for consideration at this meeting

- None

10. Discuss and Consider Comment on the National Parks Service Management Policies (10:00-10:15 a.m.) Possible Action

Background

- The National Park Service released updates to the Director's Order on Fishing. For the most part, the policies in the Order are not new but derived directly from the 2006 version of NPS Management Policies. It is expected a Federal Register Notice will be published in the next couple of months regarding the Order. The NPS held a webinar (**Supplemental Materials**) for AFWA to get feedback on the Order. AFWA is compile comments from states to send to NPS. Comments are due **October 31.**

Presentations

- J. Gilmore will discuss the Director's Order and possible implication to states.

Board action for consideration at this meeting

- Provide Comments to AFWA on the NPS Director's Order on Fishing

11. Review Non-Compliance Findings, if Necessary

12. Other Business

13. Adjourn

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

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 Revisions

Atlantic States Marine Fisheries Commission

CONSERVATION EQUIVALENCY:
Policy and Technical Guidance Document

First Edition Approved May 2004
Draft Revisions for Review October 2016

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 on development, submission, review and approval of conservation equivalency proposals.

Background

The Atlantic States Marine Fisheries Commission (ASFMC) employs the concept of conservation equivalency in a number of interstate fishery management programs. Conservation equivalency 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). Allowing states to tailor their management programs in this way avoids the difficult task of developing one-size-fits-all management measures while still achieving equivalent conservation benefits to the resource.

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. 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 approved a policy guidance document on conservation equivalency in 2004. Since 2004, some of the practices of the Commission regarding conservation equivalency have changed. The revisions to this document reflect current Commission practice.

General Policy Guidance

The use of conservation equivalency is an integral part of the Commission management process. Conservation equivalency is used in 2 ways: (1) in the development of the FMP

(including implementation plans) and (2) as alternative management programs outside of the FMP process.

During the development of a management document the Plan Development Team (PDT) should 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 collect all necessary input from the technical committee, Law Enforcement Committee, Committee on Economics and Social Sciences and the Advisory Panel. The PRT will compile input from all of the groups and forward a recommendation to the management 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. 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.

State conservation equivalency proposals should contain the following information:

1. Rationale: 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. Description of how the alternative management program meets all relevant FMP objectives and management measures (FMP standards, targets, and reference points). States are responsible for supplying adequate detail and analysis to confirm conservation equivalency based on the most recent stock assessment.

3. A description of:
    - Available datasets used in the analysis and data collection method, including sample size and coefficient of variation.
    - Limitations of data and any data aggregation or pooling.
        - The Technical Committee (TC) should determine an acceptable level of precision for all landings data and develop data standards for other data types used. States may request (but are not required) this information prior to the submission of their proposal. (Any analyses that do not meet approved precision standards should conduct sensitivity analyses to determine the effects of the data uncertainty)
    - The length of time the state is requesting conservation equivalency and a review schedule for the length of the program. If the state does not intend to have an expiration date for the program it should be clearly stated in the proposal with justification. Proposals should identify the length of time measures are intended to be in place and the timing of the review of the specific measures.

4. 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.

5. Include a plan describing the monitoring schedule, reporting requirements and documentation process of evaluating the impacts of the conservation equivalency measures.

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 FMP.

1. Conservation equivalency should be approved by the Management Board and where possible implemented at the beginning of the fishing year.

2. 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. The board chair will submit 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 (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. 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.

5. 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. The Chair of the Advisory Panel (AP) will compile the AP Comments and provide a report to the Management Board.

6. 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. 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 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.

8. The Board will decide whether to approve the conservation equivalency proposal and will set an implementation date, taking into account the requested implementation date in 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. 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.

Plan Review Following Approval and Implementation

1. Annually thereafter, states should describe and evaluate the approved conservation equivalency programs in their compliance reports submitted for annual FMP Reviews.

2. The PRT is responsible for evaluating all conservation equivalency programs during annual FMP reviews to determine if the conditions and goals of the FMP are maintained, unless a different timeline was established through board approval. If the state is not completing the necessary monitoring to evaluate their approved conservation equivalency program, this may be grounds for termination of the plan. The PRT will report to the Board on the performance of the conservation equivalency program, and can make recommendations to the Board if changes are deemed necessary.

Coordination Guidance

The Commission's interstate management program has a number of joint or complementary management programs with NOAA Fisheries, US Fish and Wildlife Service and the Fishery Management Councils. Conservation equivalency creates additional burden on the Commission to coordinate with our federal fishery management partners. To facilitate cooperation among partners, the Commission should observe the following considerations.

- 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 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 .

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 (ASFMC) 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 proposasl. 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. If 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 2nd 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

Draft Climate Change and Fisheries Management Work Group Call Summary
September 7, 2016
Conference Call

Work Group Participants

Bill Adler
Mike Armstrong
Steve Arnott
Doug Brady
John Clark
Jim Gartland
Mark Gibson
Doug Grout
Kim McKown
Wendy Morrison
Brandon Muffley
Adam Nowalsky
Ritchie White
Spud Woodward

Staff: Toni Kerns, Pat Campfield

Discussion Questions

Science Strategies

1) What are the science priorities?
2) Establish climate-change impact terms of reference within ASMFC stock assessments

Policy and Management Strategies-

Policy/guidance document on climate change, including tools the Commission will utilize when a resource has impacts that are clearly tied to ocean warming and/or ocean acidification. Here is how we would manage them differently then what we are doing now. How will fisheries management adapt to current and future changes in climate and ocean?

- Species distribution movement
    - Design and implement flexible allocation strategies
    - ASMFC Commissioner survey results
    - Incorporate periodic review of state allocations in FMP
    - Change permitting approaches and landings regulations
    - Other
- Recruitment and abundance impacts from climate change
    - Precautionary management decisions in anticipation of shifting distributions and productivity
    - Use Hare et al. report and other resource climate impact information from TCs to identify ASMFC species with potential and realized impacts from climate change
    - End over fishing but is it necessary to have rebuild strategy
    - Other
- Are there different strategies we would employ for biologically sensitive species (vulnerable to climate impact) but we have not begun to realize impacts
    - Do we need to collect new or additional data to provide information on how a species is being impacted by climate

- For stocks that do not respond to management, how long do we continue fisheries management (e.g. surveys, quotas, monitoring and associated costs)
- If such a situation becomes a reality, should we develop a formal management action that recognizes discontinuance of formal management

Meeting Notes, Action Items

Doug G. provided an overview of the need for the Commission to further address stocks impacted by climate change, building from work conducted by the Management & Science Committee (MSC) from 2012-2014.

Objective/Products – white paper with potential to turn into policy paper to be adopted by Commission

Pat provided an overview of background materials and strategy questions provided to the WG for today's call, including the 2014 memo from MSC to the Policy Board with recommendations on allocation and future monitoring considerations, and a powerpoint from the climate and fisheries presentation given by Bob Beal at the 2016 State Directors Meeting.

The WG started with Science Strategy questions. With respect to climate change impact terms of reference within ASMFC stock assessments, Kim noted for example that we attempted to incorporate climate change into the 2015 lobster stock assessment. In addition to basic trends in sea surface and bottom temperatures, the number of month per year within lobster's preferred temperature range was a key variable in evaluating impacts to lobster. Jim mentioned other assessment examples including butterfish. These assessments incorporated climate change by describing Habitat Suitability Indices geographically; ie, using water temperature isotherms to determine where butterfish occur and compare butterfish abundances by temperature gradients.

Steve asked if we're talking about putting climate indices inside assessment models, or as complementary analysis or geographic trends outside of assessment models. Jim suggested we keep options open in assessment TORs to allow scientists the flexibility to pursue both avenues, depending on data availability and the feasibility of formally including climate in models. Steve agreed, and suggested also ensuring assessment model outputs describe climate change measures and impacts on the stock.

John noted it may be challenging to include climate in assessments and asked if we can really do it. Mike suggested that assessment TOR language be realistic and specific, because generic language won't be terribly helpful; for example, "conduct a spatial analysis of stock distribution, changes in mortality, growth (both +/-), and other factors impacted by changing temperatures or acidity". Doug G. agreed, as climate terms may apply to some species more than others, who are not impacted as much. Pat volunteered to compile examples of CC TORs in recent assessments for consideration at the next WG meeting.

Steve asked if we need to do literature review of each species to see which are most impacted. Wendy noted the new NMFS Climate Vulnerability Assessment addresses that need, providing species by species impacts in great detail. It combines literature and professional knowledge, and should provide the WG with sound guidance for individual species. A new literature review is not needed.

Wendy asked about future monitoring? Is that relevant to the Commission's initiatives related to climate change. Doug G. concurred future monitoring is definitely relevant; collectively we need to determine whether current temperature, pH, and other environmental monitoring stations are sufficient, or if better coverage is needed. Kim recognized via lobster science and assessment that long-term temperature data are sparse, and encourages starting new monitoring that will gain value down the road. Bill mentioned a Woods Hole researcher monitoring bottom temps in lobster traps. Kim responded the lobster TC is aware of those data but they weren't used in the latest assessment (see assessment report for explanation). Jim brought up opportunistic monitoring taking place, including the NMFS study fleet of commercial vessels measuring temps and cruise ships also recording temps, although they are shorter time series.

Brandon asked if we're talking about doing a synthesis of existing surveys, or creating new monitoring. Wendy suggested a gap analysis has not been done yet and would make sense. Brandon noted NJ's trawl survey collects temp data but we've never really analyzed, at least not from a CC perspective; perhaps we could do analyses of environmental data from all state and regional trawl surveys.
Toni recommended using recent individual assessments to serve as the gap analysis; what was used in the assessment, and what was missing that we'd like to have? Kim noted with lobster, an example monitoring gap is continuous daily measures, which are harder to come by, but needed because the temperature threshold effect (#days exceeding Tmax) was the key variable for lobster. Steve mentioned that a valuable existing source is the USGS network of estuarine/riverine continuous 15-min interval monitoring stations; should be very useful for diadromous and possibly estuarine-dependent species; there are papers in the South Atlantic of analyses relating temp data to the Atlantic Multidecadal Oscillation (AMO) and other climate phenomena.

Doug G. suggested asking TCs or MSC to look for temp and other relevant environmental data within states. Steve encouraged identifying info tucked away in drawers somewhere, and possible need to key enter/digitize to make the data useful for assessment-related analyses. Toni and Kim noted we did do that for the lobster assessment, looking at where in the Northeast temperature data were available and how data were collected. Kim agrees with the task to put together a summary of data available, time series duration (for both fish and environmental monitoring), to determine what's missing and what's in a drawer and needs to be digitalized. Pat noted the Commission's Assessment Science Committee has a synthesis file of all fish survey and monitoring programs along the coast, which can be used as the foundation for a new climate monitoring data set, including fish surveys that also measure temps and other environmental data.

Policy and Management Strategies:
How would we manage fisheries differently from what we're doing now?
Two basic changes: abundance/recruitment impacts, and range distribution shifts
MSC project and Commissioner survey recommended a 50:50 historic/current allocation option to consider implementing for stocks with distribution shifts. I.e., new allocation consists of half of the quota distributed as it had been using landings history over a range of years, and the other half of quota distributed based on new geographic distribution of the stock
Other WG thoughts on possible re-allocation options? And how frequently to revisit distributions and allocations?
Doug B. asked if there is a set frequency in which individual species allocations are revisited? John indicated there is no set frequency. Doug G. asked what is ASMFC's allocation track record and species examples? Toni noted nothing is set in stone; but in some of the newer FMPs revisions are built into the

allocation process (e.g. menhaden allocation is to be revisited every 3 years), but we've never changed the historical landings timeframes for any species as of yet.
Doug B. asked has re-allocation ever been modified due to climate change? Doug G. said no, the Commission just operates under the general policy to periodically revisit allocation.
Steve asked what is the subset of ASMFC species managed with state-by-state allocation? Toni noted fluke, black sea bass, scup, bluefish, menhaden, eel (w/ triggers), striped bass (commercial shares), and smooth dogfish. Doug G. noted additional non-Commission species with limited entry are also relevant and their approaches could be considered.

Doug G. asked should we develop a Commission policy to revisit allocation every X years? John noted states have been hesitant to move away from current state allocations out of concern for losing fish; it's worked out okay for Delaware, but possible re-allocations would likely be resisted; new regional management of tautog is a current example. Brandon mentioned the FMPs which originally included periodic allocation reviews are more viable (menhaden), but others without periodic language are unlikely to gain traction; willingness to consider re-allocation only works when we know we'll have an opportunity to change again 3 years out.

Wendy noted NMFS just put out a new allocation policy, designed for commercial:recreational allocations, which includes a provision that each fishery must identify a trigger to revisit allocation (Councils define triggers); Wendy will send new policy to Work Group (see link at the end). Toni and John asked will the triggers require re-allocation, or just call for revisiting re-allocation. Doug suggested we should put it on the table for boards to consider, even if not binding to change allocations.

Doug G. said the MSC Commissioner Survey asked about changes in landings relative to allocation; should we put forth a policy that applies across all species, or leave it to individual boards to determine? Doug B asked are these questions the WG should address, or questions for the full Commission? Doug G noted the WG charge is to develop a white paper / policy doc with recommendations for the full Commission to consider, to promote adaptability and flexibility relative to shifting stocks.

Adam mentioned fisheries management runs into hot-button issues that flare up and may or may not be related to climate change; we should compartmentalize re-allocation policy specifically to climate factors, instead of re-allocate for other non-climate issues

Kim noted an important distinction between landings vs. harvest; eel for example, in assessments we use landings; if we shift to harvest locations, that needs to be tracked and adjusted for in assessments

Toni asked what are the actual strategies for being more flexible with allocation adjustments? The menhaden episodic events approach is one contemporary example. Bill suggested we could adopt 'episodic events' approaches for other species. Doug G. agreed; we have quota transfers between states now. John noted current quota transfers are somewhat informal, 1st come 1st served; a more centralized and equitable approach would be better. Doug G. asked could transfers be done after the fact? There is an inherent greater risk of going over total quota, analogous to end of year budget sweep. Toni noted it's already in practice with Scup and Black Sea Bass, includes a 'betting game' where some states go over their quota knowing other states will be under; also, select states intentionally leave their quota in the water for the ecosystem and/or preservation of the stock. Doug G suggested the WG needs to design transfers with a disincentive/penalty to discourage 'betting game'.

Next Management Question: How do we handle stocks that are disappearing from historic range due to climate impacts on recruitment and growth? Eg, SNE lobster, Northern shrimp. Do we have monitoring to detect such impacts? Steve described a seatrout winter severity index that has been developed and used in some years to adjust management measures conservatively when colder winters occur. Doug G. noted similar dynamics are being observed in the Northeast, where annual fluctuations promote shrimp recruitment in cold years, or conversely few shrimp in warm years. Adam suggested we need to distinguish between stocks going completely to extinction vs. stocks leaving a region but still productive elsewhere in their range, or in newly expanded range. Doug G. noted in cases of low recruitment and survival for the entire species, we're dealing with an ESA situation, but in the shrimp and lobster cases, we're dealing with poor production locally.

Doug B asked are we dealing with true climate change impacts, or natural fluctuations, for shrimp? Doug G. noted we're experiencing all-time highs in GOMaine sea temperatures over the past 5 years, and lobster SNE productivity at all-time lows. Kim and Brandon mentioned there's also a dichotomy between shutting a fishery down (shrimp) vs. being more precautionary (SNE lobster); and changes can go in a positive direction too, like black sea bass taking off in abundance in SNE. Mike noted there are challenges in that we can't predict where stocks are heading; we were blind-sided by shrimp productivity drop, and SNE winter flounder not shifting latitudinally but going to deeper, colder waters because estuaries are becoming too warm for good productivity.

John suggested the Mid-Atlantic lobster fishery would cease to exist if we take very precautionary cuts; but maybe that's the reality if it's too warm for them biologically down here. Doug noted it's hard to implement large cuts if you're overfished, but not overfishing; e.g., lobster recruitment has been low for over a decade; should we 1) take steps to prevent overfishing, but 2) not expect the stock to return; rationale being…preserve the remaining stock in case environment conditions improve so we can get production from the remnant stock. What if we can't prevent overfishing because temperatures keep getting warming and the stock simply can't come back?

Adam suggested the WG's advice should include 1) when to take precautionary steps due to drops in productivity, and 2) when to change management/allocation due to distributional shifts. Historical publications show similar shift in species distributions in the 1950s (Bigelow et al.). Kim noted there were temperature fluctuations since the 1950s (Woods Hole monitoring), but the last 2 decades have been consistently higher. Bill and Steve noted there have been large productivity and distributional changes in the past (50s, 60s); related to AMO decadal trends (see Hare et al. pub; Adam to send copies to WG).

Toni suggested we also need to distinguish between US waters and international waters issues; e.g., are there shrimp productivity differences in Canada, Iceland? Doug G. noted Canadian scientists observed a drop in productivity but not as bad as US waters; do we need a policy in cases where even a fishery moratorium does not result in a stock returning? Bill suggested these are natural fluctuations, we don't need a policy. Mike suggested we do need a policy; it's odd that we've treated 2 invertebrate species very differently (moratorium vs. small harvest cuts); shrimp and lobsters are at the Southern limit of their range.

Brandon suggested we should tie climate change aspects into the Commission's new Risk & Uncertainty policy also under development. Doug B. noted we need to be very confident the changes are truly due to climate change to promote buy-in from stakeholders, and not just reacting to multi-decade swings

that will return to normal in a few years. Doug G. noted the science is strong in documenting climate-induced changes.

Steve recommended keeping a perspective broader than ASMFC in mind; the South Atlantic and Gulf of Mexico have seen subtle but not drastic increases in temperature; the South Atlantic has seen changes in salinity, indirectly due to climate change's increased participation patterns on the East Coast.

Wendy provided one more scientific note; terrestrial research has shown highest genetic diversity (and therefore stock resiliency value) in the 'trailing edge' portion of a stock that's on the move; in such cases, the priority should be to preserve the trailing edge sub-stock that is most likely able to maintain the overall stock amid environmental fluctuations and variable recruitment, growth, and survival. Toni asked if anyone is doing genetic research in the marine realm? Wendy noted not that we're aware of, but it's being encouraged within NMFS' climate science strategies. Steve mentioned that David Conover did some work on striped bass off Long Island. Kim noted resiliency seems evident for remaining SNE lobsters; they can adapt to a wider variety of environmental conditions. Wendy noted that climate change and management strategies research provides other insights, including the need to preserve broad population age structure (more older fish), which also promotes stock resiliency.

Doug G. introduced the last question to the Work Group on the 'The Nuclear Option'; what do we do with stocks that have not responded to precautionary management actions over time? There are large costs to survey the stock that could be used elsewhere. At what point do we throw in the towel? Bill suggested we shouldn't give up, and continue monitoring. Kim distinguished between species extinction and subpopulation local extinction. John noted the question is relevant to states included in management units, or de minimis status because the stock distribution has shifted out of individual states. Doug suggested we deal with these as individual species cases, and on state-by-state basis.

Call Adjourned (~2 hrs)

NMFS Allocation Policy and Policy Directives outlining a process the Councils will follow to identify triggers for all fisheries with an allocation, and the factors that should be considered when making an allocation decision. These documents can also be found here: http://www.fisheries.noaa.gov/sfa/management/allocation/index.html

From Spring 2016 ASMFC Meeting - Climate Change Session

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 mangers use the science that integrates ecosystem monitoring and basic research into predictive models for 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

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

Douglas E. Grout (NH), Chair *James J. Gilmore, Jr. (NY), Vice-Chair* *Robert E. Beal, Executive Director*

Vision: Sustainably Managing Atlantic Coastal Fisheries

October 27, 2016

Mr. Mike Celata
Gulf of Mexico Region Director
Bureau of Ocean Energy Management (BOEM)
Gulf of Mexico OCS Region
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

Dear Mr. Celata,

Please accept these comments from the Atlantic States Marine Fisheries Commission (Commission) on the potential environmental effects of seismic testing surveys and other geological and geophysical (G&G) activities off the Atlantic coast of the US.

For over 70 years, the Commission has been responsible for coordinating the conservation and management of nearshore fish species, with membership from all the states of the US Atlantic coast from Maine to Florida. Fisheries resources are profoundly important to the social and economic well-being of US Atlantic coastal communities, and provide numerous benefits to the nation. The Commission's efforts to manage fishery resources is best served in the context of a healthy and resilient ecosystem.

The ocean is an acoustic environment and the Commission is concerned the propagation of sound from seismic surveys and other sound producing G&G activities may have significant impacts on fish populations, our coastal ecosystem, and the commercial and recreational fisheries on which they rely. Fish and other living marine resources depend on sound for their most vital life functions such as finding mates, foraging, avoiding predators, navigating, and communicating. The National Oceanic and Atmospheric Administration (NOAA) recently released their Ocean Noise Strategy[1] to address ocean noise over the next 10 years, and recognized that, "sound is a fundamental component of the physical and biological habitat that many aquatic animals and ecosystems have evolved to rely on over millions of years."

At present, there is insufficient information about how seismic surveys and other G&G activities may affect fish, marine mammals, benthic communities, and ecosystem structure and function. Given the existing value of living marine resources and our fisheries along the coast, the Commission believes it is important to fund research that will enable a better understanding of the environmental consequences of these activities. Our federal fisheries management partners, the Mid-Atlantic and South Atlantic Fishery Management Councils, have also commented to you on the need to fund additional research to

[1] Available at: http://cetsound.noaa.gov/Assets/cetsound/documents/Roadmap/ONS_Roadmap_Final_Complete.pdf.

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

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Vision: Sustainably Managing Atlantic Coastal Fisheries

ensure impacts on our fish populations, fisheries, and the ecosystem on which they depend are carefully considered. The Commission has many of the same concerns our Federal partners have already expressed to BOEM on this subject.

A strong collaboration already exists among our member states and other fisheries regional partners (i.e., Fishery Management Councils, US Fish and Wildlife Service, and NOAA Fisheries). To promote further collaboration and engagement with BOEM, we are offering a seat for BOEM staff on our Commission's Habitat Committee. Having BOEM as a member of the Habitat Committee will support sustained and ongoing communication between us on any proposed G&G activities in the region, and will improve coordination and information sharing with our organizations and stakeholders as we work together to balance use of our physical and living marine resources along the Atlantic coast.

The Commission asks that you consider the issues identified above including the opportunity to have a BOEM staff member join the Habitat Committee membership. The Commission looks forward to working more closely with BOEM in the future.

Please feel free to contact me if you have any questions.

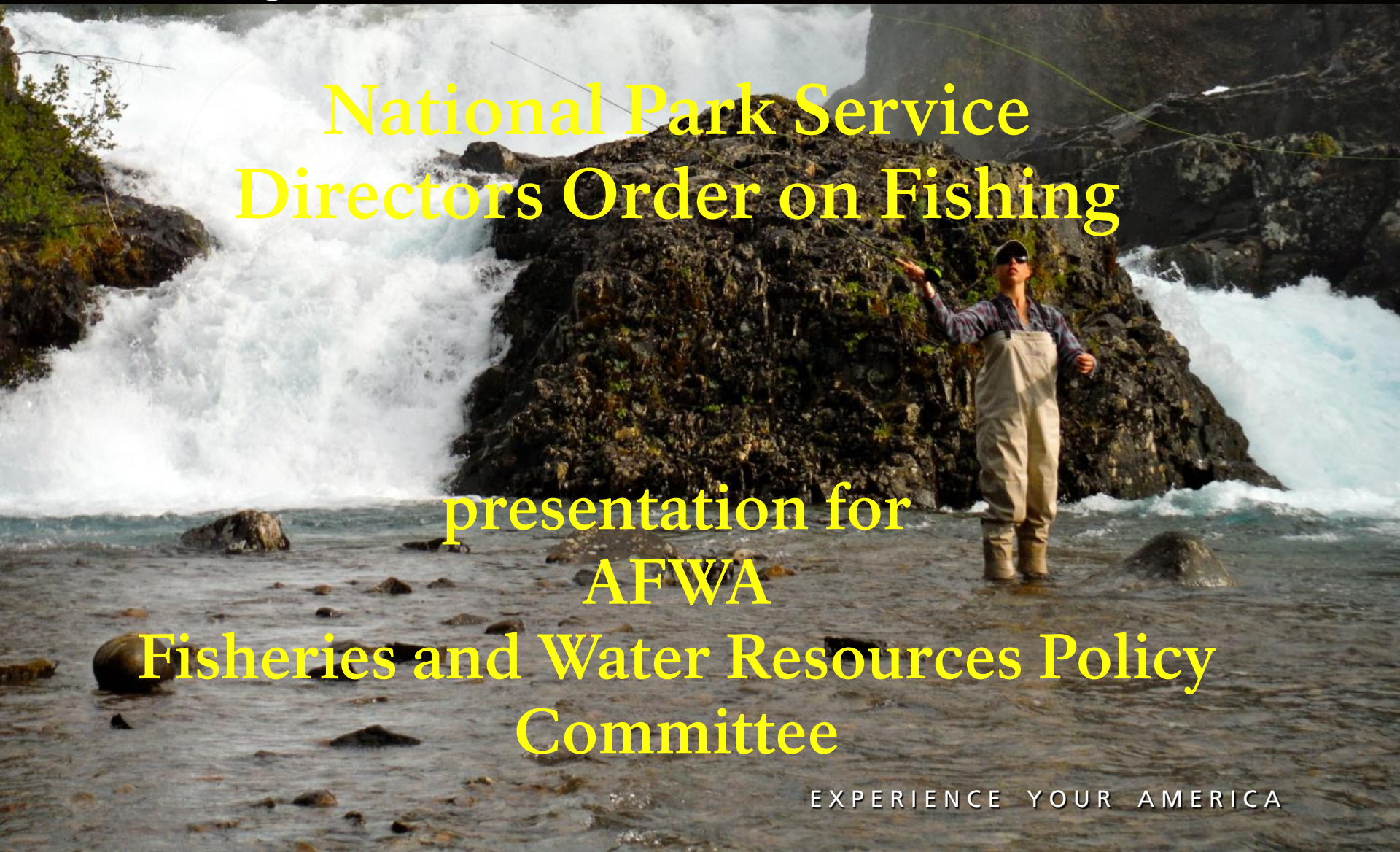
Sincerely,

Douglas Grout
Chair, Atlantic States Marine Fisheries Commission

cc: R. Beal, T. Kerns, L. Havel

National Park Service
U.S. Department of the Interior

Fisheries Program



National Park Service Directors Order on Fishing

presentation for AFWA Fisheries and Water Resources Policy Committee

EXPERIENCE YOUR AMERICA

National Park Service
U.S. Department of the Interior

Fisheries Program

Who we are:

Fish Program
National Park Service
Natural Resources Stewardship and Science
Water Resources Division
Fort Collins, CO

John Wullschleger, Program Lead
970.225.3572
john_wullschleger@nps.gov

EXPERIENCE YOUR AMERICA

What We Do:

- Technical and policy assistance to parks, NPS regions and Washington Office including project oversight and management
- NPS representation to interagency / multi-stakeholder groups addressing fisheries and aquatic resources
- Development of policy, guidance and initiatives related to fish, fisheries and aquatic resources

National Park Service Organic Act of 1916:

[The National Park Service] shall promote and *regulate* the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified. . .by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is *to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations* (16 USC 1)

National Park Service General Authorities (1970):

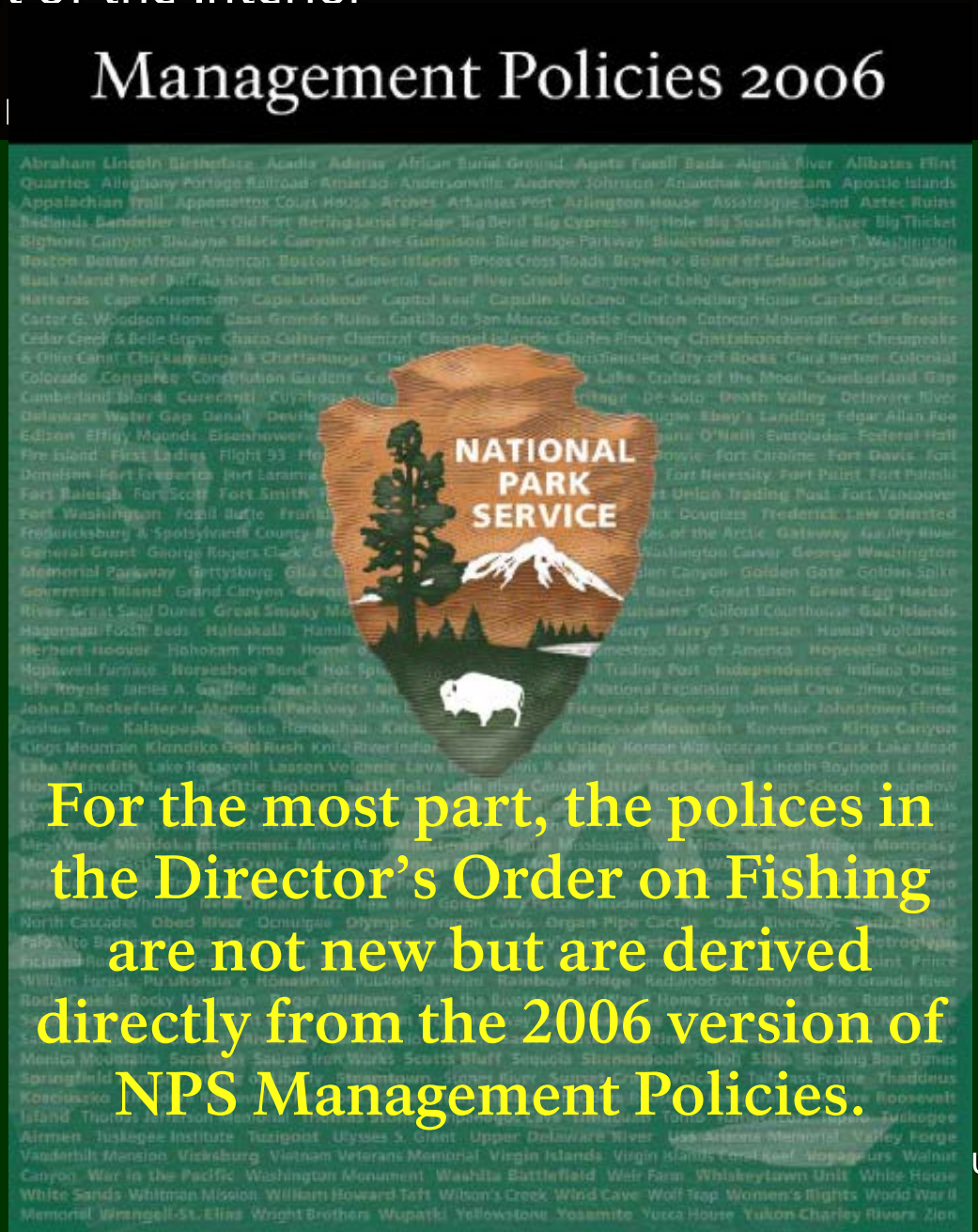
Areas of the National Park System (parks, monuments, recreation areas, historic sites, parkways, etc.) *though distinct in character, are united through their inter-related purposes and resources into one national park system* as cumulative expression of a single national heritage; that, individually and collectively, these areas derive increased national dignity and recognition of their superb environmental quality through their inclusion jointly within one national park system preserved and managed for the benefit and inspiration of all the people of the United States"

Redwood National Park Act (1978):

"The *authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in the light of the high public value and integrity of the National Park system and shall not be exercised in derogation of the values and purpose for which these various areas have been established* except as may have been or shall be directly and specifically provided by Congress"

National Park Service
U.S. Department of the Interior

Fisheries Progra



For the most part, the polices in the Director's Order on Fishing are not new but are derived directly from the 2006 version of NPS Management Policies.

UR AMERICA

Impairment – an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Depends on the resource in question , severity, timing and duration as well as direct, indirect and cumulative effects.

Unacceptable impact – an impact that falls short of impairment, but is still not acceptable within a particular park's environment. Meets the requirement of conserving park resources and values in "light of the high public value and integrity of the National Park system"

Recreational fishing in the National Park System

- Is a traditionally allowed use of the National Parks that began before the Organic Act with the creation of Yellowstone National Park in 1872
- Is allowed wherever not specifically prohibited by statute or regulation.
- Is managed in contrast to hunting , which is prohibited except where specifically allowed by statute or regulation

Recreational fishing in the National Park System

- Is allowed in >200 of 409 National Park Service units
- 345 National Park Service units have surface water
- 245 National Park Service units have fish (but not all of these have sport fish).

Fishing in the National Park System

- Is regulated under Title 36, Section 2.3 of the Code of Federal Regulations (which adopts non-conflicting state regulations) plus any special regulations promulgated by individual parks (found at 36 CFR §7).
- Is managed under exclusive federal jurisdiction in a handful of National Park Service units .
- In the majority of National Park Service units jurisdiction is shared with adjacent state(s).

Purpose

The purpose of this Director's Order is to consolidate and provide consistent policy for fishing in units of the National Park System that complies with the NPS Organic Act (54 USC 100101(a) et seq., commonly known as the National Park Service Organic Act) and National Park Service (NPS) regulations and policies.

Definitions

Fish: Any member of the subclasses Agnatha, Chondrichthyes, or Osteichthyes, or any mollusk or crustacean found in saltwater. (36 CFR § 1.4). Other taxa, and freshwater mollusks and crustaceans are not considered fish, and are addressed by NPS regulations governing wildlife.

Definitions

Fishing: Taking or attempting to take fish. (36 CFR § 1.4).

Catch-and-release: The act of temporarily removing a fish from park waters and returning it, alive, to the water from which it was taken, in a manner that will optimize its chances of survival.

Harvest: The act of permanently removing a fish from park waters.

Scope

This DO applies to the management of fish and fishing as defined in 36 CFR § 1.4 and Section 5.0 of this DO and as regulated under 36 CFR § 2.3 and other applicable NPS regulations. It does not apply to freshwater mollusks or crustaceans, nor to other taxa not included in the definition at 36 CFR §1.4, all of which are defined as wildlife (36 CFR § 1.4(a)). Furthermore, this Director's Order does not apply to the capture or collection of fish by NPS staff pursuant to their duties or to the collection of fish under the terms of a valid NPS Research and Collection Permit.

Categories of Fishing

Recreational Fishing

Recreational fishing is fishing for sport or pleasure where the catch is not sold, bartered, or traded. In recreational fishing, fish may be caught and harvested or caught and released.

Commercial Fishing

Commercial fishing is fishing where the catch is sold, bartered, or traded.

Categories of Fishing

Subsistence Fishing

Subsistence fishing refers to fishing where the uses of harvested fish are customary and traditional. If authorized, subsistence fishing may include barter and trade without being considered “commercial fishing.”

Categories of Fishing

Treaty Fishing

Treaty fishing is fishing that is authorized under the terms of a treaty between the United States government and the government of another country including Native American tribes. When fishing is authorized by treaty, the NPS's authority to regulate such fishing is dependent on the specific terms of the treaty. However, superintendents should work with tribes and other entities with treaty fishing rights to ensure NPS resource protection goals are met.

General Policies

All Fishing

Where recreational, commercial or subsistence fishing is allowed (including catch-and-release fishing) it is recognized that there will be impacts to park resources. It is the responsibility of parks to establish the level at which the impacts resulting from fishing would become unacceptable and take all measures within NPS authority to ensure that threshold is not reached. (MP §§ 1.4.7.1; 4.4.3; and 8.2).

General Policies

Recreational Fishing

Recreational fishing is allowed in parks, 1) where it is authorized by federal statute, and 2) where it is not specifically prohibited by federal statute and has been determined to be an appropriate use according to § 8.1.1 of the NPS Management Policies. (MP § 8.2.2.5)

General Policies

Commercial Fishing

Commercial fishing is prohibited in units of the National Park System except where specifically authorized by federal statutory law or treaty right (36 CFR § 2.3(d)(4) and MP § 8.2.2.5) or where it is not specifically prohibited by federal statute and is allowed by special regulation. Statements in enabling legislation that authorize fishing or shellfishing do not constitute specific authorization for commercial fishing.

General Policies

Commercial Fishing (continued)

When commercial fishing is specifically authorized by statute, the NPS must allow such fishing to take place in that unit, subject to reasonable NPS regulations.

If there is no specific authorization for commercial fishing in the federal statutory law or treaty that applies to a particular park (i.e., the law or treaty contains only general authorization for fishing, or does not refer to fishing at all), then commercial fishing is presumptively prohibited per the general NPS regulations. . . . a park can override the presumptive prohibition by promulgating a special regulation to allow commercial fishing under 36 CFR § 1.2(c).

General Policies

Commercial Fishing (continued)

Where commercial fishing is occurring in a park unit without specific statutory authorization or a special regulation, the superintendent must take all appropriate steps to stop such fishing permanently or until a special regulation allowing commercial fishing is promulgated. Steps to eliminate commercial fishing may include non-renewal of permits or promulgation of special regulations to implement a phase-out.

Commercial fishing must never be allowed to result in unacceptable impacts to fish or other resources.

General Policies

Subsistence Fishing

Subsistence fishing is allowed only when specifically authorized by federal law, treaty right, regulation, or other existing rights (e.g., rights retained by a land donor where the use would occur) (MP § 8.9). Regulations at 36 CFR Part 13 address the take of fish for subsistence purposes for Alaska parks under the Alaska National Interest Lands Conservation Act (ANILCA).

General Policies

Harvest of Fish (including saltwater molluscs and crustaceans)

The harvest of fish may be allowed where recreational fishing is allowed and will be allowed where commercial or subsistence fishing is provided for in statute. Wherever harvest is allowed, monitoring is required (MP §4.4.3). Monitoring must provide data that allows NPS managers to determine that harvest will not result in unacceptable impacts to harvested species or interrelated species and resources.

Regulations

Regulation Review

Parks will review their fishing regulations (i.e., NPS general fishing regulations including adopted state regulations and any special fishing regulations that apply to the park) on a regular basis, or in response to changes to applicable state regulations, to ensure they are adequately protective. Where existing regulations are inadequate to avoid unacceptable impacts to NPS resources the superintendent must take action to address the situation.

Regulations

Superintendent's Compendium

A superintendent may address inadequacies in existing regulations by issuing restrictions on hours of use, imposing limits on the number of fishers, closing all or a portion of an area to fishing, or establishing conditions or restrictions on fishing. (36 CFR § 1.5(a)). Such restrictions are published annually in the Superintendent's Compendium. Except in emergency situations, prior to publishing the Compendium the superintendent must prepare a written determination justifying the action and if the Compendium includes a closure or restriction, consult with the appropriate state agency (36 C.F.R §§ 1.5(c) and 2.3(c)).

Regulations

Rulemaking (continued)

If these restrictions meet the criteria listed in 36 CFR § 1.5(b), then they are not appropriate for inclusion in the Compendium and must be promulgated as a rulemaking and published in the Federal Register (36 CFR § 1.5(b)). Additionally, the superintendent's Compendium must not be used to contradict or relax the regulatory standards of 36 CFR §2.3 (48 FR 30262).

Regulations

Special Regulations

When a superintendent deems it necessary to relax the regulatory standards of 36 CFR § 2.3, then the promulgation of special regulations through the formal rulemaking process including publication in the Federal Register is required (36 CFR § 1.2(c)). Typically, NPS special regulations should be at least as protective as NPS general fishing regulations (36 CFR §2.3), including applicable state fishing regulations.

Specific Policies

Planning

Parks that allow fishing should address fishery management in planning documents or processes. Parks are strongly encouraged to develop fishery management plans in cooperation with states and other partners and to practice adaptive management of fishing.

Specific Policies

Planning (continued)

NPS managers should use fishery management planning processes to: 1) Summarize available information on fish, fishing and related resources and identify data gaps and research needs; 2) identify the present and desired future conditions of park fishery resources and values (MP § 4.1.1); 3) develop measurable indicators and standards that define the threshold for unacceptable impacts; and 4) identify monitoring and management actions necessary to protect fishery resources from unacceptable impacts.

Specific Policies

Native vs. Non-native Fisheries

In many water bodies, the NPS allows fishing for native species in their natural habitats. For fisheries based on native species, NPS management will emphasize the maintenance and restoration the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur; (MP § 4.4.1).

Specific Policies

Native vs. Non-native Fisheries

In some cases, particularly in reservoirs and other human-altered water bodies, the NPS manages fishing based on non-native species. In these circumstances, management must ensure that non-native species do not cause unacceptable impacts to native species, ecological processes or other NPS resources. Where non-native fishes are not maintained to meet an identified park purpose (such as fishing), they will be managed up to and including eradication if control is feasible (MP § 4.4.4.2).

Specific Policies

Stocking

The NPS generally does not engage in fish stocking, except in compliance with §§ 4.4.3 and 4.4.2.2 of NPS Management Policies (2006).

Specific Policies

Stocking

A park may allow stocking of native or exotic fish 1) into constructed large reservoirs, or other significantly-altered large water bodies to provide for recreational fishing or, 2) to satisfy a treaty right or statute, other applicable law, or House or Senate report accompanying a statute. In general, non-native fishes will not be stocked into NPS waters where they are not already established (MP § 4.4.4.1). .

Specific Policies

Stocking

The NPS will not stock waters that are naturally fishless unless authorized to do so by statute or if it is determined to be necessary to reestablish a native species for which historic habitat is no longer available within the park.

Wherever stocking is allowed under any of these exceptions, parks must ensure that it will not cause unacceptable impacts to park natural resources including native species and ecosystem processes.

Specific Policies

Bait

By general regulation [36 CFR §2.3(d)(2)], possession or use as bait of live or dead minnows or other bait fish, amphibians, or nonpreserved fish eggs is prohibited in freshwater, except in designated waters. Waters may only be designated if they meet the criteria in 36 CFR §2.3(d)(2).

Specific Policies

Bait (continued)

In freshwater, the collection of organisms for use as bait is prohibited unless authorized by statute or special regulation. In saltwater, where non-conflicting state fishing regulations allow for the collection of fish as bait, collection is allowed subject to the requirements of MP2006 §4.4.3; collection of organisms that do not meet the regulatory definition of fish, for use as bait, is prohibited unless provided for in statute or special regulation.

Specific Policies

Bait (continued)

Parks should identify the risks associated with all types of live bait in both fresh and salt water and must ensure that bait fishing does not result in the introduction of non-native species (including, but not limited to, fish, amphibians, worms [Annelida, including Oligochaeta and Polychaeta], mollusks, crustaceans and pathogens) to NPS waters.

Specific Policies

Fishing Line

Superintendents should take all reasonable steps to prevent the disposal of fishing line into the environment and to eliminate the adverse impacts of discarded fishing line on fish and wildlife

Specific Policies

Lead Fishing Tackle

Parks will work with stakeholders including state and federal agencies, fishers, and park concessionaires to eliminate the use of lead fishing tackle in NPS waters (NPS Director's Memo Get The Lead Out Initiative, March 4, 2009).

Specific Policies

Ethical Treatment of Fish

NPS regulations require the careful and immediate return to the water of all fish that do not meet size or species restrictions, or which a fisherman chooses not to keep [36CFR § 2.3(d)(7)]. Parks should encourage the humane treatment of fish that are harvested as well as fish that are caught and released.

Specific Policies

Fish Consumption Advisories

NPS must comply with Department of the Interior Policy on fish consumption advisories (Department Manual Release 515 DM 5). Parks will work with the NPS Office of Public Health and cooperate with state and tribal health departments to provide fishers with information on fish and shellfish consumption advisories in effect for waters within park units and the risks to human health associated with eating fish and shellfish caught in those waters.

Specific Policies

Habitat Restoration and Enhancement

The NPS will not alter natural aquatic habitats for the purposes of increasing fishing opportunity or artificially enhancing carrying capacity (MP § 4.4.3). However, where fish habitats and aquatic ecosystem functions have been degraded by human activities, the NPS will restore them to their natural condition consistent with a park management plan. The NPS will not construct or allow the construction of artificial reefs or other types of fish aggregating structures and will remove such structures where feasible, except in human-altered water bodies such as reservoirs (MP § 4.4.3).

Specific Policies

Barrier Removal and Construction

During the construction and maintenance of facilities and roads, parks will avoid creating barriers to the natural movements and migrations of native fish. Where such barriers are associated with existing park infrastructure they should be removed or mitigated to the degree possible. The installation, enhancement and maintenance of fish barriers may be allowed to restore or protect native species that might not be able to persist in sympatry with non-native species due to the effects of competition, predation or introgression.

Specific Policies

Aquatic Invasive Species

Consistent with the laws and regulations applicable to the NPS, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. § 4701 et seq.), and Executive Order 13112, NPS seeks to prevent the introduction and spread of invasive species, provide for their control, and minimize the economic, ecological and human health impacts that invasive species cause.

Specific Policies

Aquatic Invasive Species (continued)

Parks shall take measures to prevent the deliberate or accidental introduction and spread of aquatic invasive species that may be transported on boats and fishing equipment, fishing tackle, waders, felt soles, boats (including water systems) and through the possession and release of live bait (36 CFR 2.1(a)(2)).

Specific Policies

Fishing Tournaments

Fishing tournaments are "special events" that require permits and may only be allowed if 1) there is a meaningful association between the tournament and the park area and, 2) the tournament will contribute to visitor understanding of the significance of the park area (MP § 8.6.2.1). Applications for fishing tournaments in parks should be denied if they would fail to meet other NPS policies on visitor use (MP § 8.2) or if they may cause unacceptable impacts to park resources (MP §§ 1.4.7.1).

Specific Policies

Commercial Use Authorizations

Parks issuing commercial use authorizations (CUAs) for use of fishery resources, including charter fishing operations and guides, must ensure that the agreements and contracts only authorize services that are consistent with the relevant statutes and 1) are an appropriate use of the park, 2) have minimal impact on park fisheries resources and values, and 3) are consistent with all applicable management plans and park policies and regulations (MP § 10.3).

Specific Policies

Commercial Use Authorizations (continued)

Parks should include terms and conditions in CUAs that the NPS considers necessary for management and protection of fishery resources, including the accurate and timely reporting of catch and harvest data.

Specific Policies

Concessions

Where services to facilitate fishing are provided by NPS concessioners, the superintendent must ensure that concessions contracts include language that requires compliance with all applicable sections of this DO as well as the collection and reporting of any information and / or data that are considered by the superintendent to be necessary for fishery management and aquatic resource protection.

Specific Policies

Wild and Scenic Rivers

Except as otherwise provided in statute, the NPS has the responsibility and authority to manage fishing within Wild and Scenic Rivers that are units of the national park system, consistent with all applicable NPS regulations and policies.

Specific Policies

Education and Outreach

Park managers are encouraged to educate the public about fishing in the national park system, the ecological value of fish, and opportunities to see and appreciate fish in their natural habitats. Education and outreach programs should foster a sense of stewardship for fish and aquatic systems and help the public understand the meaning and relevance of fish and fishing within the context of the NPS mission.

Specific Policies

Cooperation with States and Others

Although park managers are responsible for managing fish and aquatic ecosystems within their boundaries, Department of the Interior regulation (43 CFR § 24.6) encourages the development of cooperative agreements with states and requires the preparation of fish and wildlife management plans in cooperation with state fish and wildlife agencies and other Federal agencies when appropriate. (43 CFR § 24.4)

Specific Policies

Cooperation with States and Others (continued)

Memoranda of Understanding (MOU) and joint fishery management plans are encouraged for parks with fishery resources that are in common or continuous with those managed by states or other entities. These documents should be used to articulate goals and objectives and define management and regulatory responsibilities.

Specific Policies

Cooperation with States and Others (continued)

Park staff are encouraged to work with local communities and other user groups in the management of fisheries through cooperative conservation principles found in NPS Management Policies (2006). Such coordination is identified as a best practice in Director's Order #75A: Civic Engagement and Public Involvement (See Management Policies § 1.6-1.8) and may be required as part of the public participation *process involved in compliance with NEPA.*

National Park Service
U.S. Department of the Interior

Fisheries Program

Who we are:

Fish Program
National Park Service
Natural Resources Stewardship and Science
Water Resources Division
Fort Collins, CO

John Wullschleger, Program Lead
970.225.3572
john_wullschleger@nps.gov

EXPERIENCE YOUR AMERICA

Atlantic States Marine Fisheries Commission

DRAFT ADDENDUM XXV TO AMENDMENT 3 TO THE AMERICAN LOBSTER FISHERY MANAGEMENT PLAN

RESPONSE TO SOUTHERN NEW ENGLAND STOCK DECLINE

This draft document was developed for Management Board review and discussion during the October 2016 Lobster Board meeting. This document is not intended to solicit public comment as part of the Commission/State formal public input process. However, comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting. Also, if approved, a public comment period will be established to solicit input on the issues contained in the document.

ASMFC Vision Statement: Sustainable Managing Atlantic Coastal Fisheries

October 2016

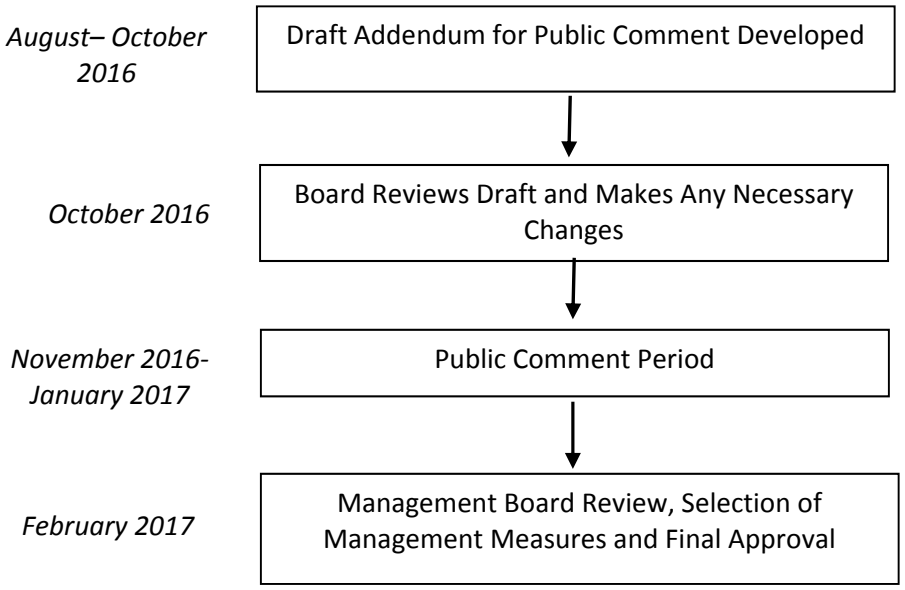
Public Comment Process and Proposed Timeline

In May 2016, the American Lobster Management Board initiated Draft Addendum XXV to address continued stock declines in Southern New England. In August 2016, the Board identified a management goal for the Southern New England stock as well as management targets for development in this addendum. This draft addendum presents background on the Atlantic States Marine Fisheries Commission's management of lobster, the addendum process and timeline, a statement of the problem, and potential management measures for public consideration and comment.

The public is encouraged to submit comments regarding the proposed management options in this document at any time during the addendum process. The final date comments will be accepted is **Month, Day 201X at 5:00 p.m**. **EST.** Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comment, please use the contact information below.

Mail: Megan Ware
Atlantic States Marine Fisheries Commission
1050 N. Highland St. Suite 200A-N
Arlington, VA 22201
Fax: (703) 842-0741

Email: mware@asmfc.org
(Subject line: Lobster Draft Addendum XXV)



Executive Summary

The Southern New England (SNE) lobster stock is at record low abundance and is experiencing recruitment failure (ASMFC, 2015). This poor stock condition is the result of environmental factors and continued fishing mortality (ASMFC, 2015). As an initial management response, the American Lobster Management Board initiated this draft addendum to consider increasing egg production in SNE by 20% to 60%. This addendum focuses on increases in egg production so that, if environmental conditions become favorable, the SNE stock can benefit from a strong recruitment year. The addendum also considers whether these management measures should be applied to the entire extent of Lobster Conservation Management Area (LCMA) 3, which includes portions of the SNE and Gulf of Maine/Georges Bank stocks, or just the SNE portion of LCMA 3.

To respond to the Board's objective to increase egg production, the Plan Development Team (PDT) evaluated multiple management tools, including: gauge size changes, trap reductions, season closures, trip limits, v-notching, culls, and the potential to standardize regulations. In their evaluation of these various management tools, the PDT analyzed not only the ability to achieve the specified management targets but also the ability to effectively monitor, administer, and enforce selected management tools.

This draft Addendum includes two issues. The first proposes four management options to increase egg production, including a 0% increase in egg production (status quo), a 20% increase in egg production, a 40% increase in egg production, and a 60% increase in egg production. The second issue asks where in LCMA 3 these management measures should apply.

Table of Contents

1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) has coordinated the interstate management of American lobster (*Homarus americanus)* from 0-3 miles offshore since 1996. American lobster is currently managed under Amendment 3 and Addenda I-XXIV to the Fishery Management Plan (FMP). Management authority in the Exclusive Economic Zone (EEZ) from 3-200 miles from shore lies with NOAA Fisheries. The management unit includes all coastal migratory stocks between Maine and Virginia. Within the management unit there are two lobster stocks and seven management areas. The Southern New England (SNE) stock (subject of this draft addendum) includes all or part of five of the seven Lobster Conservation Management Areas (LCMAs) (Appendix 1). There are eight states (Massachusetts to Virginia) which regulate American lobster in state waters of the SNE stock, as well as regulate the landings of lobster in state ports.

The Board initiated Draft Addendum XXV to respond to continued stock declines in SNE. The 2015 Benchmark Stock Assessment found abundance, spawning stock biomass (SSB), and recruitment are all at historic low levels in SNE. The stock was deemed depleted as the current reference abundance of 10 million lobsters is well below the management threshold of 24 million lobsters. As a result, the Board directed the Plan Development Team (PDT) to draft an addendum to address the poor condition of the SNE stock by increasing egg production and decreasing fishing mortality.

The principle challenge facing the SNE stock is the increase in natural mortality, primarily due to climate change and predation. Specifically, the 2015 stock assessment showed a pronounced warming trend in coastal waters, particularly in New England and Long Island Sound. These warming waters have negatively impacted the stock as they have resulted in reduced spawning and recruitment. Predation from species such as black sea-bass has further depleted the stock. Together, these challenges highlight the vital role the environment plays in the health of the American lobster population. Importantly, fishing pressure, while at an all-time low level, continues to be a significant source of mortality and a measurable factor contributing to the overall decline of the SNE stock.

Given these challenges, the Board identified the following goal for this addendum.

> "*Recognizing the impact of climate change on the stock, the goal of Addendum XXV is to respond to the decline of the SNE stock and its decline in recruitment while preserving a functional portion of the lobster fishery in this area."*

The Board tasked the TC and the PDT to analyze whether the above goal could be met by increasing SNE stock egg production. The Board identified three alternative egg production targets for analysis: increasing egg production by 20 %; 40%; and 60%. The Board asked the TC to determine what impacts the different targets would have on the

stock and asked the PDT to develop potential measures for each alternative. A 0% increase was also analyzed to provide a baseline, no-action context to assist in decision-making. The Board is pursuing increases in egg production so that, if environmental conditions become favorable in SNE, there will be enough eggs in the water to produce a successful and impactful recruitment event.

This addendum is intended to be an initial response to the most recent stock assessment. The 2015 Stock Assessment clearly stated climate change is impacting the SNE fishery in a profoundly negative way. While the Board recognizes serious and impactful management actions are needed to preserve the SNE stock, they also recognize questions regarding the full impacts of climate change still remain, especially in regards to the success of recruitment offshore. As a result, the Board agreed to take quick and decisive action while preserving a portion of the fishery. The Board will continue to monitor the stock and fishery in order to determine the next appropriate course of action. All management tools remain available for future consideration.

2.0. Overview

2.1 Statement of the Problem

The 2015 Benchmark Stock Assessment found the SNE stock to be depleted, with record low abundance and recruitment failure. This poor stock condition can be attributed to many factors including changing environmental conditions and continued fishing mortality. In response, the Board initiated Draft Addendum XXV with the goal of preserving a functional portion of the SNE lobster fishery while addressing the poor stock condition. The measures in this addendum are intended to increase egg production so that, if environmental factors improve, the stock can benefit from a successful recruitment event. This addendum is an initial response to the most recent stock assessment and may be followed by other management measures.

2.2 Resource Issues

Results of the 2015 Benchmark Stock Assessment show continued declines and poor stock conditions in SNE. The assessment highlights that abundance, SSB, and recruitment are all at historic low levels for the model time-series (1982-2013). Model-free indicators corroborate these findings as spawning stock abundance, a measure of the reproductively mature portion of the population, is below the 25th percentile in six of the eight surveys from 2008-2013 (Appendix 2). Furthermore, the distribution of lobsters inshore has contracted as the survey encounter rate is negative in all six inshore indices over the 2008-2013 time period. Overall, the assessment concludes the SNE stock is depleted as the 2011-2013 reference abundance, which is defined as the number of lobsters 78+ mm carapace length on January 1 plus the number that will molt and recruit to the 78+ carapace length group during the year, is significantly below the threshold (Table 1).

Table 1. Current (2011-2013) reference estimates for each stock as well as the target and threshold levels for abundance and effective exploitation. The reference abundance is used to determine a depleted status while effective exploitation is used to determine an overfishing status.

		GOM/GBK	SNE
Abundance (millions)	**2011-2013 Reference**	**248**	**10**
	Threshold	**66**	**24**
	Target	**107**	**32**
Effective Exploitation	**2011-2013 Reference**	**0.48**	**0.27**
	Threshold	**0.50**	**0.41**
	Target	**0.46**	**0.37**

One of the largest indicators of poor stock condition in SNE has been the marked decline in recruitment, or the number of lobsters surviving to enter the fishery. Indices suggest the stock is in recruitment failure as, since 2011, all larval indices have been below the 25th percentile. Model-free indicators show similar trends as all four young-of-year indices, which measure the abundance of age 0 lobsters, are below the median (Appendix 2). In 2015, the young-of-year index in Massachusetts hit zero (Appendix 2). This is concerning as it means the number of young lobsters which have yet to recruit into the fishery is low and the stock may experience further declines.

Furthermore, analysis by the TC shows spawning-stock biomass (SSB) and recruitment may be decoupled. Figure 1 shows the relationship between SSB and recruitment from 1979 to 2011. Overall, the plot indicates a positive relationship such that there are more lobsters entering the fishery when the reproductive portion of the population is larger; however, over the last decade, this relationship has decoupled, with recruitment declining and SSB remaining steady. This suggests depensatory mechanisms may be at play in SNE, such that recruitment drops to very low levels well before SSB reaches zero. Low recruitment levels may be the result of reduced mating success, environmentally-mediated changes in survivorship, and/or increased predation. Figure 1 also shows the wide range of recruitment which can be produced from a single level of SSB, even when stock abundance was high in the early 1990's. This is important to note as management action seeking to increase SSB and egg production can result in a wide range of recruitment.

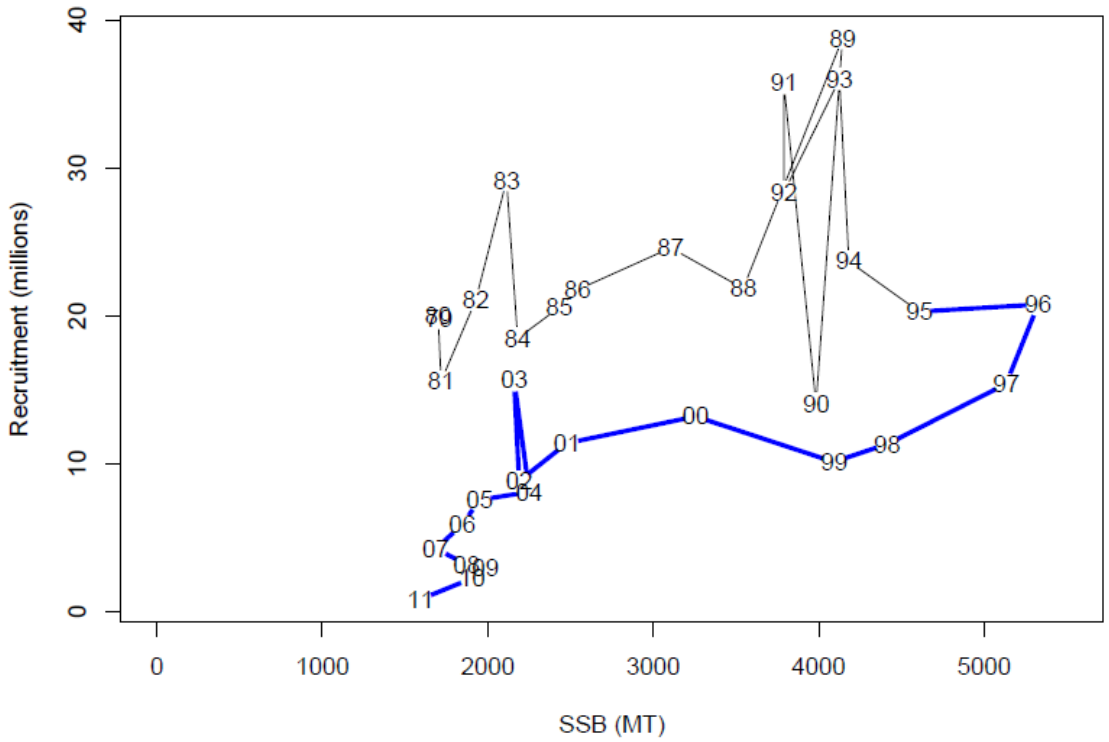


Figure 1: The relationship between model-based spawning stock biomass and recruits from 1979 to 2011. The blue line denotes the trajectory from 1995 – 2011 (recruiting to the model from 1998 to 2014).

There are several contributors to the poor stock condition in SNE, including an increase in natural mortality and continued fishing pressure. Climate change has had a significant impact on the stock as lobster physiology is intricately tied to water temperatures. Not only does water temperature impact when lobster eggs hatch but it also has a direct effect on larval survivorship as waters which are too cold (<10°C) or too warm (>22°C) increase mortality.[1] Adult lobsters also are impacted by warming waters as recent laboratory studies suggest lobsters have a threshold of ~20.5°C, above which lobsters experience significant stress.[2] Unfortunately, ocean temperatures, particularly inshore, have been rising. Data from Buzzards Bay, MA and Long Island Sound show the number of days above 20°C has markedly increased since 1997 (Appendix 3). These warming waters have increased the natural mortality of the stock. Predation also has an significant impact on the species. Lobsters, especially juveniles, are an important source of food for many finfish species including Atlantic cod, spiny dogfish, black seabass and skate. When populations of these species increase, pressure on the lobster stock increases.

In conjunction with the increase in natural mortality, continued fishing pressure has furthered the decline of the SNE stock. As the stock has decreased to record low

[1] MacKenzie, 1988.
[2] Powers et al., 2004.

abundance, effort and landings in the SNE fishery have likewise declined. This is in response to not only the low abundance but also recently implemented regulations and the higher costs of fuel and bait. Importantly, while the 2015 Stock Assessment did not conclude overfishing is occurring, fishing mortality is still the primary contributor to the stock's mortality. Work by the TC shows that, even when accounting for the recent increases in natural mortality, fishing mortality is removing roughly twice as much SSB from the population annually than natural mortality (Figure 2). This suggests that, in the face of climate change and increases in predation, management action can still have real effects on spawning stock abundance and egg production. Importantly, favorable environmental conditions will be needed to translate this increase in egg production into a successful recruitment event. This is highlighted in Figures 1 and 2 as, while the proportion of SSB surviving in SNE has generally increased since 2000, recruitment has markedly declined.

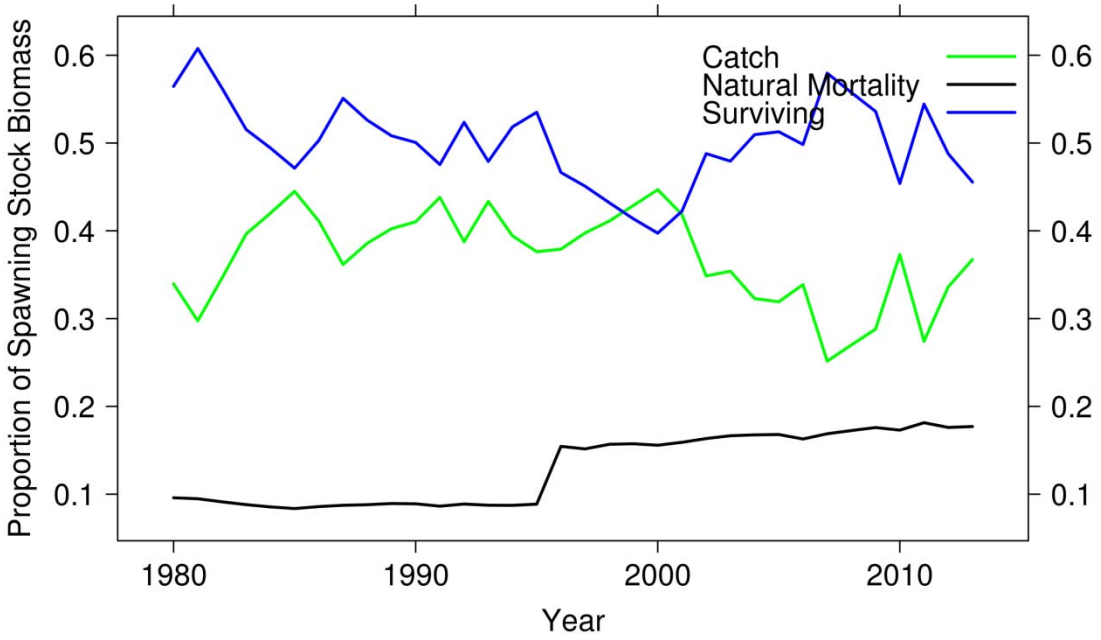


Figure 2: Proportion of SSB surviving or removed by fishing and natural mortality annually.

In an attempt to understand the extent of management action needed to improve stock conditions, the Board directed the TC to model future lobster abundance under various levels of fishing mortality and natural mortality. Results of these stock projections concluded a 75% to 90% reduction in fishing mortality would be needed to stabilize the stock under current natural mortality conditions (Appendix 4); should natural mortality increase, greater reductions in fishing mortality would be needed. The projections also showed that without management action, stock conditions would be expected to deteriorate and reference abundance could decline by 50%. These results highlight the poor condition of the stock and the need for impactful management action.

2.3 Fishery Status

2.3.1 Commercial Fishery

The SNE fishery is carried out by fishermen from the states of Massachusetts, Rhode Island, Connecticut, New York and New Jersey, with smaller contributions from the states of Delaware, Maryland, and Virginia. This fleet is comprised of small vessels (22' to 42') which make day trips in nearshore waters (less than 12 miles) as well as larger boats (55' to 75') which make multi-day trips to the canyons along the continental shelf. The SNE fishery is executed in LCMAs 2, 4, 5, and 6 as well as the western portion of LCMA 3.

The SNE fishery has experienced a noticeable contraction in effort and landings over the last decade (Table 2). Landings in the 1980's steadily rose from 4.06 million pounds in 1981 to over 13 million pounds in 1989. Landings continued to rise in the 1990's, peaking at 21.9 million pounds in 1997. 43% of these landings were from New York, followed by Rhode Island (28%), Connecticut (16%), and Massachusetts (12%). Starting in the early 2000's, landings began to precipitously decline. In 2004, landings (5.48 million pounds) were less than half of what they were four years earlier in 2000 (13.39 million pounds). This trajectory continued such that landings in 2015 were 3.5 million pounds. Rhode Island was the largest contributor of landings (55%) followed by Massachusetts (22%). This large decline in harvest is likely the result of a declining stock size, attrition in the fishery, regulatory changes, and substantial increases in operating costs in the fishery associated with fuel and bait. Interestingly, despite the decrease in overall fishing effort, those who remain in the fishery have experienced increasing catch rates. The TC discussed this trend in their February 2016 presentation to the Board and highlighted that this is due to high attrition in the lobster fleet which has resulted in fewer fishermen concentrating their effort on the remaining aggregations of lobster in SNE.

In conjunction with the decrease in landings, the number of active permit holders has also decreased (Table 3). In 1990, there were 341 active permits in Massachusetts and 994 active permits in New York. Only 24 years later, these numbers decreased by 45% and 60%, respectively, with 190 active permits in Massachusetts and 309 active permits in New York. Similar trends can be seen in the other states as from 2007-2014, the number of active traps in Rhode Island decreased 50% and in Connecticut they decreased 60%. Today there are only 750 active permits in the SNE lobster fishery.

Data on the number of traps fished in Massachusetts, Rhode Island, Connecticut, and New York also matches the trends seen in landings (Table 4). In 1990, the number of active traps fished in Massachusetts, Connecticut and New York was 291,632 and this quickly rose to 443,833 by 1995. The number of traps fished peaked in 1998, just one year after landings peaked, at 588,422 traps. At this time, 59% of traps were from New York. Since then, the number of active traps has dramatically declined. In 2013, only 151,970 traps were fished with New York seeing the largest decline, comprising only

14% of active traps fished. Rhode Island fishermen contributed the largest number of traps fished in 2013 at 42%.

Table 5 shows the current trap allocations in the LCMAs 2, 3, 4, 5, and 6. The greatest number of traps are allocated in LCMA 2, 3 and 6; however; a large portion of traps in LCMA 6 are not actively fished. This is corroborated by data showing the harvest of lobster from each LCMA (Table 6) as LCMA 6 has the second lowest landings in the SNE fishery. Roughly two-thirds of landings in 2012 came from the LCMA 3, followed by LCMA 4 and LCMA 2. The lowest landings are from LCMA 5, which also the fewest traps allocated to its waters.

Table 2. SNE landings, in pounds, by state from 1981 to 2015.

Year	MA	RI	CT	NY	NJ & South	Total
1981	952,396	749,571	806,891	835,551	714,297	4,058,705
1982	1,161,835	1,737,241	879,643	1,119,947	1,007,511	5,906,177
1983	1,340,409	3,236,382	1,653,465	1,208,132	912,713	8,351,101
1984	1,494,732	3,611,168	1,796,765	1,307,340	1,168,449	9,378,453
1985	1,276,475	3,509,755	1,380,092	1,241,201	1,322,772	8,730,295
1986	1,300,726	4,310,032	1,254,429	1,417,571	1,382,297	9,665,054
1987	1,274,270	4,241,689	1,571,894	1,146,402	1,591,736	9,825,991
1988	1,384,501	3,897,768	1,922,429	1,571,894	1,699,762	10,476,354
1989	1,485,914	4,989,055	2,076,752	2,345,716	2,198,006	13,095,443
1990	2,004,000	6,382,375	2,645,544	3,414,956	2,350,125	16,797,000
1991	2,059,115	5,998,771	2,674,204	3,128,356	1,761,491	15,621,937
1992	1,792,356	5,502,732	2,533,108	2,652,158	1,263,247	13,743,601
1993	1,913,610	5,509,345	2,175,960	2,667,590	981,056	13,247,562
1994	2,158,323	6,078,137	2,147,300	3,955,088	597,452	14,936,301
1995	2,160,528	5,628,395	2,541,927	6,653,543	663,591	17,647,983
1996	2,151,709	5,557,847	2,888,052	9,409,318	690,046	20,696,973
1997	2,574,996	6,086,956	3,467,867	8,878,005	895,076	21,902,900
1998	2,420,673	5,897,359	3,712,580	7,896,949	745,162	20,672,722
1999	2,180,369	7,656,645	2,594,838	6,452,923	985,465	19,870,240
2000	1,629,214	6,483,787	1,386,706	2,883,643	1,005,307	13,388,657
2001	1,649,056	4,179,960	1,322,772	2,052,501	641,544	9,845,833
2002	1,653,465	3,600,144	1,062,627	1,439,617	293,214	8,049,068
2003	1,025,148	2,742,547	668,000	945,782	249,122	5,630,599
2004	989,874	2,250,917	639,340	1,170,653	425,492	5,476,276
2005	1,117,742	3,068,831	712,092	1,225,769	436,515	6,560,949
2006	1,199,313	2,769,003	789,254	1,300,726	529,109	6,587,405
2007	850,983	2,321,465	544,541	888,462	760,594	5,366,045
2008	751,775	2,707,273	416,673	705,478	800,277	5,381,477
2009	888,462	2,334,693	410,059	729,729	855,393	5,218,336
2010	762,799	2,231,075	432,106	811,300	806,891	5,044,171
2011	548,950	1,604,963	196,211	343,921	751,775	3,445,821
2012	637,135	1,845,267	240,304	275,578	992,079	3,990,362
2013	696,660	1,618,191	127,868	246,917	791,459	3,481,095
2014	727,525	1,807,788	141,096	216,053	619,542	3,512,004
2015	771,617	1,966,521	156,528	145,505	505,982	3,546,153

Table 3. The number of active permits (MA, RI, CT, NJ, DE, MD) or total permits (NY) in the SNE stock.

	MA	RI	CT	NY	NJ	DE	MD	Total
1990	341			994				1335
1991	320			1067				1387
1992	309			1171				1480
1993	350			1211				1561
1994	405			1265				1670
1995	397		365	995				1757
1996	377		322	932	42		12	1685
1997	392		305	888	42		15	1642
1998	399		311	761	40		12	1523
1999	405		299	746	41		11	1502
2000	365		245	657	53		10	1330
2001	347		234	600	54		10	1245
2002	378		210	554	46		10	1198
2003	324		167	507	34	7	8	1047
2004	290		177	477	35	7	9	995
2005	264		179	458	27	3	7	938
2006	276		220	428	27	5	7	963
2007	285	304	195	412	31	5	8	1240
2008	238	288	162	384	30	5	7	1114
2009	228	267	139	375	33	3	7	1052
2010	218	269	129	360	30	3	7	1016
2011	219	216	98	344	30	2	5	914
2012	209	195	80	334	29	1	6	854
2013	198	163	59	326	29	1	5	781
2014	190	156	57	309	29	3	6	750

Table 4. Number of traps reported fished by state in the SNE stock unit. (Source: 2015 Stock Assessment)

Year	Massachusetts	Rhode Island	Connecticut	New York	Total
1981	41,395	*NA*		48,295	89,690
1982	44,123	*NA*		43,977	88,100
1983	46,303	*NA*		59,808	106,111
1984	49,072	*NA*	66,709	77,599	193,380
1985	55,954	*NA*	65,262	88,332	209,548
1986	59,156	*NA*	65,826	77,429	202,411
1987	63,518	*NA*	70,646	76,729	210,893
1988	63,610	*NA*	79,154	101,790	244,554
1989	62,700	*NA*	83,915	143,320	289,935
1990	53,768	*NA*	100,360	137,504	291,632
1991	59,922	*NA*	101,290	155,276	316,488
1992	58,406	*NA*	107,668	187,661	353,735
1993	62,615	*NA*	115,224	237,117	414,956
1994	71,472	*NA*	110,805	269,419	451,696
1995	71,269	*NA*	119,983	252,581	443,833
1996	71,830	*NA*	130,360	314,297	516,487
1997	76,717	*NA*	133,770	335,860	546,347
1998	83,166	*NA*	158,527	346,729	588,422
1999	83,394	*NA*	162,149	332,323	577,865
2000	68,162	*NA*	122,386	212,767	403,314
2001	65,225	173,133	121,501	191,853	551,712
2002	78,965	152,021	117,731	157,747	506,464
2003	63,444	133,687	85,048	101,207	383,386
2004	55,191	128,081	84,071	102,351	369,694
2005	47,779	117,610	83,946	85,817	335,152
2006	52,990	120,242	90,421	89,301	352,954
2007	49,722	130,556	81,792	92,368	354,438
2008	42,934	104,440	56,355	90,909	294,638
2009	40,237	105,414	63,824	51,173	260,648
2010	48,558	111,509	53,516	70,350	283,933
2011	58,783	78,849	39,518	49,779	226,929
2012	54,102	76,826	29,353	29,678	189,959
2013	49,319	63,089	18,435	21,127	151,970

Table 5: Current trap allocations by LCMA in the SNE stock. LCMA 3 includes traps fished in both the SNE stock and the Gulf of Maine/Georges Bank stock.

	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6
MA	33,377	49,040	1,100		
RI	59,789	41,288	2,424		
CT	4,163	652	2,725		139,186
NY	1,141	2285	11,075	600	111,108
NJ	940	12,155	6,530	3,154	
DE				4,530	
MD				4,000	
VA				1,200	

Table 6. Estimated lobster landings (in pounds) by LCMA.

Year	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6
1982	1,656,479	2,135,954	622,674	99,093	1,359,058
1983	2,958,366	2,258,492	633,254	71,804	2,428,633
1984	2,978,985	2,765,512	795,180	135,652	2,704,070
1985	2,992,330	2,330,628	964,043	170,998	2,273,337
1986	3,081,903	3,009,509	1,084,282	125,969	2,362,128
1987	3,219,900	2,655,725	1,473,841	98,486	2,378,765
1988	3,259,336	2,269,480	1,666,439	85,142	3,195,208
1989	4,175,114	2,845,444	2,232,935	106,126	3,735,250
1990	4,374,062	5,253,653	2,431,198	237,410	4,250,654
1991	4,140,145	4,811,267	2,096,138	115,020	4,393,986
1992	3,795,367	4,023,295	1,448,866	77,854	4,362,551
1993	3,772,494	3,776,113	1,597,447	89,495	3,968,663
1994	5,602,507	3,030,046	554,367	26,013	5,738,398
1995	4,960,453	2,661,176	962,077	45,054	8,564,325
1996	4,880,328	2,610,223	978,376	52,758	11,705,439
1997	5,324,775	3,183,034	1,162,862	36,623	11,650,701
1998	5,273,463	2,724,429	1,534,067	41,963	10,575,143
1999	6,938,658	3,195,423	1,346,509	77,621	8,331,142
2000	5,651,160	2,673,111	1,123,486	53,364	3,802,880
2001	3,862,054	2,053,831	762,408	55,537	3,013,551
2002	3,445,004	1,899,923	442,425	14,838	2,230,869
2003	1,110,534	2,519,713	423,583	17,394	1,448,011
2004	1,184,942	2,014,702	480,203	93,270	1,534,130
2005	1,464,433	1,800,406	457,275	54,181	1,673,396
2006	1,853,505	1,983,721	516,130	59,928	1,840,308
2007	1,430,836	1,494,830	617,978	56,866	1,263,648
2008	1,168,921	1,918,429	440,108	322,916	920,951
2009	1,051,241	2,227,432	488,792	308,212	896,594
2010	1,022,528	2,135,008	522,037	184,409	966,505
2011	730,889	1,954,052	488,977	148,587	306,079
2012	627,051	2,003,412	782,684	154,455	286,215

*To separate landings by LCMA, NMFS statistical areas are placed into a single LCMA.

One of the largest changes over the last decade in the fishery has been the transition from primarily inshore to primarily offshore. In 1982, 64% of landings in SNE were from the inshore portion of the stock. This increased to 87% in 1998 as landings quickly grew in the fishery. However, declines in the stock, particularly inshore, have led the fishery to be primarily executed offshore. Figure 3 shows the landings of lobster inshore and offshore. While the pounds of lobster landed inshore has declined since 1997, offshore landings have experienced less severe declines and have even stabilized over the last decade. In fact, 2011 was the first year in which a greater portion (55%) of lobster were landed offshore than inshore. This shift in the fishery can likely be explained by warming coastal waters which have caused declines in recruitment and prompted migrations of lobsters to cooler waters offshore.

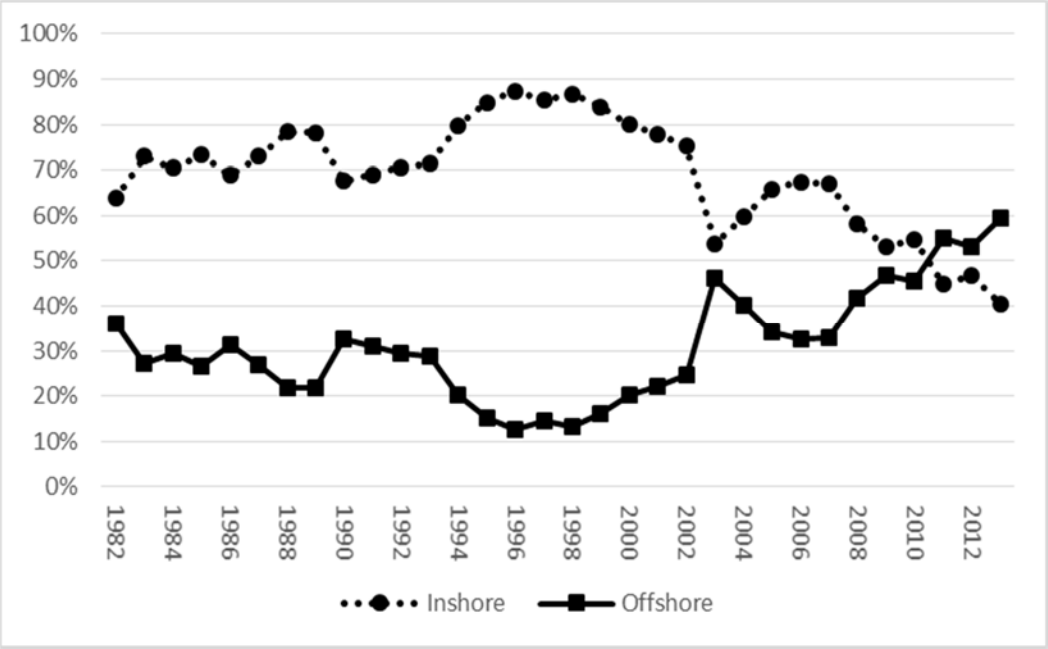


Figure 3: Percentage of landings in SNE occurring in the inshore and offshore fishery. The inshore fishery is defined as landings from statistical areas 538, 539, 611, 612, 613, 614, 621, 625, 631, and 635. The offshore fishery is defined as landings from statistical areas 533, 534, 537, 615, 616, 622, 623, 24, 626, 627, and 632.

The non-trap fishery for lobster is a small percentage of the overall SNE landings. In 2015, a total of 55,191 pounds were landed with non-trap gear. This value is an underestimate as it does not include non-trap landings from Massachusetts. Overall, landings by non-trap gear represent less than 2% of the landings in SNE.

2.3.2. Recreational Fishery

While the lobster fishery is predominately commercial, there is a small recreational fishery which harvests lobsters with pots, and in some states, by hand while diving. The states of New Hampshire, Massachusetts, Connecticut, and New York currently collect recreational information on lobster landings. In general, recreational landings are only a small percentage of the states' total landings. Average recreational harvest in Massachusetts from 2010 to 2015 was 224,932 pounds, or roughly 1.4% of the state's total harvest. New Hampshire's recreational harvest in 2015 was 7,731 pounds, representing less than 1% of total catch. In Connecticut, recreational landings have declined in conjunction with commercial landings, with the number of personal-use licenses sold in Connecticut dropping from 875 in 2009 to 163 in 2015. Recreational harvest in New York in 2015 was 2,130 pounds.

2.4 Status of Management

Lobster are currently managed under Amendment 3, and its twenty-four addenda. One of the hallmarks of Amendment 3 was the creation of seven LCMAs along the coast. These areas are intended to reflect the regional differences in the fishery and, as a

result, are permitted to have disparate management measures. The Lobster Board, the Commission's managing body for the species, is comprised of 10 states (Maine through Virginia) and the Federal Government. While ASMFC is not under the purview of the Magnuson-Stevens Act (MSA), the Federal Government, via NOAA Fisheries, supports the Commission's management of interjurisdictional fisheries. When federal support involves the implementation of management measures offshore (3-200 miles), those regulations must both be compatible with the Commission Plan and consistent with the National Standards outlined in MSA.

To date, the American lobster fishery has primarily been managed through input controls, such as trap caps and biological measures, which limit the amount of effort fishermen put into the fishery. Table 7 describes current management measures for all LCMAs which fall within SNE. All areas have had a minimum size of 3 ⅜", with the exception of LCMA 3, which is at 3 $^{17}/_{32}$". All areas also have the same maximum size of 5 ¼", with the exception of LCMA 3, which is at 6 ¾". LCMAs 2, 5, and federal waters of Area 4 require v-notching of egg-bearing females; this is not required in LCMA 6, state waters of LCMA 4, or the SNE portion of LCMA 3. All areas in SNE, however, do have the same v-notch definition which requires the notch be at least an 1/8 inch deep. All areas have history-based effort control programs with LCMA 2 having the lowest trap cap set at 800 traps.

In response to the findings of the 2009 stock assessment, the Board passed several addenda aimed at reducing exploitation and scaling the size of the fishery. Addendum XVII reduced exploitation by 10% with LCMAs 2, 5, and federal waters of 4 instituting mandatory v-notching, LCMA 3 increasing the minimum gauge size by 1/32", and LCMAs 4, 5, and 6 instituting closed seasons. The Board also approved Addendum XVIII, which implemented a series of trap allocation reductions in LCMAs 2 and 3. The goal of this management action was to scale the size of the SNE fishery to the diminished size of the resource. In a subsequent phase of management action, the Board approved Addenda XXI and XXII, which modified the trap transferability rules for LCMAs 2 and 3. The intent of these addenda was to increase the flexibility for fishermen to adjust to management measures aimed at reducing latent effort through fishery consolidation. Management measures in these addenda include modifications to the single or individual ownership caps (otherwise known as trap banking) and aggregate ownership caps. These measures have not yet been implemented in Federal waters.

Table 7. 2016 LCMA specific management measures.

Mgmt Measure	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	OCC
Min Gauge Size	3 1/4"	3 3/8"	3 17/32"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
Vent Rect.	1 15/16 x 5 3/4"	2 x 5 3/4"	2 1/16 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"
Vent Cir.	2 7/16"	2 5/8"	2 11/16"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
V-notch requirement	Mandatory for all eggers	Mandatory for all legal size eggers	Mandatory for all eggers above 42°30'	Mandatory for all eggers in federal waters. None in state waters.	Mandatory for all eggers	None	None
V-Notch Definition[1] (possession)	Zero Tolerance	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs	1/8" with or w/out setal hairs[1]	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs[1]
Max. Gauge (male & female)	5"	5 ¼"	6 3/4"	5 ¼"	5 ¼"	5 ¼"	State Waters none Federal Waters 6 3/4"
Season Closure				April 30-May 31	February 1-March 31	Sept 8-Nov 28	February 1-April 30

2.5 Economic Status of Fishery

Total ex-vessel value in 2015 from the SNE lobster stock was just under $18.5 million (Table 8). The largest contributor was Rhode Island with 57% of the total value in SNE. This was followed by Massachusetts (20.9%) and New Jersey (12.2%). While there are a number of participants in the SNE lobster fishery, a large portion of landings are harvested by a small portion of fishermen. In 2015, 57% of fishermen landed less than 10,000 pounds of lobster per year; however, these fishermen were responsible for just

9% of total SNE landings, in pounds. In contrast, just 2% of fishermen landed greater than 100,000 pounds each year but they were responsible for 20% of landings in the fishery. This suggests landings in the lobster fishery are concentrated in a few number of participants.

Table 8: 2015 ex-vessel values in the SNE lobster fishery.

	MA	RI	CT	NY	NJ	DE	MD	VA	Total
Ex-Vessel ($)	3,871,993	10,535,726	748,797	820,456	2,248,638	61,400	186,039	24,092	18,497,141
%	20.9%	57.0%	4.0%	4.4%	12.2%	0.3%	1.0%	0.1%	100.0%

*MA and RI values were calculated by multiplying landings from harvester reports by an average price based on dealer information.

2.6 Management Tools Considered

At the August 2016 meeting, the Lobster Board provided the Plan Development Team (PDT) with a list of potential management tools to consider in this addendum. They included: gauge size changes, trap reductions, closed seasons, trip limits, v-notching, and culls. There was also a recommendation to standardize regulations across LCMAs. The PDT evaluated the effectiveness of these various tools, considering the ability to successfully achieve the management targets for egg production as well as the ability to monitor, administer, and enforce the management tools in the fishery. For this evaluation, the PDT made extensive use of the TC's expertise, including their three memos to the Board in January 2016, April 2016 and July 2016.

2.6.1 Gauge Size Changes

Analysis conducted by the TC suggests that, both inshore and offshore, gauge size changes are an effective management tool to increase egg production and decrease fishing mortality. Changes to the minimum and maximum gauge size are enforceable and provide a direct benefit of keeping lobsters in the water longer. Furthermore, gauge size changes are intricately tied to the biology of lobsters, with clear benefits in terms of egg production and fitness. These impacts can be accurately predicted, adding confidence to the results of management decisions. As a result, gauge size changes are recommended for use in this document.

Work presented in the TC's July memo to the Board (see Appendix 5) suggests gauge size changes can be used to achieve up to a 60% increase in egg production. Increases in the minimum size result in larger increases in egg production; however, the PDT does note that decreases to the maximum gauge size provide permanent protection to larger lobsters which have likely already survived stressful conditions. Changes to the gauge size may necessitate changes to the vent size as the harvestable window of lobster sizes narrows. This would allow a greater portion of undersized lobsters to exit the trap and reduce stress from handling.

Economic impacts of gauge size changes depend on how the change is implemented, as gradual changes to the gauge size over several years may dampen the reductions in

harvest. Short-term impacts of gauge size changes include an immediate decrease in landings as there is a narrower slot from which to harvest lobsters; however, as the population stabilizes, landings settle into a common trajectory.

When considering changes to the gauge size, potential impacts to interstate commerce should be considered. It is likely that an implementation of gauge size changes, or any of the proposed measures in the addendum, will create increased demand and shipments of lobsters from different LCMAs, including those Areas in the Gulf of Maine and Georges Bank (GOM/GBK). Currently, the minimum and maximum sizes in place are possession limits, meaning harvesters and dealers must abide by their state's regulations. While these strict regulations improve enforcement of gauge sizes, it can complicate interstate commerce as lobsters legally caught in LCMA 1 have a smaller minimum gauge size of 3 ¼". Massachusetts, because it has lobster landed from four LCMAs, is an exception to this and is only able to enforce LCMA-specific gauge sizes at the harvester level with significant penalties for violations. Some states, such as Rhode Island and Connecticut, allow dealers to possess smaller lobsters legally harvested in other LCMAs as long as those lobsters are not sold to consumers in their state. Dealers are required to have thorough documentation regarding the origin of lobsters below the state's minimum size and these smaller lobsters must be kept separate from those lobsters legally landed in the state. States should consider adopting similar language to minimize economic disruptions in the GOM/GBK stock.

2.6.2 Trap Reductions

The relationship between the biology of lobsters and trap reductions is not well understood. One of the major sources of uncertainty is the effect of trap reductions on the exploitation rate. Currently, LCMAs 2 and 3 are going through a series of trap reductions aimed at reducing trap allocations (ASMFC, 2012). Specifically, Addendum XVIII established a 25% reduction in year 1 followed by a series of 5% reductions for 5 years in LCMA 2. In LCMA 3, Addendum XVIII established a series of 5% reductions for 5 years. The intent of these reductions is to scale the size of the SNE fishery to the reduced size of the SNE stock. Importantly, these actions reduce a fishermen's total allocation, which includes both actively fished traps and latent effort. This means that the current trap reductions can remove latent effort and/or active traps and that, through trap transferability, fishermen can maintain their number of actively fished traps. Current trap reductions may impact the number of trap actively fished; however it is impossible to predict the tipping point between reductions in latent effort and reductions in the number actively fished traps.

In an attempt to understand the impact of trap reductions on the SNE stock, the TC attempted to model the relationship between the number of traps actively fished (as opposed to trap allocations) and the exploitation rate. Information on the number of actively fished traps was from the 2015 stock assessment, which includes data from Massachusetts, Connecticut, Rhode Island and New York (Table 4). Data on the number of traps actively fished in states south of New York is not consistently collected and

were not available for use by the TC. Furthermore, the analysis does not consider potential reductions in the number of actively fished traps as the result of current trap allocation reductions in LCMAs 2 and 3. This is because it is impossible to predict the number of active traps retired due to this management measure. The analysis suggests a 25% reduction in the number of actively fished traps may result in an 11.6% reduction in exploitation. This equates to a 13.1% increase in egg production.

The TC highlighted several concerns with the ability of trap reductions to achieve the projected increase in egg production. First, the TC noted that the above analysis assumes fishermen maintain a constant soak time when their trap allocation is reduced. Studies show this assumption is not true, as fishermen reduce their soak time to compensate for fewer traps[3]; fishermen haul fewer traps more frequently to maintain current exploitation rates. This results in decreased impacts to catch and much smaller increases in egg production. Secondly, the analysis is based on reductions in the number of traps actively fished; however trap allocation reductions decrease a combination of latent and active traps. As a result, the expected increase in egg production is likely much lower as trap reductions remove latent effort too. Fishermen in LCMAs 2 and 3 can also maintain their number of actively fished traps through the trap transferability program. Given these caveats, the TC's analysis, while based on the best available data, primarily serves as a tool for guidance by providing a baseline of expected increases in egg production from active trap reductions. As a result, trap reductions are only recommended for use in conjunction with gauge size changes; trap reductions are not recommended as the sole management measure used to increase egg production.

Given the tenuous relationship between traps fished and fishing mortality, the economic impacts of trap reductions are not clear. Analysis suggests fishermen may be able to reduce their soak time in order to maintain current harvest levels, thereby minimizing reductions in profit. However, fishermen may also be encouraged to purchase traps up to the trap cap in order to maintain their current business through the reductions.

The PDT also considered the potential impact of accelerating the current trap reductions in LCMAs 2 and 3. Given the TC's concerns that fishermen can 1) reduce soak times to maintain harvest, 2) current trap reductions are primarily intended to remove latent effort, and 3) fishermen have the ability to maintain their number of actively fished traps through trap transferability, the acceleration of trap reductions specified in Addendum XVIII is not recommended as a management tool in this addendum. Furthermore, the PDT notes accelerated trap reductions would place a greater conservation burden on fishermen from LCMAs 2 and 3.

2.6.3 Closed Seasons

Closed seasons are a management tool which can be used to reduce pressure on the lobster stock at vulnerable times. A biological benefit of this tool is it removes stress on

[3] Miller, 1990; Fogarty and Addison, 1997.

lobsters as they are caught in a trap, hauled to the surface, and handled by fishermen. Analysis by the TC shows seasonal closures can achieve up to a 21.6% increase in egg production. The largest increases in egg production result from summer closures (July-September) when fishing mortality is highest. Furthermore, a summer closure protects female lobsters which have mated but have yet to extrude their eggs. Importantly, this analysis is predicated on the assumption that fishermen do not adapt to the implementation of a season closure by intensifying their effort during the rest of the year. As a result, the realized increases in egg production may be lower than is predicted in the analysis.

An important consideration with closed seasons is the potential impact on the Jonah crab fishery. Particularly in SNE, the lobster fishery is evolving into a mixed crustacean fishery in which lobsters and Jonah crab can be caught with the same gear at different times of the year. Season closures would directly impact the Jonah crab fishery if traps must be taken out of the water. Allowing lobster traps to remain in the water during a closed season would reduce the biological benefit of the management tool as lobsters would still be hauled, handled, and thrown overboard. As a result, the timing of season closures, if used, should be considered to minimize impacts on the Jonah crab fishery.

Given the assumptions in the analysis on season closures and the potential impact on the Jonah crab fishery, closed seasons are recommended for use in conjunction with gauge size changes; closed seasons are not recommended as the sole management measure used to increase egg production. Economic impacts of season closures include reduced profits at certain times of the year; however, studies suggest gross revenues over the year may increase as the result of season closures. Analysis of the Maine lobster fishery by Chen and Townsend (1993) suggests closures of at least 3-4 months causes the redistribution of landings across seasons, which evens out prices and strengthens market values. SNE markets are more tenuous than in Maine but may be strengthened by consolidation.

2.6.4 Trip Limits

While trip limits are frequently used as a management tool in other fisheries, to-date they have not been used in the directed lobster fishery. Overall, trip limits are an enforceable management tool which can be used to maintain catch over the harvestable year and potentially reduce exploitation. Trip limits allow for the execution of both the lobster and Jonah crab fishery as lobster traps would still be allowed in the water.

During their discussion of trip limits, the TC noted several concerns with the effectiveness of this management tool. Given the difference in vessel size and capacity between the inshore and offshore fleet, trip limits may disproportionately impact the offshore fleet which frequently takes multiday trips. As a result, impacted fishermen may respond by increasing the number of trips taken each year to maintain current harvest levels. Trip limits may also encourage fishermen who typically harvest below the limit to increase their catch and maximize their potential harvest. This unintended

consequence could result in increased landings, a result contradictory to the stated purpose of this Addendum. Furthermore, trip limits often result in increased discards and stress as lobsters are hauled, handled, and returned to the water.

Given these concerns, the TC recommended trip limits be considered in conjunction with a quota for the SNE stock. A quota, if properly enforced, can cap landings in a fishery and allow managers to increase or decrease the total catch for the year depending on the current stock status. Implementing a quota in the lobster fishery presents many challenges and questions. The establishment of quotas requires tough discussions on how the total allowable catch will be set and if this will be allocated among jurisdictions, LCMAs, and/or seasons. An effective quota also requires good monitoring and enforcement, both of which need to be carefully considered prior to implementation. A particular challenge in the lobster fishery is how states with fishermen harvesting from both the SNE stock and GOM/GBK stock should monitor landings.

The PDT recognizes the challenges associated with implementing a trip limit and quota in the SNE lobster fishery; however, they also recognize the potential value these tools bring in being able to control the amount of lobster taken from the water. Given the intent of this Addendum is to take quick and decisive action and the Board has stated this is an initial management response to the 2015 stock assessment, the PDT recommends trip limits and quotas be considered in a subsequent management document. This will allow for the proper consideration and analysis of these management tools.

2.6.5 V-Notching

V-notching is a tool which has been used in the lobster fishery to protect reproductive females in the population. Currently, LCMAs 2, 5, and federal waters of LCMA 4 require mandatory v-notching; LCMA 6, state waters of LCMA 4, and the SNE portion of LCMA 3 do not. All areas use the same 1/8" definition for a v-notch, a less strict definition than the zero tolerance rule in LCMA 1. As a result, there is some concern that reproductive females who are protected in the Gulf of Maine, receive less protection if they migrate south. While v-notching can be a valuable management tool when actively conducted, the PDT notes the value of this tool is predicated on high encounter and harvest rates. Given significant reductions in landings in SNE, v-notching is not expected to produce a large benefit to the stock. Furthermore, the effectiveness of v-notching in SNE has been hindered by issues with non-compliance and incorrect marking, which lessen the value of this management tool. As a result, v-notching is not recommend as a management tool for use in this addendum.

2.6.6 Culls

Lobsters which only have one claw are referred to as culls. Claws can be lost naturally, such as in an interaction with other another lobster, or during handling by fishermen. Currently, culls can be legally landed in the lobster fishery. A prohibition on the harvest

of culls may reduce fishing mortality; however, it may also encourage better handling practices, reducing the number of culls and the benefit of this management tool on the stock. Furthermore, should culls be prohibited, tolerances would have to be established in case a lobster loses a claw during the steam to port and a clear definition would be needed to address regeneration. Given these limitations, a prohibition on culls is not recommended as a management tool for use in this document.

2.6.7 Standardize Regulations

In their April 25th memo to the Board, the TC outlined the costs and benefits of standardizing regulations in SNE. Overall, the TC felt standardizing biological measures would improve enforcement and the stock assessment process but may negatively impact industry by creating clear winners and losers in the fishery. This is especially true in regards to changes to the gauge size, as uniform increases in the minimum size will primarily impact inshore fishermen while uniform decreases in the maximum size will primarily impact offshore fishermen.

The LCMAs established in Amendment 3 were created to reflect the different stock conditions in different parts of the fishery; they resulted from the acknowledgement that a one-size-fits-all approach would not work well in the lobster fishery. Industry has supported the creation of these different regulations and has participated in their evolution through Lobster Conservation Management Teams (LCMTs). Given the different dynamics of the fishery, the PDT does not recommend standardized regulations between the inshore and offshore fishery but does support standardized regulations within the inshore fishery (LCMAs 2, 4, 5, and 6). This would be achieved by maintaining uniform gauge sizes and standardizing closed seasons.

2.7 Stock Boundaries

The seven LCMA's established in Amendment 3 were created in recognition that the lobster stock is not uniform across the management unit. Unfortunately, the boundaries of the LCMAs do not align with the biological boundaries of the stocks (SNE vs. GOM/GBK). This is particularly problematic in LCMA 3 which spans both SNE and GOM/GBK. Historically, management measures implemented in LCMA 3 to address the poor condition of the SNE stock also impacted the GOM/GBK stock, which is not depleted. The complexity of the stock boundaries is further complicated by the fact that many vessels fishing out of Rhode Island and Massachusetts who are harvesting lobsters in Georges Bank, must travel through the SNE stock to reach their port of landing. This means SNE-specific rules designed to be enforced only at the port of landing provide compliance challenges.

To date there has been no permit requirements to delineate within which stock an Area 3 fisherman is eligible to fish. Management action taken in response to the 2009 stock assessment was applied throughout LCMA 3, including portions in the GOM/GBK. Given the conservation burden of this addendum applies only to SNE, new conservation rules must either apply to all Area 3 fishermen regardless of location and stock fished (with

economic implications on the GOM/GBK fisheries) or new measures will have to be stock specific. This can be achieved by having fishermen declare and be permitted to fish exclusively within the GOM/GBK portion of LCMA 3.

3.0 Management Options

Issue 1: Increases in Egg Production

The following management targets are intended to increase egg production and decrease fishing mortality in SNE. These measures are proposed for all gear types and for both the commercial and recreational sectors. During the public comment period, LCMTs are encouraged to submit proposals on how they would prefer to achieve each of the proposed increases in egg production. The management options are presented with the intent that each LCMT and/or jurisdiction can choose how they would like to achieve the targeted increases in egg production. Standard regulations between the inshore areas (LCMAs 2, 4, 5 and 6) are supported by the PDT but not a requirement in this addendum.

This document considers potential changes to the minimum and maximum carapace length at which lobsters can be harvested. Carapace length is defined as the straight-line measurement from the rear of the eye socket parallel to the centerline of the carapace to the posterior edge of the carapace.

This document also considers trap allocation reductions. These potential reductions are separate and in addition to the trap allocation reductions established in Addendum XVIII. Should trap allocation reductions be chosen in this addendum for LCMA 2 and 3 fishermen, they will occur following the final year of trap reductions specified in Addendum XVIII.

Option 1: Status Quo

Under this option no changes to management would be made through this addendum. All measures would remain the same as listed in Table 7.

Option 2: 20% Increase in Egg Production

Under this option, all SNE LCMAs must increase egg production by 20%. This can be achieved through changes to the gauge size or a combination of gauge size changes, season closures, and trap reductions.

a. Increase Minimum Size: Only one minimum size can be implemented for each LCMA. States and LCMTs would use Table 9 to determine the minimum size limit which would achieve the 20% increase in egg production.
b. Decrease Maximum Size: Only one maximum size can be implemented for each LCMA. States and LCMTs would use Table 9 to determine the maximum size limit which would achieve a 20% increase in egg production.
c. Trap Reductions: A single, one year trap allocation reduction or a series of trap allocation reductions over multiple years can be implemented in each LCMA. Analysis by the TC suggests a 25% active trap reduction results in, at most, a

13.1% increase in egg production. Trap allocation reductions must be used in conjunction with gauge size changes to achieve the 20% increase in egg production. Together, trap allocation reductions and closed seasons cannot account for more than 10% of the expected increase in egg production.

d. Closed Season: A season closure can be implemented in each LCMA. Jurisdictions that land lobster from an LCMA which implements a season closure must be closed at that time. States and LCMTs would use Table 10 to determine the dates of the season closure and the expected increase in egg production. Season closures must be used in conjunction with gauge size changes to achieve the 20% increase in egg production. Together, active trap reductions and closed seasons cannot account for more than 10% of the expected increase in egg production.

Option 3: 40% Increase in Egg Production

Under this option, all SNE LCMAs must increase egg production by 40%. This can be achieved through changes to the gauge size or a combination of gauge size changes, season closures, and trap reductions.

a. Increase Minimum Size: Only one minimum size can be implemented for each LCMA. States and LCMTS would use Table 9 to determine the minimum size limit which would achieve the 40% increase in egg production.
b. Decrease Maximum Size: Only one maximum size can be implemented for each LCMA. States and LCMTs would use Table 9 to determine the maximum size limit which would achieve a 40% increase in egg production.
c. Trap Reductions: A single, one year trap allocation reduction or a series of trap allocation reductions over multiple years can be implemented in each LCMA. Analysis by the TC suggests a 25% active trap reduction results in, at most, a 13.1% increase in egg production. Trap allocation reductions must be used in conjunction with gauge size changes to achieve the 40% increase in egg production. Together, trap allocation reductions and closed seasons cannot account for more than 20% of the expected increase in egg production.
d. Closed Season: A season closure can be implemented in each LCMA. Jurisdictions that land lobster from an LCMA which implements a season closure must be closed at that time. States and LCMTs would use Table 10 to determine the dates of the season closure and the expected increase in egg production. Season closures must be used in conjunction with gauge size changes to achieve the 40% increase in egg production. Together, active trap reductions and closed seasons cannot account for more than 20% of the expected increase in egg production.

Option 4: 60% Increase in Egg Production

Under this option, all SNE LCMAs must increase egg production by 60%. This can be achieved through changes to the gauge size or a combination of gauge size changes, season closures, and trap reductions.

a. Increase Minimum Size: Only one minimum size can be implemented for each LCMA. States and LCMTs would use Table 9 to determine the minimum size limit which would achieve the 60% increase in egg production.

b. Decrease Maximum Size: Only one maximum size can be implemented for each LCMA. States and LCMTs would use Table 9 to determine the maximum size limit which would achieve a 60% increase in egg production.
c. Trap Reductions: A single, one year trap allocation reduction or a series of trap allocation reductions over multiple years can be implemented in each LCMA. Analysis by the TC suggests a 25% active trap reduction results in, at most, a 13.1% increase in egg production. Trap allocation reductions must be used in conjunction with gauge size changes to achieve the 60% increase in egg production. Together, trap allocation reductions and closed seasons cannot account for more than 30% of the expected increase in egg production.
d. Season Closures: A season closure can be implemented in each LCMA. Jurisdictions that land lobster from an LCMA which implements a season closure must be closed at that time. States and LCMTs would use Table 10 to determine the dates of the season closure and the expected increase in egg production. Season closures must be used in conjunction with gauge size changes to achieve the 60% increase in egg production. Together, active trap reductions and closed seasons cannot account for more than 30% of the expected increase in egg production.

Table 9: Changes in the gauge size inshore (LCMAs 2, 4, 5, and 6) and offshore (LCMA 3) and the corresponding effects in egg production, exploitation, SSB, reference abundance, and catch. Each LCMT may use this table to propose how they will achieve the targeted increase in egg production.

		Min	Max	Harvest Window (mm)	Egg Production	Exploitation	Spawning Stock Biomass	Reference Abundance	Catch
20%	**Inshore**	88mm (3-15/32")	105mm (4-1/8")	17 (0.7")	20%	-18%	20%	9%	-11%
		91mm (3-9/16")	115mm (4 ½")	24 (0.9")	18%	-22%	22%	11%	-14%
		92mm (3-5/8")	165mm (6 ½")	73 (2.9")	20%	-27%	25%	13%	-17%
	Offshore	91mm (3-9/16")	105mm (4-1/8")	14 (0.6")	22%	-21%	22%	9%	-13%
		94mm (3-11/16")	115mm (4 ½")	21 (0.8")	20%	-26%	24%	12%	-17%
		95mm (3 ¾")	165mm (6 ½")	70 (2.8")	21%	-28%	26%	13%	-19%
40%	**Inshore**	96mm (3-25/32")	115mm (4 ½")	19 (0.7")	40%	-43%	49%	23%	-30%
		96mm (3-25/32")	165mm (6 ½")	69 (2.7")	37%	-42%	46%	22%	-29%
		97mm (3-4/5")	165mm (6 ½")	68 (2.7")	43%	-46%	53%	25%	-33%
	Offshore	98mm (3-27/32")	165mm (6 ½")	67 (2.6")	39%	-45%	46%	22%	-33%
		99mm (3-7/8")	165mm (6 ½")	66 (2.6")	41%	-47%	49%	23%	-35%
60%	**Inshore**	99 mm (3-7/8")	115mm (4 ½")	16 (0.6")	60%	-56%	71%	32%	-42%
		101mm (3-29/32")	165mm (6 ½")	64 (2.5")	59%	-59%	76%	35%	-45%
	Offshore	102mm (4")	115mm (4 ½")	13 (0.5")	62%	-60%	71%	31%	-47%
		103mm (4-1/16")	165mm (6 ½")	62 (2.4")	63%	-63%	75%	34%	-50%

Table 10: Season closures in SNE and the corresponding effects in egg production, exploitation, SSB, and catch. Each LCMT may use this table to propose how they will achieve the targeted increase in egg production.

Season Closure	Egg Production	Exploitation	Spawning Stock Biomass	Catch
Winter (Jan-March)	3.0%	-2.1%	2.3%	-0.7%
Spring (April-June)	15.0%	-10.8%	16.0%	-1.7%
Summer (July-Sept)	21.6%	-26.0%	15.5%	-12.3%
Fall (Oct-Dec)	8.1%	-13.6%	8.4%	-4.2%

Issue 2: Implementation of Management Measures in LCMA 3

The following management options are intended to determine where in LCMA 3 the management measures selected in this addendum will apply.

Option 1: Maintain LCMA 3 as a Single Area

Under this option, the current boundaries of LCMA 3 would be maintained. Management measures in this document would apply to all LCMA 3 permit holders, including those that fish in the GOM/GBK stock.

Option 2: Split LCMA 3 along the 70°W Longitude Line

Under this option, LCMA 3 would be split along the 70°W longitude line to create an eastern section and a western section in LCMA 3 (see Appendix 1). The eastern portion of LCMA 3 would be comprised of areas east of the 70°W longitude line which are currently a part of the GOM/GBK stock. The western portion of LCMA 3 would be comprised of areas west of the 70°W longitude line which are currently a part of the SNE stock. On an annual basis, current LCMA 3 fishermen could elect to fish exclusively in the eastern portion of LCMA 3. Fishermen who do not choose this option could fish throughout the entire LMCA 3; however, they will be held to the stricter management measures of the two sections, as per the most restrictive rule (ASMFC, 2009). Fishermen can elect to fish exclusively in the eastern portion of LCMA 3 at the start of the fishing year but not during a fishing season. Trap tags would be amended to include "3E" for fishermen exclusively fishing in the eastern portion of the LCMA and traps with "3E" trap tags can only be fished in the eastern portion of LCMA 3. All other LCMA 3 trap tags can be fished in the eastern or western portions of LCMA 3. LCMA 3 permits and trap allocations may still be transferred as specified in Addendum XXI and the transfer recipient will designate at the start of the fishing year in which section he/she would like to fish. Management measures adopted in this addendum would only apply to the western portion of LCMA 3.

4.0 Monitoring

Given Addendum XXV represents an initial response to the results of the 2015 stock assessment, monitoring is necessary to determine the need and extent of future management action. The stated goal of this addendum is to increase egg production and reduce fishing mortality. As a result, the exploitation rate of the SNE stock will be monitored. If a reduction in fishing morality, and a corresponding increase in egg production, is not observed following implementation of this addendum, the management tools implemented in this document will be re-evaluated. Furthermore, in order to determine the extent of future management action, model-free abundance indicators for SNE will be updated each year as a part of the annual Fishery Management Plan Review. This includes information on spawning stock abundance, full recruit abundance, recruit abundance, young-of-year indices, and survey encounter rates.

5.0 Compliance

If the existing lobster management program is revised by approval of this draft addendum, the American Lobster Management Board will designate dates by which states will be required to implement the addendum. The compliance schedule will take the following format:

XXXXX:	States must submit programs to implement Addendum XXV for approval by the American Lobster Management Board
XXXXX:	The American Lobster Board Approves State Proposals
XXXXX:	All states must implement Addendum XXV through their approved management programs. States may begin implementing management programs prior to this deadline if approved by the Management Board.

6.0 Recommendation for Federal Waters

The SNE lobster resource has been reduced to very low levels. ASMFC believes additional fishery restrictions are necessary to prevent further depletion of the resource.

The management of American lobster in the EEZ is the responsibility of the Secretary of Commerce through the National Marine Fisheries Service (NMFS). ASMFC recommends the federal government promulgate all necessary regulations in Section 3.0 to implement complementary measures to those approved in this addendum.

7.0 References

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Appendix 1: LCMAs, stock boundaries, and NMFS statistical areas.

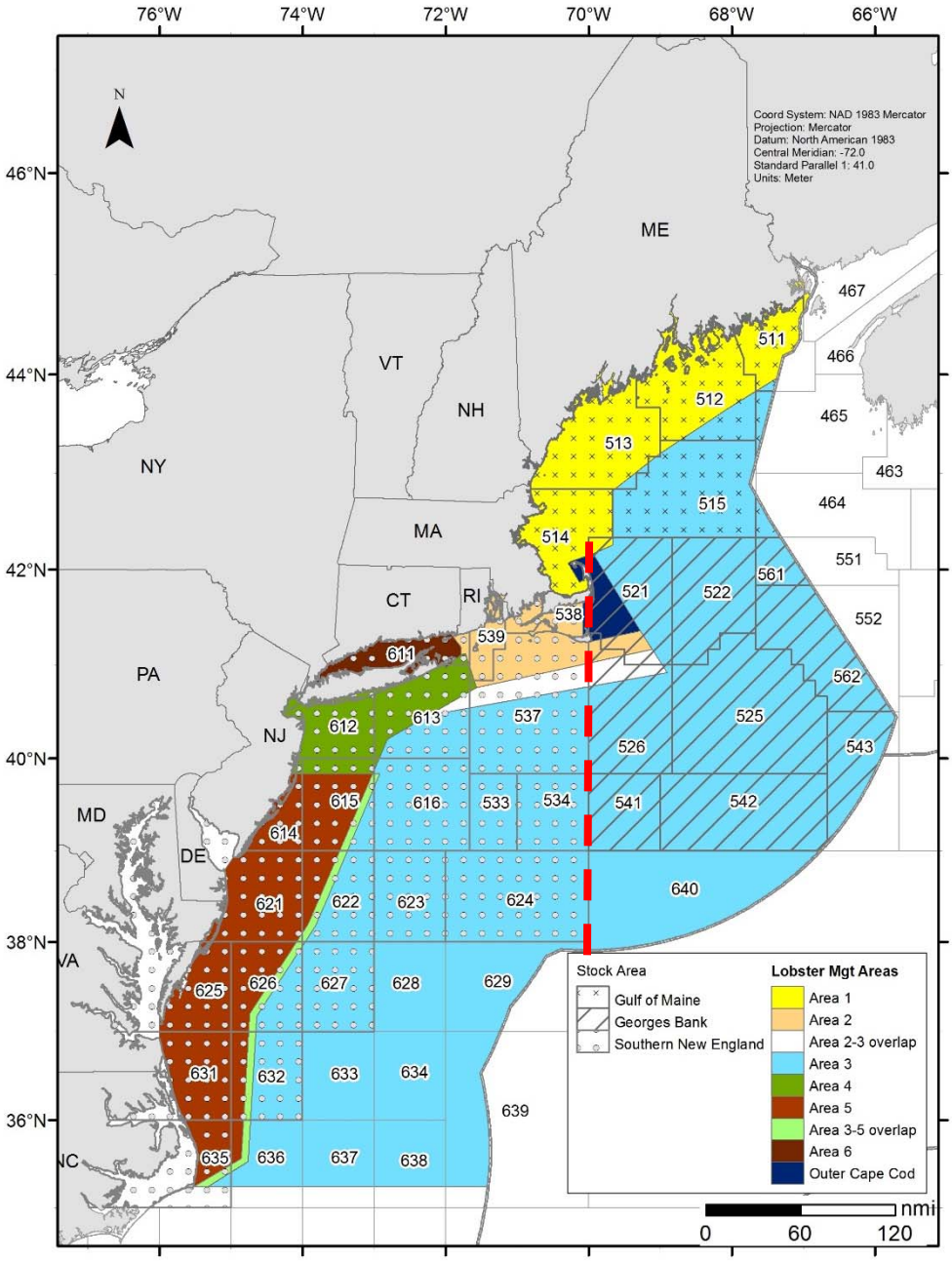

Figure 32.1. Statistical areas used to define the American lobster, *Homarus americanus*, stock.

Figure 1. Chart of Lobster stock units (GOM, GMB, and SNE), management conservation areas (1-6 and OCC), and NMFS statistical areas. The red dashed line represents the 70°W longitude line

Appendix 2: Southern New England Model Free Abundance Indicators

SPAWNING STOCK ABUNDANCE Mean weight (g) per tow of mature females								
Survey	NESFC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981	198.93	15.71	9.21	99.78	161.55	111.57		
1982	156.07	118.29	50.04	26.42	53.52	43.52		
1983	120.20	35.51	0.72	59.62	87.86	141.69		
1984	192.38	44.50	4.04	51.67	203.58	259.91	2331.33	
1985	132.96	138.13	1.88	36.90	125.09	60.22	1040.42	1155.01
1986	59.83	61.35	87.60	19.06	128.49	136.78	1548.94	751.75
1987	143.76	67.33	44.51	35.12	475.51	86.13	1869.91	932.49
1988	122.36	121.34	13.16	46.33	662.07	100.75	1081.60	639.82
1989	124.57	44.65	233.88	70.68	363.92	151.06	853.74	1193.87
1990	175.83	75.87	59.02	150.21	230.17	258.72	1818.59	2369.93
1991	160.99	53.14	125.79	236.11	367.25	698.35	2185.29	2692.42
1992	178.88	61.38	179.80	47.84	321.95	117.18	1905.99	3598.02
1993	139.25	71.48	99.33	25.59	1286.74	1595.77	3335.55	2320.25
1994	54.70	36.40	126.00	82.42	359.96	164.37	3402.43	1170.49
1995	145.39	10.18	10.89	92.76	410.53	153.14	2253.58	3302.56
1996	227.08	32.01	59.61	54.16	861.32	353.55	3018.00	3882.27
1997	121.74	137.20	29.11	225.15	654.91	439.93	7173.56	5994.27
1998	161.20	44.97	52.73	138.81	251.53	286.59	2573.44	7738.30
1999	69.56	122.59	24.53	81.12	171.54	324.62	2546.24	8261.90
2000	95.66	60.02	20.08	142.78	268.99	303.32	1744.69	4430.68
2001	95.78	36.43	21.28	16.61	267.62	535.45	1513.56	3363.78
2002	85.56	146.86	0.00	44.75	35.68	572.35	365.12	2044.42
2003	52.83	31.71	0.00	5.97	205.85	110.43	1187.14	698.04
2004	47.10	47.01	37.18	3.58	288.49	591.60	626.96	522.99
2005	110.36	42.31	101.87	23.02	353.53	243.36	473.26	479.71
2006	65.03	90.62	0.00	60.77	465.26	788.63	219.99	465.37
2007	44.60	34.20	41.79	10.32	350.43	206.96	188.98	595.89
2008	25.90	58.14	0.00	19.67	401.73	194.57	248.63	760.88
2009	36.92	24.49	3.95	31.29	184.35	250.00	305.31	371.95
2010	101.74	46.39	130.73	32.09	166.07	177.64	na	361.72
2011	89.95	22.79	36.96	8.55	148.47	152.43	30.24	64.00
2012	205.12	39.64	14.13	9.93	31.16	118.13	6.28	88.85
2013	52.95	42.05	23.96	35.49	2.02	67.76	24.56	39.81
2014	50.93	198.30	0.10	20.95	190.12	24.98	23.00	34.02
2015	na	44.83	54.57	1.72	62.34	15.60	na	23.02
2011 - 2015 ave.	99.74	69.52	25.95	15.33	86.82	75.78	21.02	49.94
25th	93.14	42.48	12.59	36.45	205.28	131.88	1431.95	1162.75
median	128.76	60.69	36.81	52.92	295.47	259.32	1887.95	2369.93
75th	161.04	87.24	90.53	104.27	426.78	375.15	2553.04	3740.14

FULL RECRUIT ABUNDANCE (SURVEY) Abundance of lobsters > 85 mm CL (sexes combined)								
Survey	NEFSC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981	0.24	0.03	0.00	0.02	0.01	0.03		
1982	0.17	0.13	0.07	0.02	0.04	0.03		
1983	0.13	0.03	0.00	0.07	0.13	0.08		
1984	0.24	0.04	0.07	0.03	0.16	0.31	2.67	
1985	0.12	0.07	0.00	0.00	0.10	0.07	0.81	1.06
1986	0.06	0.12	0.05	0.00	0.08	0.11	2.73	0.63
1987	0.19	0.05	0.05	0.05	0.31	0.04	1.62	0.99
1988	0.15	0.04	0.00	0.03	0.83	0.09	1.26	0.82
1989	0.20	0.07	0.20	0.07	0.24	0.05	1.00	1.41
1990	0.19	0.05	0.05	0.05	0.38	0.10	2.39	1.35
1991	0.20	0.04	0.23	0.19	0.44	0.37	1.34	3.26
1992	0.20	0.07	0.22	0.05	0.34	0.10	2.37	1.44
1993	0.14	0.10	0.12	0.02	1.12	1.42	1.55	0.68
1994	0.08	0.03	0.00	0.00	0.55	0.10	3.75	0.50
1995	0.15	0.01	0.01	0.05	0.33	0.07	2.20	1.85
1996	0.22	0.02	0.06	0.08	0.82	0.19	1.97	1.96
1997	0.11	0.19	0.02	0.10	0.98	0.08	4.00	4.44
1998	0.25	0.00	0.04	0.00	0.17	0.17	1.48	4.10
1999	0.08	0.07	0.00	0.16	0.27	0.26	1.70	3.27
2000	0.08	0.08	0.08	0.08	0.30	0.32	0.95	2.44
2001	0.10	0.07	0.02	0.03	0.10	0.32	0.35	2.47
2002	0.08	0.08	0.00	0.08	0.00	0.20	0.03	1.35
2003	0.08	0.05	0.00	0.06	0.29	0.07	0.62	0.35
2004	0.07	0.04	0.04	0.00	0.26	0.41	0.27	0.30
2005	0.12	0.07	0.06	0.00	0.30	0.33	0.21	0.25
2006	0.11	0.06	0.00	0.14	0.24	0.65	0.03	0.20
2007	0.07	0.03	0.05	0.01	0.32	0.15	0.03	0.24
2008	0.07	0.06	0.00	0.02	0.74	0.12	0.19	0.66
2009	0.07	0.03	0.00	0.01	0.17	0.19	0.24	0.32
2010	0.11	0.05	0.15	0.07	0.07	0.12	na	0.26
2011	0.10	0.04	0.07	0.00	0.14	0.16	0.01	0.07
2012	0.19	0.05	0.03	0.02	0.02	0.09	0.03	0.06
2013	0.08	0.09	0.03	0.07	0.00	0.02	0.03	0.07
2014	0.07	0.18	0.00	0.02	0.00	0.00	0.01	0.04
2015	na	0.06	0.05	0.02	na	0.00	na	0.02
2011 - 2015 ave.	0.11	0.08	0.03	0.03	0.04	0.06	0.02	0.05
25th	0.08	0.04	0.00	0.03	0.17	0.07	0.99	0.91
median	0.14	0.06	0.04	0.05	0.31	0.10	1.59	1.41
75th	0.20	0.08	0.07	0.08	0.46	0.28	2.38	2.46

RECRUIT ABUNDANCE (SURVEY)								
Abundance of lobsters 71 - 80 mm CL (sexes combined)								
Survey	NEFSC		MA		RI		CT	
	Fall	spring	fall	spring	Fall	spring	Fall	spring
1981	0.40	0.05	0.07	0.65	1.31	0.89		
1982	0.29	0.24	0.04	0.10	0.62	0.26		
1983	0.28	0.14	0.04	0.09	0.43	0.94		
1984	0.19	0.04	0.01	0.42	1.21	1.03	8.62	
1985	0.34	0.78	0.09	0.34	0.97	0.26	5.03	4.73
1986	0.14	0.09	0.20	0.17	1.30	0.75	8.22	3.45
1987	0.20	0.33	0.17	0.27	2.53	0.79	9.46	3.90
1988	0.26	0.09	0.16	0.24	4.14	0.42	4.82	2.16
1989	0.52	0.04	0.43	0.14	3.26	0.93	6.32	5.51
1990	0.36	0.29	0.31	2.29	1.38	2.17	10.31	9.53
1991	0.24	0.18	0.87	1.18	3.05	4.77	14.23	15.39
1992	0.38	0.06	0.57	0.10	1.97	0.67	12.25	16.55
1993	0.17	0.29	0.52	0.25	8.29	7.81	21.46	10.69
1994	0.12	0.10	0.42	0.95	3.64	1.00	18.87	5.90
1995	0.28	0.00	0.03	1.14	4.48	1.36	15.30	16.31
1996	0.77	0.14	0.32	0.40	6.42	1.60	14.91	16.30
1997	0.56	0.62	0.12	1.45	6.10	2.58	40.43	25.49
1998	0.46	0.37	0.11	1.09	3.38	1.63	18.61	37.56
1999	0.20	0.92	0.19	0.75	2.10	1.64	20.22	40.84
2000	0.40	0.30	0.13	0.54	1.83	1.54	12.71	20.72
2001	0.17	0.14	0.03	0.18	2.21	3.03	11.94	19.12
2002	0.17	0.62	0.00	0.34	0.75	2.73	3.52	11.44
2003	0.12	0.21	0.00	0.07	1.00	0.29	5.56	4.58
2004	0.12	0.11	0.00	0.05	1.48	1.86	4.52	2.92
2005	0.08	0.06	0.00	0.08	2.48	1.02	2.14	2.67
2006	0.12	0.14	0.03	0.08	2.26	3.63	1.38	2.12
2007	0.11	0.12	0.00	0.08	2.76	0.73	1.35	2.86
2008	0.12	0.14	0.01	0.16	2.98	0.64	1.43	3.10
2009	0.05	0.05	0.05	0.16	1.36	1.14	1.72	1.55
2010	0.14	0.05	0.18	0.06	1.21	0.44	na	1.41
2011	0.12	0.03	0.00	0.18	1.02	0.42	0.19	0.42
2012	0.16	0.04	0.21	0.07	0.27	0.61	0.14	0.50
2013	0.10	0.02	0.04	0.11	0.02	0.18	0.06	0.23
2014	0.14	0.52	0.00	0.04	0.14	0.02	0.05	0.15
2015	NA	0.01	0.30	0.07	na	0.05	na	0.15
2011 - 2015 ave.	**0.13**	**0.12**	**0.11**	**0.09**	**0.36**	**0.26**	**0.11**	**0.29**
25th	0.17	0.09	0.08	0.23	1.36	0.78	7.74	5.12
median	0.25	0.20	0.17	0.37	2.37	1.45	12.09	11.44
75th	0.38	0.34	0.35	0.99	3.77	2.27	16.13	17.84

YOUNG-OF-YEAR INDICES				
	YOY	YOY	Larvae	Postlarvae
Survey	MA	RI	CT / ELIS Summer	CT_NY / WLIS Summer
1981				
1982				
1983				14.48
1984			0.43	6.89
1985			0.53	66.75
1986			0.90	4.58
1987			0.78	18.98
1988			0.74	49.27
1989			0.74	5.88
1990		1.31	0.81	19.66
1991		1.49	0.55	9.97
1992		0.63	1.44	14.12
1993		0.51	1.19	26.23
1994		1.23	0.98	96.52
1995	0.17	0.33	1.46	18.20
1996	0.00	0.15	0.31	12.07
1997	0.08	0.99	0.21	13.69
1998	0.20	0.57	0.55	4.85
1999	0.03	0.92	2.83	39.70
2000	0.33	0.34	0.78	14.28
2001	0.10	0.75	0.32	9.46
2002	0.10	0.25	0.64	1.99
2003	0.03	0.79	0.25	2.60
2004	0.03	0.42	0.45	6.10
2005	0.13	0.53	0.49	6.90
2006	0.17	0.44	0.71	1.70
2007	0.10	0.36	0.37	18.10
2008	0.00	0.14	0.37	8.10
2009	0.03	0.08	0.19	7.62
2010	0.00	0.11	0.35	9.91
2011	0.03	0.00	0.26	5.90
2012	0.00	0.09	0.12	2.77
2013	0.13	0.22	0.16	no data
2014	0.07	0.22	0.06	no data
2015	0.00	0.14	na	no data
2011 - 2015 ave.	**0.05**	**0.13**	**0.15**	**4.34**
25th	0.03	0.39	0.50	6.64
median	0.10	0.69	0.74	13.91
75th	0.17	0.97	0.92	21.30

SURVEY LOBSTER ENCOUNTER RATE Proportion of postive tows								
Survey	*NEFSC*		*MA*		*RI*		*CT*	
	Fall	*spring*	*fall*	*spring*	*Fall*	*spring*	*Fall*	*spring*
1981			0.15	0.38	0.54	0.49		
1982	0.34	0.24	0.21	0.28	0.59	0.30		
1983	0.22	0.14	0.16	0.21	0.36	0.45		
1984	0.27	0.09	0.18	0.40	0.45	0.59	0.76	0.72
1985	0.30	0.20	0.22	0.51	0.50	0.31	0.69	0.57
1986	0.25	0.19	0.38	0.39	0.43	0.64	0.61	0.67
1987	0.23	0.13	0.18	0.28	0.47	0.33	0.76	0.63
1988	0.27	0.08	0.21	0.39	0.59	0.49	0.66	0.65
1989	0.37	0.11	0.33	0.50	0.55	0.52	0.63	0.75
1990	0.43	0.14	0.44	0.66	0.54	0.66	0.76	0.73
1991	0.29	0.13	0.39	0.41	0.69	0.77	0.78	0.81
1992	0.31	0.23	0.23	0.51	0.57	0.41	0.69	0.78
1993	0.26	0.09	0.26	0.54	0.73	0.50	0.77	0.74
1994	0.23	0.09	0.20	0.51	0.57	0.56	0.74	0.73
1995	0.33	0.06	0.13	0.44	0.67	0.55	0.68	0.77
1996	0.41	0.08	0.16	0.30	0.76	0.79	0.78	0.68
1997	0.28	0.24	0.21	0.45	0.71	0.75	0.81	0.71
1998	0.30	0.11	0.13	0.54	0.55	0.59	0.71	0.83
1999	0.29	0.18	0.21	0.41	0.59	0.76	0.79	0.78
2000	0.30	0.13	0.15	0.45	0.63	0.68	0.73	0.82
2001	0.24	0.18	0.18	0.28	0.61	0.64	0.58	0.77
2002	0.21	0.19	0.03	0.28	0.45	0.63	0.59	0.73
2003	0.25	0.11	0.03	0.14	0.40	0.53	0.63	0.71
2004	0.20	0.10	0.03	0.28	0.50	0.54	0.66	0.61
2005	0.20	0.08	0.15	0.34	0.45	0.50	0.55	0.63
2006	0.23	0.13	0.03	0.43	0.61	0.81	0.53	0.61
2007	0.19	0.15	0.10	0.34	0.54	0.43	0.53	0.70
2008	0.24	0.11	0.10	0.33	0.52	0.55	0.65	0.63
2009	0.28	0.16	0.05	0.50	0.40	0.57	0.55	0.49
2010	0.30	0.09	0.24	0.23	0.45	0.47	na	0.54
2011	0.32	0.11	0.05	0.18	0.23	0.29	0.28	0.46
2012	0.32	0.12	0.15	0.18	0.16	0.29	0.20	0.44
2013	0.24	0.09	0.08	0.18	0.09	0.20	0.15	0.28
2014	0.24	0.23	0.08	0.13	0.23	0.07	0.10	0.26
2015	na	0.054	0.05	0.10	na	0.12	0.10	0.27
2011 - 2015 ave.	**0.28**	**0.12**	**0.08**	**0.15**	**0.18**	**0.19**	**0.17**	**0.34**
25th	0.25	0.09	0.16	0.37	0.49	0.52	0.65	0.70
median	0.29	0.13	0.20	0.42	0.57	0.59	0.72	0.73
75th	0.31	0.18	0.24	0.51	0.64	0.66	0.76	0.77

Appendix 3. Bottom Water Temperatures

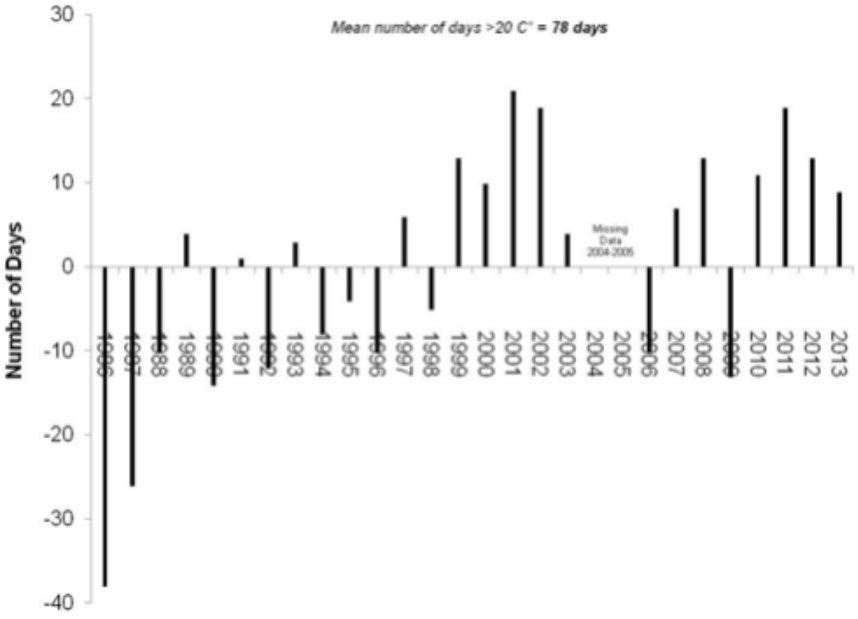

Figure 1: Bottom water (11m) temperature anomalies from the mean number of days >20^{o}C at Cleveland Ledge, Buzzards Bay, MA, 1986-2013. Source: 2015 Benchmark Stock Assessment.

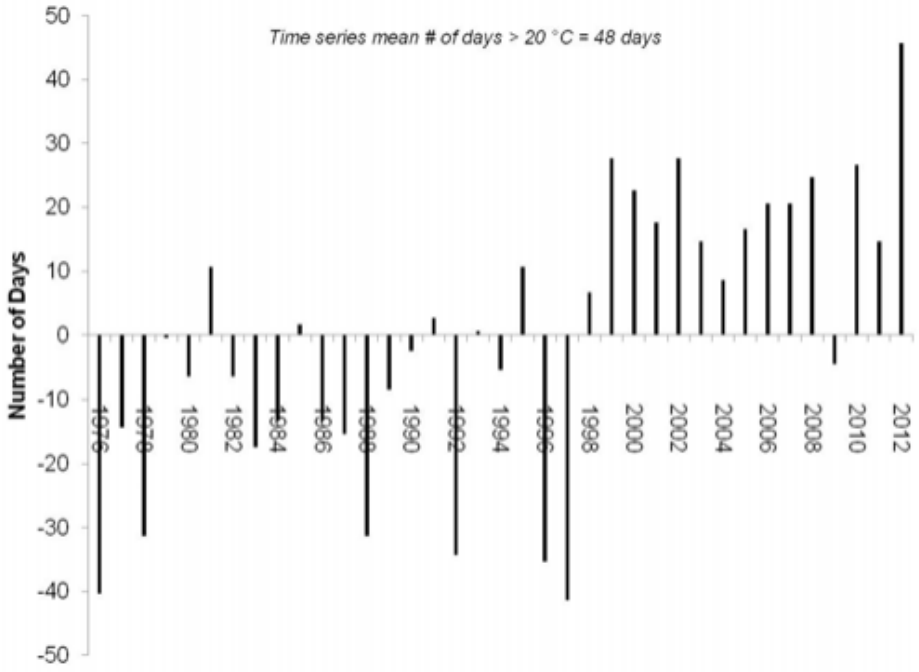

Figure 2: Bottom water (11m) temperature anomalies from the mean number of days >20^{o}C at Dominion Nuclear Power Station, eastern Long Island Sound, CT, 1976-2012.

Appendix 4: Southern New England Stock Projections

The American Lobster Technical Committee (TC) met on December 8th to review projections for the Southern New England (SNE) lobster stock. Below are the series of projections that the TC unanimously recommends for Board consideration. These projections represent two potential scenarios. In the first scenario, recruitment is assumed to be independent of stock biomass and stable at current estimated levels. While this can limit the potential for rebuilding, it is perhaps the more realistic of the two scenarios given that recruitment has been declining for the past couple decades.

In the second scenario, future recruitment is linked to the spawning stock via a Beverton-Holt stock-recruitment relationship. This is perhaps less realistic than the first scenario with regards to stock rebuilding but more realistic for the continued decline of the population because recruitment decreases with further depletion of the spawning stock.

Under the first scenario with fixed recruitment, an 80% to 90% reduction in harvest rate is projected to stabilize the stock at current levels, assuming natural mortality also stabilizes at current levels; even lower harvest rates show some potential for recovery. Under the second scenario with recruitment linked to spawning stock, a 75% reduction in harvest rate would be needed to stabilize the stock under current natural mortality conditions.

The TC ran stock projections to examine population responses under various levels of natural mortality (M) and fishing mortality (F). It is important to note that here F is used to represent the proportion of current catch levels by weight, not a fishery removal rate as is typical. In plots where F was fixed at zero, M varied from 0.15 to 0.5. The effect of varying M on population projections is presented and highlights the sensitivity to the assumed value of M.

The projections are shown in two different units: reference abundance (N) and spawning stock biomass (SSB). Reference abundance is the number of lobsters 78+ mm carapace length on January 1st plus the number that will molt and recruit to the 78+ group during the year. Current reference points are also expressed in N. SSB is the total weight of mature lobsters (both sexes) in the stock. In the projections, SSB shows greater recovery potential than reference abundance because SSB is the product of abundance at-size, the probability of maturity at-size, and weight at-size. As a result, SSB increases more rapidly than N because larger individuals weigh more than smaller lobsters.

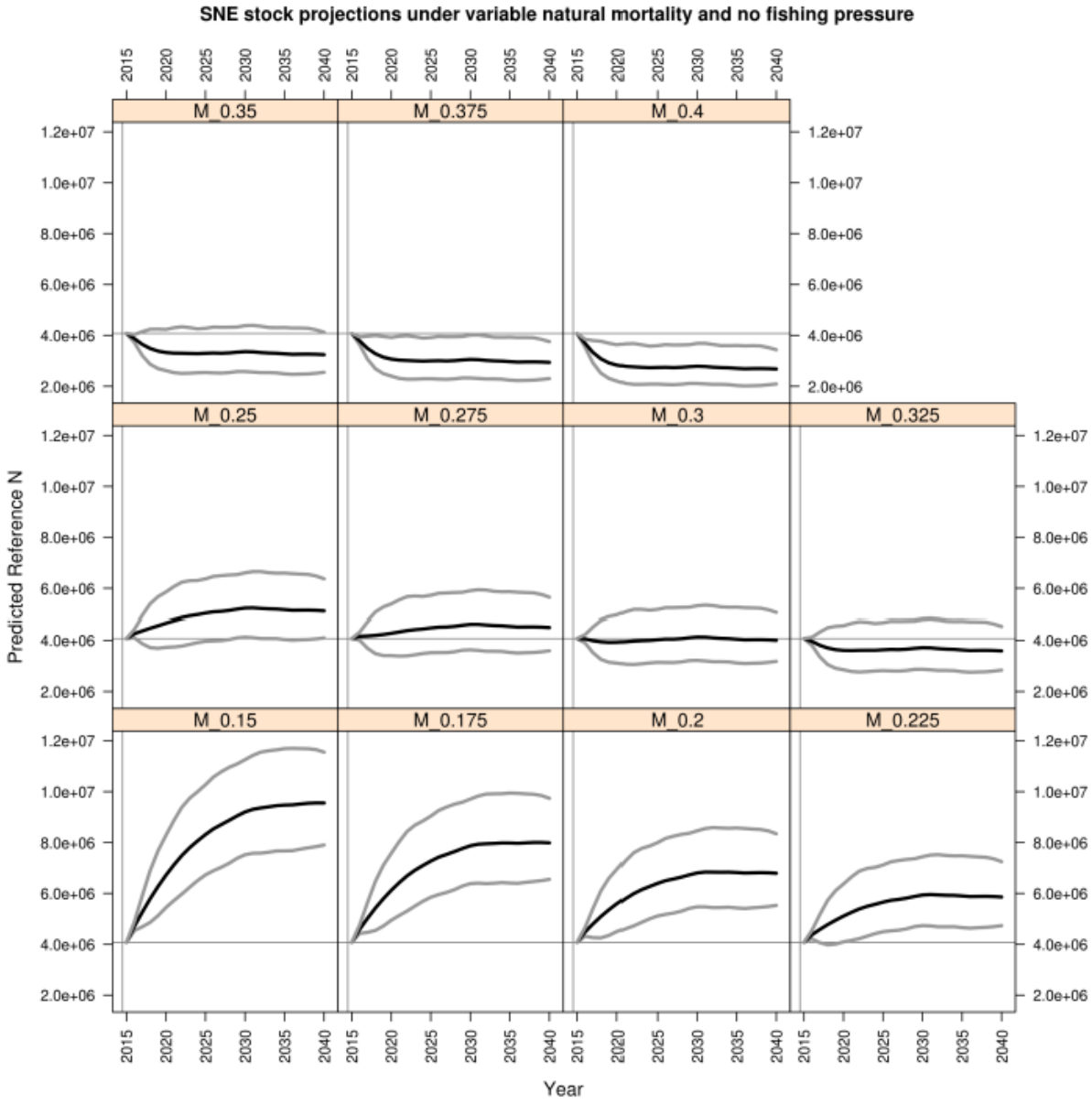

Figure 1: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of M. F is fixed at zero. The units are reference abundance. Black line is the mean trend +/- 2SD (gray lines).

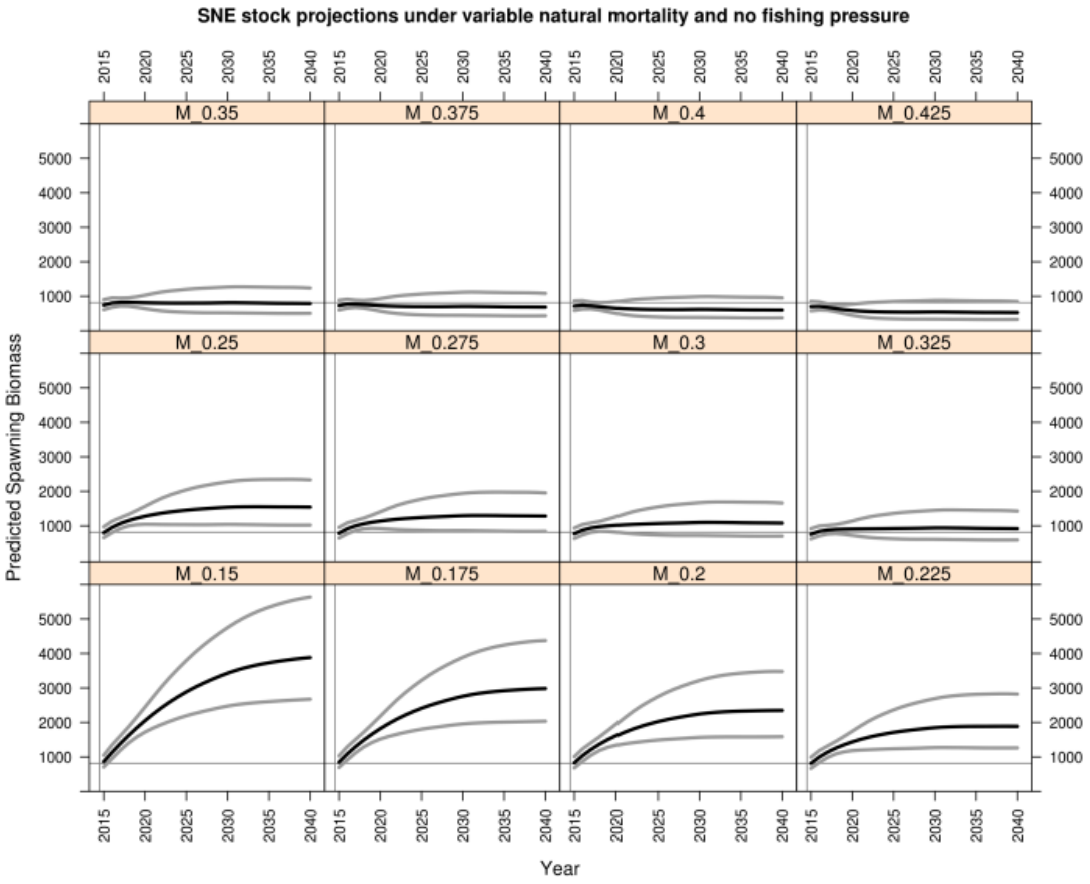

Figure 2: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of M. F is fixed at zero. The units are SSB. Black line is the mean trend +/- 2SD (gray lines).

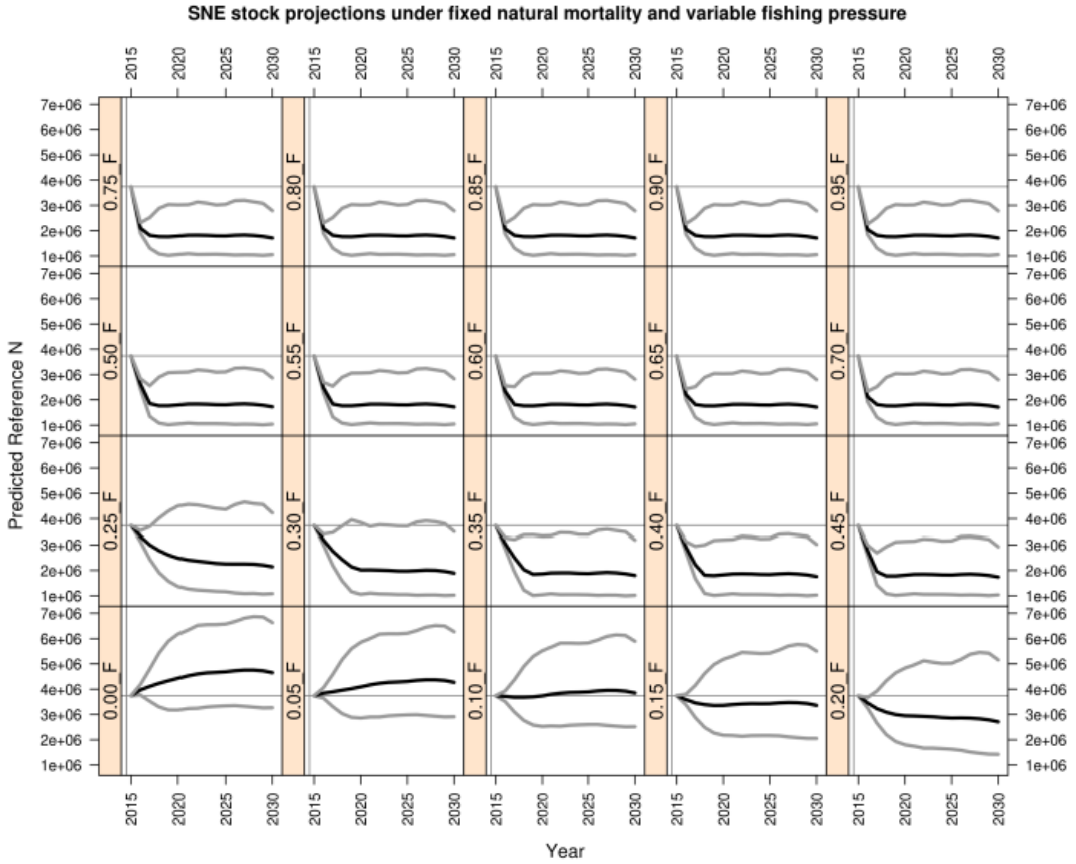

Figure 3: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of F. M is fixed at 0.285. The units are reference abundance. Black lines is the mean trend 2 +/-2SD (gray lines).

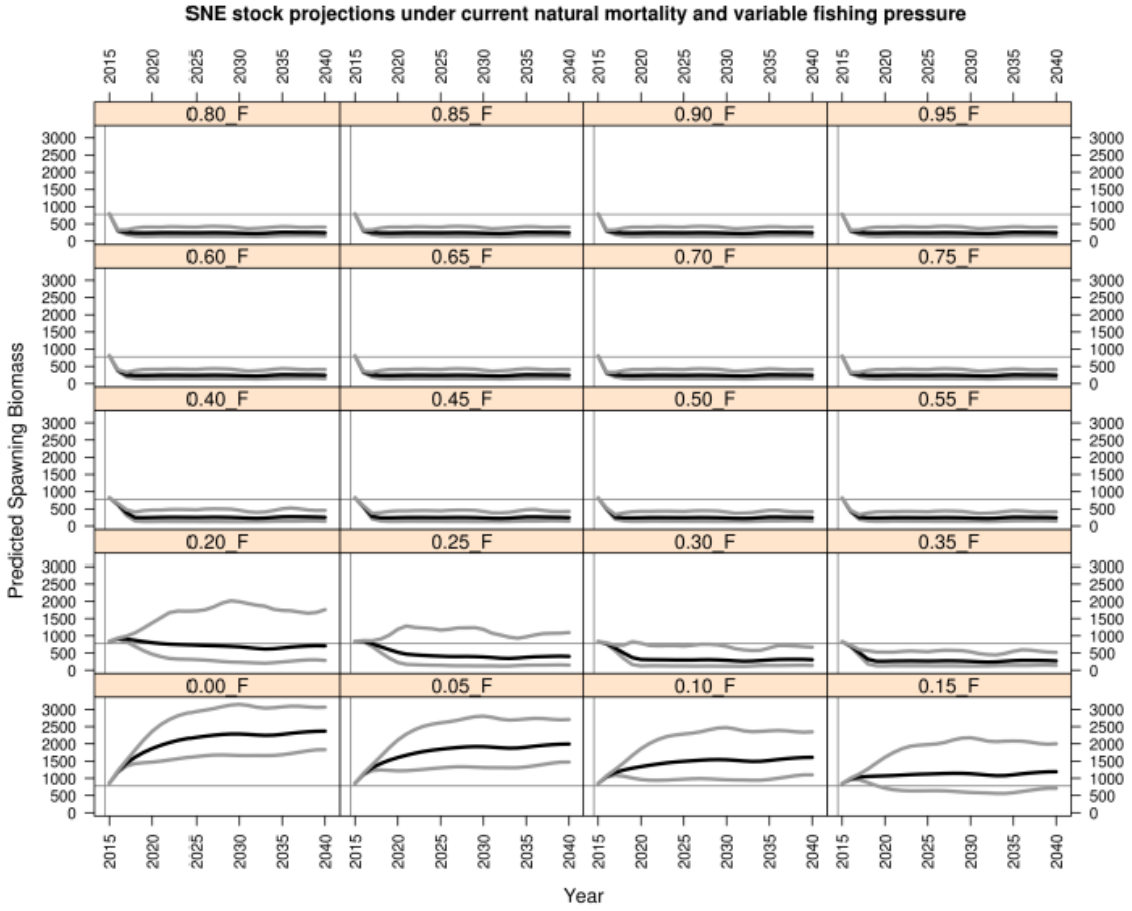

Figure 4: SNE stock projections assuming constant recruitment (similar to levels seen from 2011 to 2014) under various levels of F. M is fixed at 0.285. The units are SSB. Black line is the mean trend +/1 2SD (gray lines).

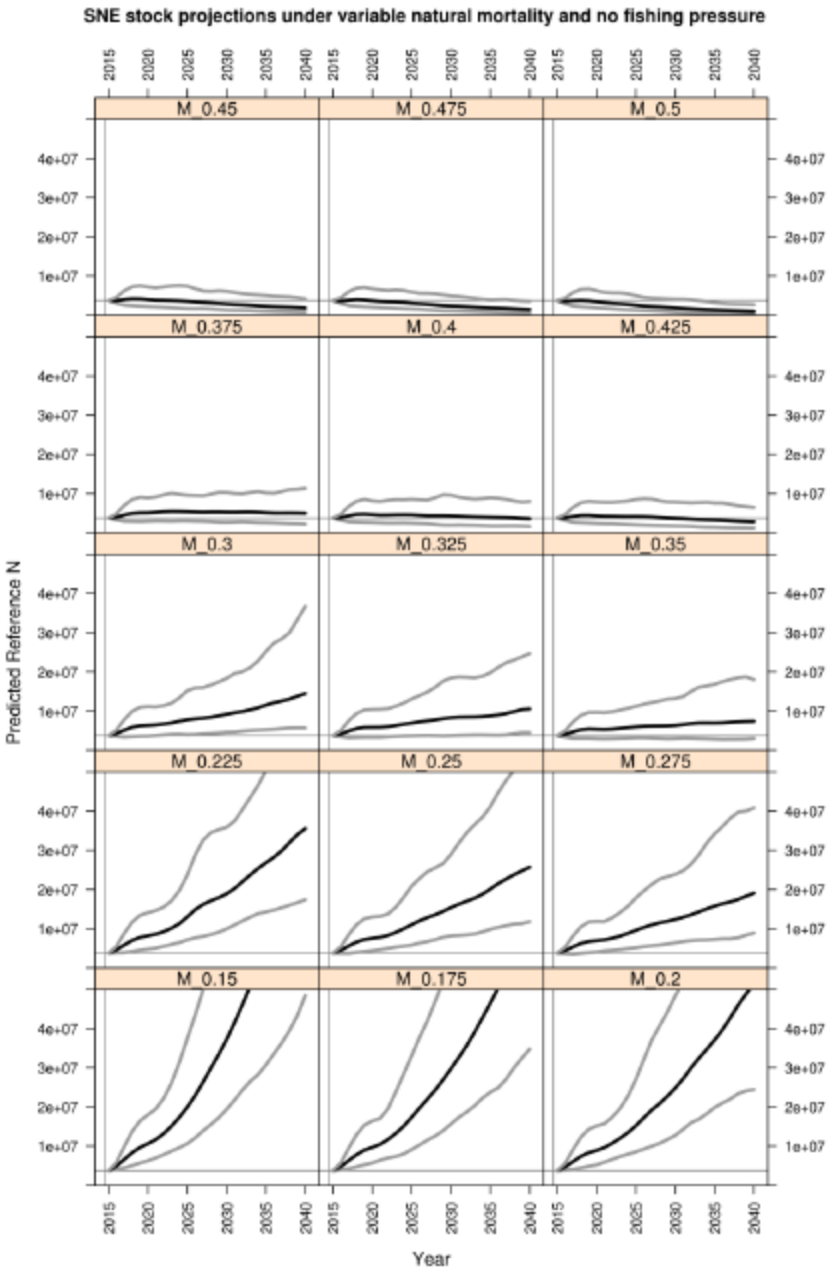

Figure 5. SNE stock projections assuming a Beverton-Holt stock recruit relationship under various levels of M. F is fixed at zero. The units are reference abundance.

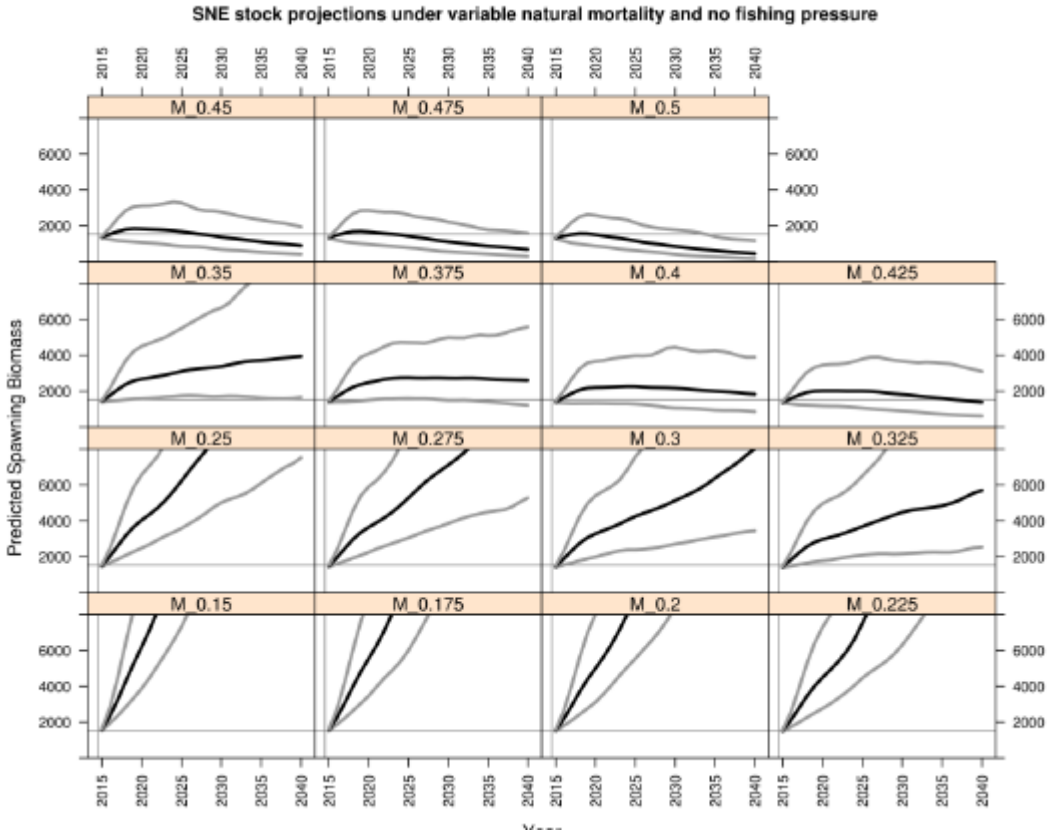

Figure 6: SNE stock projections assuming Beverton-Holt recruitment under various levels of M. F is fixed at zero. The units are SSB.

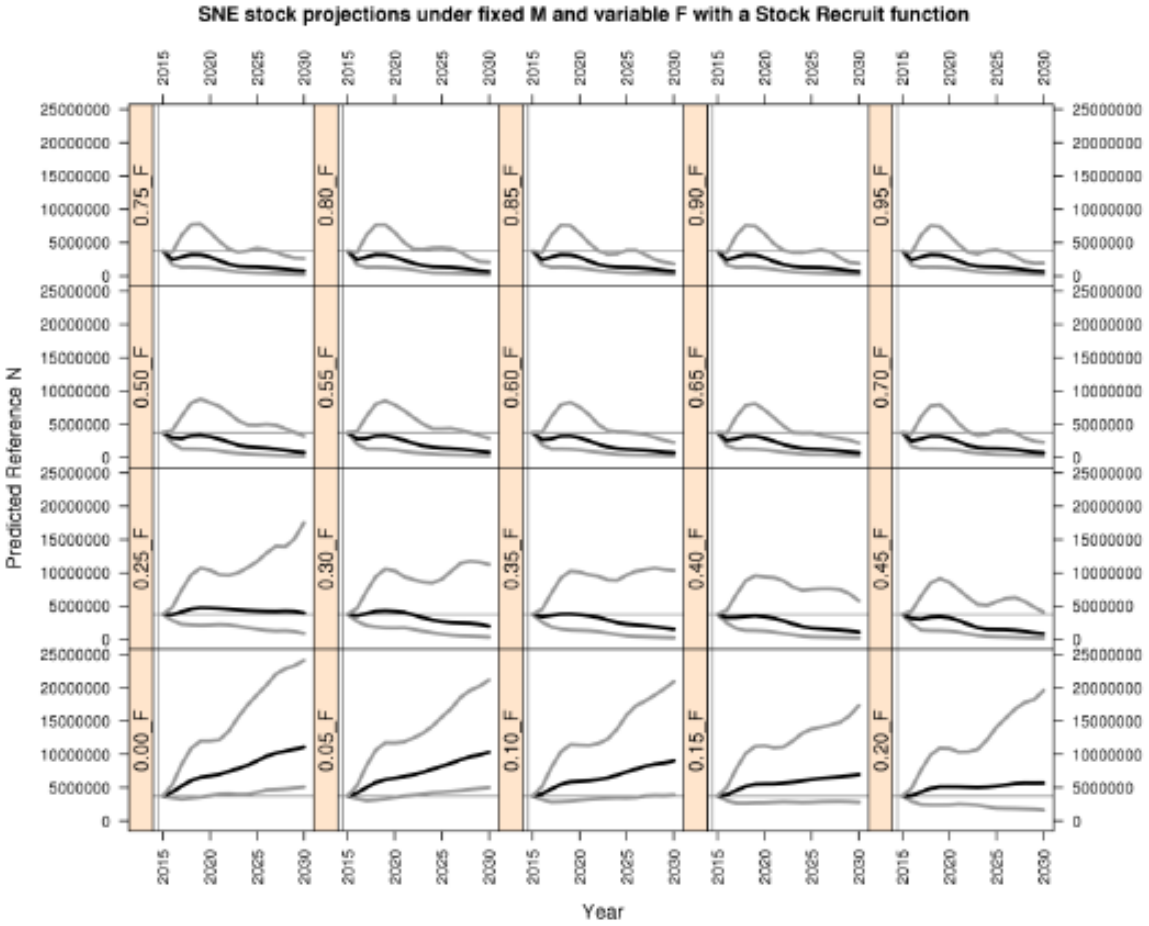

Figure 7: SNE stock projections assuming Beverton-Holt recruitment under various levels of F.M is fixed at 0.285. The units are reference abundance.

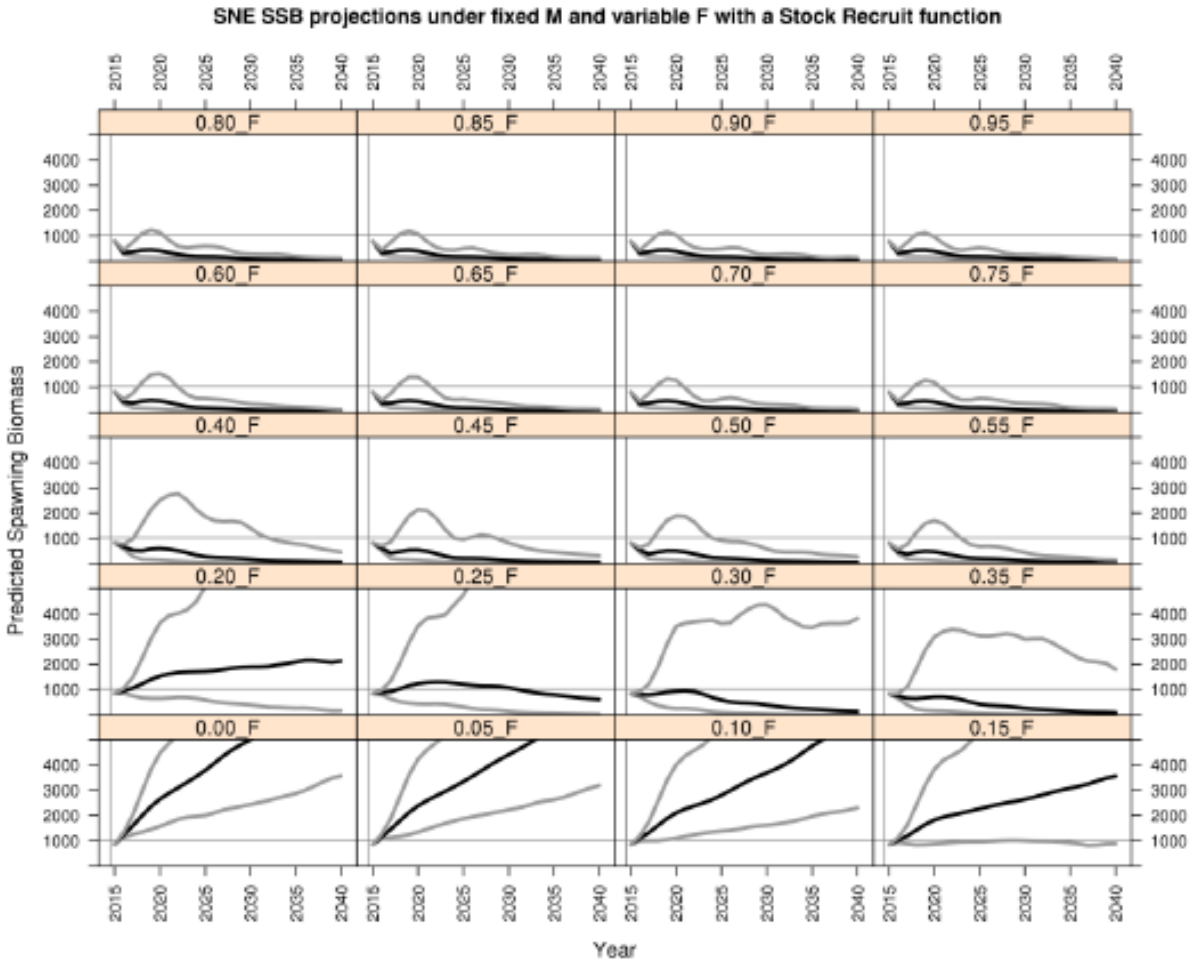

Figure 8: SNE stock projections assuming Beverton-Holt recruitment under various levels of F. M is fixed at 0.285. The units are SSB.

Appendix 5: TC Memo to Board on Gauge Size Changes

MEMORANDUM

TO: American Lobster Management Board

FROM: American Lobster Technical Committee

DATE: July 25, 2016

SUBJECT: Effect of Gauge Changes on Exploitation, SSB, Reference Abundance, and Catch

The following analysis looks at the effect of gauge size changes on egg production, exploitation, spawning stock biomass (SSB), reference abundance, and catch. This work is intended to provide a holistic view of stock and fishery changes that may result from alterations to the minimum and maximum gauge size. Table 1 summarizes scenarios in which a 20% or 60% increase in egg production is achieved, per the motion of the Board at the May 2016 meeting. Tables 2-6 look at all combinations of gauge changes in regards to egg production, exploitation, SSB, reference abundance, and catch.

Table 1. Minimum and maximum size window necessary to achieve a 20% and 60% increase in egg production respectively. Includes % change in exploitation, spawning stock biomass, reference abundance, and catch associated with the size windows presented. *Assumes changes in gauge size from the current 86 mm minimum and 133 mm maximum size inshore, and an 89 mm minimum size and a 171 mm maximum size offshore. English unit conversions are approximate.

	Min	Max	Egg Production	Exploitation	Spawning Stock Biomass	Reference Abundance	Catch
Inshore	88 mm (3 15/32")	105 mm (4 1/8")	20%	-18%	20%	9%	-11%
	91 mm (3 9/16")	115 mm (4 1/2")	18%	-22%	22%	11%	-14%
	92 mm (3 5/8")	165 mm (6 1/2")	20%	-27%	25%	13%	-17%
Offshore	91 mm (3 9/16")	105 mm (4 1/8")	22%	-21%	22%	9%	-13%
	94 mm (3 11/16")	115 mm (4 1/2")	20%	-26%	24%	12%	-17%
	95 mm (3 3/4")	165 mm (6 1/2")	21%	-28%	26%	13%	-19%
Inshore	99 mm (3 7/8")	115 mm (4 1/2")	60%	-56%	71%	32%	-42%
	101 mm (3 29/32")	165 mm (6 1/2")	59%	-59%	76%	35%	-45%
Offshore	102 mm (4")	115 mm (4 1/2")	62%	-60%	71%	31%	-47%
	103 mm (4 1/16")	165 mm (6 1/2")	63%	-63%	75%	34%	-50%

Table 2. Inshore and offshore minimum/maximum gauge change scenarios and corresponding egg production changes from the current gauge sizes. Egg production is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

Min Size \ Max size	105	115	125	135	145	155	165
82	2%	-7%	-8%	-8%	-8%	-8%	-8%
83	3%	-6%	-7%	-7%	-7%	-7%	-7%
84	5%	-4%	-5%	-5%	-5%	-5%	-5%
85	8%	-1%	-3%	-3%	-3%	-3%	-3%
86	12%	1%	0%	0%	0%	0%	0%
87	15%	5%	3%	3%	3%	3%	3%
88	20%	8%	6%	6%	6%	6%	6%
89	23%	11%	9%	9%	9%	9%	9%
90	27%	14%	12%	12%	12%	12%	12%
91	33%	18%	16%	16%	16%	16%	16%
92	39%	22%	20%	20%	20%	20%	20%
93	46%	28%	26%	25%	25%	25%	25%
94	51%	31%	29%	28%	28%	28%	28%
95	NA	35%	32%	32%	32%	32%	32%
96	NA	40%	37%	37%	37%	37%	37%
97	NA	47%	43%	43%	43%	43%	43%
98	NA	56%	51%	51%	51%	51%	51%
99	NA	59%	54%	54%	54%	54%	54%
100	NA	63%	58%	57%	57%	57%	57%
101	NA	69%	63%	62%	62%	62%	62%
102	NA	76%	70%	69%	69%	69%	69%
103	NA	87%	79%	78%	78%	78%	78%
104	NA	91%	82%	81%	81%	81%	81%
105	NA	NA	85%	84%	84%	84%	84%
106	NA	NA	90%	89%	89%	89%	89%
107	NA	NA	97%	96%	95%	95%	95%
108	NA	NA	107%	105%	105%	105%	105%
109	NA	NA	110%	108%	107%	107%	107%
110	NA	NA	113%	111%	110%	110%	110%

Offshore; Min=89, Max=171

Min Size \ Max size	105	115	125	135	145	155	165
82	-7%	-14%	-15%	-16%	-16%	-16%	-16%
83	-6%	-14%	-15%	-15%	-15%	-15%	-15%
84	-3%	-12%	-13%	-13%	-13%	-13%	-13%
85	0%	-9%	-10%	-11%	-11%	-11%	-11%
86	3%	-7%	-8%	-8%	-8%	-8%	-8%
87	6%	-4%	-5%	-5%	-5%	-5%	-5%
88	10%	-1%	-2%	-2%	-2%	-2%	-2%
89	13%	2%	0%	0%	0%	0%	0%
90	17%	5%	3%	3%	3%	3%	3%
91	22%	8%	6%	6%	6%	6%	6%
92	27%	12%	11%	10%	10%	10%	10%
93	34%	18%	15%	15%	15%	15%	15%
94	39%	20%	18%	18%	18%	18%	18%
95	NA	24%	22%	21%	21%	21%	21%
96	NA	29%	26%	26%	25%	25%	25%
97	NA	35%	32%	31%	31%	31%	31%
98	NA	43%	39%	39%	39%	39%	39%
99	NA	46%	42%	41%	41%	41%	41%
100	NA	50%	45%	45%	45%	45%	45%
101	NA	55%	50%	49%	49%	49%	49%
102	NA	62%	56%	55%	55%	55%	55%
103	NA	72%	64%	64%	63%	63%	63%
104	NA	75%	67%	66%	66%	66%	66%
105	NA	NA	70%	69%	69%	69%	69%
106	NA	NA	75%	74%	73%	73%	73%
107	NA	NA	81%	80%	79%	79%	79%
108	NA	NA	90%	89%	88%	88%	88%
109	NA	NA	92%	91%	90%	90%	90%
110	NA	NA	95%	93%	93%	93%	93%

Table 3. Inshore and offshore minimum/maximum gauge change scenarios and corresponding exploitation changes from the current gauge sizes. Exploitation is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

Min Size \ Max size	105	115	125	135	145	155	165
82	7%	14%	14%	14%	14%	14%	14%
83	5%	12%	13%	13%	13%	13%	13%
84	1%	8%	9%	9%	9%	9%	9%
85	-4%	4%	4%	4%	5%	5%	5%
86	-8%	-1%	0%	0%	0%	0%	0%
87	-13%	-6%	-5%	-5%	-5%	-5%	-5%
88	-18%	-11%	-10%	-10%	-10%	-10%	-10%
89	-22%	-14%	-13%	-13%	-13%	-13%	-13%
90	-26%	-18%	-17%	-17%	-17%	-17%	-17%
91	-31%	-22%	-22%	-21%	-21%	-21%	-21%
92	-37%	-28%	-27%	-27%	-27%	-27%	-27%
93	-43%	-33%	-32%	-32%	-32%	-32%	-32%
94	-46%	-36%	-35%	-35%	-35%	-35%	-35%
95	NA	-39%	-38%	-38%	-38%	-38%	-38%
96	NA	-43%	-42%	-42%	-42%	-42%	-42%
97	NA	-48%	-46%	-46%	-46%	-46%	-46%
98	NA	-54%	-53%	-53%	-52%	-52%	-52%
99	NA	-56%	-54%	-54%	-54%	-54%	-54%
100	NA	-58%	-56%	-56%	-56%	-56%	-56%
101	NA	-61%	-59%	-59%	-59%	-59%	-59%
102	NA	-65%	-63%	-63%	-63%	-63%	-63%
103	NA	-71%	-68%	-68%	-68%	-68%	-68%
104	NA	-72%	-69%	-69%	-69%	-69%	-69%
105	NA	NA	-71%	-70%	-70%	-70%	-70%
106	NA	NA	-73%	-72%	-72%	-72%	-72%
107	NA	NA	-75%	-75%	-75%	-75%	-75%
108	NA	NA	-80%	-79%	-79%	-79%	-79%
109	NA	NA	-81%	-80%	-80%	-80%	-80%
110	NA	NA	-81%	-81%	-81%	-81%	-81%

Offshore; Min=89, Max=171

Min Size \ Max size	105	115	125	135	145	155	165
82	23%	31%	32%	32%	32%	32%	32%
83	21%	29%	30%	30%	30%	30%	30%
84	16%	24%	25%	25%	25%	25%	25%
85	11%	20%	20%	21%	21%	21%	21%
86	6%	14%	15%	15%	15%	15%	15%
87	0%	9%	10%	10%	10%	10%	10%
88	-6%	3%	4%	4%	4%	4%	4%
89	-10%	-1%	0%	0%	0%	0%	0%
90	-15%	-5%	-4%	-4%	-4%	-4%	-4%
91	-21%	-11%	-10%	-9%	-9%	-9%	-9%
92	-27%	-16%	-15%	-15%	-15%	-15%	-15%
93	-34%	-23%	-22%	-22%	-22%	-22%	-22%
94	-38%	-26%	-25%	-25%	-25%	-25%	-25%
95	NA	-30%	-28%	-28%	-28%	-28%	-28%
96	NA	-34%	-33%	-33%	-33%	-33%	-33%
97	NA	-40%	-38%	-38%	-38%	-38%	-38%
98	NA	-47%	-45%	-45%	-45%	-45%	-45%
99	NA	-49%	-47%	-47%	-47%	-47%	-47%
100	NA	-52%	-50%	-50%	-49%	-49%	-49%
101	NA	-55%	-53%	-53%	-53%	-53%	-53%
102	NA	-60%	-57%	-57%	-57%	-57%	-57%
103	NA	-66%	-63%	-63%	-63%	-63%	-63%
104	NA	-68%	-64%	-64%	-64%	-64%	-64%
105	NA	NA	-66%	-66%	-66%	-66%	-66%
106	NA	NA	-68%	-68%	-68%	-68%	-68%
107	NA	NA	-72%	-71%	-71%	-71%	-71%
108	NA	NA	-77%	-76%	-76%	-76%	-76%
109	NA	NA	-78%	-77%	-77%	-77%	-77%
110	NA	NA	-79%	-78%	-78%	-78%	-78%

Table 4. Inshore and offshore minimum/maximum gauge change scenarios and corresponding spawning stock biomass (SSB) changes from the current gauge sizes. SSB is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

Min Size \ Max size	105	115	125	135	145	155	165
82	-1%	-9%	-10%	-10%	-10%	-10%	-10%
83	0%	-8%	-9%	-9%	-9%	-9%	-9%
84	4%	-5%	-6%	-6%	-6%	-6%	-6%
85	7%	-2%	-3%	-3%	-3%	-3%	-3%
86	11%	1%	0%	0%	0%	0%	0%
87	16%	5%	4%	4%	4%	4%	4%
88	20%	9%	8%	8%	8%	8%	8%
89	25%	13%	11%	11%	11%	11%	11%
90	30%	17%	15%	15%	15%	15%	15%
91	36%	22%	20%	20%	20%	20%	20%
92	43%	27%	26%	25%	25%	25%	25%
93	51%	34%	32%	32%	32%	32%	32%
94	57%	38%	36%	36%	36%	35%	35%
95	NA	43%	40%	40%	40%	40%	40%
96	NA	49%	46%	46%	46%	46%	46%
97	NA	57%	54%	53%	53%	53%	53%
98	NA	67%	63%	63%	63%	63%	63%
99	NA	71%	67%	66%	66%	66%	66%
100	NA	76%	71%	71%	71%	71%	71%
101	NA	82%	77%	76%	76%	76%	76%
102	NA	90%	84%	84%	84%	84%	84%
103	NA	102%	95%	94%	94%	94%	94%
104	NA	106%	98%	97%	97%	97%	97%
105	NA	NA	102%	101%	101%	101%	101%
106	NA	NA	107%	106%	106%	106%	106%
107	NA	NA	115%	113%	113%	113%	113%
108	NA	NA	125%	124%	124%	124%	124%
109	NA	NA	128%	126%	126%	126%	126%
110	NA	NA	131%	129%	129%	129%	129%

Offshore; Min=89, Max=171

Min Size \ Max size	105	115	125	135	145	155	165
82	-11%	-18%	-19%	-19%	-19%	-19%	-19%
83	-10%	-17%	-18%	-18%	-18%	-18%	-18%
84	-7%	-15%	-16%	-16%	-16%	-16%	-16%
85	-4%	-12%	-13%	-13%	-13%	-13%	-13%
86	0%	-9%	-10%	-10%	-10%	-10%	-10%
87	4%	-6%	-7%	-7%	-7%	-7%	-7%
88	8%	-2%	-3%	-3%	-3%	-3%	-3%
89	12%	1%	0%	0%	0%	0%	0%
90	17%	5%	4%	4%	4%	4%	4%
91	22%	9%	8%	8%	8%	8%	8%
92	29%	15%	13%	13%	13%	13%	13%
93	36%	21%	19%	19%	19%	19%	19%
94	41%	24%	22%	22%	22%	22%	22%
95	NA	28%	26%	26%	26%	26%	26%
96	NA	34%	31%	31%	31%	31%	31%
97	NA	41%	38%	38%	38%	38%	38%
98	NA	50%	47%	46%	46%	46%	46%
99	NA	54%	50%	50%	49%	49%	49%
100	NA	58%	54%	53%	53%	53%	53%
101	NA	64%	59%	59%	59%	59%	59%
102	NA	71%	66%	65%	65%	65%	65%
103	NA	82%	75%	75%	75%	75%	75%
104	NA	85%	78%	77%	77%	77%	77%
105	NA	NA	82%	81%	81%	81%	81%
106	NA	NA	87%	86%	85%	85%	85%
107	NA	NA	93%	92%	92%	92%	92%
108	NA	NA	103%	101%	101%	101%	101%
109	NA	NA	105%	103%	103%	103%	103%
110	NA	NA	108%	106%	106%	106%	106%

Table 5. Inshore and offshore minimum/maximum gauge change scenarios and corresponding reference abundance changes from the current gauge sizes. Reference abundance is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

Min Size \ Max size	105	115	125	135	145	155	165
82	-3%	-6%	-6%	-6%	-6%	-6%	-6%
83	-2%	-5%	-5%	-5%	-5%	-5%	-5%
84	0%	-3%	-4%	-4%	-4%	-4%	-4%
85	2%	-2%	-2%	-2%	-2%	-2%	-2%
86	4%	0%	0%	0%	0%	0%	0%
87	6%	3%	2%	2%	2%	2%	2%
88	9%	5%	5%	5%	5%	5%	5%
89	11%	7%	6%	6%	6%	6%	6%
90	13%	9%	8%	8%	8%	8%	8%
91	16%	11%	10%	10%	10%	10%	10%
92	19%	14%	13%	13%	13%	13%	13%
93	23%	17%	16%	16%	16%	16%	16%
94	25%	19%	18%	18%	18%	18%	18%
95	NA	21%	20%	20%	20%	20%	20%
96	NA	23%	22%	22%	22%	22%	22%
97	NA	26%	25%	25%	25%	25%	25%
98	NA	31%	30%	30%	30%	30%	30%
99	NA	32%	31%	31%	31%	31%	31%
100	NA	34%	33%	33%	33%	33%	33%
101	NA	36%	35%	35%	35%	35%	35%
102	NA	40%	38%	38%	38%	38%	38%
103	NA	45%	42%	42%	42%	42%	42%
104	NA	46%	43%	43%	43%	43%	43%
105	NA	NA	45%	44%	44%	44%	44%
106	NA	NA	46%	46%	46%	46%	46%
107	NA	NA	49%	49%	49%	49%	49%
108	NA	NA	53%	53%	53%	53%	53%
109	NA	NA	54%	54%	54%	54%	54%
110	NA	NA	55%	55%	55%	55%	55%

Offshore; Min=89, Max=171

Min Size \ Max size	105	115	125	135	145	155	165
82	-8%	-11%	-11%	-11%	-11%	-11%	-11%
83	-8%	-10%	-11%	-11%	-11%	-11%	-11%
84	-6%	-9%	-9%	-9%	-9%	-9%	-9%
85	-4%	-7%	-8%	-8%	-8%	-8%	-8%
86	-2%	-5%	-6%	-6%	-6%	-6%	-6%
87	0%	-3%	-4%	-4%	-4%	-4%	-4%
88	2%	-1%	-1%	-2%	-2%	-2%	-2%
89	4%	0%	0%	0%	0%	0%	0%
90	6%	2%	2%	2%	2%	2%	2%
91	9%	4%	4%	4%	4%	4%	4%
92	12%	7%	7%	7%	6%	6%	6%
93	16%	10%	10%	10%	10%	10%	10%
94	18%	12%	11%	11%	11%	11%	11%
95	NA	14%	13%	13%	13%	13%	13%
96	NA	16%	15%	15%	15%	15%	15%
97	NA	19%	18%	18%	18%	18%	18%
98	NA	23%	22%	22%	22%	22%	22%
99	NA	25%	23%	23%	23%	23%	23%
100	NA	26%	25%	25%	25%	25%	25%
101	NA	28%	27%	27%	27%	27%	27%
102	NA	31%	30%	30%	30%	30%	30%
103	NA	36%	34%	34%	34%	34%	34%
104	NA	37%	35%	35%	35%	35%	35%
105	NA	NA	36%	36%	36%	36%	36%
106	NA	NA	38%	38%	38%	38%	38%
107	NA	NA	40%	40%	40%	40%	40%
108	NA	NA	44%	44%	44%	44%	44%
109	NA	NA	45%	45%	45%	45%	45%
110	NA	NA	46%	46%	46%	46%	46%

Table 6. Inshore and offshore minimum/maximum gauge change scenarios and corresponding catch changes from the current gauge sizes. Catch is expressed as percent increases from the current conditions.

Inshore; Min=86, Max=133

Min Size \ Max size	105	115	125	135	145	155	165
82	4%	7%	8%	8%	8%	8%	8%
83	3%	6%	7%	7%	7%	7%	7%
84	0%	4%	5%	5%	5%	5%	5%
85	-2%	2%	2%	2%	2%	2%	2%
86	-5%	0%	0%	0%	0%	0%	0%
87	-8%	-3%	-3%	-3%	-3%	-3%	-3%
88	-11%	-6%	-6%	-6%	-6%	-6%	-6%
89	-14%	-9%	-8%	-8%	-8%	-8%	-8%
90	-17%	-11%	-10%	-10%	-10%	-10%	-10%
91	-20%	-14%	-13%	-13%	-13%	-13%	-13%
92	-25%	-18%	-17%	-17%	-17%	-17%	-17%
93	-30%	-22%	-21%	-21%	-21%	-21%	-21%
94	-33%	-24%	-23%	-23%	-23%	-23%	-23%
95	NA	-27%	-26%	-26%	-26%	-26%	-26%
96	NA	-30%	-29%	-29%	-29%	-29%	-29%
97	NA	-34%	-33%	-33%	-33%	-33%	-33%
98	NA	-40%	-39%	-38%	-38%	-38%	-38%
99	NA	-42%	-40%	-40%	-40%	-40%	-40%
100	NA	-44%	-42%	-42%	-42%	-42%	-42%
101	NA	-47%	-45%	-45%	-45%	-45%	-45%
102	NA	-51%	-49%	-49%	-49%	-49%	-49%
103	NA	-58%	-55%	-54%	-54%	-54%	-54%
104	NA	-59%	-56%	-56%	-56%	-56%	-56%
105	NA	NA	-58%	-57%	-57%	-57%	-57%
106	NA	NA	-60%	-60%	-60%	-59%	-59%
107	NA	NA	-63%	-63%	-63%	-63%	-63%
108	NA	NA	-69%	-68%	-68%	-68%	-68%
109	NA	NA	-70%	-69%	-69%	-69%	-69%
110	NA	NA	-71%	-71%	-71%	-71%	-71%

Offshore; Min=89, Max=171

Min Size \ Max size	105	115	125	135	145	155	165
82	13%	17%	17%	17%	17%	17%	17%
83	12%	16%	16%	16%	16%	16%	16%
84	9%	13%	14%	14%	14%	14%	14%
85	6%	11%	11%	11%	11%	11%	11%
86	3%	8%	9%	9%	9%	9%	9%
87	0%	5%	6%	6%	6%	6%	6%
88	-4%	2%	2%	2%	2%	2%	2%
89	-6%	-1%	0%	0%	0%	0%	0%
90	-10%	-3%	-3%	-3%	-3%	-3%	-3%
91	-13%	-7%	-6%	-6%	-6%	-6%	-6%
92	-18%	-11%	-10%	-10%	-10%	-10%	-10%
93	-24%	-15%	-14%	-14%	-14%	-14%	-14%
94	-27%	-17%	-17%	-16%	-16%	-16%	-16%
95	NA	-20%	-19%	-19%	-19%	-19%	-19%
96	NA	-24%	-23%	-22%	-22%	-22%	-22%
97	NA	-28%	-27%	-27%	-27%	-27%	-27%
98	NA	-35%	-33%	-33%	-33%	-33%	-33%
99	NA	-37%	-35%	-35%	-35%	-35%	-35%
100	NA	-39%	-37%	-37%	-37%	-37%	-37%
101	NA	-42%	-40%	-40%	-40%	-40%	-40%
102	NA	-47%	-44%	-44%	-44%	-44%	-44%
103	NA	-54%	-51%	-50%	-50%	-50%	-50%
104	NA	-56%	-52%	-52%	-52%	-52%	-52%
105	NA	NA	-54%	-54%	-53%	-53%	-53%
106	NA	NA	-56%	-56%	-56%	-56%	-56%
107	NA	NA	-60%	-60%	-60%	-60%	-60%
108	NA	NA	-66%	-66%	-66%	-66%	-66%
109	NA	NA	-67%	-67%	-67%	-67%	-67%
110	NA	NA	-69%	-68%	-68%	-68%	-68%

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

TO: American Lobster Management Board

FROM: American Lobster Technical Committee

DATE: October 14, 2016

SUBJECT: Season Closures and Trip Limits in the SNE Lobster Fishery

During their September 27th -28th meeting in Gloucester, MA, the American Lobster Technical Committee (TC) discussed ways to analyze the effects of season closures and trip limits on egg production in Southern New England (SNE). This discussion was prompted by a request from the Plan Development Team (PDT), who was interested in learning more about the potential impacts of these management tools on the stock.

Model simulations show a season closure during the summer results in the largest increase in egg production (21.6%), followed by spring (15%), fall (8.1%), and winter (3%). Importantly, this analysis is predicated on the assumption that fishermen do not adapt to the implementation of the season closure by increasing their fishing effort during the rest of the year. Thus, the results shown here likely represent an optimistic impact of closures, and realized effects on egg production would likely be lower.

In their discussion on trip limits, the TC identified several concerns with this management tool, including the ability for impacted fishermen to increase their number of trips to maintain harvest levels, the disproportionate impact on the offshore fleet, and the incentive for fishermen currently harvesting under the trip limit to increase their effort. Given these concerns, the TC noted that trip limits must be combined with a quota in order to effectively manage fishing mortality in SNE.

1. Simulated Season Closures on the SNE Lobster Fishery

The TC was asked to conduct an analysis on how short-term closures in the fishery would affect egg production. Such analysis is problematic as short-term (i.e. monthly) fishing mortality is not known and it is difficult to predict and model how fishermen might adapt to short-term closures by changing fishing effort before and after a closure. It is also difficult to predict any changes in the spatial distribution of lobsters and fishing effort as a result of the closure. In a best effort to analyze the effect of short-term closures, the TC chose to examine the effects of simulated quarterly closures as quarterly fishing mortality rates are estimated in the assessment model (quarter 1=January-March; quarter 2=April-June; quarter 3=July-September; quarter 4=October-December). These simulations make the following important assumptions:

1. Fishing effort or the fleet's capacity to fish lobsters will not change significantly in the near future.

2. Fishermen do not adapt to the implementation of seasonal closures by intensifying effort during the rest of the year.
3. Changing lobster length compositions as a result of the closure do not affect the ability of the fleet to fish the population.
4. Spatial distribution of lobsters does not change during the closure or in any way affect availability following the closure.

The TC also highlights that increases in egg production will benefit the stock only if environmental conditions are favorable for larval development and settlement. As mentioned in the April 2016 TC memo to the Lobster Board, recruitment appears to be decoupled from SSB. This could potentially be the result of reduced mating success, environmentally-mediated changes in survivorship, and/or increased predation. As a result, prospective increases in egg production will only benefit the stock if recruitment rates remain constant or improve.

A. Methods

The same lobster population simulation software previously used by the TC to analyze other scenarios, including trap reductions and changes in legal size, was used in this analysis. Current quarterly fishing mortality was estimated by averaging the model-estimated quarterly fishing mortality across 2011 – 2013. Seasonal closures in projection model runs were simulated by setting F=0 for the appropriate quarter (winter, spring, summer, fall) and comparing results to model runs with no seasonal closures. All simulation runs were conducted with no initial population so populations built monotonically to a stable value. Natural mortality was assumed to be 0.28 as in the original assessment model. For convenience, recruitment was always assumed to be one million individuals per year as only a comparison between scenarios is required for this analysis. As a result, the values presented in the figures should only be interpreted relative to other scenarios and <u>not as projections of the SNE stock</u>.

The case of closing the fishery for quarter 3 (summer) is special as most reproductive activities take place during this time. Female lobsters spawn (extrude eggs) in the fall. Thus, protecting pre-spawn females in the summer (when they are not egg-bearing and thus normally susceptible to harvest) would allow more to survive into the fall when they will have eggs and be protected from fishing until the next summer. As a result, the TC hypothesized if lobsters were protected during the summer, there may be enhanced reproductive activities and egg production. To attempt to specifically account for this seasonal impact, a separate adjusted Summer scenario was run in which it was assumed that at least 50% of females in the fall bear eggs (based on the 2 year reproductive cycle), and incorporated empirical data based on biosamples of egg-bearing females at-length to model resulting size compositions and egg production. For all population metrics, the regular and adjusted Summer scenarios were very similar indicating that the summer closure simulation run inherently accounts for these effects by increasing the total number of females available to spawn in the fall. Thus only the results for the regular Summer scenario are presented.

All simulations were allowed to run for 25 model years for populations to stabilize. Length composition and biomass (spawning stock biomass (SSB) and reproductive biomass (males and

sexes combined; RB)) of the population in quarter 3 (summer hatching season), length composition of the total annual catch, total catch weight, and exploitation rates were then calculated and compared with an "Open" scenario with no closed seasons. Egg production was calculated by applying the fecundity-at-size relationship from Estrella and Cadrin (1995) to the female numbers at size during the summer, then summing across lengths within a scenario.

B. Results

Quarterly fishing mortality rates from the assessment model, used in the simulations, vary by sex and across seasons (Table 1). Male mortality rates are highest in the spring, then decline through the winter. Female mortality rates are comparable in the spring and summer, then decrease through the fall and winter. Mortality rates are consistently higher for males than females due to lower availability of females as a result of their egg-bearing status.

Reproductive Biomass increased between 2.7% and 19% for different seasonal closures, and differed by sex (Table 2). SSB increased most in the summer scenario, followed by spring, fall, and winter, but total increases in RB (both sexes included) were similar in spring (16.0%) and summer (15.5%). This order mirrors the fishing mortality otherwise applied to these seasons except that, as expected, protection through the summer for females had a higher effect than spring despite comparable quarterly fishing mortalities.

Similar to SSB, egg production was highest with a summer closure, increasing by 21.6%, compared to 15% for spring, 8.1% for fall, and 3% for winter (Table 2). Seasonal closures primarily benefitted populations by increased numbers of individuals and egg production for lobsters between 90 and 110mm (Figures 1 and 2).

Seasonal closures decreased total landings for all scenarios (Table 2). Decreases in total landings varied from 12.3% for summer closures to 0.7% for winter closures. Decreases in landings were always larger for females than males. The only case of increased landings was for male lobsters with spring closures, returning an increase of 0.3%. The simulations suggest that seasonal closures will generally decrease catches of lobsters below 100mm but may increase the catch of larger lobsters (Figure 3). Thus, the one case of increased (approximately equal) landings for males with spring closures occurs because lobsters are protected until the annual molt, resulting in a higher net harvest of larger lobsters.

Seasonal closures also had the effect of decreasing exploitation rates (Table 2). Both sexes saw the greatest benefit from summer closures, with decreased exploitation of 33.2% and 21% for females and males, respectively. Thus, overall exploitation decreased most in the summer (26%), followed by fall (13.6%), spring (10.8%), and winter (2.1%).

C. Discussion

Depending on the management goals for SNE, closing the fishery for a full quarter would have a measurable effect in the summer or spring, whereas a fall or winter closure would result in a <10% increase in egg production. We note that these estimates of increased egg production should be viewed as optimistic due to the assumptions listed in the introduction, particularly that

fishermen will not change their fishing effort in other seasons if a quarterly closure is implemented.

Extending a closure from July through September would protect the lobster stock during the period of high water temperature. This would prevent handling stress and mortality when water temperatures are above 20°C, the threshold temperature causing immune, respiratory and cardiac trauma (Dove et al. 2005). Eliminating harvest during the molt and times of high water temperature may substantially reduce total mortality and aid in rebuilding the spawning stock by minimizing gear, and handling-induced, immediate and delayed mortality as well as sub-lethal stress. In inshore areas of SNE, late summer and fall (July-October) bottom water temperatures often exceed 20°C, with increasing duration since the early 2000s. Warm hypoxic waters are known to herd lobsters into 'islands' of marginally sustainable habitat. During this time of year, repeated catch and throwback into warm low-oxygen water can be stressful if not fatal, especially if major predators are actively feeding in the same area.

A summer closure may enhance reproductive capacity, not only by leaving more females in the water to spawn, but by:

- Allowing females who hatched eggs in early summer to molt (and mate), thus attaining larger sizes for harvest after the fishery re-opens, and increasing fecundity for those that escape harvest.
- For the unknown percentage of females who may be on 1 year reproductive cycle, allowing them to molt after hatching and spawn in the fall.
- Allowing large males who would otherwise be harvested during summer fishing the opportunity to mate with molting females.

Economic implications of seasonal closures in Maine were evaluated by Cheng and Townsend (1993); they found that gross revenues would increase from extended seasonal closures (e.g. August to November) due to a redistribution of landings across seasons which evened out prices and strengthened markets. This analysis also showed that short (1-2 month) regional closures in peak months (August and/or September) increased the value of landings, but only by a small amount because landings increased immediately after the closures, seriously depressing prices in the late fall (October-December). Closures of at least 3-4 months were required to stabilize the fishery from an economic standpoint. SNE markets are more tenuous than in Maine but may be strengthened by consolidation.

As mentioned above, this analysis is largely predicated on the assumption that creating a seasonal closure will not incentivize fishermen to increase effort in other seasons to make up lost catch, which seems implausible. Thus, the TC is concerned that a seasonal closure during the warmer months, when a closure is most likely to benefit the stock, will result in increased fishing activity in the colder, stormier months when conditions are more dangerous for fishermen.

2. Trip Limits in the SNE Lobster Fishery

The TC was also asked to analyze the impacts of various trip limits in the SNE fishery. During their discussion, the TC identified multiple concerns with the effectiveness of this management tool,

primarily that trip limits are usually implemented to distribute catch through a designated time period (Pikitch et al., 1988), such as a year, rather than to limit harvest. Other concerns included the fact that fishermen landing above the proposed trip limit would be expected to increase the number of trips taken per year in order to maintain their current level of harvest. In contrast, fishermen who typically harvest less than the proposed trip limit may be incentivized to increase their catch up to the limit, further reducing the effectiveness of this management tool. Additionally, trip limits increase discards and promote high-grading of catch, which adds stress on lobsters as they are hauled and handled. There are also economic impacts of trip limits as fishermen will have reduced flexibility to respond to variations in catch and may have reduced profitability on each trip.

Given these concerns, the TC strongly recommends that, if the Board is interested in pursuing a trip limit, this management tool be combined with a quota for the SNE stock. A quota, if properly enforced, would cap landings in the fishery and allow managers to increase or decrease the total catch for the year in order to respond to the current stock status. Moreover, it is possible to control the exploitation rate by directly controlling the amount of lobsters taken through a quota.

Implementing a quota in the lobster fishery presents many challenges and raises many questions. The establishment of quotas also requires tough discussions on how the total allowable catch will be allocated among jurisdictions, LCMAs, and/or seasons. Implementation of a quota also requires the ability to model future abundance and recruitment, a challenge in the SNE fishery given the decreasing rate of recruitment per SSB. An effective quota also requires good monitoring and enforcement, both of which need to be carefully considered prior to implementation. Particular challenges in the lobster fishery include how states with fishermen harvesting from both the SNE stock and Gulf of Maine/Georges Bank stock should monitor landings, and how reporting will need to be altered to provide the temporal resolution needed to track the quota. Given these complexities, the TC recommends that further discussion, consideration, and guidance be given on trip limits and quotas. Should the Board be interested in pursuing trip limits and quotas, either in Addendum XXV, or a subsequent document, specific quotas and trip limits should be provided for analysis.

References

Cheng, H. and R. Townsend, 1993. Potential impact of seasonal closures in the US lobster fishery. Marine Resource Economics, 8:101-117.

Dove, A., A. Bassem, J. Powers, and M. Sokolowaki, 2005. A prolonged thermal stress experiment on the American lobster, Homarus americanus. J. Shellfish Research, 24(3):761-766.

Estrella B.T., S.X. Cadrin. 1995. Fecundity of the American lobster (Homarus americanus) in Massachusetts coastal waters. ICES J. Mar. Sci. Symp. 199:61-72.

Pikitch, E. K., Erickson, D. L., and Wallace, J. R. 1988. An Evaluation of the Effectiveness of Trip Limits as a Management Tool. Northwest and Alaska Fisheries Center Processed Report 88-27.

Table 1. Quarterly Fishing Mortalities as estimated in the 2015 SNE Basecase Lobster Assessment Model

Quarter	Months	Females	Males
1	Jan - March	0.07	0.09
2	May - June	0.37	0.59
3	July - Sept.	0.37	0.42
4	Oct. - Dec.	0.26	0.36

Table 2. Changes in Reproductive Biomass (SSB and RB), Egg Production, Catch Weight, and Exploitation for different seasonal closure scenarios.

		Seasonal Closure			
Metric	Sex	Winter	Spring	Summer	Fall
Increases in Reproductive Biomass	Females (SSB)	2.7%	13.4%	19.0%	7.3%
	Males (RB)	1.9%	18.9%	11.9%	9.7%
	Combined (RB)	2.3%	16.0%	15.5%	8.4%
Increases in Egg Production	Females	3.0%	15.0%	21.6%	8.1%
Changes in Catch Weight	Females	-1.4%	-4.8%	-19.0%	-5.3%
	Males	-0.2%	0.3%	-8.0%	-3.5%
	Total	-0.7%	-1.7%	-12.3%	-4.2%
Decreases in Exploitation	Females	-3.1%	-12.5%	-33.2%	-12.4%
	Males	-1.4%	-9.6%	-21.0%	-14.9%
	Combined	-2.1%	-10.8%	-26.0%	-13.6%

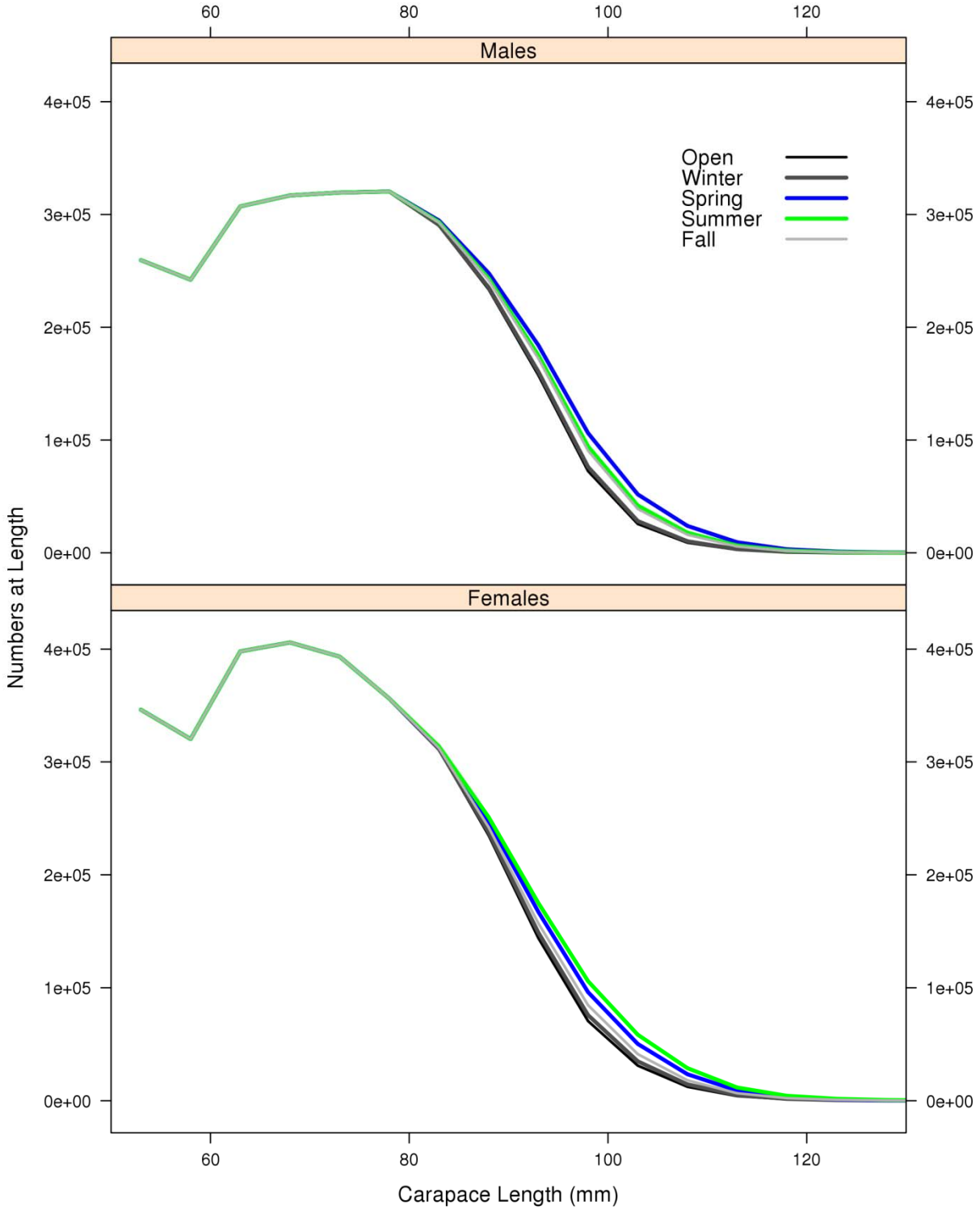

Figure 1. Numbers of lobsters at length by sex at the summer hatch under different seasonal closure scenarios; “Open” is the default scenario with no seasonal closures.

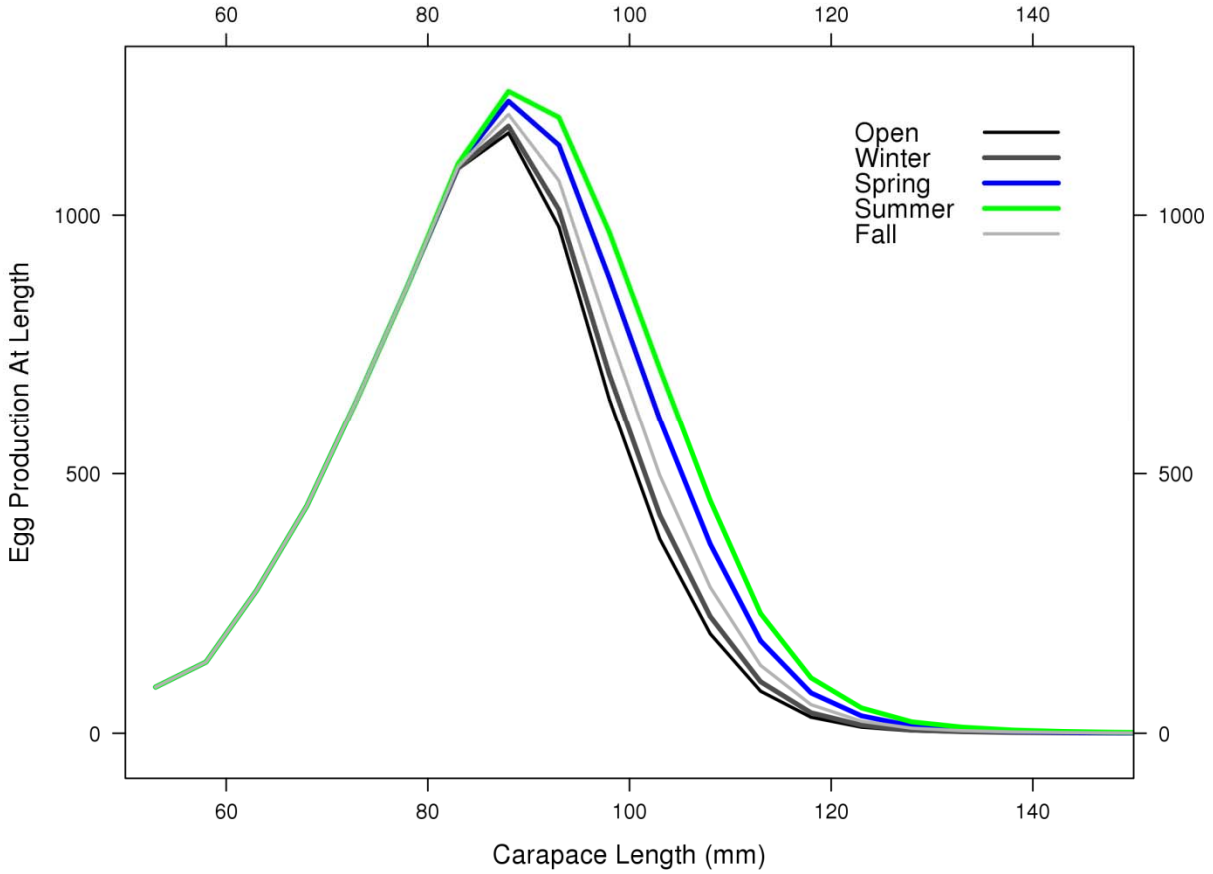

Figure 2. Egg production by size for different seasonal closure scenarios; “Open” is the default with no seasonal closures.

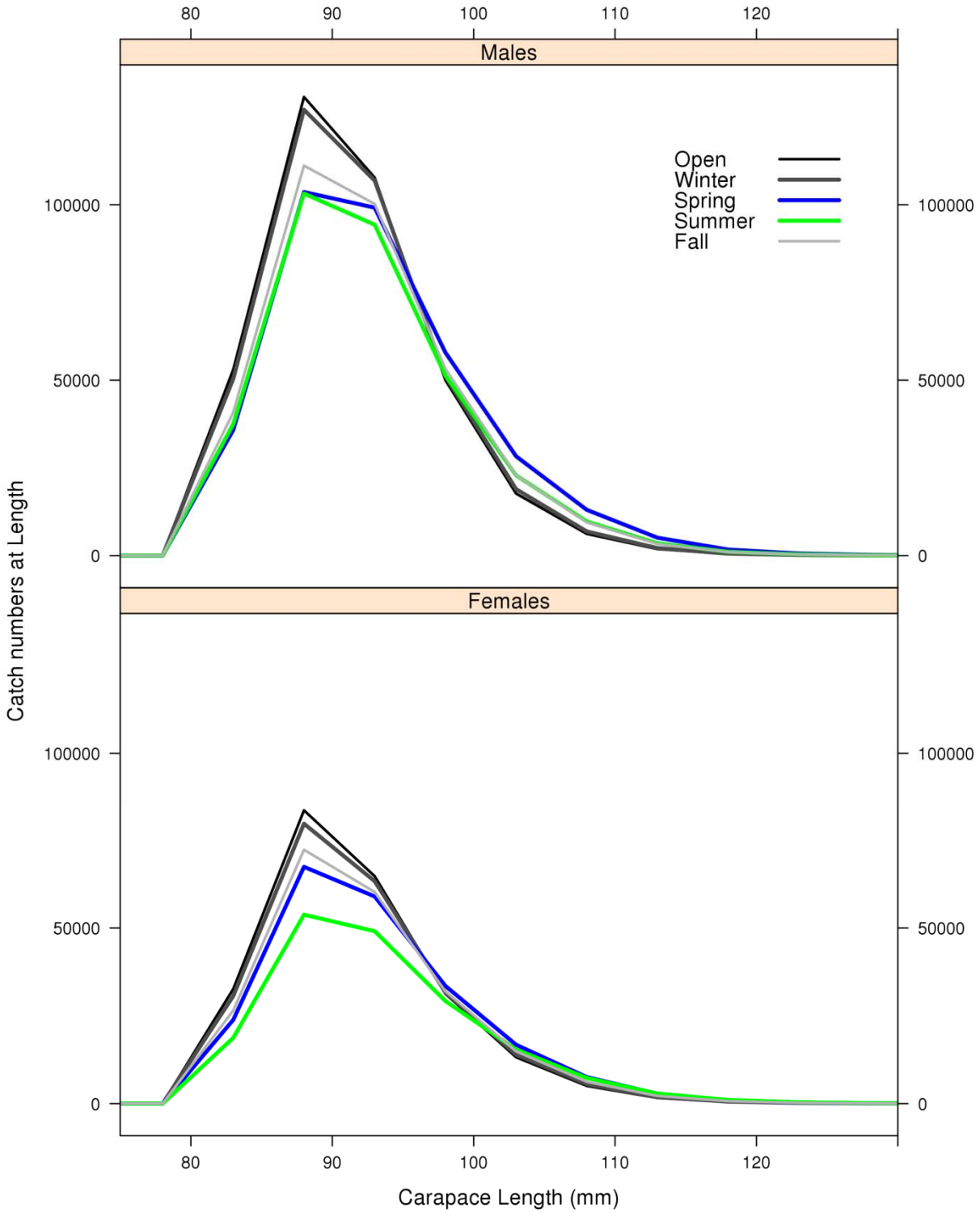

Figure 3. Catch numbers at length by sex under different seasonal closure scenarios; “Open” is the default with no seasonal closures.

2016 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN

FOR AMERICAN LOBSTER (*Homarus americanus*)

2015 FISHING YEAR

Prepared by the Plan Review Team

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2016 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR AMERICAN LOBSTER (*Homarus americanus*)

2015 FISHING YEAR

1.0 Status of the Fishery Management Plan

Year of ASMFC Plan's Adoption:	Amendment 3 (1997)
Framework Adjustments:	Addendum I (1999) Addendum II (2001) Addendum III (2002) Addendum IV (2003) Addendum V (2004) Addendum VI (2005) Addendum VII (2005) Addendum VIII (2006) Addendum IX (2006) Addendum X (2007) Addendum XI (2007) Addendum XII (2008) Addendum XIII (2008) Addendum XIV (2009) Addendum XV (2009) Addendum XVI (2010) Addendum XVII (2012) Addendum XVIII (2012) Addendum XIX (2013) Addendum XX (2013) Addendum XXI (2013) Addendum XXII (2013) Addendum XXIII (2014) Addendum XXIV (2015)
Management Unit:	Maine through North Carolina Lobster is managed in seven different Lobster Conservation Management Areas (LCMA, see Figure 1)
States with a Declared Interest:	Maine through Virginia (Excluding Pennsylvania and DC)
Active Committees:	American Lobster Management Board, Technical Committee, Lobster Conservation Management Teams, Plan Development Team, Plan Review Team, Advisory Panel

2.0 Status of the Fishery

2.1 Commercial Fishery

The lobster fishery has seen incredible expansion in effort and landings over the last 40 years. Between 1950 and 1975, landings were fairly stable around 30 million pounds; however, from 1976 – 2008 the average coastwide landings tripled, reaching 92 million pounds in 2006. Landings continued to increase and peaked in 2013 at over 150 million pounds. Over the last two years, landings have leveled off but remained high at 147 million pounds in both 2014 and 2015 (Table 1). The largest contributors to the fishery were Maine and Massachusetts with 83% and 11% of the landings, respectively. Landings, in descending order, also occurred in New Hampshire, Rhode Island, New Jersey, Connecticut, New York, Maryland, Delaware, and Virginia. The ex-vessel value for all lobster landings in 2015 was $617.7 million.

Table 2 shows the break-down of commercial landings by Lobster Conservation Management Area (LCMA). Area 1 has the highest landings and accounts for 80% of total harvest between 1981 and 2012. This is followed by LCMA 3 which accounts for 9% of total landings. Yearly trends in Table 2 show that while landings have generally increased in LCMA 1, they have decreased in LCMA's 2, 4, and 6.

2.2 Recreational Fishery

Lobster is also taken recreationally with pots, and in some states, by hand while SCUBA diving. While not all states collect recreational harvest data, Massachusetts reported an average recreational harvest from 2010 to 2015 of 224,932 pounds. This represents 1.4% of Massachusetts's total harvest. New Hampshire's recreational harvest was smaller at 7,731 pounds, representing less than 1% of total catch. Connecticut's recreational harvest ranged between 1% and 4% of the annual total from 2001-2011; however recreational landings declined in conjunction with commercial landings over time. Recreational harvest in New York was 2,130 pounds, roughly 1.5% of the state's total landings.

3.0 Status of the Stock

The 2015 peer-reviewed stock assessment report indicated a mixed picture of the American lobster resource, with record high stock abundance throughout most of the Gulf of Maine (GOM) and Georges Bank (GBK) and record low abundance and recruitment in Southern New England (SNE) (Table 3).

The assessment found the GOM/GBK stock is not overfished and not experiencing overfishing. GOM and GBK were previously assessed as separate stock units; however, due to evidence of seasonal migrations by egg-bearing females between the two stocks, the areas were combined into one biological unit. While model results show a dramatic overall increase in stock abundance in the GOM/GBK, population indicators show young-of-year estimates are trending downward. This indicates a potential decline in recruitment in the coming years.

Conversely, the assessment found the SNE stock is severely depleted and in need of protection. Recruitment indices show the stock has continued to decline and is in recruitment failure. The inshore portion of the SNE stock is in particularly poor condition with surveys showing a

contraction of the population. This decline is expected to impact the offshore portion of the stock, which is dependent on recruitment from inshore. Landings in SNE are expected to decline since the extremely poor year classes which have settled since 2008 have yet to recruit to the fishery.

Both the Technical Committee and the Peer Review Panel highlighted the need for management action in SNE. Specifically, the Panel recommended close monitoring of the stock status along with implementing measures to protect the remaining lobster resource in order to promote stock rebuilding.

4.0 Status of Management Measure

4.1 Implemented Regulations

Amendment 3 established regulations which require coastwide and area specific measures applicable to commercial fishing (Table 4). The coastwide requirements are summarized below.

Coastwide Requirements and Prohibited Actions

- Prohibition on possession of berried or scrubbed lobsters
- Prohibition on possession of lobster meats, detached tails, claws, or other parts of lobsters by fishermen
- Prohibition on spearing lobsters
- Prohibition on possession of v-notched female lobsters
- Requirement for biodegradable "ghost" panel for traps
- Minimum gauge size of 3-1/4"
- Limits on landings by fishermen using gear or methods other than traps to 100 lobsters per day or 500 lobsters per trip for trips 5 days or longer
- Requirements for permits and licensing
- All lobster traps must contain at least one escape vent with a minimum size of 1-15/16" by 5-3/4"
- Maximum trap size of 22,950 cubic inches in all areas except area 3, where traps may not exceed a volume of 30,100 cubic inches.

<u>Amendment 3 to the Interstate Fishery Management Plan for American Lobster (December 1997)</u>

American lobster is managed under Amendment 3 to the Interstate FMP for American Lobster. Amendment 3 establishes seven lobster management areas. These areas include the: Inshore Gulf of Maine (Area 1), Inshore Southern New England (Area 2), Offshore Waters (Area 3), Inshore Northern Mid-Atlantic (Area 4), Inshore Southern Mid-Atlantic (Area 5), New York and Connecticut State Waters (Area 6), and Outer Cape Cod (OCC). Lobster Conservation Management Teams (LCMTs) comprised of industry representatives were formed for each management area. The LCMTs are charged with advising the Lobster Board and recommending changes to the management plan within their areas.

Amendment 3 also provides the flexibility to respond to current conditions of the resource and fishery by making changes to the management program through addenda. The commercial

fishery is primarily controlled through minimum/maximum size limits, trap limits, and v-notching of egg-bearing females.

Addendum I (August 1999)
Establishes trap limits in the seven lobster conservation management areas (LCMAs).

Addendum II (February 2001)
Establishes regulations for increasing egg production through a variety of LCMT proposed management measures including, but not limited to, increased minimum gauge sizes in Areas 2, 3, 4, 5, and the Outer Cape.

Addendum III (February 2002)
Revises management measures for all seven LCMAs in order to meet the revised egg-rebuilding schedule.

Technical Addendum 1 (August 2002)
Eradicates the vessel upgrade provision for Area 5.

Addendum IV (January 2004)
Changes vent size requirements; applies the most restrictive rule on an area trap cap basis without regard to the individual's allocation; establishes Area 3 sliding scale trap reduction plan and transferable trap program to increase active trap reductions by 10%; and establishes an effort control program and gauge increases for Area 2; and a desire to change the interpretation of the most restrictive rule.

Addendum V (March 2004)
Amends Addendum IV transferability program for LCMA 3. It establishes a trap cap of 2200 with a conservation tax of 50% when the purchaser owns 1800 to 2200 traps and 10% for all others.

Addendum VI (February 2005)
Replaces two effort control measures for Area 2 – permits an eligibility period.

Addendum VII (November 2005)
Revises Area 2 effort control plan to include capping traps fished at recent levels and maintaining 3 3/8" minimum size limit.

Addendum VIII (May 2006)
Establishes new biological reference points to determine the stock status of the American lobster resource (fishing mortality and abundance targets and thresholds for the three stock assessment areas) and enhances data collection requirements.

Addendum IX (October 2006)
Establishes a 10% conservation tax under the Area 2 trap transfer program.

Addendum X (February 2007)
Establishes a coastwide reporting and data collection program that includes dealer and harvester reporting, at-sea sampling, port sampling, and fishery-independent data collection replacing the requirements in Addendum VIII.

Addendum XI (May 2007)
Establishes measures to rebuild SNE stock, including a 15-year rebuilding timeline (ending in 2022) with a provision to end overfishing immediately. The Addendum also establishes measures to discourage delayed implementation of required management measures.

Addendum XII (February 2009)
Addresses issues which arise when fishing privileges are transferred, either when whole businesses are transferred, when dual state/federal permits are split, or when individual trap allocations are transferred as part of a trap transferability program. In order to ensure the various LCMA-specific effort control plans remain cohesive and viable this addendum does three things. First, it clarifies certain foundational principles present in the Commission's overall history-based trap allocation effort control plan. Second, it redefines the most restrictive rule. Third, it establishes management measures to ensure history-based trap allocation effort control plans in the various LCMAs are implemented without undermining resource conservation efforts of neighboring jurisdictions or LCMAs.

Addendum XIII (May 2008)
Solidifies the transfer program for OCC and stops the current trap reductions.

Addendum XIV (May 2009)
Alters 2 aspects of the LCMA 3 trap transfer program. It lowers the maximum trap cap to 2000 for an individual that transfers traps. It changes the conservation tax on full business sales to 10% and for partial trap transfers to 20%.

Addendum XV (November 2009)
Establishes a limited entry program and criteria for Federal waters of LCMA 1.

Addendum XVI: Reference Points (May 2010)
Establishes new biological reference points to determine the stock status of the American lobster resource (fishing mortality and abundance targets and thresholds for the three stock assessment areas). The addendum also modifies the procedures for adopting reference points to allow the Board to take action on advice following a peer reviewed assessment.

Addendum XVII (February 2012)
Institutes a 10% reduction in exploitation for LCMAs within Southern New England (2, 3, 4, 5, and 6). Regulations are LCMA specific but include v-notch programs, closed seasons, and size limit changes.

Addendum XVIII (August 2012)
Reduces traps allocations by 50% for LCMA 2 and 25% for LCMA 3.

Addendum XIX (February 2013)
Modifies the conservation tax for LCMA 3 to a single transfer tax of 10% for full or partial business sales.

Addendum XX (May 2013)
Prohibits lobstermen from setting or storing lobster traps in Closed Area II from November 1 to June 15 annually. Any gear set in this area during this time will be considered derelict gear. This addendum represents an agreement between the lobster industry and the groundfish sector.

Addendum XXI (August 2013)
Addresses changes in the transferability program for Areas 2 and 3. Specific measures include the transfer of multi-LCMA trap allocations and trap caps.

Addendum XXII (November 2013)
Implements Single Ownership and Aggregate Ownership caps in LCMA 3. Specifically, it allows LCMA 3 permit holders to purchase lobster traps above the cap of 2000 traps; however, these traps cannot be fished until approved by the permit holder's regulating agency or once trap reductions commence. The Aggregate Ownership Cap limits LCMA fishermen or companies from owning more traps than five times the Single Ownership Cap.

Addendum XXIII (August 2014)
Updates Amendment 3's habitat section to include information on the habitat requirements and tolerances of American lobster by life stage.

Addendum XXIV (May 2015)
Aligns state and federal measure for trap transfer in LCMA's 2, 3, and the Outer Cape Cod regarding the conservation tax when whole businesses are transferred, trap transfer increments, and restrictions on trap transfers among dual permit holders.

4.2 Current Management Action

The 2015 stock assessment concluded the SNE stock is in poor condition with record low abundance and recruitment failure. In response, the Board charged the Technical Committee (TC) with several tasks including an examination of the relationship between inshore and offshore stocks, stock projections under various assumptions of fishing and natural mortality, and methods to increase egg production. In May 2016, the Board initiated Addendum XXV to address the poor condition of the SNE stock by reducing fishing mortality and increasing egg production. In order to further develop the goal of the addendum, the Board tasked the Technical Committee with analyzing management tools which would achieve a 20% to 60% increase in egg production. Following a presentation of the TC's analysis, the Board specified that the goal of Addendum XXV is to respond to the decline of the SNE stock and its decline in recruitment while preserving a functional portion of the lobster fishery in this area. Noting the

impact of climate change on the stock, the Board tasked the Plan Development Team with crafting management options which include a 20%, 40%, and 60% increase in egg production. The Board also stated this addendum is intended to be an initial response to the most recent stock assessment.

At the August 2016 meeting, the Board also established a Lobster Reporting Work Group. This group was created in response to the Technical Committee's recommendation that catch and biological data be improved in the lobster fishery. The group will investigate data deficiencies in the lobster fishery and suggest solutions to improve reporting.

5.0 Ongoing Trap Reductions

Addendum XVIII established trap reductions in LCMA 2 and 3. The intention of this Addendum was to scale the size of the SNE fishery to the size of the resource by prescribing a series of trap reductions in LCMAs 2 and 3. Specifically, a 25% reduction in year 1 followed by a series of 5% reductions for 5 years were established in LCMA 2; a series of 5% reductions over five years were established in LCMA 3. The first of these reductions took place at the start of 2016 fishing year. Per Addendum XVIII, states with fishermen in Areas 2 and 3 are required to report on the degree of consolidation that has taken place. In total, 33,880 traps were retired in Area 2 and 8,663 traps were retired in Area 3. Trap reductions by jurisdiction can be found in Table 5. It is important to note that trap reductions can also occur as the result of trap transfers as, per Addendum XIX, there is a 10% conservation tax on partial business transfers. These transfers are also included in Table 5.

6.0 Fishery Monitoring

Addendum X requires states conduct sufficient biological sampling to characterize commercial catch. Specifically, it requires states weight sampling intensity by area and season to match the 3-year average of the area's seasonal commercial catch. This volume of sampling, however, well exceeds current state budgets for lobster biological sampling. Addendum X also requires states to conduct 100% mandatory dealer reporting and at least 10% reporting of active harvesters. Table 6 describes the level of reporting and sampling by each state.

Overviews of the states' port and sea sampling are as follows:

- Maine: Completed 153 sea sampling trips aboard 145 boats from 56 different ports. In total they sampled 229,837 lobsters from 37,126 traps. Maine suspended its port sampling program following the 2011 sampling year.
- New Hampshire: Sampled 14,549 lobsters during 20 sea sampling trips and 1,200 lobsters through 12 port sampling trips.
- Massachusetts: Sampled a total of 76 trips and 44,845 lobsters in LCMA's 1, 2, and OCC through sea sampling. No port sampling was conducted.
- Rhode Island: Sampled 992 trap hauls at sea and sampled 1,916 lobsters. RI also conducted port sampling where staff sampled 2,200 lobsters harvested from NMFS stat area 525.
- Connecticut: No sea sampling or port sampling trips were conducted in 2015.

- New York: Staff conducted 5 sea sampling trips in 2015 and sampled 431 lobsters. NY also inspected 2 vessels through port sampling and sampled 171 lobsters.
- New Jersey: Conducted 10 sea sampling trips and sampled 6,352 lobsters.
- Delaware: No sea sampling or port sampling trips were conducted in 2015.
- Maryland: Conducted 3 sea sampling trips and sampled 730 lobsters.
- Virginia: No sea sampling or port sampling trips were conducted in 2015.

7.0 Status of Surveys

Addendum X also requires fishery independent data collection by requiring statistical areas be sampled through one of the following methods: annual trawl survey, ventless trap survey, or young-of-year survey. *De minimis* states are not required to conduct biological sampling of their lobster fishery.

7.1 Trawl Surveys

Maine and New Hampshire: The Maine-New Hampshire Inshore Trawl survey began in 2000 and covers approximately two-thirds of the inshore portion of Gulf of Maine. The spring portion of the survey completed 123 tows and sampled 20,488 lobsters. Spring survey abundance indices declined from 2014, particularly the abundance of sub-legal lobsters in statistical areas 512 and 513. The fall survey completed 80 tows and sampled 29,033 lobsters. Fall survey abundance indices increased from 2014 with upturns in the number of legal and sub-legal lobsters in statistical areas 511 and 512 (Figure 2).

Massachusetts: The Division of Marine Fisheries conducts spring and autumn bottom trawl surveys in the territorial waters of Massachusetts. Only data collected from the autumn portion of the inshore trawl survey is used to calculate lobster relative abundance indices. In the GOM, relative abundance indices have generally increased over the last decade. In contrast, relative abundance indices in SNE remain low with the most recent values near or below the time series median. In 2015, the sub-legal abundance in SNE was slightly elevated relative to the last several years (Figure 3).

Rhode Island: In 2015, the RIDFW Trawl Survey program conducted seasonal surveys in the spring and fall. In 2015, 43 trawls were conducted in both the fall and spring. Spring 2015 mean CPUEs were 0 and 0.14 for legal and sub-legal lobsters, respectively. Fall 2015 CPUE were 0.05 for legal lobsters and 0.98 for sub-legal lobsters. All abundances were low except for the fall sub-legal abundance which showed a slight increase in 2015 (Figure 4).

Connecticut and New York: Juvenile and adult abundance are monitored through the Long Island Sound Trawl Survey (LISTS) during the spring (April, May, June) and the fall (September and October) cruises. The spring 2015 lobster abundance index (geometric mean = 0.31 lobster/tow) was the lowest in the time series but similar to the 2013-14 indices (0.44, 0.45, respectively). The fall 2015 index (0.08) also ranked lowest in the time series, joining all indices since 2005 as collectively the lowest in the 31-year time series (Figure 5).

New Jersey: An independent Ocean Trawl Survey is conducted from Sandy Hook, NJ to Cape May, NJ each year. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE, which is calculated as the sum of the mean number of lobsters per size class collected in each sampling area weighted by the stratum area, decreased from 2014 to 2015 for all three size classes (Figure 6).

7.2 Young of Year Index

Several states conduct young-of-year (YOY) surveys to detect trends in abundance of newly-settled and juvenile lobster populations. These surveys attempt to provide an accurate picture of the spatial pattern of lobster settlement. States hope to track juvenile populations and generate predictive models of future landings.

Maine: In 2000, settlement surveys were expanded to cover all seven of Maine's lobster management zones (LMZ) in order to create a statewide index of settlement. Settlement surveys in 2015 showed declines in all statistical areas sampled (Figure 7). Furthermore, survey index values were below the average in all statistical areas.

New Hampshire: New Hampshire Fish and Game (NHF&G) conducted a portion of the coastwide American Lobster Settlement Index (ALSI). In 2015, a total of 24 juvenile lobsters were sampled from three sites, 2 were YOY, 5 were one year old (Y+), and 17 were older juveniles. Figure 8 depicts the CPUE of YOY, Y+, YOY/Y+ and "all lobsters" for all NH sites combined, from 2008 through 2015. For each of these four indices, CPUE shows a general upward trend to a time series high in 2011, with subsequent declines in 2012 and 2014, followed by a slight increase in 2015.

Massachusetts: Annual sampling for early benthic phase/juvenile (EBP) lobsters was conducted using SCUBA and airlift suction sampling equipment from August to September in 2015. Sampling was completed at 21 sites spanning 7 regions in Massachusetts coastal waters. Data for all sites were used to generate annual density estimates of EBP lobster and other decapod crustaceans. In 2015, densities of YOY lobsters were extremely low or non-existent in all sampling locations (Figure 9). In LCMA 1, there were no YOY lobsters found in any of the three regions with long a time series (Salem Sound, Boston Harbor, and Cape Cod Bay). In 2015, there were no YOY lobsters found in the Buzzards Bay sampling locations.

Rhode Island: For 2015, the YOY Settlement Survey (Suction Sampling) was conducted at a total of six fixed stations with twelve randomly selected 0.5-meter quadrats sampled at each survey station. Average site abundance of lobster at suction sampling sites has generally declined since the mid-1990's with a time-series low in 2011 (Figure 10). The 2015 YOY settlement survey index was 0.47 YOY lobster/m^2.

Connecticut: The CT DEEP Larval Lobster Survey in western Long Island Sound (WLIS) was discontinued in 2013. Alternative monitoring data are available for the eastern Sound (ELIS) from the Millstone Power Station entrainment estimates of all stages of lobster larvae. Both programs show a decline in abundance following the 1999 die-off (Figure 11).

7.3 Ventless Trap Survey

To address a need for a reliable index of lobster recruitment, a cooperative random stratified ventless trap survey was designed to generate accurate estimates of the spatial distribution of lobster length frequency and relative abundance while attempting to limit the biases identified in conventional fishery dependent surveys. In the past, fishery-dependent trap sampling data have not been included in generating relative abundance indices for American lobster due to associated bias with the data collection method. In order to collect unbiased data, a fishery-independent survey provides greater control over the sampling design and data quality and quantity necessary to maintain a stratified sampling approach.

Maine: The Maine Ventless Trap Survey changed strategies in 2015 to cover more area by eliminating the vented traps at each site. This change allowed the survey to double the number of sites with ventless traps and increase the sampling coverage spatially to 276 sites. The stratified mean was calculated for each area using depth and statistical area. The survey catches 90% sub-legal lobsters. Traps were set during the months of June, July, and August. Overall, there was a slight decline in the number sub-legal and legal lobsters in 2015 (Figure 12).

New Hampshire: Since 2009, NHF&G has been conducting the coastwide Random Stratified Ventless Trap Survey in state waters (statistical area 513). A total of six sites were surveyed twice a month from June through September in 2015. Catch per unit effort (stratified mean catch per trap haul) from 2009 through 2015 is presented in Figure 13. The highest catch values of the time series were recorded in 2015 followed by 2012, and the lowest were observed in 2014.

Massachusetts: The coast-wide ventless trap survey was initiated in 2006 and expanded in 2007 with the intention of establishing a standardized fishery-independent survey designed specifically to monitor lobster relative abundance and distribution. The survey was not conducted in 2013 due to a lack of funding; however, starting in 2014 the survey has been funded with lobster license revenues and will continue as a long-term survey. Relative abundance of sub-legal (< 83 mm CL) and legal-sized (≥ 83 mm CL) lobsters for Area 514 (part of LCMA 1) is shown in Figure 14 as the stratified mean CPUE. The average catch of sub-legal lobsters was much higher than the catch of legal-sized lobsters, and showed an increasing trend from 2006 - 2012. The mean CPUE in 2015 increased after the large decline observed in 2014, and was above the time series average of 4.83. The catch of legal-sized lobsters in 2015 was the second highest observed at 0.64, above the time series average of 0.52.

Figure 15 shows the time series of relative abundance (stratified mean CPUE) for sub-legal (<86 mm CL) and legal-sized (≥ 86 mm CL) lobsters in the southern MA region (Area 538 and northern Area 537; part of LCMA 2). The average catch of sub-legal lobsters was higher than the catch of legal-sized lobsters, and generally declined from 2006 through 2010 (the original time series). The spatial extent of the survey area was expanded in 2011 to include deeper waters outside Buzzards Bay, where thermal conditions are more tolerable. This expansion in survey area necessitates that the data from 2011 onwards be treated as a new survey index. During the 2011-2015 time period relative abundance of sub-legals was generally higher than

during the original survey period, likely reflecting the better overlap of the survey area with tolerable environmental conditions (as opposed to an actual increase in abundance). The sub-legal catch peaked in 2012 and has declined since. The legal-size CPUE has also been slightly higher during the new survey time period (2011-2015), but has remained below 0.5 throughout both time series.

Rhode Island: In 2015, the Ventless Trap Survey was conducted during the months of June-August over 18 sampling sites. A total of 4,042 lobsters were collected from 854 traps. All sampling was conducted in LCMA 2, NMFS Statistical Area 539. In general, the CPUE of legal lobsters has remained steady since 2006 while the CPUE of sub-legal lobsters has declined. The mean CPUE Index values for 2015 were 0.22 and 1.57 per trap for legal and sub-legal lobsters, respectively (Figure 16).

8.0 State Compliance

All states are currently in compliance with all required measures under Amendment 3 and Addendum I-XXIV.

9.0 De Minimis Requests.

The states of Virginia, Maryland, and Delaware have requested *de minimis* status. According to Addendum I, states may qualify for *de minimis* status if their commercial landings in the two most recent years for which data are available do not exceed an average of 40,000 pounds. Virginia and Delaware meet the *de minimis* requirement. The current two year average of lobster harvest for Maryland was slightly above 40,000 pounds.

10.0 Regulatory Changes

Maine:

- Maine DMR adopted regulations to remove the requirement that a trap tag be attached to the trap only by the means for which the tag was designed. Without that specification, fishermen are allowed to securely attach the tag by other means (for example, hog rings) which enables them to change gear over and reuse tags already in their possession.
- The trawl limit in the vicinity of Kittery was moved from law to regulation, for consistency with other trawl limits, and to allow for ease of modification if needed in the future. The trawl limit in Hancock County was amended so it would not conflict with changes to minimum trawl lengths necessary for compliance with NOAA Fisheries vertical line regulations published June 27, 2014, and which went into effect in Maine on June 1, 2015. Under the new requirements, there is a minimum number of lobster traps per trawl required based on the different lobster zones and distance from shore, to reduce the number of buoy lines in the water column.
- Regulations regarding the island limited program were amended to include the island of Frenchboro.
- Statutes were amended to increase the lobster trap limit in the Swans Island Lobster Conservation Area from 550 to 600.

- Statutes were amended to change the penalty for scrubbing egged lobsters from a one year suspension to mandatory permanent revocation of the license for the first offense.

Massachusetts:

- MA DMF amended its regulations at 322 CMR 4.00 and 12.00 to adopt relevant provisions of the ALWTRP (as amended in 2015). DMF consolidated its lobster gear marking regulations at 322 CMR 4.00. DMF consolidated its lobster management regulations by moving its minimum and maximum size regulations from 322 CMR 6.01 to 6.02.

Rhode Island:

- On November 2, 2015 Rhode Island amended Sections 8.4.3 and 8.4.10 to correct the minimum escape vent size and season closure dates for LCMA 4 for consistency with the federal management plan.

Connecticut

- Changes made in 2015 which went into effect on January 1, 2016 (PA 15-52) to Connecticut's commercial fishery licensing laws. The new law requires qualifying license holders to renew their moratorium lobster license(s) by March 31st annually in order to maintain their eligibility to renew their license in the future. The law also requires a Commercial Fishing Vessel Permit be purchased annually to remain eligible to renew their moratorium license. Having both a moratorium license and associated commercial fishing vessel permit demonstrates the intent of license holder to remain active in the fishery. After March 31st any moratorium license not renewed is retired. Public Act 15-52 also created a new open access license that is available to anyone without regard to previous history in commercial fishing. The open access Restricted Commercial Lobster Pot Fishing License ($125 residents, $250 nonresidents) can be used to fish up to 50 lobster pots. No Commercial Fishing Vessel Permit is required, but holders must already have a lobster pot allocation to purchase this license. This license is non-transferrable**.**

New York

- NY is developing regulations to be able to change NY trap tag allocations for LCMA 4 and 6. This would allow NY to change State allocations for instances when multi-area dual permit holders that include LCMA 4 and/or 6 allocations transfer their LCMA 2 and/or 3 allocations.

11.0 Research Recommendations

The following research recommendations are from the 2015 Stock Assessment and were compiled by the Lobster TC and Stock Assessment Subcommittee.

- ***Ventless Trap Survey***- Calibration work is needed to determine how catch in ventless trap surveys relates to catch in the bottom trawl surveys. It is likely that at low densities, when trawl survey indices have dropped to near zero, ventless trap surveys will still catch lobsters due to the attractive nature of the gear and the ability to fish the gear over all habitat types. Conversely, it is possible that trawl surveys may be able to detect very high levels of lobster abundance, if trap saturation limits the capacity of the ventless traps. Ventless traps may be limited in their ability to differentiate between moderately high and extremely high abundance, and calibration with bottom trawl surveys may help to clarify how catchability might change with changes in lobster density.

- ***Maturation and Growth*** **-** Increases in water temperatures over the past several decades have likely resulted in changes to size at maturity and growth patterns. Maturity data currently used are more than 20 years old. Changes in size at maturity will subsequently affect growth, since female molting frequency decreases after reaching sexual maturity. It is critical to collect updated information on maturity and growth in order to appropriately assign molt probabilities to lobsters.
- ***Stock Connectivity*** **-** There is need for a comprehensive large scale tagging study to examine stock connectivity between the GOM and GBK. Historical tagging studies demonstrate movement from the inshore GOM to locations east of Cape Cod in the inshore portions of GBK, and from inshore areas east of Cape Cod to inshore GOM. What is lacking is a tagging study of lobsters in the fall/winter on GBK proper, prior to seasonal migrations which occur in the spring. This information would be extremely valuable to help complement other data used to justify the combination of the GOM and GBK stock and to confirm the connectivity of the GOM and GBK.
- ***Temperature –*** Given the importance of temperature in the life history of lobster, techniques should be developed to incorporate environmental data into population modeling.
- ***Post-Larval Settlement –*** There is a need to examine post-larval settlement dynamics in relation to the movement and re-distribution of spawning stock. Habitat suitability models for spawning stock and settling post-larvae should be developed.
- ***Natural Mortality –*** Methods should be explored to determine age or length-varying natural mortality, as well as looking at more rigorous ways of determining time-varying natural mortality for lobster. These may be driven by climactic shifts and changing predator fields.
- ***Shell Disease*** **-** With the high prevalence of shell disease in the SNE stock, particularly in ovigerous females, some exploration of the potential sub-lethal effects of disease should be examined. These effects could include negative impacts to larval quality, fecundity issues in females who need to re-direct physiological resources to dealing with the disease, and male sperm quality

12.0 Plan Review Team Recommendations

The following are issues the Plan Review Team would like to raise to the Board as well as general recommendations:

- The PRT recommends the Board approve the *de minimis* requests of DE and VA.
- Consistent with the 2015 FMP Review, the PRT encourages the full implementation of data collection programs specified in the lobster Plan. Addendum X (2007) requires "*100% mandatory dealer reporting and at least 10% of active harvesters reporting (with the expectation of 100% of license holders reporting in time)*". Currently, not all states require 100% harvester reporting and federal lobster-only permit holders are not required to fill out VTRs. Noting financial constraints in ME, the PRT recommends states increase harvester reporting and that a fixed-gear VTR form is created and required for all federal lobster permit holders in order to improve harvester data collection.

- The PRT recommends research is conducted to investigate stock connectivity and larval transport between inshore and offshore areas. In addition to the 2015 stock assessment recommendation (Section 11.0) to investigate connectivity between GOM and GBK, the PRT also recommends stock connectivity between the inshore and offshore portions of SNE be further studied.
- There are significant inconsistencies between regulations in several portions of the fishery.
    - OCC: The v-notch definition in state and federal waters differs, with a "¼ inch without setal hair" definition in state waters and a "1/8 inch with or without setal hair" definition in federal waters. This reduces the effectiveness of the management tool and impacts the standard for commerce in Massachusetts.
    - GOM/GBK: The PRT notes that regulations, especially in regards to the gauge sizes, differ in GBK and GOM. Now that these two areas have been combined into a single stock, the PRT recommends the Board consider the pros and cons of consistent management regulations.
    - SNE: Gauge sizes and seasonal closures differ in the inshore and offshore portions of SNE. The PRT recommends the Board consider the impacts of consistent regulations in this stock.
- The PRT recommends improved enforcement of lobster management measures, especially the at-sea enforcement of trap limits. For areas which rely on permit specific trap limits as the primary metric for management, marine patrol enforcement needs to have a greater presence, particularly as trap reductions take place in LCMAs 2 and 3.
- The PRT suggests the costs of complying with mandated FMP requirements be estimated for the purpose of determining the relationship between the value of the lobster fishery in a particular state and the cost of mandated FMP requirements.
- The PRT recommends to the Law Enforcement Committee that the status of enforcement in the lobster fishery be reported each year in state compliance reports. This could include the number of violations in the fishery as well as the number of hours marine patrol was on the water.
- The PRT recommends the TC discuss standard practices for reporting results of the YOY settlement surveys as well as ventless trap surveys. This includes the use of statistical areas vs. ports and the separation of indices into sub-legal and legal lobsters.

13.0 Tables

Table 1. Landings (in pounds) of American Lobster by the states of Maine through Virginia.
C= confidential data

Year	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA	Total
1981	22,631,600	793,400	11,220,500	1,871,067	1,010,800	890,200	593,700	55,700	63,200	2,200	39,132,367
1982	22,730,100	807,400	13,150,900	2,254,930	1,094,100	1,121,600	846,300	90,700	64,800	4,700	42,165,530
1983	21,976,500	1,310,560	12,421,000	5,020,895	1,854,000	1,207,500	769,900	56,700	86,500	600	44,704,155
1984	19,545,600	1,570,724	14,701,800	5,064,760	2,011,600	1,308,100	927,700	103,800	98,900	17,400	45,350,384
1985	20,125,000	1,193,881	16,295,100	5,080,163	1,676,000	1,240,900	1,079,600	118,500	82,300	1,100	46,892,544
1986	19,704,400	941,100	15,057,600	5,513,831	1,656,100	1,407,100	1,123,000	109,000	57,700	1,000	45,570,831
1987	19,747,800	1,256,170	15,116,800	5,217,300	1,735,591	1,146,700	1,397,100	84,100	49,900	1,000	45,752,461
1988	21,738,800	1,118,900	15,866,312	4,758,990	2,053,800	1,779,890	1,557,300	66,200	23,000	300	48,963,492
1989	23,368,800	1,430,400	15,444,300	5,725,641	2,096,900	2,345,051	2,059,600	76,500	17,500		52,564,692
1990	28,068,238	1,658,200	17,054,434	7,258,175	2,645,800	3,431,111	2,198,867	68,300			62,383,125
1991	30,788,646	1,802,035	16,528,168	7,445,170	2,674,000	3,128,246	1,673,031	54,700			64,093,996
1992	26,830,448	1,529,292	15,823,077	6,763,085	2,439,600	2,651,067	1,213,255	21,000			57,270,824
1993	29,926,464	1,693,347	14,336,032	6,230,855	2,177,022	2,667,107	906,498	24,000			57,961,325
1994	38,948,867	1,650,751	16,094,226	6,474,399	2,212,000	3,954,634	581,396	8,400			69,924,673
1995	37,208,324	1,834,794	15,755,840	5,363,810	2,536,177	6,653,780	606,011	500	2,855		69,962,091
1996	36,083,443	1,632,829	15,323,277	5,579,874	2,888,683	9,408,519	640,198		28,726	1,252	71,586,801
1997	47,023,271	1,414,133	15,087,096	5,766,534	3,468,051	8,878,395	858,426	648	34,208	2,240	82,533,002
1998	47,036,836	1,194,653	13,277,409	5,618,440	3,715,310	7,896,803	721,811			1,306	79,462,568
1999	53,494,418	1,380,360	15,533,654	8,155,947	2,595,764	6,452,472	931,064			6,916	88,550,595
2000	57,215,406	1,709,746	15,802,888	6,907,504	1,393,565	2,883,468	891,183			311	86,804,071
2001	48,617,693	2,027,725	12,132,807	4,452,358	1,329,707	2,052,741	579,753			19	71,192,803
2002	63,625,745	391	12,853,380	3,835,050	1,067,121	1,440,483	264,425	551			83,087,146
2003	54,970,948		11,385,049	3,474,509	671,119	946,449	209,956	2,831	22,778		71,683,639
2004	71,574,344	2,097,396	11,295,474	3,064,412	646,994	996,109	370,112	15,172	14,931	13	90,074,957
2005	68,729,861	2,556,232	9,879,983	4,343,736	713,901	1,154,470	369,264	5,672	39,237	21,255	87,813,611
2006	72,662,294	2,666,344	10,966,322	3,749,432	792,894	1,242,601	470,877	3,315	26,349	28,160	92,608,588
2007	63,959,191	2,468,811	10,143,301	3,268,075	568,696	716,300	680,392	5,918	6,128	26,765	81,843,577
2008	69,863,132	2,567,031	10,597,614	3,528,445	426,292	712,075	632,545	4,884	32,429	17,701	88,382,148
2009	81,175,847	2,985,166	11,781,490	3,174,618	451,156	731,811	179,740	6,067	30,988	21,472	100,538,355
2010	95,506,383	3,658,894	12,768,448	3,258,221	432,491	813,513	641,556	4,574	30,005	16,345	117,130,430
2011	104,693,316	3,917,461	13,717,192	2,513,255	191,594	344,232	627,077	C	C	C	126,066,050
2012	125,759,424	4,236,740	14,917,238	2,932,388	236,846	275,220	919,260	C	C	C	149,336,623
2013	127,773,264	3,822,844	15,738,792	2,149,266	133,008	248,267	660,367	C	C	C	150,621,935
2014	124,440,799	4,939,310	15,060,352	2,387,321	141,988	216,630	526,367	C	C	C	147,805,965
2015	122,212,133	4,716,084	16,418,796	2,879,874	158,354	146,624	445,195	C	C	C	147,037,850

Table 2. Estimated lobster landings (in pounds) by lobster conservation management area (LCMA)* (*Source, ASMFC Lobster Data Warehouse*). This table can only be update in years when stock assessment reports are being conducted.

Coastwide Estimated Lobster Landings (lbs) by Lobster Conservation Management Area (LCMA)*								
Year	LCMA 1	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6	LCMA OCC	Grand Total
1981	32,369,320	527,284	4,321,500	441,478	115,653	1,220,159	134,327	39,129,721
1982	32,123,750	1,656,479	4,961,680	622,674	99,093	1,359,058	163,105	40,985,839
1983	32,826,685	2,958,366	5,645,179	633,254	71,804	2,428,633	198,448	44,762,369
1984	29,862,411	2,978,985	6,409,741	795,180	135,652	2,704,070	208,832	43,094,871
1985	31,590,759	2,992,330	5,853,851	964,043	170,998	2,273,337	261,929	44,107,247
1986	30,080,507	3,081,903	5,829,275	1,084,282	125,969	2,362,128	298,747	42,862,811
1987	30,682,754	3,219,900	5,357,273	1,473,841	98,486	2,378,765	276,250	43,487,269
1988	32,362,492	3,259,336	5,132,943	1,666,439	85,142	3,195,208	295,985	45,997,545
1989	36,800,166	4,175,114	5,450,786	2,232,935	106,126	3,735,250	352,155	52,852,532
1990	41,720,481	4,374,062	8,783,629	2,431,198	237,410	4,250,654	581,447	62,378,881
1991	43,648,773	4,140,145	8,537,053	2,096,138	115,020	4,393,986	740,267	63,671,382
1992	39,055,380	3,795,367	7,124,248	1,448,866	77,854	4,362,551	738,026	56,602,292
1993	40,962,969	3,772,494	6,773,992	1,597,447	89,495	3,968,663	938,486	58,103,546
1994	51,597,880	5,602,507	5,684,252	554,367	26,013	5,738,398	848,181	70,051,598
1995	49,771,715	4,960,453	5,008,551	962,077	45,054	8,564,325	1,000,609	70,312,784
1996	47,992,628	4,880,328	4,896,782	978,376	52,758	11,705,439	852,532	71,358,843
1997	58,016,197	5,324,775	5,549,295	1,162,862	36,623	11,650,701	849,126	82,589,579
1998	56,187,841	5,273,463	5,043,939	1,534,067	41,963	10,575,143	797,019	79,453,435
1999	65,375,535	6,938,658	6,166,601	1,346,509	77,621	8,331,142	739,904	88,975,970
2000	69,265,611	5,651,160	5,436,618	1,123,486	53,364	3,802,880	765,801	86,098,920
2001	57,531,942	3,862,054	5,525,209	762,408	55,537	3,013,551	611,242	71,361,943
2002	73,607,600	3,445,004	5,483,983	442,425	14,838	2,230,869	786,137	86,010,856
2003	63,005,041	1,110,534	6,978,808	423,583	17,394	1,448,011	804,355	73,787,725
2004	80,448,651	1,184,942	6,722,671	480,203	93,270	1,534,130	993,689	91,457,556
2005	76,240,627	1,464,433	7,442,771	457,275	54,181	1,673,396	966,787	88,299,470
2006	80,846,400	1,853,505	7,588,539	516,130	59,928	1,840,308	1,048,051	93,752,862
2007	70,862,089	1,430,836	6,375,646	617,978	56,866	1,263,648	1,132,991	81,740,055
2008	78,914,865	1,168,921	6,124,979	440,108	322,916	920,951	1,127,422	89,020,163
2009	91,133,844	1,051,241	6,960,119	488,792	308,212	896,594	1,256,201	102,095,002
2010	106,458,701	1,022,528	7,955,472	522,037	184,409	966,505	1,209,482	118,319,134
2011	116,042,515	730,889	7,890,340	488,977	148,587	306,079	1,244,299	126,851,685
2012	138,762,843	627,051	8,111,396	782,684	154,455	286,215	1,223,279	149,947,922
Grand Total	1,886,148,973	98,515,048	201,127,121	31,572,119	3,332,690	115,380,746	23,445,109	2,359,521,806

*Landings data are not collected by LCMA in all states. To separate landings by LCMA, NMFS statistical areas are placed into a single LCMA. For a complete description of how estimates are completed contact Megan Ware, at mware@asmfc.org

Table 3. Threshold reference points with stock status variables for lobsters in each stock area. (Source: 2015 Benchmark Stock Assessment).

Variable	GOM	GBK	GOM/GBK	SNE
Effective Exploitation				
Effective exploitation threshold	0.54	1.83	0.5	0.41
Recent effective exploitation (2011-2013)	0.48	1.54	0.48	0.27
Effective exploitation below threshold?	YES	YES	YES	YES
Reference Abundance (millions)				
Abundance threshold	52	0.8	66	24
Recent abundance (2011-2013)	247	1.57	248	10
Abundance above threshold?	YES	YES	YES	NO

Table 4. 2015 LCMA specific management measures

Mgmt Measure	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	OCC
Min Gauge Size	3 1/4"	3 3/8"	3 17/32"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
Vent Rect.	1 15/16 x 5 3/4"	2 x 5 3/4"	2 1/16 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"
Vent Cir.	2 7/16"	2 5/8"	2 11/16"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
V-notch requirement	Mandatory for all eggers	Mandatory for all legal size eggers	Mandatory for all eggers above 42°30'	Mandatory for all eggers in federal waters. No v-notching in state waters.	Mandatory for all eggers	None	None
V-Notch Definition[1] (possession)	Zero Tolerance	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs[1]
Max. Gauge (male & female)	5"	5 ¼"	6 3/4"	5 ¼"	5 ¼"	5 ¼"	State Waters none Federal Waters 6 3/4"
Season Closure				April 30-May 31[2]	February 1-March 31[3]	Sept 8-Nov 28[4]	February 1-April 30

[1] A v-notched lobster is defined as any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8", with or without setal hairs. It also means any female which is mutilated in a manner that could hide, obscure, or obliterate such a mark.

[2] Pots must be removed from the water by April 30 and un-baited lobster traps may be set one week prior to the season reopening.

[3] During the February 1 – March 31 closure, trap fishermen will have a two week period to remove lobster traps from the water and may set lobster traps one week prior to the end of the closed season.

[4] Two week gear removal and a 2 week grace period for gear removal at beginning of closure. No lobster traps may be baited more than 1 week prior to season reopening.

Table 5: Trap allocations, transfers, and reductions as required by Addendum XVIII for LCMA 2 and 3 fishermen. Trap reductions for MA, RI, and CT in LCMA 2 include state, federal, and dual permit holders.

	Jurisdiction	# of Trap Allocated (2015)	# of Trap Transferred	# of Traps Retired due to Reductions
LCMA 2	**MA**	44,798	1,880	11,158
	RI	80,065	1,308	20,146
	CT	5,550	220	1,387
	NOAA (ME, NH, NY, NJ)	4757		1,189*
LCMA 3	**NOAA**	145,433		8,663*

*****includes traps retired due to the partial trap transfer conservation tax.

Table 6. 2015 sampling requirements and state implementation.

State	100% Dealer reporting	10% Harvester Reporting	Sea Sampling	Port Sampling	Ventless Trap Survey	Settlement Survey	Trawl Survey
ME	✓	✓ (10%)	✓		✓	✓	✓
NH	✓	✓	✓	✓	✓	✓	✓ (ME)
MA	✓	✓	✓		✓	✓	✓
RI	✓	✓	✓	✓	✓	✓	✓
CT	✓	✓	✓ (none conducted in 2015)			✓	✓
NY	✓	✓	✓	✓			✓ (CT)
NJ	✓	✓	✓				✓
DE	✓	✓					✓ (no lobsters encountered)
MD	✓	✓	✓				✓
VA	✓	✓					

14.0 Figures

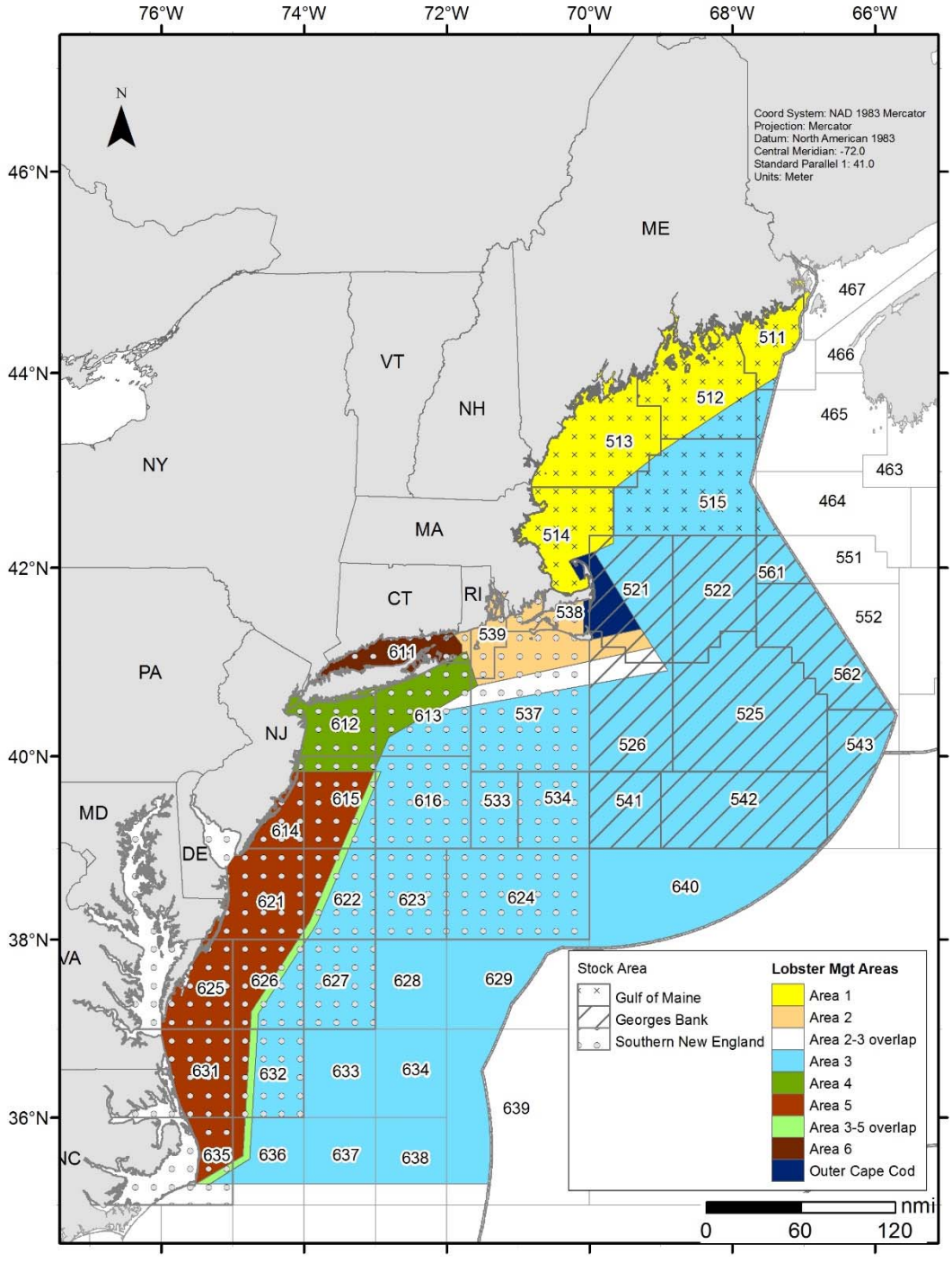

Figure 1: Lobster Conservation Management Areas (LCMAs) and stock boundaries for American lobster.

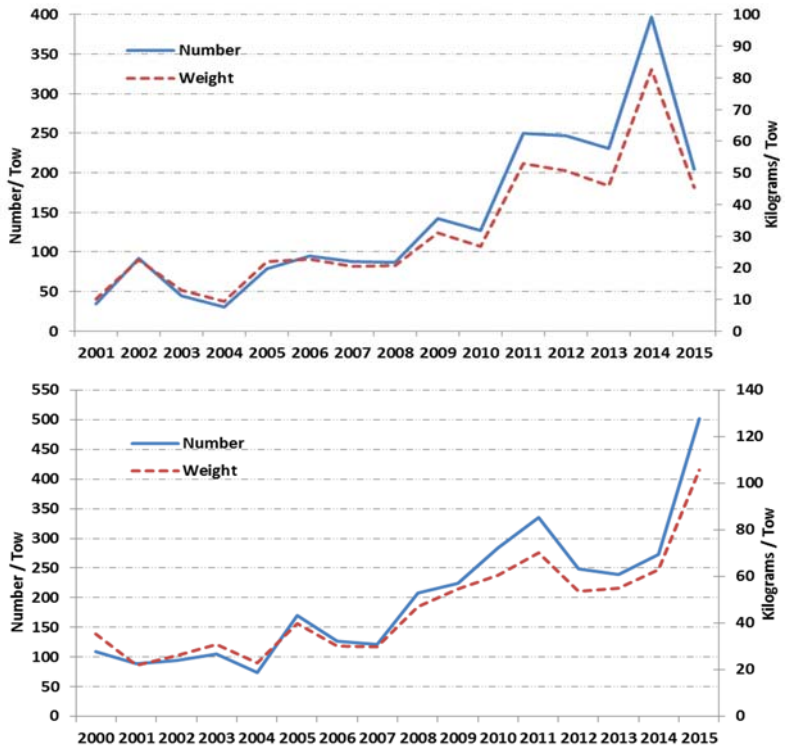

Figure 2: Maine-New Hampshire survey abundance indices for lobster, 2001-2015. Results of the spring survey are on the top and results from the fall survey are on the bottom.

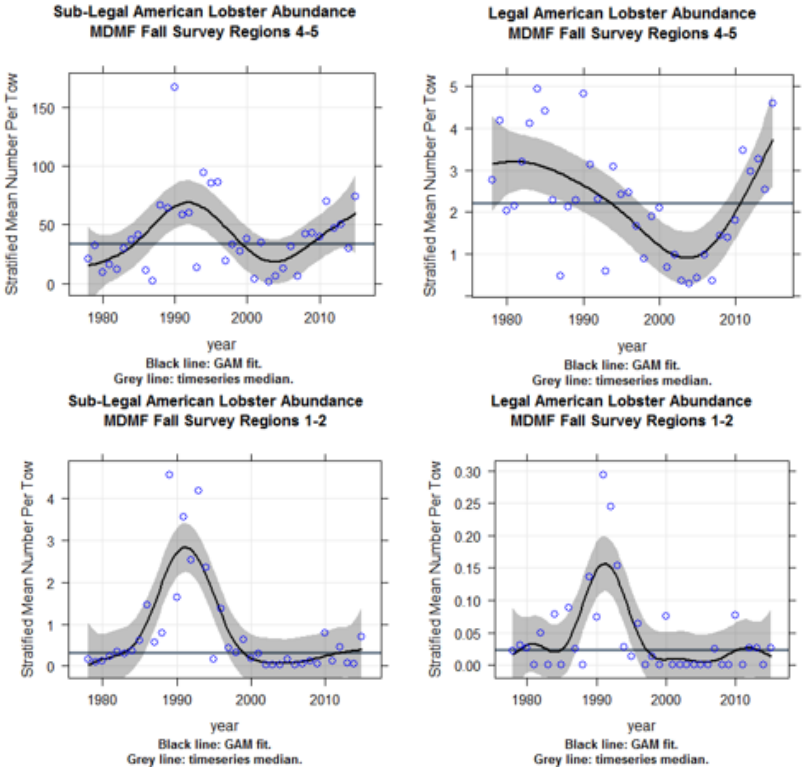

Figure 3: MADMF Fall Trawl Survey sub-legal and legal indices from 1978-2015. The top charts are from Gulf of Maine and the bottom charts are from Southern New England.

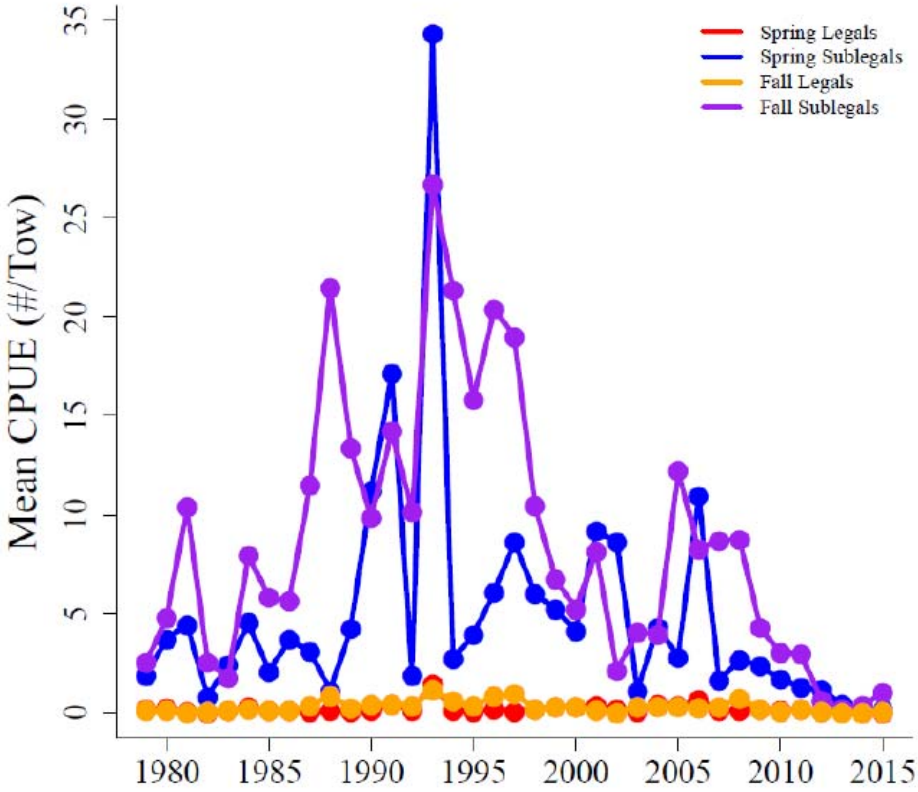

Figure 4: RIDFW Seasonal (Spring and Fall) Trawl lobster abundances. CPUE is expressed as the annual mean number per tow for sub-legal (<85.725mm CL) and legal sized (>=85.725mm CL) lobsters.

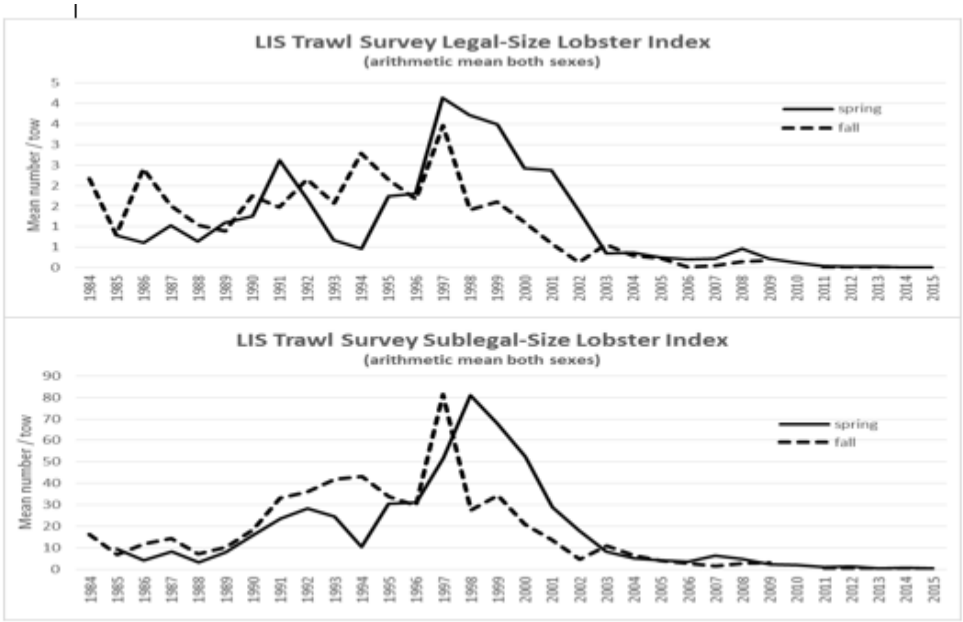

Figure 5: Results of the Long Island Sound Trawl Survey during spring (April-June) and fall (September-October) within NMFS statistical area 611.

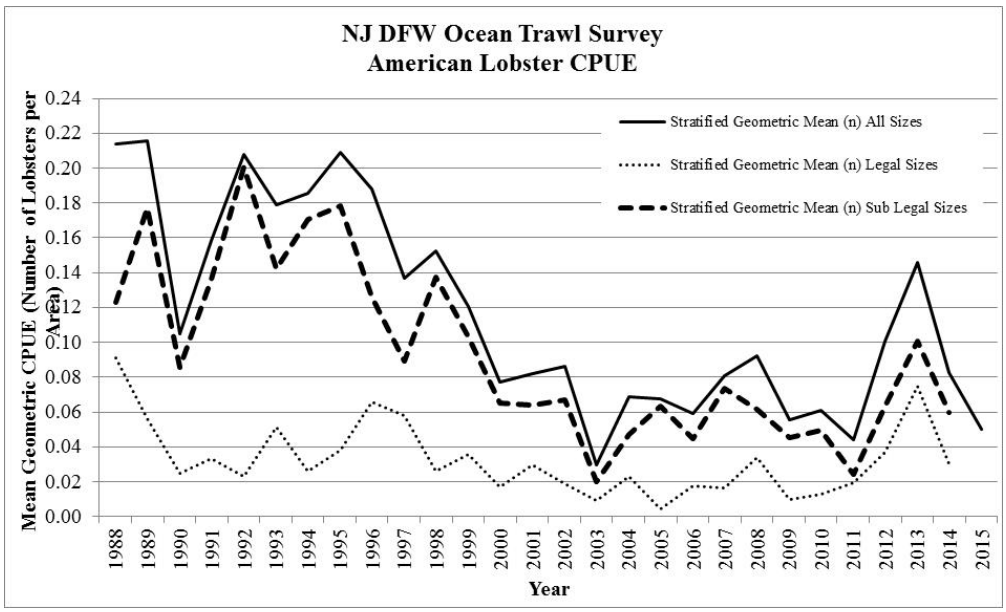

Figure 6: Stratified mean CPUE of all lobsters collected aboard the NJDFW Ocean Trawl Survey. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE was calculated as the sum of the mean number of lobsters per size class collected in each sampling area weighted by the stratum area.

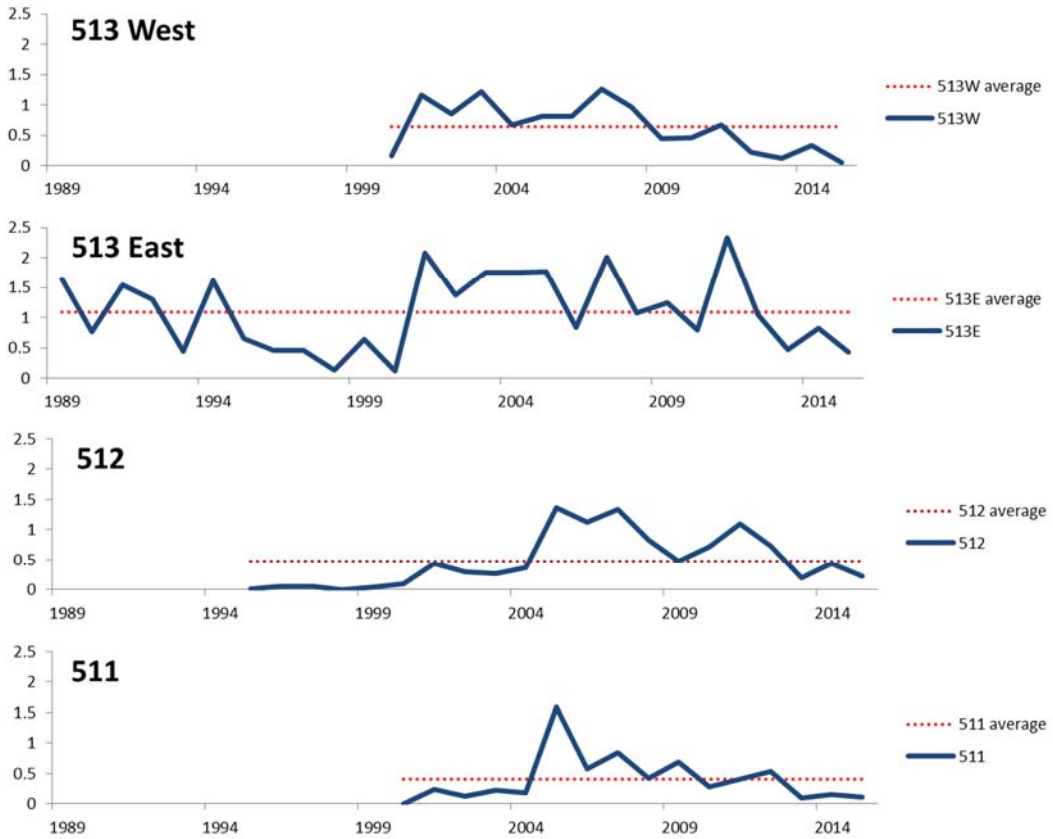

Figure 7: Settlement survey index for each statistical area in Maine (1989-2015).

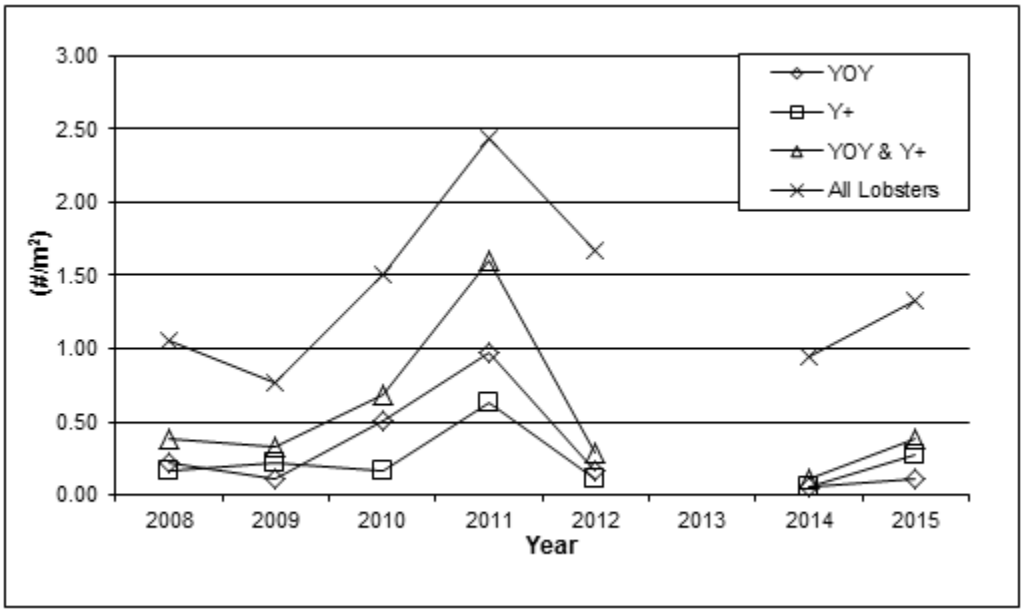

Figure 8: Catch per unit effort (#/m2) of YOY, Y+, and YOY/Y+ combined and all lobsters during the American Lobster Settlement Index, by location, in New Hampshire, from 2008 through 2015.

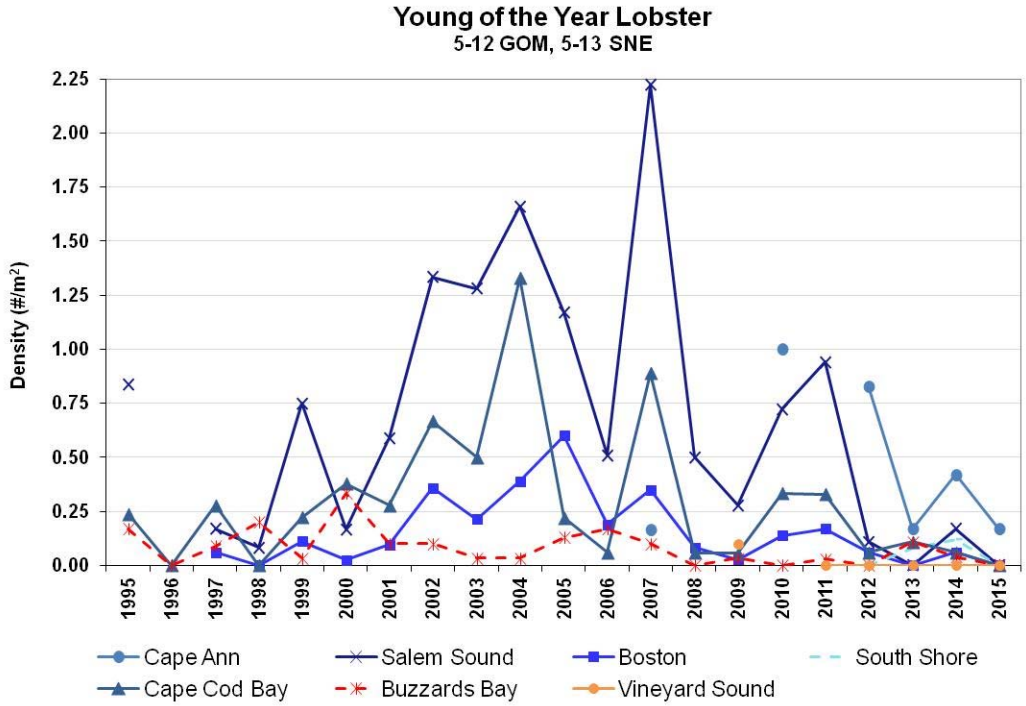

Figure 9: Young-of-year lobster density in seven Massachusetts regions; LCMA 1 – Cape Ann, Salem Sound, Boston, South Shore, Cape Cod Bay, LCMA 2 - Buzzards Bay, Vineyard Sound.

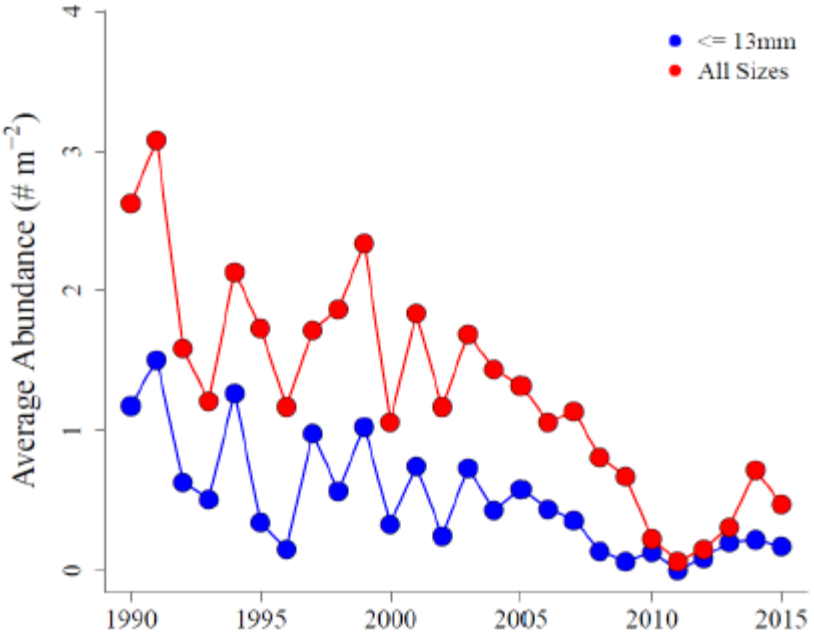

Figure 10: Average abundance of American lobster in Rhode Island suction sampling sites. Abundances are presented for lobsters less than or equal to 13mm (blue) and all lobster collected in sampling (red).

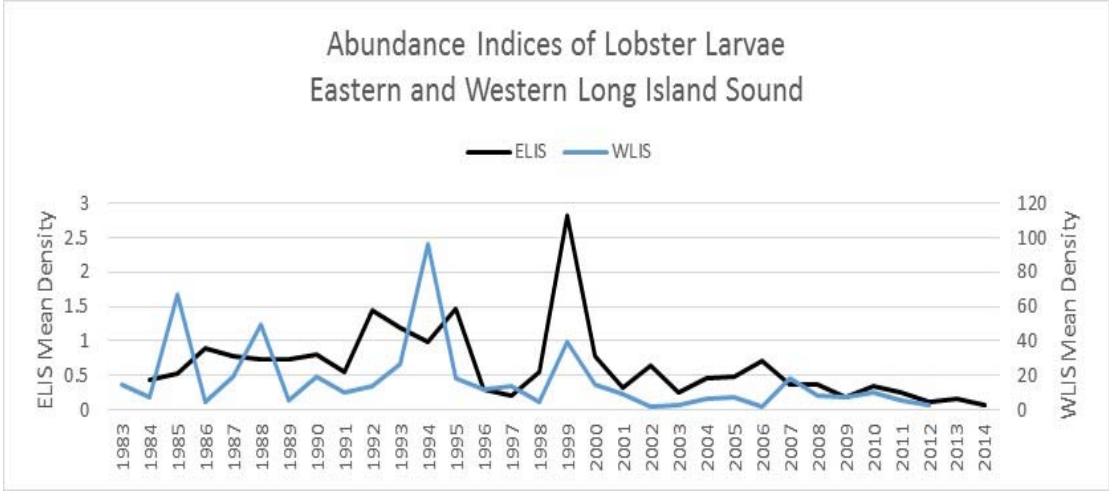

Figure 11: Abundance indices of lobster larvae from the Connecticut DEEP Larval Lobster Survey in western Long Island Sound and from the Millstone Power Station entrainment estimates in eastern Long Island Sound. The Connecticut DEEP survey was discontinued in 2013.

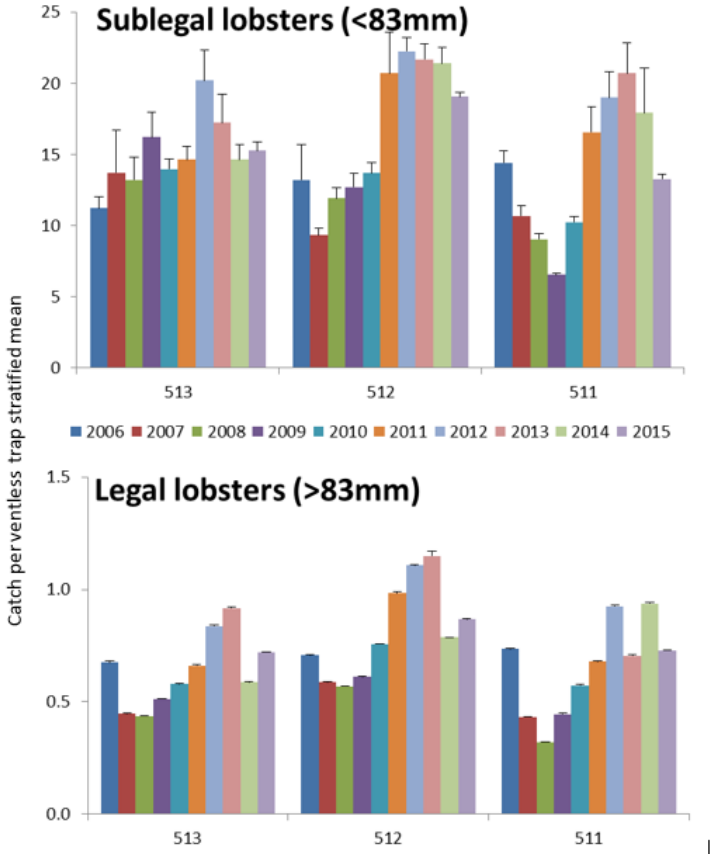

Figure 12: CPUE stratified mean for both sublegal and legal lobsters from Maine's Ventless Trap survey, 2006-2015, by statistical area. Only ventless traps were included in the analysis.

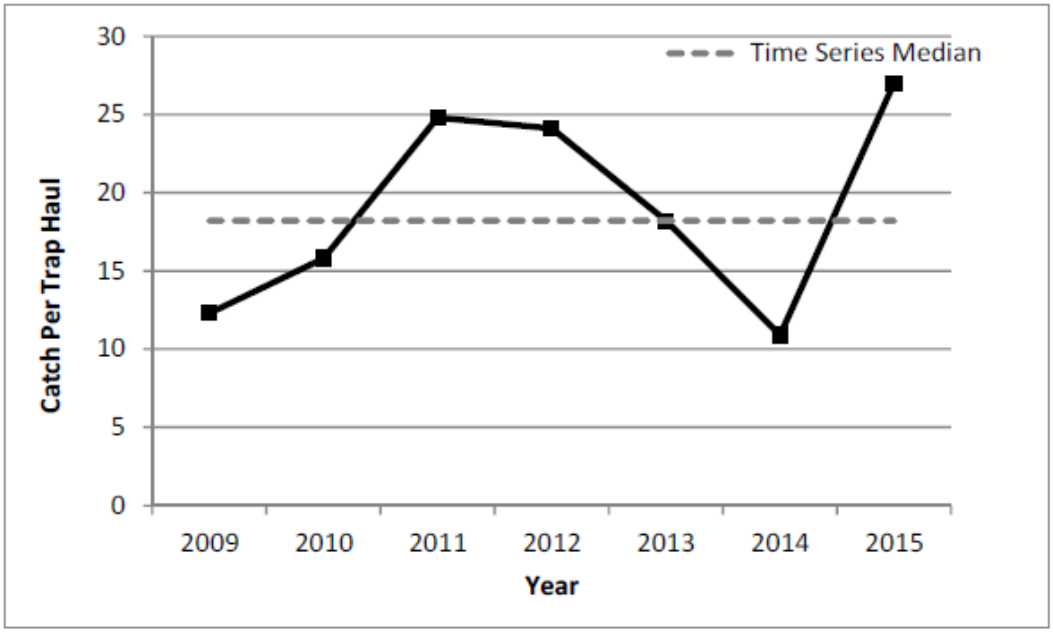

Figure 13: Stratified mean catch per trap haul, for all lobsters captured during the coast-wide random stratified Ventless Trap Survey in New Hampshire state waters from 2009 through 2015.

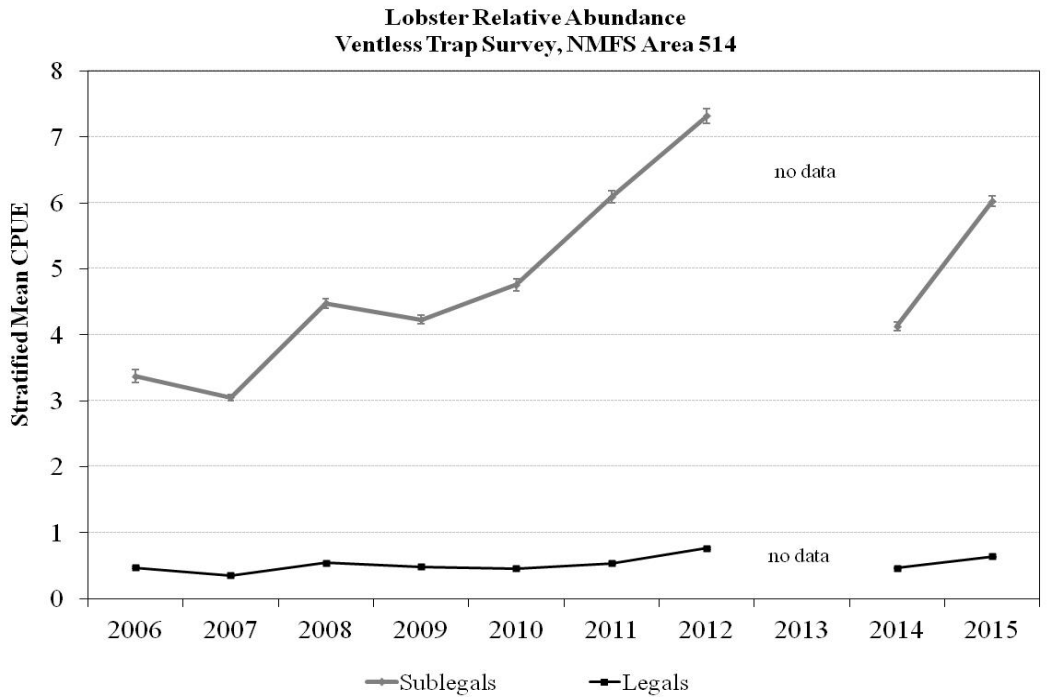

Figure 14: Stratified mean catch per trap haul (±S.E.) of sublegal (< 83 mm, grey line) and legal (≥ 83 mm, black line) lobsters in NMFS Area 514 from MADMF ventless trap survey.

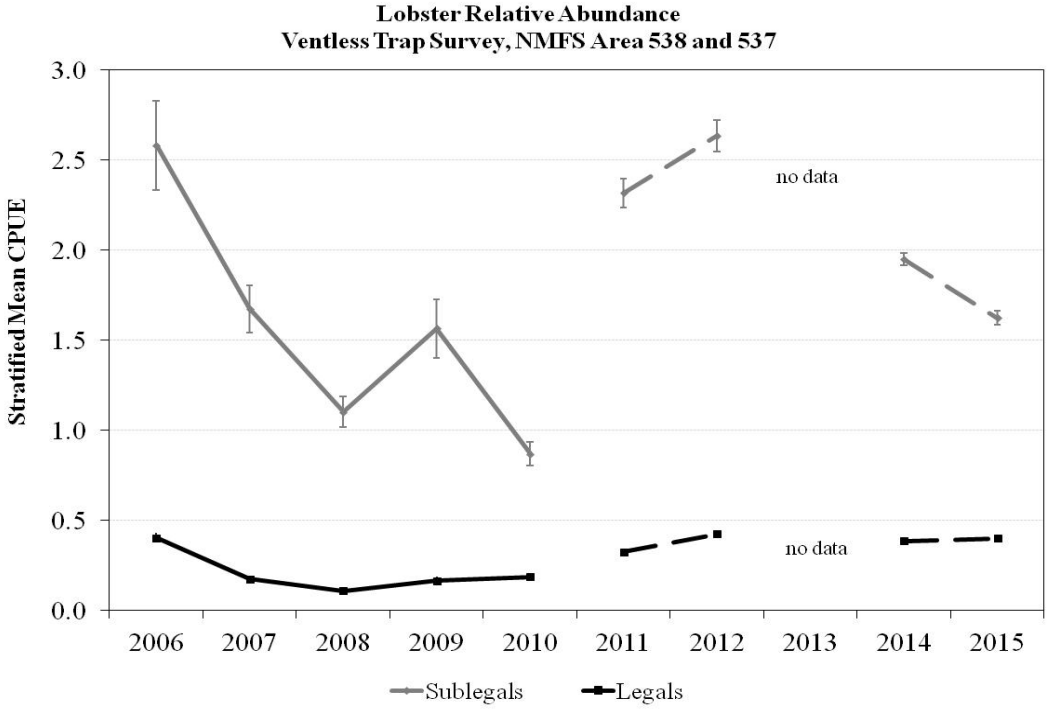

Figure 15: Stratified mean catch per trap haul (±S.E.) of sublegal (< 86 mm, grey line) and legal (≥ 86 mm, black line) lobsters in Area 538 and northern 537 (2011-2014) from MADMF ventless trap survey. The break in the time series from 2010 to 2011 and the subsequent dashed lines illustrate when the survey was expanded (starting in 2011), which should be interpreted as a new time series relative to the 2006-2010 time period.

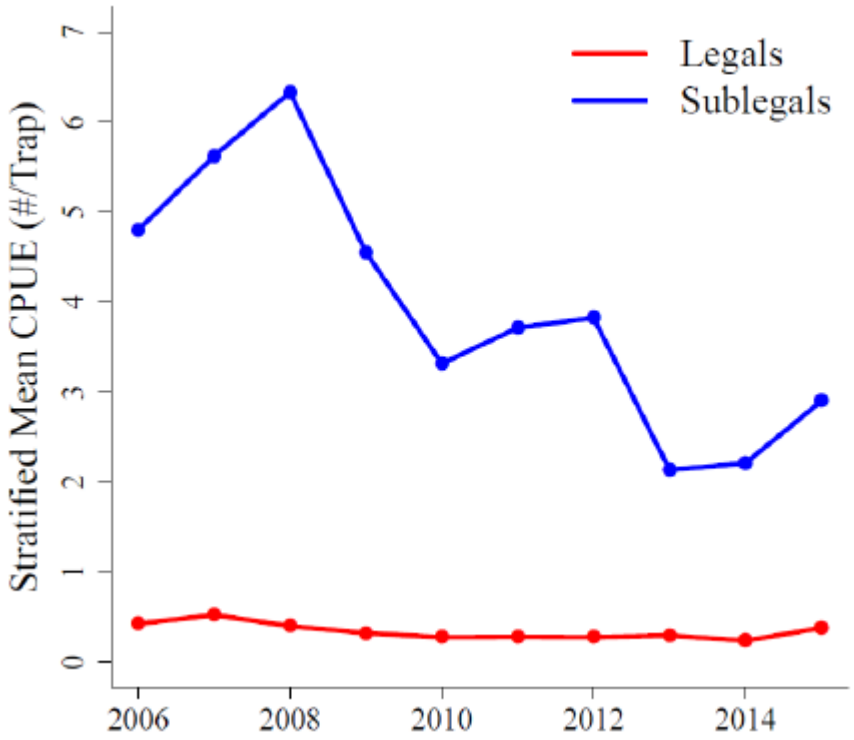

Figure 16: Stratified mean catch (#) per trap-haul for sublegal (<85.725 mm CL) and legal-sized (>=85.725mm CL) lobsters from RIDEM ventless trap survey.