



# Atlantic States Marine Fisheries Commission

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*Spud Woodward (GA), Chair*

*Joe Cimino (NJ), Vice-Chair*

*Robert E. Beal, Executive Director*

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*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

## MEMORANDUM

July 20, 2022

TO: Commissioners; Proxies; American Lobster Management Board; Atlantic Herring Management Board; Atlantic Menhaden Management Board; Atlantic Striped Bass Management Board; Executive Committee; Horseshoe Crab Management Board; ISFMP Policy Board; Sciaenids Management Board

FROM: Robert E. Beal *REB*  
Executive Director

RE: ASMFC Summer Meeting: August 2-4, 2022 (TA 22-016)

The Atlantic States Marine Fisheries Commission's Summer Meeting will be held August 2-4, 2022 at **The Westin Crystal City** (Telephone: 703.486.1111), located at 1800 Richmond Highway, Arlington, VA. The room block is now closed; if you need assistance reserving a room, please contact Cindy Robertson at [Crobertson@asmfc.org](mailto:Crobertson@asmfc.org).

This will be a hybrid meeting (both in-person and remote) to allow for remote participation by Commissioners and interested stakeholders. Meeting materials are available on the Commission website at <http://www.asmfc.org/home/2022-summer-meeting>. Supplemental materials will be posted to the website on Wednesday, July 27, 2022.

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.

Board meeting proceedings will be broadcast daily via webinar beginning Tuesday, August 2 at 9 a.m. and continuing daily until the conclusion of the meeting (expected to be 1:30 p.m.) on Thursday, August 4. The webinar will allow registrants to listen to board deliberations and view presentations and motions as they occur. 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 ask members of the public to raise their hands to let the chair know they would like to speak. Depending upon the number of commenters, the board chair will decide how to allocate the available time on the agenda (typically 10 minutes) to the number of people who wish to speak.

Each day, the webinar will begin 15 minutes prior to the start of the first meeting so that people can troubleshoot any connectivity or audio issues they may encounter. If you are having issues with the webinar (connecting to or audio-related issues), please contact Chris Jacobs at 703.842.0790.

To register for the webinar, please go to <https://attendee.gotowebinar.com/register/7218217294868422923> (Webinar ID: 822-004-851). If you are joining the webinar but will not be using VoIP, you can may also call in at +1 (415) 655-0060, access code 636-403-362. A PIN will be provided to you after joining the webinar; see [webinar instructions](#) for details on how to receive the PIN.

For those who will not be joining the webinar but would like to listen in to the audio portion only, press the # key when asked for a PIN.

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

Enclosures: Final Agenda, Hotel Directions, TA 22-016, and Travel Reimbursement Guidelines



# Atlantic States Marine Fisheries Commission

## Summer Meeting

August 2-4, 2022

The Westin Crystal City

Arlington, Virginia

### Public Comment Guidelines

To provide 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 ask members of the public to raise their hands to let the chair know they would like to speak. Depending upon the number of commenters, the board chair will decide 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 three weeks prior to the start of a meeting week (July 11) have been included in the briefing materials.
2. Comments received by 5:00 PM on Tuesday, July 26<sup>th</sup> will be included in supplemental materials.
3. Comments received by 10:00 AM on Friday, July 29<sup>th</sup> will be distributed electronically to Commissioners/Board members prior to the meeting.

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 and email.

# Final Agenda

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

## Tuesday, August 2

9:00 – 10:30 a.m.

### **Atlantic Herring Management Board**

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

*Other Members:* NEFMC, NMFS

*Chair:* Ware

*Other Participants:* Zobel, Brown, Deroba, Cieri

*Staff:* Franke

1. Welcome/Call to Order (*M. Ware*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2021
3. Public Comment
4. Review 2022 Atlantic Herring Management Track Assessment and Peer Review Report (*J. Deroba*)
5. Update on Portside Sampling Program (*M. Cieri*)
6. Other Business/Adjourn

10:45 a.m. – 12:30 p.m. **American Lobster Management Board**

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

*Other Members:* NMFS

*Chair:* McNamee

*Other Participants:* Perry, Reardon, Beal, Murphy

*Staff:* Starks

1. Welcome/Call to Order (*J. McNamee*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from March 2022
3. Public Comment
4. Discuss Implications of Proposed Measures of Draft Addendum XXVII on Increasing Protection of Spawning Stock Biomass of the Gulf of Maine/Georges Bank Stock (*J. McNamee*) **Possible Action**
5. Update from Work Group on Implementation of Addendum XXIX: *Electronic Vessel Tracking for Federal Permit Holders* (*C. Starks*)
6. Progress Update on Jonah Crab Benchmark Stock Assessment (*J. Kipp*)
7. Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting (Addenda XXI, XXII, and XVI Provisions) (*A. Murphy*)
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

**12:30 – 1:30 p.m. Lunch Break**

**1:30 – 5:00 p.m. Atlantic Striped Bass Management Board**  
*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut  
New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina  
*Other Members:* DC, NMFS, PRFC, USFWS  
*Chair:* Gary  
*Other Participants:* Hoffman, Blanchard  
*Staff:* Franke

1. Welcome/Call to Order (*M. Gary*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment
4. Consider Fishery Management Plan Review and State Compliance for the 2021 Fishing Year (*E. Franke*)  
**Action**
5. Progress Update and Board Guidance on 2022 Stock Assessment Update
  - Technical Committee Report (*K. Drew*)
  - Provide Guidance to Technical Committee for Management Options to Consider if the Assessment Indicates Reduction is Needed for Rebuilding
  - Discuss Timeline for Responding to the Assessment
6. Consider Next Steps for Draft Addendum I on Quota Transfers (formerly Draft Addendum VII) **Possible Action**  
*Motion from October 2021: Move to defer until May 2022 consideration by the Atlantic Striped Bass Board of Draft Addendum VII to Amendment 6 to allow further development and review of the transfer options.*
7. Other Business/Adjourn

**6:00 – 7:30 p.m. 2022 Annual Awards of Excellence Reception**

**Wednesday, August 3**

**8:00 – 10:00 a.m. Executive Committee**  
Breakfast will be available at 7:30 a.m. (*A portion of this meeting may be a closed session for Committee members and Commissioners only*)  
*Members:* Abbott, Bell, Burgess, Cimino, Clark, Davis, Fegley, Gilmore, Keliher, Kuhn, McKiernan, McNamee, Miller, Patterson, Plumlee, Rawls, Woodward  
*Chair:* Woodward  
*Staff:* Leach

1. Welcome/Call to Order (*S. Woodward*)
2. Committee Consent
  - Approval of Agenda
  - Approval of Meeting Summary from May 2022
3. Public Comment
4. CARES Act Update
5. Report from *De Minimis* Work Group
6. Consider Approval of Updated Investment Policy **Action**

7. Review Letter of Support for Resilient Coasts and Estuaries Act
8. Discuss State Support for the Responsible Offshore Science Alliance
9. Other Business/Adjourn

**10:15 – 11:45 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:* NMFS, PRFC, USFWS

*Chair:* Clark

*Other Participants:* Ameral, Couch, Hoffmeister

*Staff:* Starks

1. Welcome/Call to Order (*J. Clark*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment
4. Consider Draft Addendum VIII on the Implementation of Recommended Changes from 2021 Adaptive Resource Management Revision and Peer Review Report for Public Comment (*C. Starks*) **Action**
5. Update on Plan Development Team Review of Biomedical Mortality, Biologically-based Options for Setting the Threshold, and Best Management Practices for Handling Biomedical Collections (*C. Starks*)
  - Technical Committee Recommendations (*N. Ameral*)
  - Advisory Panel Report (*B. Hoffmeister*)
6. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
7. Elect Vice-Chair **Action**
8. Other Business/Adjourn

**11:45 a.m. – 12:45 p.m. Lunch Break – Buffet lunch will be provided**

**11:45 a.m. – 12:45 p.m. Legislators and Governors’ Appointee Luncheon**

**12:45 – 1:15 p.m. Presentation on NOAA Atlantic Sturgeon Bycatch Work Group Draft Action Plan**

Presenter: Spencer Talmage, NOAA Fisheries

**1:30 – 5:00 p.m. Atlantic Menhaden Management Board**

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

*Other Members:* NMFS, PRFC, USFWS

*Chair:* Bell

*Other Participants:* Newhard, Kersey, Schueller

*Staff:* Boyle

1. Welcome/Call to Order (*M. Bell*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2022

3. Public Comment
4. Consider Fishery Management Plan Review and State Compliance for 2021 Fishing Year (*J. Boyle*) **Action**
5. Consider Draft Addendum I to Amendment 3 on Commercial Allocations, Episodic Event Set Aside Program, and Incidental Catch/Small-scale Fisheries for Public Comment (*J. Boyle*) **Action**
6. Review 2022 Atlantic Menhaden Single-species Stock Assessment Update (*A. Schueller*)
7. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
8. Other Business/Adjourn

**Thursday, August 4**

**8:30 – 10:00 a.m.**

**Sciaenids Management Board**

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

*Other Members:* NMFS, PRFC

*Chair:* Batsavage

*Other Participants:* Franco, Giuliano, Paramore, Rickabaugh, Hodge, Latour

*Staff:* Bauer

1. Welcome/Call to Order (*C. Batsavage*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment
4. Review Traffic Light Analysis for Spot and Atlantic Croaker (*D. Franco/H. Rickabaugh*) **Possible Action**
  - Technical Committee Recommendations
  - Discuss Spot Addendum III Management Measures
5. Review Development of a Spatial Model of Spot Abundance and Mortality (*R. Latour*)
6. Consider Atlantic Croaker and Red Drum Fishery Management Plan Reviews and State Compliance for 2021 Fishing Year (*T. Bauer*) **Action**
7. Progress Update on 2022 Black Drum Benchmark Stock Assessment (*J. Kipp*)
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

**10:15 a.m. – 1:15 p.m.**

**Interstate Fisheries Management Program Policy 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, NMFS, PRFC, USFWS

*Chair:* Woodward

*Other Participants:* Benjamin, Densmore, Groves, Hare, Bromilow

*Staff:* Kerns

1. Welcome/Call to Order (*S. Woodward*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment
4. Executive Committee Report (*S. Woodward*)
5. Consider Changes to the Appeals Policy (*R. Beal*) **Final Action**

6. Report from the *De Minimis* Work Group (*T. Kerns*) **Possible Action**
7. Update on East Coast Climate Change Scenario Planning (*T. Kerns*)
8. Review of NOAA Fisheries' Climate Ecosystem Fisheries Initiative (*J. Hare*)
9. Update on the Risk and Uncertainty Policy (*J. McNamee*)
10. Committee Reports
  - Legislative (*B. Hyatt*)
  - Habitat (*L. Havel*) **Action**
  - Atlantic Coast Fish Habitat Partnership (*L. Havel*)
  - Assessment Science (*S. Murray*) **Action**
11. Consider Providing Comments to NOAA Fisheries on Atlantic Sturgeon Bycatch Work Group Draft Action Plan, if Necessary (*T. Kerns*) **Possible Action**
12. Review of Blue Catfish Science in the Chesapeake Bay (*M. Bromilow, C. Densmore, M. Groves*)
13. Review of NOAA Fisheries' Draft Equity and Environmental Justice Strategy (*S. Benjamin*)
14. Review Noncompliance Findings (if necessary) **Action**
15. Other Business/Adjourn

**1:15 – 1:30 p.m.**

**Business Session**

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

*Chair:* Woodward

*Staff:* Beal

1. Welcome/Call to Order (*S. Woodward*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment
4. Consider Noncompliance Recommendations (if necessary) **Final Action**
5. Other Business/Adjourn

# Atlantic States Marine Fisheries Commission

## Atlantic Herring Management Board

*August 2, 2022  
9:00 – 10:30 a.m.  
Hybrid Meeting*

### Draft Agenda

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

- |   |            |
|---|------------|
| 1. Welcome/Call to Order ( <i>M. Ware</i> )   | 9:00 a.m.  |
| 2. Board Consent <ul style="list-style-type: none"><li>• Approval of Agenda</li><li>• Approval of Proceedings from October 2021</li></ul> | 9:00 a.m.  |
| 3. Public Comment   | 9:05 a.m.  |
| 4. Review 2022 Atlantic Herring Management Track Assessment and Peer Review Report ( <i>J. Deroba</i> )                                   | 9:15 a.m.  |
| 5. Update on Portside Sampling Program ( <i>M. Cieri</i> )  | 10:00 a.m. |
| 6. Other Business/Adjourn   | 10:30 a.m. |

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# MEETING OVERVIEW

## Atlantic Herring Management Board

August 2, 2022

9:00 a.m. – 10:30 a.m.

Hybrid

Chair: Megan Ware Assumed Chairmanship: 08/22	Technical Committee Chair: Renee Zobel (NH)	Law Enforcement Committee Representative: Delayne Brown (NH)
Vice Chair: Vacant	Advisory Panel Chair: Jeff Kaelin (NJ)	Previous Board Meeting: October 18, 2021
Voting Members: ME, NH, MA, RI, CT, NY, NJ, NMFS, USFWS (9 votes)		

### 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2021

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

### 4. Review 2022 Atlantic Herring Management Assessment and Peer Review Report (9:15-10:00 a.m.)

#### Background

- The Management Track Assessment was completed in May and peer-reviewed in late June 2022 (**Supplemental Materials**).
- The New England Fishery Management Council's (NEFMC) Scientific and Statistical Committee (SSC) is scheduled to meet [August 4](#) to develop recommendations for 2023-2025 fishery specifications, which will be considered at the NEFMC September meeting.

#### Presentations

- Presentation of management track assessment by J. Deroba

### 5. Update on Portside Sampling Program (10:00-10:30 a.m.)

#### Background

- The Maine Department of Marine Resources' (DMR) portside sampling program collects and processes samples from Atlantic herring commercial landings along the coast, which informs stock assessments and management.
- ACCSP funding for the Maine DMR portside sampling program will expire in 2023.

**Presentations**

- Presentation of portside sampling program by M. Cieri

**5. Other Business/Adjourn (10:30 a.m.)**

## Atlantic Herring Technical Committee Task List

**Activity Level: Medium**

**Committee Overlap Score: Medium**

### **Committee Task List**

While there are no Board tasks for the TC at present, there are several annual activities in which TC members participate, both through the Commission and NEFMC

- Participation on ASMFC PRT/PDT
- Participation on NEFMC PDT (currently working specifications for 2023-2025)
- Summer/fall collection of spawning samples per the spawning closure protocol
- Annual state compliance reports are due February 1

### TC Members

Renee Zobel (NHFG – Chair), Kurt Gottschall (CT DMF), Dr. Matt Cieri (ME DMR), Micah Dean (MA DMF), Corinne Truesdale (RI DFW), Matthew Heyl (NJ DEP), Jamie Cournane (NEFMC), Jonathan Deroba (NOAA NEFSC), Carrie Nordeen (NOAA)

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

**Webinar  
October 18, 2021**

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

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

**INDEX OF MOTIONS**

1. **Move to approve agenda** by Consent (Page 1).
2. **Move to approve proceedings of February 2, 2021** by Consent (Page 1).
3. **Move to allocate the 2022 Area 1A sub-ACL seasonally with 72.8% available from June through September and 27.2% allocated from October through December. The fishery will close when 92% of the seasonal period's quota has been projected to be harvested and underages from June through September shall be rolled into the October through December period** (Page 5).  
Motion by Megan Ware; second by Ritchie White. Motion carried (Page 6).
4. **Motion to adjourn** by Consent (Page 8).

**ATTENDANCE**

**Board Members**

Megan Ware, ME, proxy for P. Keliher (AA)	Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Steve Train, ME (GA)	Justin Davis, CT (AA)
Cheri Patterson, NH (AA), Chair	Bill Hyatt, CT (GA)
G. Ritchie White, NH (GA)	John Maniscalco, NY, proxy for J. Gilmore (AA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Emerson Hasbrouck, NY (GA)
Melanie Griffin, MA, proxy for D. McKiernan (AA)	Joe Cimino, NJ (AA)
Raymond Kane, MA (GA)	Peter Clarke, NJ, proxy for T. Fote (GA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Asm. Eric Houghtaling, NJ (LA)
Conor McManus, RI, proxy for J. McNamee (AA)	Allison Murphy, NMFS

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

**Ex-Officio Members**

Renee Zobel, Technical Committee Chair	Delayne Brown, Law Enforcement Representative
Jeff Kaelin, Advisory Panel Chair	

**Staff**

Robert Beal	Tina Berger	Dustin Colson Leaning
Toni Kerns	Kristen Anstead	Savannah Lewis
Laura Leach	Emilie Franke	Kirby Rootes-Murdy
Lisa Carty	Lisa Havel	Sarah Murray
Pat Campfield	Chris Jacobs	Caitlin Starks
Maya Drzewicki	Jeff Kipp	Deke Tompkins

**Guests**

Karen Abrams, NOAA	Tom Fote, NJ (GA)	Lindsey Nelson, NOAA
Max Appelman, NOAA	Jeanne Fuller, Boothbay Harbor, ME	Jeff Nichols, DE DMR
Coly area, RI DEM	Pat Geer, VMRC	Gerry O'Neill, Cape Seafoods
Pat Augustine, Coram, NY	Emily Gilbert, NOAA	Derek Orner, NOAA
Sarah Bland, NOAA	Lewis Gillingham, VMRC	Nick Popoff, FL FWS
Deidre Boelke, NEFMC	Jay Hermsen, NOAA	Justin Potter, NOAA
Jeff Brust, NJ DEP	Matthew Heyl, NJ DEP	Craig Pugh
Thomas Burrell, PA F & B	Jaclyn Higgins, TRCP	Jill Ramsey, VMRC
Matt Cieri, ME DMR	Mike Luisi, MD DNR	Bradley Schondelmeier, MA DMF
Heather Corbett, NJ DEP	Chip Lynch, NOAA	Melissa Smith, ME DMR
Jessica Daher, NJ DEP	Dan McKiernan, MA (AA)	Renee St. Amand, CT DEEP
Lennie Day	Nichola Meserve, MA DMF	Mary Beth Tooley
Jeff Deem	Steve Meyers	Ashley Weston, NOAA
Russell Dize, MD (GA)	Roy Miller, DE (GA)	Wes Wolfe, <i>The News-Leader</i>
James Fletcher	Brandon Muffley, MAFMC	Chris Wright, NOAA

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

The Atlantic Herring Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Monday, October 18, 2021, and was called to order at 12:45 p.m. by Chair Cheri Patterson.

#### **CALL TO ORDER**

CHAIR CHERI PATTERSON: Good afternoon, and welcome to the Atlantic States Marine Fisheries Commission Atlantic Herring Management Board. I am Cheri Patterson, Chair Person, and I would like to call the meeting to order.

#### **APPROVAL OF AGENDA**

CHAIR PATTERSON: With the Board's consent, I would like to approve the agenda.

MS. TONI KERNS: I have one hand from Megan Ware.

CHAIR PATTERSON: Go ahead, Megan.

MS. MEGAN WARE: Thanks, Madam Chair. I just wanted to slide one item under Other Business.

CHAIR PATTERSON: Thank you, Megan. Okay with that change to the agenda, is there any opposition to approving the agenda?

MS. KERNS: I have no hands.

#### **APPROVAL OF PROCEEDINGS**

CHAIR PATTERSON: I would like to move next to approving the proceedings from the August, 2020 meeting. Is there any opposition to moving for the approval of these proceedings?

MS. KERNS: I see no hands in objection.

#### **PUBLIC COMMENT**

CHAIR PATTERSON: Thank you. Is there any public comment that does not pertain to this meeting, if you could raise your hand?

MS. KERNS: I have no hands up.

#### **SET QUOTA PERIOD FOR THE 2022 AREA 1A FISHERY**

CHAIR PATTERSON: Next on the agenda we will be looking to set the quota period for the 2022 Area 1A Fishery, and we'll start with Emilie Franke to provide us with a presentation and a catch up. Thank you, Emilie.

MS. EMILIE FRANKE: Thank you so much, Madam Chair. I'll start out the presentation today with a brief review of the 2021 through 2023 specifications that were approved by the Board earlier this year. I'll then review the quota period systems established by Amendment 3. As Madam Chair just mentioned, the Board action for consideration today is to Consider Setting the Quota Period for the 2022 Area 1A Fishery. Then also at the request of the Board Chair, I'll provide a brief summary of the postponed Draft Addendum III.

This was brought up in discussion last month during the last Days Out Call regarding quota periods. Just as a reminder, final action on this Draft Addendum was postponed last year, so I'll just provide a brief overview to refresh the Board's memory on this postponed addendum. I'll start out with the specifications and the quota periods.

In February of this year, the Board adopted the 2021 through 2023 Atlantic herring specifications, as outlined in the New England Council's Framework 8, and the Board approved these specifications in February, contingent on a final rule being published by NOAA Fisheries. In March, on March 29, NOAA Fisheries did publish an interim final rule to implement Framework 8, including those specifications.

There was one change from the Council's recommended specifications regarding the 2021 research set-aside. The original recommendation was a 3 percent research set-aside for 2021, and a 0 percent research set-aside for 2022 and 2023. However, it was determined that the research set-

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Draft Proceedings of the Atlantic Herring Management Board  
October 2021

aside participants would not continue their project for 2021.

The NOAA interim final rule set that 2021 research set aside at 0 percent. Shortly thereafter, via an e-mail vote, the Board approved that change for the 2021 research set-aside to 0 percent for 2021 to align with the NOAA Fisheries interim final rule. Here we have the specifications for fishing years 2021 through 2023.

You can see that in 2021, this year, the Area 1A sub-ACL was set at 1,391 metric tons, and for 2022 and 2023 the Area 1A sub-ACL is set at 1,184 metric tons for each of those two years. As a reminder, if the catch from the New Brunswick weir fishery in Canada is less than the specified trigger amount, then 1,000 metric tons of the management uncertainty buffer would be added to the Area 1A sub-ACL.

Moving into the quota period systems. Per Amendment 3, quota periods shall be determined annually for Area 1A, and specifically, the Board can consider distributing the Area 1A sub-ACL using a bi-monthly, a trimester, or a seasonal quota period to meet the needs of the fishery. The Board can also decide whether quota from January through May would be allocated to later on in the fishing season.

Then finally, any underages may be rolled from one period to the next within the same year. Here on the screen are the three quota period options that are outlined in Amendment 3. It's important to note that these allocation percentages are fixed, and they can only be changed through an addendum.

Up top on the screen is the bi-monthly quota period, and those have a couple different options. In 2019 the Board allocated the Area 1A sub-ACL using that middle bi-monthly option, with no landings prior to June 1, and with June as a one-month quota period. The

next option down in the left-hand corner is the trimester quota period option, and those trimesters are set as January through May, June through September, and October through December. Finally, there is the seasonal quota option on the right bottom side of the screen. For the last two years 2020 and 2021 fishing years, the Board has allocated the Area 1A sub-ACL using the seasonal quota period with no landings prior to June 1st. With 72.8 percent allocated for June through September, and 27.2 percent allocated for October through December.

As a reminder, the Board's action for consideration today is to consider setting the quota period for the 2022 Area 1A Fishery from those three types of options that I just outlined, the bi-monthly, trimester, or seasonal quota period options. Again, the sub-ACL for 2022 for Area 1A is set at 1,184 metric tons.

As I mentioned earlier, just to wrap up my presentation here, I'll provide a brief summary of the postponed Draft Addendum III. Again, this postponed draft addendum was brought up in discussion last month during the Days Out call, so the Board Chair asked that I provide a brief summary to refresh the Board's memory, since it was last discussed last year in May, 2020.

This is intended to be a brief summary of the draft addendum, as a reminder of the types of options that were developed through that process. In October, 2019, the Board initiated Draft Addendum III to consider new approaches for managing the Area 1A Fishery under low quota scenarios specifically.

The Board specified that the Draft Addendum should include an option which allocates 100 percent of the Area 1A quota to the months of June through December. The Board also specified that the Draft Addendum should consider expanding days out provisions across different permit categories.

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The Board will review the minutes during its next meeting.

This action was in response to the challenges in managing these reduced sub-ACL quota levels, based on the 2018 benchmark stock assessment. Here is a timeline for the postponed Draft Addendum III. Again, the Board initiated the draft addendum in October, 2019. The Plan Development Team then developed the Draft Addendum III in February, 2020.

The Board approved Draft Addendum III for public comment, and a public comment period took place between February and March of 2020. Then in May, 2020 the Board postponed final action on Draft Addendum III, until a final rule for the Council's Amendment 8 was published, which was published later in January of this year, and until the Council and Commission can meet to discuss coordination of herring management.

As far as the options that were included in the Draft Addendum III for public comment. Starting with the quota management section, the status quo option would be no changes to the current quota period option, so maintaining those three quota period systems of the bi-monthly, the trimester, and the seasonal quota periods.

Option 2 would add an alternative seasonal allocation option, which if the Board decided to allocate 0 percent of the quota prior to June 1st, the Board could then choose to allocate 100 percent of the Area 1A sub-ACL from June through December. Then Option 3 put forward an alternate timeframe for trimester management, where harvest could be concentrated during the peak availability of the resource, so 80 percent allocated from June through August. Then both of these options were developed to be added to the existing suite of quota period options in the status quo option.

Moving on to the options that were developed in this postponed addendum for Days Out

permit provisions. The status quo options here would be that only Category A permits are subject to landing day restrictions and we do landings limits from June through September. Then Option 2 that was developed with that all category C permits would also be subject to the same days out measures as those that would apply to Category A.

These options were intended to address Category C permits that were not accounted for through the small mesh bottom trawl program. This option was developed to implement the same days out measures for 99.9 percent of the vessels that were responsible for herring landings in recent years when this draft addendum was developed.

Then finally to wrap up here. Draft Addendum III also included options for weekly landing limits. The status quo option was weekly landing limits that would apply only to Category A permits from June through September. Option 2 that was developed would be similar to that status quo, but it would remove the notifications for Category A permits 45 days prior to the start of the season.

Then finally, Option 3 that was developed, all vessel permit categories could be subject to weekly landings limits, and those limits could be specified throughout the entirety of the season. That wraps up my presentation. Again, just covering the specification and quota periods, followed by that brief summary of postponed Draft Addendum III, and again the Board action for consideration today is to consider setting the quota periods for the 2022 Area 1A Fishery. With that I am happy to take any questions.

CHAIR PATTERSON: Does anybody on the Board have questions for Emilie?

MS. KERNS: Megan Ware.

CHAIR PATTERSON: Go ahead, Megan.

MS. WARE: This is a question for staff. I'm just curious if there is any guidelines or rules at the Commission about how long kind of that differential

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Draft Proceedings of the Atlantic Herring Management Board  
October 2021

time between a public hearing and a final action is. If there were continued conversations on Addendum III, would that have to go back out for public comment, or is there any guidance or rules about that for the Commission?

MS. KERNS: Cheri, I'm going to let Bob take this one, if that's okay.

CHAIR PATTERSON: Yes, thank you.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Thanks, Toni, what a favor. No, I'm just kidding. Megan, we don't really have clear guidance on exactly how long we can wait between public hearings and final decision by the Board. It's really up to the Board. I know it's just a little bit of a cop out answer, but if the Board feels that situations have changed or there is new information, or the public comment that you have received is stale for any reason, then we should go back out for another round of public comments. It's not exactly defined as a 6-month, 10 months, you know 2 years, whatever it might be. But it's really up to the Board.

If you think you would get different perspectives by going out to public comment again, then you probably should go back out to public comment to see what the public thinks at this time. But if you feel the opposite, which you know conditions haven't changed, and you're likely to get the same comment that you got last time, then the Board would not have to go back out for public comment.

CHAIR PATTERSON: Do you have a follow up, Megan, or are you all set?

MS. WARE: No, that was helpful. I guess I have another question, but I can get in the back of the line if there are other people with their hands up.

CHAIR PATTERSON: No, go ahead and ask your second question, that's fine.

MS. WARE: Okay, thank you. I know in the motion to postpone Addendum III, part of it was conditioned on Amendment 8, and part of it was conditioned on kind of these Council/Commission conversations. I was just curious, have those ended? Have we satisfied both conditions of the postponement, or are those conversations still ongoing?

MS. KERNS: Again, I'm going to go to Bob. I can say that the Amendment 8 condition was met. But I'll let Bob speak to the other.

EXECUTIVE DIRECTOR BEAL: Yes, Megan, obviously Amendment 8 is set, except there is a law suit in the background, I guess. But as far as the conversations between the Council and Commission go about some of the jurisdictional questions that have come up. Council and Commission leadership have met a few times via conference call.

We also have met with NOAA attorneys, talking about the legal requirements and opportunities within the Atlantic Coastal Act and the Magnuson Stevens Act. That last conversation with the attorneys was, I think it was close to a year ago now, so it's been quite a while. We've kind of lost momentum on that. I think a number of other events overtook the group, and we lost momentum.

One of the ideas that was out there is to pull together a white paper, or some sort of strawman document that would sort of define the roles ASMFC would play and the roles the Council would play, and sort of divvy up the responsibilities that are associated with herring management. That project has not really been started; we've talked about it a couple times.

The group hasn't followed through on that. There is not a lot of activity right now. ASMFC in our draft action plan has a very generic line. Under herring it says, "continue to improve coordination and collaboration with New England Council." If I remember right, I think New England Council has a similar sort of generic placeholder task in their draft priorities for next year that kind of talks about

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October 2021

coordination between the Council and ASMFC. Yes, we both are sort of still contemplating it, but it doesn't have a lot of momentum right now, I guess is the best way to respond.

CHAIR PATTERSON: Any follow up, Megan?

MS. WARE: I'm all set, thank you.

CHAIR PATTERSON: All right then, I was made aware that there is a motion that is proposed for the Board's consideration. Would the maker of the motion please move forward with a motion?

MS. KERNS: Cheri, that is Megan.

CHAIR PATTERSON: Yes.

MS. WARE: Thank you, Madam Chair. This is a motion for setting the 2022 seasonal split of quota. **Move to allocate the 2022 Area 1A sub-ACL seasonally with 72.8 percent available from June to September, and 27.2 percent allocated from October through December. The fishery will close when 92 percent of the seasonal period quota has been projected to be harvested, and underages from June through September shall be rolled into the October through December period.**

CHAIR PATTERSON: Thank you, Megan, is there a second to the motion?

MS. KERNS: Ritchie White has his hand up.

MR. G. RITCHIE WHITE: Yes, I'll second.

CHAIR PATTERSON: Thank you, Ritchie. Discussion among the Board. Please raise your hand if you would like to discuss.

MS. KERNS: I have Melanie.

CHAIR PATTERSON: Go ahead, Melanie.

MS. MELANIE GRIFFIN: I don't really have anything to discuss, other than just to say that I support the status quo motion.

CHAIR PATTERSON: Thank you, any other Board members?

MS. KERNS: No other Board members, but a member of the public/our AP Chair.

CHAIR PATTERSON: Okay, thank you. Yes, I'll go out for comment from the public now.

MS. KERNS: We have Jeff Kaelin.

CHAIR PATTERSON: Go ahead, Jeff.

MR. JEFF KAELIN: Thank you, Madam Chair, and I just wanted to say that I appreciate Megan and Ritchie's motion. I really think this was sort of the outcome of where the Federals/Commission discussion, you know ended up, because it provides access to federally permitted trawl boats in the fall. We're all in a very different core position relative to the quota, there is no question about it. I think this is a very fair motion, and I just appreciate it. I didn't know what to expect today, frankly, thank you.

CHAIR PATTERSON: Thank you, Mr. Kaelin, is there any other public that would like to make comment?

MS. KERNS: I see no other hands, Cheri.

CHAIR PATTERSON: The motion on the board is to allocate the 2022 Area 1A sub-ACL seasonally, with 72.8 percent available from June through September, and 27.2 percent allocated from October through December. The fishery will close when 92 percent of the seasonal period's quota has been projected to be harvested, and underages from June through September shall be rolled into the October through December period. Motion by Ms. Ware, and seconded by Mr. White. Is there any opposition from the Board on this motion?

MS. KERNS: I see no hands raised in opposition.

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**CHAIR PATTERSON:** Motion is approved by consensus. Thank you very much.

### OTHER BUSINESS

We'll move on to Other Business. Megan, you had some other business to bring forward?

MS. WARE: I did, I also just had a comment on the Addendum III process, because I think at some point, we're going to have to deal with that, if that's okay.

CHAIR PATTERSON: Go ahead.

MS. WARE: I think since it was postponed to kind of like a specific condition and not indefinitely. I do think at some point this is going to come back up to the Board, and we're going to have to figure how to deal with this. My sense is that changing the percentages in the quota period is a very controversial topic, with some people in favor and some very much opposed, and so that can create challenges. I will just say I think something that is at least worth a conversation in that addendum is the trip limit, particularly in the fall period.

I'm thinking specifically to kind of what we're facing now, where we have very low metric tons and we've set zero landings' days, even though we still have fish in the bank, so to speak, because we just don't think the fishery can be open and stay within that amount. It may be that we're at such full levels that a weekly landing limit wouldn't help in that situation. But it may be that if we have small increases in quota, the weekly landing limit would give us a bit more ability to forecast the landings. I'm just throwing that out there as, I think something that is at least worth a conversation at some point.

CHAIR PATTERSON: Thank you, Megan. I think as Bob had mentioned that one of the two criteria for moving this forward has been met. In order for the second part to be met, the Council and ASMFC leadership would need to

continue forward with that white paper. Are you recommending that they have a time limit to do that?

MS. WARE: No, I think rightly so, other things have come up, including COVID that has changed people's priorities. I don't think there needs to be a time limit. I just kind of wanted to provide some thoughts on how we move forward with that Addendum, because I think it could be a tricky one.

CHAIR PATTERSON: Thank you, did you have other business other than that?

MS. WARE: I did, I'm sorry. I just wanted to flag that right now Maine DMR through ACCSP has funding for herring sampling. Depending on this week, either that will have one more year or this will be the final year. I'm not trying to focus on that decision, but I just wanted to flag for the Board that in the near future that funding is going to end. The sampling Maine DMR supports is in multiple states.

I think a challenge we're going to have is once that funding goes away, I don't think Maine DMR is going to have the state funds to support sampling in other states. I just want to flag this as maybe something we can talk about with the state agencies over the next year or so. My understanding is that sampling is really important for the stock assessment, so I think it would be good to start thinking about some of those issues ahead of time. Thanks.

CHAIR PATTERSON: Thank you for bringing that forward to us. Is there any other discussion or business to be brought up before the Board?

MS. KERNS: Madam Chair, I don't see any other hands up, but I do have a question for NOAA Fisheries if you will.

CHAIR PATTERSON: Sure, go ahead.

MS. KERNS: I think Emilie touched on this before during her presentation that right now, and I think Megan did as well, that we have zero landings' days

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right now for this Period 2 fishery, even though we do have fish in the bank, but that fish in the bank is so low that we didn't feel like we could open the fishery without having to close it within the same day, and have the potential for going over. But I wanted to see if we had any updates from NOAA on the potential for a transfer on the Canadian weir fishery. I see Alli Murphy with her hand up.

CHAIR PATTERSON: Go ahead, Alli.

MS. ALLISON MURPHY: Thanks, Madam Chair. We're still in the process of finalizing the information, but we do anticipate having an in-season adjustment published fairly soon, based on the information we have now, so keep your eyes open for that.

CHAIR PATTERSON: Thank you, Alli. Is that the full amount or is that partial amount?

MS. KERNS: Alli has her hand up again.

CHAIR PATTERSON: Go ahead, Alli.

MS. MURPHY: I'm just looking at the regulations right now, and they read, "If NMFS determines that the New Brunswick weir fishery lands less than about 3,000 metric tons of herring, NMFS will subtract 1,000 metric tons from the management uncertainty and reallocate that to the Area 1A sub-ACL." My read is that it's an all or nothing thing.

CHAIR PATTERSON: Okay. All right.

MS. KERNS: Based on that I would say that we would perhaps be on the lookout to put together a days-out meeting relatively soon, so just keep that on your radar. Then I'm not sure, Jeff Kaelin had his hand up here, Cheri.

CHAIR PATTERSON: Go ahead, Jeff.

MR. KAELIN: How much is left of the, 1184 is next year, how much is left of the 1A quota? How many tons?

CHAIR PATTERSON: Renee, do you have that information or Alli?

MR. RENEE ZOBEL: This is Renee. Jeff, I'm looking at the quota monitoring site that was updated from NOAA as of the 14th and about 1300 metric tons approximately out of the 1579 for the whole period for this current period. For the previous, what we have minus the thousand was about 180 metric tons remaining before the 92 percent would close it down.

MR. KAELIN: Okay, thank you. I could have looked at that myself, I appreciate that, just in terms of thinking it through. It's a disaster for everybody. I don't think it's down to the 3 has a lottery in it. You know where we don't have ITQs, maybe there is some kind of quota lottery like has been used in scallops in the past that could allow a boat or two of some kind go to take these fish. Thanks for letting me say that. It is a tough situation for everybody, but it's good to have an open forum like this to discuss it. Thanks again.

CHAIR PATTERSON: Thank you. Is there any other business before the Board?

MS. KERNS: I see no additional hands.

CHAIR PATTERSON: All right, could I get a motion to adjourn and a second?

MR. STEPHEN TRAIN: So, moved, Steve Train.

MS. KERNS: And a second from Conor McManus.

CHAIR PATTERSON: I'm sorry, you got a second? I missed that.

MS. KERNS: Yes, from Conor McManus.

**ADJOURNMENT**

CHAIR PATTERSON: Okay, thank you. Thank you, Steve and Conor, so with that the meeting is adjourned, and thank you very much.

(Whereupon the meeting adjourned at 1:15 p.m. on October 18, 2021.)

# Atlantic States Marine Fisheries Commission

## American Lobster Management Board

*August 2, 2022*  
*10:45 a.m. – 12:30 p.m.*  
*Hybrid Meeting*

### Draft Agenda

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

1. Welcome/Call to Order (*J. McNamee*) 10:45 a.m.
2. Board Consent 10:45 a.m.
  - Approval of Agenda
  - Approval of Proceedings from March 2022
3. Public Comment 10:50 a.m.
4. Discuss Implications of Proposed Measures of Draft Addendum XXVII on Increasing Protection of Spawning Stock Biomass of the Gulf of Maine/ Georges Bank Stock (*J. McNamee*) **Possible Action** 11:00 a.m.
5. Update from Work Group on Implementation of Addendum XXIX: *Electronic Vessel Tracking for Federal Permit Holders* (*C. Starks*) 11:45 a.m.
6. Progress Update on Jonah Crab Benchmark Stock Assessment (*J. Kipp*) 12:00 p.m.
7. Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting (Addenda XXI, XXII, and XVI Provisions) (*A. Murphy*) 12:10 p.m.
8. Review and Populate Advisory Panel Membership (T. Berger) **Action** 12:20 p.m.
9. Elect Vice-Chair (*J. McNamee*) **Action** 12:25 p.m.
10. Other Business/Adjourn 12:30 p.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# MEETING OVERVIEW

## American Lobster Management Board

August 2, 2022

10:45 a.m. – 12:30 p.m.

Webinar

Chair: Dr. Jason McNamee (RI) Assumed Chairmanship: 02/22	Technical Committee Chair: Kathleen Reardon (ME)	Law Enforcement Committee Representative: Rob Beal
Vice Chair: VACANT	Advisory Panel Chair: Grant Moore (MA)	Previous Board Meeting: March 31, 2022
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, NEFMC (12 votes)		

### 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from March 31, 2022

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

### 4. Discuss Implications of Proposed Measures of Draft Addendum XXVII on Increasing Protection of Spawning Stock Biomass of the Gulf of Maine/Georges Bank Stock (11:00-11:45 a.m.) Possible Action

#### Background

- Draft Addendum XXVII was initially initiated in 2017 to proactively increase protection of the GOM/GBK stock but stalled due to the prioritization of Atlantic right whale issues. After accepting the 2020 Benchmark Stock Assessment for American lobster, the Board reinitiated work on the draft addendum in February 2021, with a focus on developing a trigger mechanism that would automatically implement management measures to improve protection of the GOM/GBK spawning stock if the trigger is reached.
- The Board approved Draft Addendum XXVII for public comment in January 2022. The Addendum considers modifications to the management program with the goal of increasing protection of the GOM/GBK spawning stock. Two issues are included in the addendum. Issue 1 addresses the standardization of a subset of management measures within LCMAs and across the GOM/GBK stock. Issue 2 considers applying either a trigger mechanism or a predetermined schedule for implementing biological management measures that are expected to provide increased protection to the spawning stock biomass and increase the resiliency of the stock.

- Considering upcoming information on stock condition, the need for additional time for the Lobster Board to better understand current or new right whales rules that could benefit the resiliency of the lobster stock, and the importance of giving the states the opportunity to safely hold in-person scoping meetings with their lobster industry ahead of any Commission public hearing, the ISFMP Policy Board delayed further action on the Draft Addendum. Additionally, Board members have noted concerns regarding the potential implications of the management proposed measures in the Draft Addendum for international trade.

**Presentations**

- Implications of Draft Addendum XXVII for Public Comment by C. Starks

**Board Actions for Consideration at the Meeting**

- Determine next steps for development of Draft Addendum XXVII

**5. Update from Work Group on Implementation of Addendum XXIX: *Electronic Vessel Tracking for Federal Permit Holders* (C. Starks) (11:45 a.m.-12:00 p.m.)**

**Background**

- In March 2022, the Board approved Addendum XXIX to Amendment 3 to the Interstate Fishery Management Plan (FMP) for American Lobster and Addendum IV to the Jonah Crab FMP. The Addenda establish electronic tracking requirements for federally-permitted vessels in the American lobster and Jonah crab fisheries. The addenda address several challenges facing the fishery, including stock assessment limitations, protected species interactions, marine spatial planning efforts, and enforcement in federal waters.
- The Addenda require federally-permitted American lobster and Jonah crab vessels with commercial trap gear area permits for Lobster Conservation Management Areas (LCMAs) 1, 2, 3, 4, 5, and Outer Cape Cod to collect location data via an approved electronic tracking device.
- Since approval of the Addenda, Commission staff formed a Work Group comprised of state and federal partners to develop a request for quotes from vessel tracking device manufacturers.

**Presentations**

- Update on Implementation of Addendum XXIX by C. Starks

**6. Progress Update on Jonah Crab Benchmark Stock Assessment (12:00-12:10p.m.)**

**Background**

- Work on the first Jonah crab benchmark stock assessment was initiated in early 2022.
- A Data Workshop was held virtually on June 13-15, 2022.
- The assessment is scheduled for completion in the fall of 2023.

**Presentations**

- Progress Update on Jonah Crab Benchmark Stock Assessment by J. Kipp.

**7. Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting (Addenda XXI, XXII, and XVI Provisions) (12:10-12:20 p.m.)**

**Background**

- On July 11, 2022, NOAA fisheries released proposed rule [87 FR 41084](#). Based on the Atlantic States Marine Fisheries Commission's recommendations, NOAA Fisheries is proposing to establish individual and aggregate trap caps in Lobster Conservation Management Areas 2 and 3, and institute mandatory coastwide electronic harvester reporting for all Federal lobster vessels. The proposed ownership caps and trap cap reduction measures are intended to reduce fishing exploitation and latent effort in the trap fishery by scaling the fishery to the size of the Southern New England lobster stock. The proposed harvester reporting requirement is intended to improve the spatial resolution of harvester data, and improve and expand the collection of fishery effort data.
- This action is necessary to ensure fishery regulations for the lobster fishery in Federal waters remain compatible with the intent of the Commission's Interstate Fishery Management Plan for American Lobster and consistent with the Atlantic Coastal Fisheries Cooperative Management Act. **(Supplemental Materials)**.

**Presentations**

- Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting by A. Murphy

**Board Actions for Consideration at the Meeting**

- Consider whether the Commission should submit public comment on federal rulemaking

**8. Review and Populate Advisory Panel Membership (12:20-12:25 p.m.) Action**

**Background**

- Massachusetts has submitted two nominations to the Advisory Panel: Eric Lorentzen, a commercial harvester, and Todd Alger, recreational diver. Maine submitted a nomination for Chris Welch, a commercial trap fisherman **(Briefing Materials)**.

**Presentations**

- Nominations by T. Berger

**Board actions for consideration at this meeting**

- Approve Advisory Panel Nominations

**9. Elect Vice-Chair**

**10. Other Business/Adjourn**

## American Lobster and Jonah Crab TC Task List

Activity level: High

Committee Overlap Score: Medium

### Committee Task List

#### *Lobster TC*

- Annual state compliance reports are due August 1
- Fall 2022: Annual data update of lobster abundance indices

#### *Jonah Crab TC*

- Summer 2022: Continue development of benchmark assessment
- Annual state compliance reports are due August 1
- Fall 2022: Development of methods for Jonah crab stock assessment

#### *TC Members*

American Lobster: Kathleen Reardon (ME, TC Chair), Joshua Carloni (NH), Jeff Kipp (ASMFC), Kim McKown (NY), Conor McManus (RI), Chad Power (NJ), Tracy Pugh (MA), Burton Shank (NOAA), Craig Weedon (MD), Somers Smott (VA), Renee St. Amand (CT)

Jonah Crab: Derek Perry (MA, TC Chair), Joshua Carloni (NH), Chad Power (NJ), Jeff Kipp (ASMFC), Conor McManus (RI), Allison Murphy (NOAA), Kathleen Reardon (ME), Chris Scott (NY), Burton Shank (NOAA), Somers Smott (VA), Corinne Truesdale (RI), Craig Weedon (MD)

#### *Jonah Crab Stock Assessment Subcommittee (SAS) Members*

Jonah Crab: Derek Perry (MA, TC Chair), Joshua Carloni (NH), Jeff Kipp (ASMFC), Kathleen Reardon (ME), Burton Shank (NOAA), Corinne Truesdale (RI), Jeremy Collie (URI)

#### *Addendum XXVII PDT Members*

American Lobster: Kathleen Reardon (ME), Joshua Carloni (NH), Robert Glenn (MA), Corinne Truesdale (RI), Allison Murphy (NOAA)

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

**Webinar  
March 31, 2022**

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

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    Review Management Options and Frequently Asked Questions .....3

    Consider Final Approval of American Lobster Addendum XXIX.....8

Adjournment .....30

## INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).
2. **Move to approve Proceedings of February 22, 2022** by consent (Page 1).
3. **Move to approve Option B: Implement electronic tracking requirements for federally-permitted lobster and Jonah crab vessels with commercial trap gear area permits, exempting Federal Area 5 Waiver permits from the vessel tracking requirement In Addendum XXIX. As a part of selecting Option B, have the Board commit to a multi-committee (Tracker subcommittee, Lobster Technical Committee, and Law Enforcement Committee) review of the vessel tracking program after two full years of implementation, including assessing the uses and the utility of the data to date** (Page 14). Motion by Dan McKiernan; second by Cheri Patterson. Motion carried (Page 27).
4. **Move that the Commission request that NOAA publish the final rule on vessel tracking by May 1, 2023, with an implementation date no later than December 15, 2023. States in conjunction with ASMFC staff will work in 2022 to develop an implementation plan, including a standard operating procedure and the request for quotes from vessel tracking companies. The results of this shall be reported back to the Board at a future meeting** (Page 27). Motion by Megan Ware; second by David Borden. Motion carried (Page 29).
5. **Move to approve Addendum XXIX to the Lobster FMP and Addendum IV to the Jonah Crab FMP, as amended today** (Page 29). Motion by Dan McKiernan; second by Cheri Patterson. Motion carried (Page 30).
6. **Move to adjourn** by consent (Page 30).

## ATTENDANCE

### Board Members

Megan Ware, ME, proxy for P. Keliher (AA)	Bill Hyatt, CT (GA)
Stephen Train, ME (GA)	Maureen Davidson, NY, proxy for J. Gilmore (AA)
Sen. Dave Miramant, ME (LA)	Emerson Hasbrouck, NY (GA)
Cherie Patterson, NH (AA)	Joe Cimino, NJ (AA)
Ritchie White, NH (GA)	Peter Clarke, NJ, proxy for T. Fote (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	John Clark, DE (AA)
Dan McKiernan, MA (AA)	Roy Miller, DE (GA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Jason McNamee, RI (AA)	Mike Luisi, MD, Administrative proxy
David Borden, RI (GA)	Pat Geer, VA, Administrative proxy
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Jay Hermsen, NMFS
Colleen Bouffard, CT, proxy for J. Davis (AA)	

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

### Ex-Officio Members

Kathleen Reardon, Technical Committee Chair	Rob Beal, Law Enforcement Representative
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### Staff

Bob Beal	Dustin Colson Leaning
Toni Kerns	Adam Lee
Maya Drzewicki	Mike Rinaldi
Tina Berger	Julie Defilippi Simpson
Emilie Franke	Caitlin Starks
Jeff Kipp	

### Guests

Doug Adamson	Heidi Henninger	Scott Olszewski, RI DEM
Max Appelman, NOAA	Matthew Heyl, NJ DEP	Chad Power, NJ DEP
Pat Augustine, Coram, NY	Jesse Hornstein, NYS	Scott Schaffer, MA DMF
Richard Balouskus, RI DEM	Pat Keliher, ME (AA)	Somers Smott, VMRC
Joan Berko	Chip Lynch, NOAA	Lange Solberg
Fred Bever, Maine Public	Rich Malinowski, NOAA	Renee St. Amand, CT DEEP
Kurt Blanchard, RI DEM	Gregory Mataronas	Brian Thibealt
Gib Brogan, OCEANA	Eric Matzen, NOAA	Andrea Tomlinson
Beth Casoni, MLA	Patrice McCarron, MLA	Kara Villone, NH FGD
Bill Devoe, ME DMR	Conor McManus, RI DEM	Jessica Waller, ME DMR
Marianne Ferguson, NOAA	Nichola Meserve, MA DMF	Anna Webb, MA DMF
Joe Fessenden, ACF	Jeffrey Nichols, ME DMR	Craig Weedon, MD DNR
Erica Fuller, CLF	Adam Nowalsky, Port Republic, NJ	Erin Wilkinson, ME DMR
Sonny Gwin	Conor O'Donnell, NH FGD	Renee Zobel, NH FGD

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The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Thursday, March 31, 2022, and was called to order at 1:00 p.m. by Chair Jason McNamee.

### **CALL TO ORDER**

CHAIR JASON McNAMEE: Welcome everybody to the American Lobster Management Board. We have a pretty focused agenda today, but why don't we jump right to it here. If you recall, we met on this topic. Actually, before I even start, I am going to apologize if my dogs start barking, I may have to mute for a minute and shoo them out of the room.

If I go silent all of a sudden that's probably what's going on, so preemptive apologies. We met on this topic about a month ago, and reviewed some questions, generated a few more questions and a little more work to kind of clean things up a little bit, elucidate things a little bit more, and here we are again to revisit the Tracker Addendum.

### **APPROVAL OF AGENDA**

CHAIR McNAMEE: Let's get to it, and the first thing I will do is ask anyone for any edits, modifications, any changes at all to the agenda. Please raise your hand, so sorry. We will do sort of our normal strategy here of hand raising. After you raise your hand I will lower it for you, just so I can kind of keep track. Anyone interested in making any changes to the agenda, please raise your virtual hand.

Okay, I'm not seeing any hands. Can I have a motion from someone to approve the agenda as submitted? Okay, Cheri Patterson with the motion is there a second? I see Mike Luisi for the second. Are there any objections. Actually, Joe Cimino, I'm going to lower your hand. Are there any objections to the motion to approve the agenda as submitted?

All right, I'm not seeing any hands, so the agenda is approved.

### **APPROVAL OF PROCEEDINGS**

CHAIR McNAMEE: Next, we will move to the proceedings from the last meeting. Those were published in the meeting materials. Does anyone have any edits, modifications, clarifications from the meeting proceedings? Please, raise your hand.

Okay, seeing no hands, can I have a motion to approve the proceedings? Motion by Steve Train, is there a second? Seconded by Cheri Patterson. Are there any objections to approving the proceedings as submitted, please raise your hand? Okay, I'm not seeing any hands, so the meeting minutes area approved. Great, that was quick, thanks everybody.

### **PUBLIC COMMENT**

CHAIR McNAMEE: I want to take now a moment to allow for some public comment if anyone desires. Please keep in mind that this part of the public comment is for anything that is not on the agenda. If you wanted to introduce a new topic for us to take up at a subsequent meeting, now is the time for that. I will absolutely be allowing some public comment during the substance of the meeting, so there will be other opportunities. Anyone from the public wishing to make a comment on something that is not on the agenda, please raise your hand. Give it another minute, okay. Not seeing any hands, oh, I do have a hand, a couple hands. I jumped the gun a little bit. Okay, Brian Thibeault, please go ahead.

MR. BRIAN THIBEAULT: At this point in time your public comment, at this part of the meeting. Does it consist of an in favor or not in favor from the public, and justification for either one of those stances, or will that be later in the meeting?

CHAIR McNAMEE: Yes, thanks, Brian. That will be later, so this is just for items, if there was something that is not on today's agenda that you want the Board to consider. That is what this public comment is for, and then when we're talking about the Addendum itself, we'll have more public comment at that time.

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MR. THIBEAULT: All right, Jason, appreciate that explanation, and carry on we'll be standing by. Thank you.

CHAIR McNAMEE: Okay, thanks, Brian. Next up I have Andrea Tomlinson, go ahead, Andrea.

MS. ANDREA TOMLINSON: Yes, hi, good afternoon, everyone. Andrea Tomlinson; I'm the former manager of New Hampshire Community Seafood, and I just wanted to let the management board know and Atlantic States Marine Fisheries Commission in general know that we are in the process of developing a New England Young Fishermen's Alliance.

We've been working on funding for that for about four years here, headquartered here in the seacoast of New Hampshire. The primary objectives right now are to develop a resourcing and networking organization of young fishermen and women between the ages of 18 and 45, and we've been funded by the USDA/AMS Program for three years, and we have a 3-year annual Deck Hand to Captain training program that we are starting to implement this year.

Six trainees, trained deckhands and sternmen in Southern Maine, New Hampshire and Northern Mass are eligible, and five-years minimum experience as a deck hand is required. I just wanted everyone to know that what I plan to do with this organization, the trainees as well, is to be a catalyst to renewing the interest of industry input in regulatory meetings such as these, Council meetings and where relevant New Hampshire Fish and Game meetings.

I just wanted everyone to be aware that we do have a legitimate organization in the process of being incorporated into a nonprofit, and we really look forward to joining the conversation, and getting young fishermen and women input. I understand from several regulators that there has been a big die-off in industry input and regulatory meetings, and I really look forward

to catalyzing that interest among the young fishing industry.

CHAIR McNAMEE: Andrea, thank you so much, super interesting, really psyched to hear about that. If anyone that is listening has questions, perhaps we could have you leave some contact information with Caitlin Starks at the Commission, and she could connect them with you for information. Does that sound okay?

MS. TOMLINSON: Yes, Caitlin has actually got my e-mail. I did submit a number of questions that I thought would be of concern to the industry. Jason, if you don't mind, if I could just add one more thing. What I'm realizing is there is a lot of obviously malaise amongst veteran fishermen, where they feel as though industry input has not oftentimes been listened to. I feel that this particular issue of requiring EM on federally permitted boats does create, it kind of creates a conundrum.

I just want to synopsise that I think we could all be thinking of, as we start to get more young fishermen input in the industry is, and I'll just ask a question to the management board is, how does the management board plan on justifying and convincing the industry that this EM requirement would actually be a benefit to the management of the industry and not a form of over surveillance, which is obviously a concern amongst the industry in general? I would just like to pose that question, thank you.

CHAIR McNAMEE: Thanks, Andrea, and I'm sure that will come up during our discussion of the bulk of the agenda today, so thanks for that.

MS. TOMLINSON: Appreciate it.

**CONSIDER AMERICAN LOBSTER ADDENDUM XXIX  
ON ELECTRONIC VESSEL TRACKING IN THE FEDERAL  
AMERICAN LOBSTER AND JONAH CRAB FISHERIES**

CHAIR McNAMEE: All right, so I'm not seeing any other hands up, and so I think we can now jump to the main topic today, which is to consider American Lobster Addendum XXIX on Electronic Vessel

Tracking in the Federal American Lobster and Jonah Crab Fisheries. This is for final approval of the Addendum. Caitlin, I'm assuming that you have at least a brief little presentation for us, so I will pass the microphone over to you.

MS. CAITLIN STARKS: As our chair indicated, I'll be presenting quickly on Draft Addendum XXIX to Amendment 3 to the American Lobster Fishery Management Plan and Draft Addendum IV to the Jonah Crab Fishery Management Plan, which I will just be calling Draft Addendum XXIX for the rest of the presentation for simplicity. In this presentation I'm going to cover the background briefly on this action. The objective of the Addendum, review the action timeline, and then go into the details of the proposed options.

Following that I'll go over some responses to some frequently asked questions, and wrap up with the Board action for consideration and next steps. Very briefly, since this has come before the Board a few times before. The Board initiated Draft Addendum XXIX to consider vessel tracking requirements for federally permitted lobster and Jonah crab vessels in August of 2021.

Leading up to initiating the Addendum for a few years, the Board has recognized the need for high resolution spatial and temporal data to characterize effort in the federal lobster and Jonah crab fisheries to address a couple of critical issues that are affecting the fisheries. Specifically, the data are meant to be used to improve the stock assessments for lobster and Jonah crab, to help inform decision making to reduce fishery interaction with protected species, inform discussions related to marine spatial planning for other ocean uses like offshore wind development, and also to improve the efficiency of law enforcement efforts in the offshore area. The Board established this objective for the Addendum, which is to collect high resolution spatial and temporal data, to characterize effort in the federal American lobster and Jonah crab

fisheries for management and enforcement needs.

This is the timeline of the Addendum's development. After it was initiated in August, 2021 the Board approved the Draft Addendum Document for public comment in December of 2021, and then the public comment period was held from December through January, 2022, during which we had six virtual public hearings.

In February, 2022, the Advisory Panel met to review the Addendum options, as well as the public comments, and provide advice to the management board, and then later that month in February, the Board met to review those public comments and Advisory Panel report, and at that February meeting the Board decided to postpone final action, in order to hammer out some more details and answer some questions about what implementing tracking requirements would involve and look like.

#### **REVIEW MANAGEMENT OPTIONS AND FREQUENTLY ASKED QUESTIONS**

MS. STARKS: That leads us to today, where the Board is considering final action on this Addendum. With that, I just want to go back over briefly the proposed management options, of which there are just two. Option A is status quo, or no additional requirement for electronic vessel tracking in the lobster and Jonah crab fisheries, and Option B is to implement electronic vessel tracking requirements for federally permitted lobster and Jonah crab vessels with commercial trap gear area permits.

Option B would require federal lobster and Jonah crab vessels that are issued commercial trap gear area permits to install an approved electronic tracking device, to collect and transmit spatial data, in order to participate in the trap gear fishery, and without an approved electronic tracking device federally permitted vessels would be prohibited from landing lobster or Jonah crab taken with trap gear.

Therefore, federal permit holders would be required to install an approved device before beginning a lobster or Jonah crab fishing trip with

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trap gear. This option specifies that the device would be required to stay onboard the vessel and have power at all times when the vessel is in the water, unless the device is authorized to power down by the principal port state identified on the permit, which would be the state authority for that vessel.

Powering down could be authorized for reasons like the vessel needing to be hauled out for repairs, or if a device failure has been reported to the state authority for a few examples. Lastly, tampering with the tracking device or signal, including any activities that would affect the unit's ability to operate properly would be prohibited.

Option B as written proposes that the tracking requirements would apply to each of the federal permit categories listed in this table. These include all of the commercial trap gear area permits for Areas 1 through 5 and Outer Cape Cod, as well as the commercial trap gear Area 5 Waiver Permit, which allows the Area 5 permit holders to be exempt from more restrictive lobster trap gear specifications, and trap finding requirements, so that they can target black sea bass with un-baited traps. Just as another note, commercial trap gear Area 6 is excluded from the proposed electronic tracking requirements, because Area 6 is in state waters only. To clarify some more. The tracking requirements proposed under Option B would not apply to vessels that only have a state permit. It wouldn't apply to inactive federal permits that have been placed in confirmation of permit history status, and it would not apply to vessels that will not fish any trap gear during the fishing year.

Beyond those requirements, in Option B we also have information on how the program would be implemented, including minimum criteria that devices and vendors must meet, in order to be approved for use in the fishery. Descriptions of the administrative responsibilities and processes that would be needed at the Commission, state and federal

levels, and also how data collected by the tracking devices would be processed, stored and provided to managers.

For the minimum criteria and specifications that must be met by the tracking devices and vendors for approval for use in the fishery, first the devices must collect location data at a rate of one ping per minute, for at least 90 percent of the fishing trip, and this is to allow for the differentiation of fishing activity from transiting, and allow estimation of number of individual trawls by looking at the vessel track.

The data for each ping must include the devices current date and time, it's latitude and longitude, and identifiers for both the device and the vessel. Devices must also meet minimum accuracy and precision requirements, as well as ruggedness specifications that are suitable for the marine environment.

Lastly, device vendors must provide sufficient customer service as described in the Addendum, and must maintain the confidentiality of any personally identifying information, and other protected data in accordance with federal law. The implementation and enforcement of these tracking requirements that are proposed will require some different administrative processes at a few levels, including the Commission, state management agencies and federal levels.

At the Commission level if this Addendum is approved, a work group would be formed that will be responsible for reviewing available technology and approving devices for use in the fishery, and the information that's collected by that work group will be made available to the states and industry, so they can choose appropriate tracking devices from the approved list.

Then at the state level, states will be responsible for certifying that approved devices are installed on all vessels in the applicable permit categories before the vessel goes on a fishing trip, using a standard affidavit. The state responsible for each permit holder again would be determined by the principal

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port location that is declared on that federal permit. GARFO will be providing that information to the states so they can determine which permit holders they are responsible for.

The states would also be responsible for providing support to permit holders, to help them comply with the vessel tracking requirements, and they would be responsible for data validation and compliance monitoring, including contacting permit holders if there are data issues that need to be resolved, like incomplete tracking data or mismatches between vessel trip reports and associated vessel tracks. Then at the federal level GARFO again will be responsible for providing up to date information to the states on ownership of American lobster trap gear area permits, and they will also incorporate the federal lobster EVTR data into their quality assurance program. For data processes, Option B outlines that the tracking data from this program will be housed by ACCSP. Tracking vendors will send the vessel location data to ACCSP and GARFO will send EVTR data, and all of those data must be submitted in accordance with the ACCSP trip locations API specifications.

Then with these data, ACCSP will be able to match vessel traps with trip reports, and as always ACCSP will maintain the data confidentiality in accordance with state and federal laws. As per trip reports, the state and federal agencies will still be responsible for ensuring compliance with data reporting requirements, so GARFO will be responsible for the validation of EVTR data and the state management agencies will be responsible for validation of trip location data.

Then to wrap up, before the Board gets into its discussion today, I just wanted to go through some of the questions that came up during the public hearings and at the last Board meeting, and provide some answers to those. In the meeting materials there is a full FAQ document with more detailed responses and some more

questions that I won't cover here. But I did want to highlight some of the important ones.

There were a lot of questions that came up about how many vessels tested the tracking devices, and what the failure rates of those devices were. Over the course of several projects, about 75 vessels tested cellular tracking devices in Maine, Massachusetts and Rhode Island. During the pilot projects there was only one report of a device that temporarily froze up and stopped working, but that problem resolved itself when the device was powered down and reset.

There were only a few other cases where devices stopped working, but that was because they were not properly hooked up to a power supply. Another question from the state perspective was about how states would be able to certify that vessels required to install tracking devices have done that, and the Addendum does provide information on this on Page 11.

But essentially the process that was recommended by the PDT was that the states would notify the appropriate permit holders of the requirement and the effective date, and would provide them with a standard affidavit, and the permit holders would then be required to return the signed affidavit to the state, to indicate either that they have installed an approved tracking device on their vessel, or that the harvester will not fish with trap gear for the duration of the fishing year.

Then once that affidavit is submitted, the permit holder will be allowed to fish, and when the states get that affidavit, they would then be able to verify that the device is transmitting data, and the state would also be able to send a notification to the harvester, to confirm that the device is functioning and they are getting the spatial data from their device.

The states also wanted to better understand how they would determine if a vessel is not required to have an electronic tracking device. For this purpose, GARFO will be sending the states the up-to-date information on American lobster trap gear

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area permit ownership, and that will allow the states to identify the permit holders that are required to have trackers, and to complete the installation certification process that I just described. If a vessel that is required to have a tracking device or to report American lobster of Jonah crab landings with trap gear, but the state has not received a signed affidavit from that vessel, then the state will be able to identify an inconsistency with the Addendum requirement. ACCSP will also be comparing and matching the trip reports that come in, and the tracking data they receive on a routine basis, and they will generate reports on any non-matched trap and trip reports.

This will also allow the states to see if there are lobster pot trap landings that are not matched with a vessel track, and investigate whether that vessel has certified their tracking device or not. Another question that was raised at the public hearings was about what harvesters would be responsible for if their device were to stop working.

In a situation where the harvester notices that their device isn't working, for example if it has an indicator light, and they notice it's not on, or there is some other way that they see that it's not working. The harvester must then contact their state authority to report the device issue, and each state will establish a standard procedure for harvesters to notify them of device failure, such as a dedicated phone line or text line.

In other cases the state might notify the harvester that they are not receiving data from their tracker, but in either case the harvester would be responsible for working with the device vendor to get their device repaired or replaced, and the states all agree that in the meantime the harvester would be allowed to continue fishing for up to two weeks, but if the tracker had not been repaired or replaced after that two weeks, then the harvester would need specific authorization from the state to land lobster or Jonah crab.

There have also been some questions and concerns about who will have access to vessel tracking data. Similar to other types of fishery and proprietary data, vessel tracking data will be confidential and protected under federal and state laws that prohibit the disclosure of confidential data. These are data that can lead to the identification of individual data contribution.

Only individuals who have been granted confidential access by state or federal agencies will be able to access this data, and this would be restricted to managers, ASMFC staff and law enforcement officials that have signed the relevant nondisclosure agreement and gotten that confidential access.

Then of course it will be possible for harvesters to be given access to their own vessel tracking data. Then to answer the question of how tracking data will be used by law enforcement. These tracking data will not be available to law enforcement in real time, in order to initiate an investigation. This is not going to be a situation where law enforcement will be able to view the current locations of vessels in real time on a map.

But law enforcement will be able to use the data after the fact to support their operations, investigations and prosecution efforts. The last question here that I want to go over is how tracking data would be able to be displayed or presented, while still following the confidentiality laws.

The answer is similar to with other fishery data, any tracking data summary would have to include data from at least three harvesters, three vessels, and three dealers, in order to be publicly displayed. In cases where there are not three of each of those, the data would not be made public. That goes for confidential data records will not be released by the Commission, states or federal agencies in response to information request or a FOIA request. With that, these are the next steps for the Board to consider today. If desired, the Board can consider final action on the Addenda, and if approved today the states could begin their rulemaking processes to implement the requirements of the Addendum.

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The Commission would also move forward with forming the work group that would identify and approve vendors and tracking devices for use in the fishery, and then federal rulemaking would also begin, and the guidance from NOAA that we've received is that they expect to be able to implement the tracking requirements in time for the 2023 fishing year. That is the end of my presentation, and I am happy to take any questions.

CHAIR McNAMEE: Thank you so much, Caitlin. Nice synopsis there. One of the big items that was discussed at the last meeting was funding, and you know what options there might be for funding, you know the acquisition of the trackers and things of that nature. I was wondering if I could go to Bob Beal to potentially make a few comments about that topic.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Just real briefly. As everyone knows, the President signed a budget, I don't know two and a half, three weeks ago, and in that budget, there was 14 million dollars set aside for addressing lobster and whale interaction issues. That 14 million dollars can be used for three categories of work.

The first category is gear modification and marking, in response to the take reduction rules for North Atlantic right whales. The second category is what we're talking about today, which is electronic tracking. The third category is additional research to inform future take reduction plan decisions, so that is ropeless work, or something that may be of value as we move forward, and the Take Reduction Team and NOAA Fisheries address additional reductions that are needed for Atlantic right whales.

Of those three categories we've had some initial conversations with administrative commissioners and NOAA representatives, and the group clearly intends to set aside a portion of those 14 million dollars for electronic

tracking devices. The current goal is to purchase all the devices that are needed, and provide the first two years of service subscription, you know purchasing the subscription service for those trackers.

To be really blunt and direct. Congress has provided money that should support this initiative, and limit any expenses to the fishing industry. A pretty short answer, but happy to answer any questions, and I can fill out more details that people have. The bottom line is we are fortunate, and able to get money into this year's budget cycle. It looks like we can cover the expenses associated with this action.

CHAIR McNAMEE: Okay, thank you so much for that, Bob, super important and appreciate the info there. Here we are. Here is what I would like to do is I'm going to start with clarifying questions from the Board. Then once we get through, and I'm going to be really strict about just questions. If people start drifting over into comments, even though it goes against every fiber of my being, I will interject. I want to keep this moving along. I definitely don't want to go over an hour overtime like we did last time. We're going to get some questions answered, and then what I would like to do after I'm not seeing any more hands for questions is, I would like to get a motion on the board to kind of kick the discussion off.

Once we get the motion, then we'll get into the comment portion for the Board, then take some public comments once the Board comments kind of dry up. Depending on how things are looking, I'm going to ask that there be a time limit on the public comment. There are a lot of people on the call, just about 66 people.

We have two minutes each that puts us over time already. I'm going to start asking people to keep their comments to about two minutes. If we have time I will circle back if anybody didn't get to get all of the comments they wanted to make out. But I just want to be really clear up front I want to be fair, and allow everybody a chance.

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Please start thinking about how to be concise and direct with your comments, so that we can give you a chance to speak, but not go way over our allotted time here. Okay, so with that let's start off with questions to either Bob or Caitlin from the Board, and I see Mike Luisi. Go ahead, Mike.

### **CONSIDER FINAL APPROVAL OF AMERICAN LOBSTER ADDENDUM XXIX**

MR MICHAEL LUISI: Yes, thank you, Mr. Chairman. My question is kind of in line with the question that you asked of Bob already. You know I certainly support the tracking initiative. I think the data will be incredibly useful down the road in the future. But I come from a state in Maryland, where we have a very limited number of individuals who are participating in this fishery, and the administrative side burden that accompanies this type of system moving forward, is something that I need to certainly consider.

Along the same lines that you already mentioned, and maybe this is a question for Bob. You know we met as a group of administrative folks from the states, and there was talk about maybe hiring someone, or having someone, whether it's at ASMFC or within one of the states that could assist with some of the administrative burden of implementation of this type of system.

I just wanted to get some feedback as to what's been discussed since that call, whether or not that is still in play, because it makes a difference for a state like Maryland, as to whether or not we can support this initiative moving forward, given the burden that it would put on our staff, with such a small number of individuals, and just lumping one more thing on top of a group of people that are already maxed out. Maybe that's a question for Bob.

CHAIR McNAMEE: Yes, thanks, Mike. Bob, maybe I'll give you first crack at it if you want.

EXECUTIVE DIRECTOR BEAL: Yes, happy to respond, Jay, if you would like me to. Yes, Mike, thanks for the question. I probably should have said this in my opening comments a moment ago. The short answer is yes, the idea of administrative support, especially through the smaller states, is still in play. A couple thoughts, one is defining smaller state. What states would need assistance that only have a handful of permit holders at the most, and both scenarios that you talked about, Mike, are still being discussed. One is hiring someone here at the Commission or a contractor, or something along those lines to help out those states, generally in the southern range of the species, or hiring someone within a state, and have that person help neighboring states out up and down the coast with the administrative burden. The reality is, with something like this there is usually a pull for the administrative burden early on, to get everyone set up and make sure the data is flowing correctly.

You know, just make sure that the devices are installed, and all the other pieces associated with getting this up and running. That's kind of a pulse of activity at the beginning. Then we kind of go into what I call care and feeding mode, and we'll have to see kind of what the administrative burden of that part of it will be.

But I think the idea is to find someone, either in the Commission or in a state for a couple years, most likely, to help out the states, and make sure everybody is up and running, because I think the burden will drop off pretty significantly, once everybody is kind of used to this, should the Board approve it, and we can go from there. But definitely still a viable option for consideration.

MR. LUISI: Yes, I appreciate that, Bob, and just a quick follow up, Mr. Chairman. Bob, so the funding for that would come from these 14 million dollars, and then once that's exhausted, we would have to come up with a new strategy at some point?

EXECUTIVE DIRECTOR BEAL: Yes, exactly. These 14 million dollars will come to ASMFC, or at least a portion of it will, through a five-year cooperative agreement, most likely. We'll be able to spend that

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money over a five-year period. I'm not saying that money will last necessarily that long.

But it's not short-term money that we'll have to burn through in one fiscal year, or anything like that. If the states all agree and it works with NOAA Fisheries, we can spread that money out over a couple few years to help out the states with all the different categories that I mentioned earlier on.

MR. LUISI: Yes, okay, that's excellent and it helps me a lot in deciding whether or not to support the initiative, so thank you very much, Bob. Thanks, Mr. Chairman, I'm done.

CHAIR McNAMEE: Good discussion, thanks for that. Next up I have Ritchie White. Go ahead, Ritchie.

MR. G. RITCHIE WHITE: A question for Bob. As far as timing on receiving these funds, what's that look like? What would the process be for deciding that Atlantic states would be buying all the units for all the fishermen with two years of service? How is that decided, and what would that process be, and how long would that take? This feels like we keep getting more unanswered questions or difficult questions to rush this through, so I'm starting to have some concerns. But anyway, if you could take a shot at those, Bob.

CHAIR McNAMEE: Bob, would you like to respond.

EXECUTIVE DIRECTOR BEAL: Yes, thank you. A couple questions in there, Ritchie. One is the timeline. To preface all my answers here, we're still working through these details. The budget was just approved a couple weeks ago. We really haven't formalized a lot of these conversations, so we're working through this kind of real time here.

The likely beginning of a cooperative agreement would be July 1. That would be when we can start actually spending money and moving

money to the states, if that is what the group decides to do. This will be kind of a group decision among everybody on this call, focusing on the administrative commissioners, because they have to be the ones moving money, and doing that sort of thing in state, but the collective agreement on how to use this money to get the most bang for the buck out of these dollars.

Most likely between now and July 1st, I think there would be a fair amount of work to do to come up with the agreement, and decide on some of the questions that you followed up with, Ritchie, such as. If the money comes to ASMFC, then what? Does ASMFC purchase all these actual units, or does the money get distributed out to the states proportionately, based on the number of active federal permit holders that they have?

Then the states are involved with purchasing the units, and it may not be one-size-fits-all. Maybe Maine, for example, since they're purchasing the most, would want money moved to them and they handle it, or not. You know I think it may be something different. A lot of those details still need to be worked out, but we can work on them.

Deciding who actually purchases a unit, I think is relatively easy. Deciding what unit are purchased, and what vendors are appropriate to provide the units to either the states or ASMFC then on to the harvesters. You know those are going to take a little bit longer. But I think we can figure it out by July 1st pretty easily, we just have to get some meetings together, and start talking about it. We just haven't had the money long enough to make a lot of decisions yet.

CHAIR McNAMEE: Thanks, Bob. Ritchie, with the response.

MR. WHITE: No, that's fine. Thank you, Bob.

CHAIR McNAMEE: Next up I have Steve Train. Go ahead, Steve.

MR. STEPHEN TRAIN: I don't know if this question is for Caitlin or Bob. Unlike Mike, we've got plenty of

lobster boats up here, and it's a huge part of the state. I've been talking to as many as I could since our last meeting. I'm not finding a lot of support for this at all. The biggest problems aren't putting the device aboard, it's what it is encompassing.

You know we use our boats to come and go from our islands. We use it to go grocery shopping. We use them to go visit friends down the coast, and this whole "Big Brother" concept when we're not fishing is bothering people. When we use them in state waters, now we're under another set of rules that the guys that don't have a federal permit aren't under. My question would be, is it possible to have this device only activate at the three-mile line, or only activate when the hydraulics are engaged and we're hauling? The law enforcement stated that it's important to know when the vessel is hauling and when it's not that would help. Well that certainly helps, because it would come on when it's hauling. But I can't get anyone to say yes, we need this, and I've had it aboard for two years. I'm one of the test boats. But I'm not getting a lot of support. Bob, is there any way or Caitlin, that we can get that to work there instead? It's not what we have in the Addendum.

CHAIR McNAMEE: I'll check in with Caitlin first, because this discussion has come up. Caitlin, did you want to respond to that first?

MS. STARKS: Sure, I can try, and then I may ask for backup. But my understanding is that because the Addendum did not go out to public comment with that concept, that at this point in time it would be difficult to change it so that it would only be activated at the three-mile line, or when the vessel is hauling.

MS. TONI KERNS: Jason, can I just go to a backup question as well? I'm not sure the devices are capable of, all of the devices we tested I am 99 percent sure are not capable of those types of triggers. Some of them may be,

but I would ask Bill DeVoe that question that they would even be able to do that.

CHAIR McNAMEE: I don't see Bill, but Bill, if you're out there and want to unmute and speak to that, please feel free.

MR. WILLIAM DeVOE: Yes, thanks, this is Bill. Yes, Toni, I think you summed that up pretty well that we would really be limiting our device pool if we made that a stipulation that there had to be a hauler sensor, which is something that we haven't even tested with these devices at present.

Additionally, putting the technical burden of figuring out when it's outside the three nautical mile line, which you know from a technical perspective could be quite complex, because the three nautical mile line is not exactly a simple line or elsewhere. Yes, I mean I'm not going to say that it couldn't be done, but you are really suggesting a total reworking of the entire Addendum thus far.

CHAIR McNAMEE: Steve, okay with the response?

MR. TRAIN: Yes, I'm okay with the response, as far as the equipment isn't available, but what if the power source was required to be turned on? Is it just not going to work like that? You have a separate switch on it, you hit it when you hit the three-mile line, you had to have it on when you're hauling. It seems like it would solve a lot of the complaints, and if you didn't have it on when you're hauling, you're obviously in violation. But if it can't be done because it's not in there already, it's a moot question.

CHAIR McNAMEE: Okay, I think I'll let that hang for now, Steve, and looking for any other hands with questions from the Board. John Clark, go ahead.

MR. JOHN CLARK: If I missed it, I'm sorry. I didn't catch whether LCMA 5 Waiver Permits were going to be exempt from this, and also if there was any follow up from GARFO as to whether LCMA 5 might qualify for de minimis for this. Not saying that we pursue that, I was just curious as to whether a decision had been made on that.

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CHAIR McNAMEE: Caitlin, do you want to respond to that one?

MS. STARKS: Sure, right now as we're in the permit categories that are included do include the Area 5 Waiver Permit, so it would be the Board's decision of whether to change that or not. I think because we took it out for public comment it could be removed, so I think that the Area 5 Waiver Permit category could be excluded, as you indicated. I would like to hear from GARFO, I guess on the entirety of Area 5, but we did take it out for public comment, so that we were looking at the broadest range and it could be narrowed if needed.

CHAIR McNAMEE: Anyone from GARFO wishing to jump into the fray here? Jay Hermsen, go ahead.

MR. JAY HERMSEN: On that, a decision has not been made at GARFO as to whether or not Area 5 would be given de minimis status.

MS. KERNS: Mr. Chair, I did talk to Mike Pentony yesterday afternoon about de minimis status in general, which is different than exempting an entire area. The likelihood of GARFO approving de minimis status for states would be highly unlikely. Obviously, it could go through rulemaking, comments could be made. But due to some of the National Standard 4 rules about treating individuals the same way, the likelihood of de minimis is very low of moving forward.

MR. CLARK: Hey Toni, I just wanted to follow up on that. Mike said last week that de minimis for a region, such as a LCMA would be different than de minimis for states, and that's the reason that they might be able to consider it. Once again, I am not saying we're pursuing it, it would just be interesting for the future also, to know whether an LCMA could get de minimis rather than states. I understand the states cannot get de minis.

MS. KERNS: John, I guess I was thrown by the terminology, I apologize. There is the possibility of just not approving the Addendum for a permit category, so it would just be not included. But otherwise, de minimis would be a no go.

CHAIR McNAMEE: Are you okay with that, John?

MR. CLARK: Yes, fine, thanks. I just, like I said, just wanted to get some clarification on it. Thank you.

CHAIR McNAMEE: Next up I have Roy Miller, go ahead, Roy.

MR. ROY W. MILLER: I was wondering if I could probe just a little more on the question that John Clark raised, with regard to Area 5 Waiver fisheries such as sea bass potters and that kind of thing. Are we going to reach some sort of decision whether they are in or whether they're out, concerning this particular Addendum requirements prior to someone putting up a motion, or is it your intention, Mr. Chair that we would look to someone making a motion or someone modifying a motion on the board to include a possible waiver for the LCMA Area 5 Waiver Permit holders?

CHAIR McNAMEE: I was anticipating getting a motion, which may or may not have something like that in it, and if it didn't that there would be an ability to modify potentially, to allow it. I thought it made sense to try to get a motion from which to work from. That was my intent there.

MR. MILLER: Okay, thanks, Mr. Chair.

CHAIR McNAMEE: Next up I had Dennis Abbott. Go ahead, Dennis.

MR. DENNIS ABBOTT: A question for Bob. He mentioned ASMFC being responsible for procuring trackers. What would be the contractual problems in selecting a sole source for trackers for all the states, and how would you determine which way to go, cheapest, best, you know there are a lot of factors that would go into awarding a contract in some manner? Again, we still continue to have questions raised and questions raised, which makes

it difficult for me to consider supporting this measure at this time.

CHAIR McNAMEE: Bob, did you want to respond?

EXECUTIVE DIRECTOR BEAL: Yes, I'll chime in, Mr. Chair, if that's all right. Yes, you know Dennis, the decision that ASMFC will purchase all of the trackers hasn't been made yet. You know both options of states getting the money and states working with their industry to buy trackers, and/or ASMFC buying the trackers. Both of those options are still in play and can be discussed.

One of the steps that's outlined in the FAQs is you know if the Board does approve this today, we would send out a request for information from companies that develop the trackers and have them describe a series of features of their trackers, including price and other things, that we better understand which company trackers, what they're all capable of, what the cost associated with them is.

Then I think, so it really wouldn't be a sole source decision, it would be based on a number of characteristics the decision would be made which trackers to purchase. It doesn't have to be a one-size-fits all, if State A liked trackers from one company, and State B liked trackers from another company that's fine.

Or if State A wanted to pick all trackers from one company, and State B wanted to give their harvesters a list of three different trackers and they could purchase any of them and get reimbursed, that's fine too. It doesn't have to be this one-size-fits all for everybody. You know there are certain characteristics of data streams and reliability and other things that we need to be assured of, but there likely will be multiple options for trackers that can be put on different boats. I hope that helps, Dennis.

CHAIR McNAMEE: Is that good, Dennis? Was that an adequate response to your question?

MR. ABBOTT: Yes, thank you, Mr. Chair, I thought I indicated yes.

CHAIR McNAMEE: All right, next up I have Joe Cimino. Go ahead, Joe.

MR. JOE CIMINIO: I hate to belabor the Area 5 Waiver. I guess my question would be, if they were included would they be eligible to be funded or reimbursed, since the money was for the lobster fishery, and we're talking about sea bass potters.

CHAIR McNAMEE: Caitlin, do you want to take a crack at that, or Toni or Bob if you're the better person to respond please just jump in.

MS. STARKS: I will defer to Bob or Toni.

MS. KERNS: Bob, you can go ahead. I mean it's highly likely that all pot fisheries will have to make changes to their regulations due to whale regulations. As everybody knows, the Mid-Atlantic gillnet fishery and the pot trap fisheries are undergoing the Take Reduction Team process right now. I don't know if it's specific to just the New England fisheries or not.

EXECUTIVE DIRECTOR BEAL: Is it okay if I chime in, Mr. Chair?

CHAIR McNAMEE: Yes, please, Bob, thank you.

EXECUTIVE DIRECTOR BEAL: I think the short answer is yes, those fisheries would be eligible for reimbursement for trackers expenses. You know the intent here, there is a lot of language in the Congressional budget about lobsters and Jonah crab, but overall, I think the intent is to better understand pot and trap fisheries that have the ability to catch lobster.

Some of these other Area 5 permit holders that had the waiver do catch lobsters. I don't see a problem with it. It's only a very small number of individuals, most likely, that would fall into that category, so my immediate answer would be yes, I think we can accommodate those permit holders as well.

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CHAIR McNAMEE: We're still on questions, we are getting towards two o'clock, but I've got another question here from Dan McKiernan. Dan, go ahead.

MR. DANIEL MCKIERNAN: I guess this is a question for Bob, just to clarify the response we gave to Dennis. Wouldn't it be a viable option for a state to take the list of approved vendors that will be produced by the Commission's subcommittee, and simply reimburse all participating vessels for say a common amount.

That if we were to study the cost for all of those in combination, and let's say you average them out and it comes to \$1,200.00. We could grant each applicant, eligible participant a grant, so to speak of \$1,200.00, and then they could go forward and purchase it on their own. Isn't that a viable option?

CHAIR McNAMEE: Bob, if you would like to respond, please do.

EXECUTIVE DIRECTOR BEAL: Yes, thanks. Yes, short answer is yes, Dan. If that's how a state chose to do it moving forward, taking the average cost, and reimbursing that amount to each of their active federal permit holders, that is a viable option, yes.

CHAIR McNAMEE: Dennis Abbott, I see your hand back up. Go ahead.

MR. ABBOTT: I forgot to get one other question in. A question for the federal agency. Where trackers are used in other fisheries, have they ever allowed trackers to be shut off at any time?

CHAIR McNAMEE: Go ahead, Jay, thank you.

MR. HERMSEN: In vessel monitoring they do allow power down if the vessel is out of commission, out of a fishery for an extended period. But with vessel monitoring it seems to be an active process. The unit is passively monitored, but a vessel does declare, makes declaration, or if they're declaring out of the

fishery for transiting between ports or something like that. There is an active element to it.

MR. ABBOTT: Follow up.

CHAIR McNAMEE: Yes, go ahead, Dennis.

MR. ABBOTT: Wouldn't it be possible that in the lobster fishery that we could allow such a situation to arise where a lobsterman could choose to have his tracker turned off?

MS. KERNS: Mr. Chair, if I could jump in. The vessel monitoring devices are very different than the cellular trackers. In some cases, the cellular tracker doesn't even have a power on/power off switch, Dennis. As Jay said, there is often a call-in requirement for VMS devices. Those devices are also connected to satellites, so they are constantly being monitored, whereas boats are not being monitored using the cellular trackers in a real time basis.

Like for VMS devices, if you go into a closed area enforcement is alerted, and then enforcement can alert the vessel; hey, you've gone into an area you're not supposed to be in. The devices work very differently. In some cases, you wouldn't be able to turn off your device, unless you disconnected the power system.

CHAIR McNAMEE: Okay, Dennis?

MR. ABBOTT: I guess I'll have to live with that, but it seems like a tracker could be designed with an off/on switch. It seems like they are just not trusting.

CHAIR McNAMEE: Senator Miramant, go ahead.

SENATOR DAVID MIRAMANT: Senator Miramant here, yes, unless the device is self-powered and required to be maintained and charged, it seems that just having a power on/off switch when it is wired into the boat would take care of that. Maybe a good option for private use. If they are not built with an on/off switch, you can certainly get around

that by having a power connection that is switchable.

CHAIR McNAMEE: any response, Toni or Caitlin to that?

MS. KERNS: I would defer to Bill, who is more familiar with a wider range of the devices. Like I said, I think some of the devices have on/off switches and other don't hat we tested.

CHAIR McNAMEE: Got you, Bill, do you want to jump in?

MR. DeVOE: Yes, I'm not sure that any of the devices that we tested had an on/off switch, per say. But certainly, if they lost power after a period of time they would no longer communicate. The challenge is that in doing that is that most of the devices that we tested have an internal back up battery that lasts anywhere from, depending on the device, a couple of days up to a year.

CHAIR McNAMEE: Okay, I'm not seeing any more hands for questions at this time, so as I requested, what I would like to do now is see if anybody on the Board would like to get us started with a motion, and I've got a hand raised by Dan McKiernan. Go ahead, Dan.

MR. McKIERNAN: I do have a motion, and I did submit it to Caitlin prior to the meeting, if she could put it up.

CHAIR McNAMEE: Can you see it yet, Dan?

MR. McKIERNAN: I do, yes. **My motion is to approve Option B, to implement electronic tracking requirements for federally permitted lobster and Jonah crab vessels, with commercial trap gear area permits, exempting Federal Area 5 Waiver Permits from the vessel tracking requirement in Addendum XXIX.**

**As a part of selecting Option B, have the Board commit to a multi committee that is a combination of the Tracker Subcommittee, The**

**Lobster Technical Committee, and the Law Enforcement Committee, to review of the vessel tracking program after two full years of implementation, including assessing the uses of the data to date. If I get a second, I would love to speak to it.**

CHAIR McNAMEE: Okay, thank you, Dan, is there a second? Cheri Patterson, are you seconding the motion?

MS. CHERI PATTERSON: Yes, for the sake of starting off the conversation I'll be seconding the motion, thank you.

CHAIR McNAMEE: Okay, we've got a motion, it's been seconded. I will come back to the maker of the motion to give us some more comment on the motion. Go ahead, Dan, whenever you're ready.

MR. McKIERNAN: I just want to please or urge with my fellow Commissioners how important this is, and I want to speak to experiences that I've had, as a state official over the last decade. We pointed out a number of really difficult issues that have faced the lobster fishery. We have a Monument on southern Georges Bank and the Sea Mounts.

We almost had a Monument enacted on Cashes Ledge. We have wind development that is coming to the Gulf of Maine, no doubt in federal waters. We have a Large Whale Take Reduction Plan that is very clumsy, and is always begging for more accurate data. We have aquaculture siting challenges, including a proposed steelhead farm just south of the Isle of Shoals being considered.

I can't tell you how many times I've been in meetings where I've pleaded with everyone in the room that they can't go away from whatever datasets have been collected, and think they know anything about the lobster trap fishery, because the data collection is so poor. This is an opportunity to improve that on behalf of the lobster fishery.

I personally take it very seriously the sustainability of this fishery, and the frustration that I and others, including elected officials have felt about defending

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the lobster fishery, and explaining its footprint, has been among the most challenging issues for me professionally. I've been in meetings with coastal zone management, our state department of energy.

I've been at meeting with BOEM, urging them to pump the breaks on any conclusions about this lobster fishery, until we get better data. I really want to credit the pilot study that was done by Bill DeVoe and his colleagues, and some of my staff at DMF, for finding an inexpensive alternative to VMS, to allow this to happen.

Also, the thing that strikes me is, we have developed this lobster fishery into a multi, or a very, we emphasize participation in this lobster fishery. We don't have fleets, managed fleets, we don't have corporate fleets, except for some in the offshore Area 3, I will grant that. But by and large, this fishery is made up of a bunch of very small operations, and it's really hard to bring the necessary clout to the table, when you don't have corporate fleets.

Fishermen don't have a lot of time; they don't have sometimes sufficient resources to attend meetings. This is going to allow state officials like myself and others, to really do what I think is needed for the lobster fishery, which is to defend the turf of the lobster fishery, and make sure that it doesn't get rolled by all the things I just mentioned, Monuments, wind development, the Large Whale Plan and aquaculture. This is really, really critical, and I urge my fellow Commissioners to approve this.

CHAIR McNAMEE: I will now go to the seconder of the motion. Cheri, do you wish to offer any comment before I go out to the rest of the Board?

MS. PATTERSON: No, I don't necessarily. I do understand Dan's thoughts on having to defend the lobster fishing industry's footprint in federal waters, and it's becoming more and more difficult for me also, both in the arena of the

Atlantic Large Whale Take Reduction Plan as well as our future offshore wind issues. But also, I think that there needs to be some thought from the industry perspective. When they come to us and ask us about when rules are coming down, why is there no way for enforcement to occur in federal waters. Well, if there is no way for the enforcement to be able to determine where the fishing activity is occurring in a large portion of these offshore waters.

Then I'm not quite sure how we can address their concerns about enforcement out there, without some sort of manner to find where the fishing activity is occurring. Our future will be looking at offshore enforcement more closely, as we are able to obtain the machinery or the vessels or such to be able to get out there. I think that this is a way of also being able to stay ahead of that particular action also.

CHAIR McNAMEE: Okay, now I will go out to the rest of the Board. Please, raise your hand if you would like to make comment on the motion. I've got some hands raised; I'll go first to David Borden. Go ahead, David.

MR. DAVID V. BORDEN: I just want to make a couple of quick comments on the issue of the Area 5 Waiver, I support that in the motion. But I would ask my Mid-Atlantic colleagues to reflect on the fact that if the government is going to pay for this activity, the installation of the units, it may be real positive elements of that that could apply to the Area 5 fishermen.

In other words, those fishermen are still trying to deal with wind development and a whole host of other issues, where some decent spatial and temporal information would be really useful. Then the second comment I would make is on the review. I think that it's critical if we're going to approve this to include a review.

Kind of this language parrots to some extent a comment that I think Brian Thibeault from Point Judith made during one of the public hearings, that there should be a review of it after a couple of

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years, to make sure it's being properly used for the intended purposes. The final point I would make is on the issue of enforcement.

One of the reasons that the Board go engaged in this entire exercise is because the Enforcement Committee over the past eight years has had numerous discussions about the need to improve offshore enforcement, and that has involved new vessels and the like. But one of the chief problems that they identified was the lack of good information on where the gear was set.

I think if you go back in the record, it was a unanimous agreement of the enforcement piece up and down the coast, that they thought that federal waters enforcement could be significantly improved if in fact there were tracking units on the vessel. Thank you.

CHAIR McNAMEE: Next up I have Ritchie White. Go ahead, Ritchie.

MR. WHITE: First, a question to the maker of the motion, and then a comment if I may. There is not an implementation date attached to this, Dan, and I wondered whether that is something that should be part of this. I know it may make a difference in my decision whether to support this or not. That would be the question, and then after the answer if I could make a couple of comments, thank you.

CHAIR McNAMEE: Dan, do you wish to respond?

MR. MCKIERNAN: Yes, thanks for that. I thought that there could be a second motion, but if you would like we could try to incorporate it into the main motion. All I can say is that the way I see this transpiring is we would approve this, and we would then ask National Marine Fisheries Service to begin their rulemaking. We were going to give the National Marine Fisheries Service the time that they needed to complete their rulemaking.

We were hoping that it could be done by May 1 of 2023. In my conversations with some of my fellow state directors and commissioners, there was a desire to then complete their state rulemaking on or about the same time or after, so that a state rule doesn't become incompatible with the federal rule. It was expected, and this was going to be in a second motion, Ritchie, to have this all implemented by the end of '23 by the individual states.

MR. WHITE: Okay, thank you, Dan. I guess my concern is that I'm certainly in favor of collecting this data; I think it's absolutely necessary. But I do have concerns about the unanswered questions, so the timing for me is important, because I would like to get answers. We were in a rush to meet this May 1st deadline to give the Feds a year, so May 1, 2023.

We got the answers to the questions last week, and we met with our fishermen Monday night. If now we are saying end of next year, then that would mean that we're not in a rush now, and if the Service takes a year, we could take another couple of months and delay this decision, and then get answers such as, how much money will be coming in, how are we going to use it. What is the impact to the fishermen from a financial standpoint?

I would think that we also should know from the industry that's going to produce this technology, and have something a little more definite than what we've received. I think that would help in all these decisions. I'm struggling with approving this now without more additional information. I'm going to want to hear more input as to the timing of this, and is it critical for us to pass this today, or can we wait and get more information?

CHAIR McNAMEE: On the timing, I would like to pass it over to Toni Kerns, if you would wish to speak to that.

MS. KERNS: Ritchie, I did talk with GARFO staff about timing several times, and Alli indicated to us that for NOAA to move forward they would need the Commission to pass the Addendum. In terms of this timing, it is essential to move forward today on

this, if that is the will of the Board, in order for them to get rulemaking done by next May.

CHAIR McNAMEE: I've got a stack of hands here. Ritchie, a quick follow up if you want, and then I've got a lot of other folks that want to speak.

MR. WHITE: Well, if there is going to be a motion to have implementation at the end of next year, then having this approved by the Feds the first of May would not be necessary, I guess. That's what I want to kind of understand. If we took another couple of months, and then approved it, and then the Feds took another couple of months, so it didn't get through their approval process until the first of July or something, then we still have plenty of time for the end of the year implementation.

MS. KERNS: I believe from what Alli had said on the call we did last time we are pushing the limits. Even waiting until now we were pushing the limits to get rulemaking completed by May. I'll let some of the states speak to their timing, but I do believe that some of the states need the federal rulemaking to occur before they can do their own state rulemaking. I don't know how much they need that federal rulemaking ahead of time or not.

CHAIR McNAMEE: It sounds like we have a motion in front of us. There is potentially a plan to follow up with a motion on the timing. Let's get a few more comments in here and see if we still like that plan, or we want to do something different. I apologize. I think I lost track of the order here, so I'm just going to go down my list. Sorry if you have had your hand up for a while. But first person I see is Megan Ware. Go ahead, Megan.

MS. MEGAN WARE: I'm going to speak in support of this motion today, and kind of align a lot of my comments with what Dan said earlier. But I think it's really clear that the lack of high-resolution spatial data is becoming a handicap

to this fishery, in terms of conversations that are going to shape the future of this industry.

I think a really relevant and timely example of that are the ongoing Take Reduction Team discussions. Obviously, the New England states have been through Round 1 of that, and in the absence of tracking data the result we got was measures which are very broadly applied, and very large closures, including almost a thousand square mile closure in the offshore Gulf of Maine.

We know that more phases of action are coming, both in the New England region, as well as the Mid-Atlantic, and we saw just this week updated decision support tool model runs which are showing where remaining risk is along this coast. I'm very confident that if our underlying data on this fishery does not change, that we're going to have the same result moving forward, which means more large closures and also importantly, an inability to assess the economic impact of those closures.

I just don't see that as a winning combination for this industry. I do want to be clear that I don't think tracking data is going to prevent these closures, but it does give us the ability to refine them, and anything that we can do to be more targeted in our measures moving forward, I think is a benefit to this industry as a whole.

I also want to note that the need for this data is not new. We've just gotten to a point where that need is becoming more and more prominent. We've had topics such as the Monument discussion or the Council TC Coral Amendment, which all required fine spatial resolution data, which we did not have.

Quite frankly, we got lucky in those discussions, particularly that the Council accepted the limited economic data we had. I think it would be naïve to think that those conversations are not going to come up again, and that this industry is going to find itself in a similar predicament. In terms of the implementation deadline and timeline, to Ritchie's question. I'm fully prepared to make a motion on that should this first motion pass, with an implementation date of December 15th. I think

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Ritchie, to your point, that that may provide additional time for our conversation. I actually think that that time is going to go very quickly.

There are things that NOAA is going to need for their rulemaking, including the Standard Operating Procedures, and potentially the list of tracking devices will then need the NOAA Rule, and then that can precipitate the state-only gang, and each of those processes is going to take a couple of months. I actually think that we don't have a ton of time to make this decision. I think it would be wise to make that decision today.

CHAIR McNAMEE: Next up I have Maureen Davidson. Go ahead, Maureen. Maureen, we're not hearing you if you are speaking, and I am noticing that your little phone icon has gone gray. I don't know what that means.

MS. KERNS: Jay, then it might be good to go to someone else while she gets here audio pin connected.

CHAIR McNAMEE: Okay, we'll get you fixed up, Maureen, and come back to you. Next up I have Mike Luisi. Go ahead, Mike.

MR. LUISI: Since the motion was made, I've been going back and forth with a few of my colleagues down here off of the Area 5 fishing area. I guess there is a little bit of confusion as to the exemption in this motion, and who it would apply to. I wondered if staff or you perhaps, could clarify exactly who would be required to have a tracker and who would be exempt.

If somebody has an Area 5 Waiver, but also has a lobster permit. There is just some confusion on behalf of the southern states, and I didn't have the answers for folks that were asking me questions, so I thought I would bring it up here for the record, to clarify who would be required and who would not.

CHAIR McNAMEE: Caitlin, do you want to speak to that?

MS. STARKS: Yes, sure, Mr. Chair. In this motion the only permit category that would be excluded is that federal Area 5 Waiver Permit category, and that is the one that allows folks to target black sea bass. I believe to get that federal Area 5 Waiver Permit you have to basically say you are not going to target lobster. If you were to have a different area federal permit, so if you had let's say an Area 5 permit and an Area 3 permit, you would still have to have the tracker, even if that was a federal Area 5 Waiver Permit. I hope that helps clarify.

MR. LUISI: Yes, it does. Thanks, Caitlin. I'm struggling a little bit with the concept that since the government is going to be paying for these trackers, and it seems as if there is going to be funding available on the administrative end. I'm wondering whether or not these Area 5 Waiver Permit holders should fall in line with everyone else. You know even though they are fishing for black sea bass and maybe catching some lobster, I just feel like the data, it's kind of free information that we can access. Not free in the sense that nobody is paying for it, but you know the states aren't going to have to pay for it. I'm struggling a little bit with the idea that there would be a group of individuals who would be exempt here, and I'm thinking that perhaps it might make more sense just to include everyone. By striking this exemption from this motion, I have to give it a little bit more thought, but that is kind of where I'm settling in on right now, thanks.

CHAIR McNAMEE: Maybe I'll offer a thought, and that is, and Caitlin can correct me if I'm off base here. It seems like this motion might maximize the flexibility that you have. I don't think anything would stop one of these folks from getting a tracker if they wanted to. But I don't know if maybe the problem, then becomes with the funding source and eligibility for that. But I don't know if Caitlin, or maybe even Bob has a thought on that. But the concept is this would maximize the flexibility for those folks.

MS. STARKS: I can follow up, Mr. Chair.

CHAIR McNAMEE: Yes, please do.

MS. STARKS: Yes, I think you're correct that this motion would essentially say the folks with the Area 5 Waiver Permit do not have to have a vessel tracker, but they certainly could do that. My understanding is that there is a very small number of folks operating under that Area 5 Waiver Permit as is currently. It is a small group of folks that would be exempt and not have to have the trackers. I'm not sure, to Mike Luisi's point, it is kind of a minimal number that you're talking about here in the grand scheme of all of the other trap gear area permit owners.

MR. LUISI: That's very helpful. Thank you, Caitlin and thanks Jason, I appreciate that.

CHAIR McNAMEE: Next up is Steve Train. Go ahead, Steve.

MR. TRAIN: Maybe you knew this was coming, but I'm going to oppose this, and it's not because I don't understand it at all. I totally get everything Dan said and Megan said about the need. But it seems like all of that could be collected if the device was just effective outside the three-mile line. It doesn't seem that it's necessary to know when islanders are going to the doctors. It doesn't need to be on their boat then, doesn't need to be turned on.

The problem I've got with anything that comes top down that isn't supported by industry, is that it starts to build resentment and animosity. We've got, as Dan said earlier, 4 or 5 thousand small businesses. Most of the management practices we've put in have been bought into and are encouraged. I am not seeing support for this from industry, and as soon as you start to build that animosity, everything else about enforcement gets harder.

CHAIR McNAMEE: Next up I have Eric Reid, go ahead, Eric.

MR. ERIC REID: I agree with Mr. McKiernan and his rationale. It's already been proven that anecdotal information on fishing effort or location, when it comes to mitigation and compensation discussions, just doesn't cut it. They are all coming, we know it's coming. Offshore wind is coming. It's coming all the way down the coast, including in Area 5, or wherever else down the line you want to go, so a free tracker, I would be getting in line for that. But Mr. Train does make, that's a good comment, you know. These devices can start working when you go across the demarcation line. Of course, then it becomes a matter of cost. You know hooking it up to your hydraulics, now you're talking about exponentially higher costs.

It would seem to me that analyzing or figuring out whether or not it could activate when it crossed the demark, or start recording when it crosses the demark is a very reasonable request. I have a question about the motion itself, and I'll ask it to Mr. McKiernan. It says review the vessel tracking program after two full years, and there has been a discussion about implementation date.

Would that be two full fishing years? Does that work any better in this discussion? The last part of that sentence, including assessing the uses of the data. To me you can assess the uses all you want, but if the utility isn't there, what's the point? I would prefer that say, including assessing the uses and utility of the data to date. Those are my comments and thank you, Mr. Chairman.

CHAIR McNAMEE: Dan, do you want to respond to Eric's question?

MR. McKIERNAN: It would be my expectation that if this program kicked off universally by December 31, 2023, that we would be having this review after the 2024 calendar year were completed, the 2025 calendar year, and we would look at it in 2026. I think calendar year is more appropriate.

MR. REID: Okay, what about the uses of the data?

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MR. McKIERNAN: You want more clarification on what each of these groups would be assessing its usefulness?

MR. REID: To me if you said including assessing the uses and utility of the data.

MR. McKIERNAN: I would take that as a friendly amendment.

MR. REID: Yes, okay. We collect a lot of data that we use, and don't know why we use some of it, and I won't mention any MRIP names or anything like that. But I would prefer to have the uses and the utility. Thank you.

MR. McKIERNAN: I meant that, so I would take that as a friendly amendment, if the Chairman would allow that.

CHAIR McNAMEE: Yes, and I think I need to check with the seconder as well. Does that modification sound okay to you, Cheri?

MS. PATTERSON: I'm fine with a friendly, thank you.

CHAIR McNAMEE: I see it appearing magically in front of us there. Thanks for that. It looks like we have Maureen back, so Maureen, go ahead.

MS. MAUREEN DAVIDSON: Thank you! I hit the wrong button and totally lost audio. I just sort of would like to get some reassurance that although LMA 6 is not identified in the motion, it will be exempt, and part of Option B to the Addendum. Is that a correct assumption for me?

CHAIR McNAMEE: Did you want to respond?

MS. STARKS: Me, Mr. Chair? This is Caitlin.

CHAIR McNAMEE: Yes, I thought that was a question to you.

MS. STARKS: Sorry, just clarifying. Yes, Area 6 is exempt from the requirement, and that is written in the Addendum.

CHAIR McNAMEE: Does that sound good, Maureen?

MS. DAVIDSON: Okay, yes, thank you.

CHAIR McNAMEE: Next up I have Roy Miller. Go ahead, Roy.

MR. MILLER: I'm struggling a little bit. I appreciate the maker and seconder of the motion including the federal 5 Waiver. But having said that, I'm thinking about what Mike Luisi has already said. I'm wondering how close we are, and this may be unanswerable, to having all the requirements of the Large Whale Take Reduction Act apply to gear in the Mid-Atlantic area, like gillnets and sea bass pots and so on.

If we're within a year or two of the full extent of those requirements reaching the Mid-Atlantic, then it seems that voluntarily having this tracking information would be useful. Making it strictly voluntary, I can't forget how many, if any, would purchase and install a tracker if they didn't have to. Some may, some probably wouldn't.

I'm struggling a bit as to whether the phrase, exempting Federal 5 Waiver permits should be struck or left in the motion. I could be persuaded either way. I'm wondering if anyone can help with a little more certainty, as to how soon measures like the Large Whale Take Reduction Act, all of those requirements are going to fall on those Mid-Atlantic fisheries that I already mentioned.

CHAIR McNAMEE: Maybe this is one for Toni. Did you want to speak to that question, Toni, at all?

MS. KERNS: Yes, Mr. Chairman, I can speak to it. The Take Reduction Team is meeting in the beginning of May to discuss different measures to address the gillnet and Mid-Atlantic pot trap fisheries. I am not sure what the implementation timeline will be for those types of measures. That is

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rulemaking that NOAA would do, as the TRT comes up with measures for that area. But those discussions of measures will be happening this May.

CHAIR McNAMEE: Hopefully that is helpful, Roy. I'll keep going along here, and if you want to come back at that, please do. But next up I have Senator Miramant. Go ahead, Senator.

SENATOR MIRAMANT: I agree with Dan and others about the part that says we need the data, because we are choosing to defend the industry, because the measures taken so far seem like we have to do something, so we'll do this thing, even though we have no proof that it will save one whale or calf.

I don't like that approach, and I don't think that the industry should be resisting something that might prove that they are not part of the problem, which they know, and we know for the most part. I think they will embrace it. They are slow to embrace anything, so this doesn't surprise me.

However, Steve Train makes a good point that when you use your boat as your family car, you don't need to be tracked, and you don't need law enforcement on you when you're not working. I'm still going to support this motion, but that is where my reservation comes in. But I think we need the data to be able to keep defending the industry.

MS. STARKS: Mr. Chair, if I could follow up.

CHAIR McNAMEE: Sure could, go ahead.

MS. STARKS: I just want to clarify the point. It's been brought up at this meeting and during hearings about data being collected on harvesters when they're not fishing. I do understand the concern, I just want to make it clear that the data would not be accessible unless specifically requested.

From our discussions with the Law Enforcement Committee, it's not my understanding that they would be looking at everyone's data for every second that the trackers are on. When ACCSP gets the track data into their system, and they get the trip reports into their system, they can then look at those data to identify specifically when the fishing activity is occurring, and match that with a trip report, so that it is associated with a fishing trip.

The intent there is to have those data that are relevant to fishing easily accessible for management uses, and law enforcement could access those as well, but not to have all of their data from whenever else their vessel is running for anyone to look at. I do think you know those data would be stored.

They would be in the system if a law enforcement official had a reason to request them specifically, then they could probably get access to those. But it would have to go through the process of all of the nondisclosure agreements and confidentiality rules as well. I just wanted to kind of clarify how that process would work.

CHAIR McNAMEE: I thought maybe I would offer something as well, and that is I think the reason for the really rapid ping rate is, you know I think you can differentiate between when the boat is steaming and when actual fishing is occurring. I'm sure there is some potential there for conflating the two, but I think in general the tracks and the timing of those tracks. I think the data, you can audit it to understand when fishing is occurring and when it's not. There are techniques that can be used to better refine, and like Caitlin said, if it's not relevant anyways, that nobody would be looking at that data. Hopefully that discussion helps a little bit. I am not seeing any more hands from the Board for questions.

I do have at least one very patient hand that has been up here from the public, so I think I would like to transition now to some public comments. Again, before we get to the public comments, I just want to restate that I am going to try and keep these to about two minutes to start. I will come back around

if there is time, but I just ask folks to keep their comments concise at this point. Now is the time for members of the public to offer comment. The first hand I saw was from Brian Thibeault, so Brian, please go ahead.

MR. THIBEAULT: I'll try and get this all out in two minutes. I appreciate your patience. First, I wanted to kind of shift to the financial aspect, which I was happy to hear that that was a threat since the public hearings up and down the coast. But the numbers I hear, potentially with this administration we have 14 million allocated to the fisheries for TRT or whale management, perhaps implementation of this Addendum. I forget what the other scenario was.

When that money gets released and discussed in July, we still don't know how much this particular Addendum might procure from that amount. Quick math I've been doing while listening to the Board. With Mr. McKiernan's \$1,200.00 potential stipend, yes, we know what I meant, I apologize.

The quick math that I did was that comes out to 4.32 million dollars. That would be to put a monitor and unknown amount of cellular activity with that. Jumping to the next quick bit. As far as using this data for ocean management. I think we have sadly overshot that, as far as wind and whale. We needed this database for the industry to have helped us a decade ago.

I'm not sure if working forward from that point will help or hurt us. Having a closed area and watching and participating in what will now, with this data, show up as an intensity spot on an intensity mat. I fear that it could bring closures more abundant, actually, once they see the intensity in areas that are caused by a closed area. Thank you, Mr. Chairman. If there is time, I certainly have another two minutes, and I appreciate your patience.

CHAIR McNAMEE: Thank you, Brian. All right that was great, next up I have Andrea Tomlinson. Go ahead, Andrea.

MS. TOMLINSON: I would just like to echo Mr. Train's sentiment. I can speak certainly for the New Hampshire federally permitted lobster industry. I know that this is not supported by the industry. Speaking with some of the young lobstermen, they are very confused whether EM also means VMS. That was one of the questions I directed towards Caitlin as well.

A lot of the younger fishermen are confused with whether the EM is also comparable with the vessel monitoring system, and you know just to reiterate the sentiment of the young fishermen. They are concerned with kind of redundant reporting. I understand what Megan Ware is saying, as far as management aspects and how this would support management. But from an industry perspective, I think a lot of fishermen in general are feeling that there is a sense of redundancy here, you know with requirements for landings reports, for your federal dealer's permit being very stringent, and then requiring EM as well. Just to wrap up, just echoing what Steve Train was saying. A lot of the younger fishermen are concerned with not being able to turn the electronic monitoring system off. I'll stop there, thank you.

CHAIR McNAMEE: I'm not sure, Caitlin if that is you controlling the timer there, but I want to treat everyone equally, and sort of run that. But Andrea did great and kept to the two minutes. Next up I have Beth Casoni. Go ahead, Beth.

MS. BETH CASONI: All right, thank you, Mr. Chair, and I would like to echo the previous speaker's comments. We did submit a letter of comment opposing this. Our federally permitted fishermen in Massachusetts I'll speak to, are under some of the most restrictive Right Whale regulations anywhere.

I've heard from our members in the industry that they feel the rate of a one-minute ping is excessive, and it should be comparable to the other fisheries that are out there under VMS and electronic

monitoring. You know listening to everyone today, we've dealt with the LNG Hub Line in Boston Harbor. We've mitigated it. You've gone through the pains of not having the spatial data, and we see the value in this.

But we really encourage the Board to be smart and surgical in this, and give consideration to the fishing industry that is being scrutinized every time they turn around. Steve Train had a great point. I know a lot of Maine lobstermen that use their vessels to go in between islands to visit friends, to go to Walmart.

You know there should be an off mechanism. They shouldn't have to be tracked while they are using it for their pleasure cruises. One of our members is down in South Carolina right now, and thinks he would be being tracked, because he's a federal permit holder. I really encourage the Board and the developers of these technologies to look at a mechanism that would allow for the fishermen to shut it off. If there is a concern about them shutting it off while they're fishing, their catch reports are a great way to cross-check their fishing effort. Thank you, Mr. Chairman.

CHAIR McNAMEE: Next up, I see Jay Hermsen, your hand is up. Feel free to unmute if you have something you wanted to offer.

MR. HERMSEN: Yes, Mr. Chair. I just wanted to ask if we were going to point out that Federal Counsel, Chip Lynch is on the line, to potentially shed more light on the implementation timeline issue.

CHAIR McNAMEE: Could you say that again, Jay. I'm sorry, I didn't process the question.

MR. HERMSEN: Sure, NOAA General Counsel, Chip Lynch is on the line, and can potentially shed more light on the implementation timeline issues that we were discussing earlier.

CHAIR McNAMEE: Oh, okay, thanks for that. Chip, maybe I'll come back to you. I've got one

more public hand up, and then I will come to you, Chip, if you're okay with offering something there. Just bear with me for a minute. Also, I'll note, Dave Borden, your microphone is unmuted. I just wanted you to know that. Okay, the next hand I have is Greg Mataronas. Go ahead, Greg.

MR. GREGORY MATARONAS: Thank you for the opportunity to speak. I could be a proponent of this EM. However, it has to be done correctly. I know that we are in a time of heavy scrutiny with the whale issue, and that this could potentially help us. However, I really feel like that's a double-edged sword, in the fact that the way the TRT is going about reduction is through co-occurrence scores and risk reduction scores.

Essentially, the more effort that is shown in a specific area that overlaps with commonly used right whale habitat, the higher the score is, the higher the risk reduction percentage could be. Those areas are generally focused on to be removed. While in my mind heavy fished areas should be protected, so that we're allowed to continue to earn a living. The TRT process essentially does exactly the opposite.

I could get behind this, but we need to do that right, and make sure that we're protected during this. Maybe that's in the uses and utility of the data. Another question I have is, I still don't see an answer on what happens if I row out to my boat, it's 2:00 a.m. and the monitor does not work? I see that we can have up to two weeks, but that sort of speaks to having permission to do so.

But what happens if I need to go fishing, that is my only flat come day that week, and it's 2:00 a.m., so that needs to be resolved. My other question is, I gillnet eight months out of the year. I lobster for four months. Am I going to be required to be having this monitor on while I go out gillnetting, as well? This is really required only for lobster trap fishing, so just a couple questions. Thank you, Mr. Chair.

CHAIR McNAMEE: Thank you, Greg. Caitlin, I don't know if maybe you wanted to respond to the last

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two questions that Greg had. I think there are answers to them. Are you able to, Caitlin?

MS. STARKS: Yes, thank you, Mr. Chair. To the first question, with regard to, okay now I might be mixing them up in which order they came as provider. But with regards to if you have to have the tracker on for the entirety of the year if you only are fishing for lobster for part of it.

I think the language in the Addendum that allows for power down of the device would potentially allow a harvester, who is done fishing for lobster with trap gear for the year, and is no longer going to do that to have their device powered down for the remainder of the year, if they get authorization from their state.

I do think that is possible with the language that is in the Addendum. Otherwise, without that authorization I think the requirement would be to have the tracker on the vessel and powered at all times throughout the course of a fishing year. Then, if you could remind me the first question.

CHAIR McNAMEE: Yes, Greg, do you want to go ahead and remind Caitlin what her first question was?

MR. MATRONAS: Yes, I had just spoken to what happens if the device is malfunctioning at 2:00 a.m. Suppose you get off the boat the previous day, or whenever, it's working fine. Then it doesn't power on when you go to fish the next day. What happens then?

MS. STARKS: Thank you for the reminder. In that situation, what all the states have discussed is that they will establish some method of notification where a fisherman would be able to either call or text, or send some kind of notification in at any time of day, and just say hey, my tracking device is not working and I'm going out fishing.

Then they would be able to continue fishing, you know just by sending in that notification.

They don't have to actually talk to a state staffer. Even if it is two in the morning, as long as you can call in and leave a message or send a text, I think the states are all comfortable with that being enough, in order to allow you to continue fishing, and then when you get back from that trip, proceed with trying to get the tracker repaired or replaced.

CHAIR McNAMEE: Thanks for that Greg and Caitlin. Beth, I see your hand is back up. Do you have a follow up, no, okay? We did really good there, so I will go back around for another bite at the apple if anybody wants, and I see Brian Thibeault, your hand is up so please, go ahead.

MR. THIBEAULT: All right, we're going to try and save a few seconds with the unmute there. I see in the motion a two-year review. I'm going to use one of Greg's words that he used. I could be a proponent of this if done correctly. I've always been upset, been involved in fisheries management for as long as some of the directors have been here, and the Board members. I always hate to see a plan pushed forward because it has a date attached to it.

I would much, much rather see it implemented based on proper science, based on the proper usage and utility, more than it needs to be implemented just because of a date. With that being said, even if we did move to the next permit season, and continued a program where people were sampling it, you might get more positive results after that, because there will be more people paying attention to the small percentage of usages that are going on.

I just wanted to make that as a comment. The unknown footprint statement that was used by Mr. McKiernan, as far as stock assessments, et cetera, and the variabilities that are attributed to unknown effort. I believe all management measures are based on a maximum trap allocation, which has been captured with our trap reduction plans up and down the coast.

There is a data source that I can access right now that shows the maximum amount of traps allocated in certain LMAs based out of Rhode Island, I'm sure Maine has the same thing. I appreciate the time

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again, I could be a proponent, just would like to see it done correctly. Thank you again for the second review, Mr. Chair.

CHAIR McNAMEE: Thank you, Brian. I've got another hand up, Lange Solberg, go ahead.

MR. LANGE SOLBERG: Thanks for entertaining my comment here. I just wanted to make a quick one. I'm with a vendor, Deck Hand Logbook. We have customers throughout the New England and Mid-Atlantic states, and we're always keen to listen to these conversations as a vendor stakeholder in these issues. We build a logbook platform that is GARFO approved. I just wanted to say that I do echo Steve Train and other's comments about concerns pertaining to vessel use that is of the non-fishing type.

We get a lot of feedback from our customers about similar concerns and privacy related issues, perceived or real. We're also hearing from our customers about, hearing concern about more and more hardware being required on the vessel to satisfy all of the different types of regulations, depending on the area and permit type, et cetera. Given that we're paying attention as a vendor to this, and we're trying to build a product and we have built a product that incorporates all sorts of different aspects of data collection into one solution.

I just wanted to iterate that you know the less hardware the better, and as we look at technical specs, as this gets fleshed out more and timelines. We would sure love to see flexibility and openness to the idea that, for example, a logbook solution could also double as a tracking solution, so long as it conforms to some of those ping rates and other parts of the tech specs. With that, that is my only comment. I appreciate the time, and over.

CHAIR McNAMEE: Thank you, Lange. Beth Casoni, I see your hand up again. Go ahead, Beth.

MS. CASONI: I just have one comment, and I meant to get this out last time. As offshore wind makes its turn into the Gulf of Maine in the near future, can the Board, should they vote to move forward with Addendum, could the Board please send a letter to BOEM, asking them to not delay, but encourage BOEM to use the data that will be made available, even if it's one year.

The one thing that was drastically missing, like Brian said from Rhode Island, drastically missing from the southern New England offshore wind lease areas, there was zero lobster data. Looking at the Gulf of Maine as it's the number one fishery, I would really like to see some of this data incorporated into any lease areas, call areas, before that train leaves the depot. Thank you.

CHAIR McNAMEE: Thanks for that, Beth, really good comments. We'll make sure we, I think it's implicit in the tail end of the motion there. But we've captured your comment, it's part of the record now, and I'm sure folks on the Board will remember that and make sure this data, if this passes, is in the mix. Thanks for that. I am now going to loop back to the Board.

Just one last pass to see if anyone has any remaining comments that they would like to make, and then I think what we'll do is take a three-minute caucus, and then I will call the vote. I'm looking for hands from Board members for any last comments, before we go into a caucus. Oh, I see Jay's hand again and I recall that I have completely forgot to go back to Chip. Chip, did you want to weigh in on the timeline issue that came up earlier?

MR. CHIP LYNCH: Thank you for recognizing me, Mr. Chair. I had what might be a legal perspective, and can answer some of the questions that I've heard from the Board. Briefly, if I can respond to the Area 5 Waiver Program, just for the Board's information. We have Area 5 permits that have been qualified in the usual course.

There is also a program wherein individuals can opt into the Area 5 Waiver Program, where they don't have to get trap tags, where they are subject to the

100/500 animal harvest limit. That is a subset of the Area 5 fishery. When the motion speaks to exempting Area 5 Waiver Permits, the motion would be recommending that a subset of the Area 5 Permits be exempted, not all of the Area 5 Permits be exempted.

I can understand the logic in that, because it's not a directed fishery in the Area 5 Waiver Program. I can also understand the logic of not recommending Area 5 in general, because it's de minimis. But just be aware that those are two very different recommendations. Of course, there is interest in information as it relates to whales, the vertical lines in the water, and there is also an interest as it relates to wind, and that is I think to Roy's point.

The TRT is meeting May 9, for sort of the Mid-Atlantic fisheries, gillnet fisheries. The idea is to have a rule in place by the end of 2023. We have a number of court cases that are being briefed right now, and are ready to pop. I don't know what the courts are going to rule in the not-too-distant future, and that may precipitate an advancement in what the Agency and the Take Reduction Team needs to do. Just be aware of that.

As far as some of the redundancy, and this gets into the timing issue. My understanding might have been different. I can tell you historically the Commission makes recommendations to NOAA, and NOAA has, because it's the federal rulemaking can be cumbersome. We always end up with a rule that follows the states.

It's never happened otherwise, I guess that doesn't say it couldn't, but it never has. The idea of having a rule in place in advance of the states in one year seems optimistic. But where there is a will there is a way. The redundancy issue with VMS, my understanding is that the federal rule would be something to the effect of all federal permit holders need to have a tracking system.

But to the extent that there already is a tracking system in place, or there is one that the states are doing. That would suffice. That's the way we thought the rule was going to potentially look, depending on the recommendation. That's some idea on timing, and some of the issues that we would be looking for and looking at from the federal government.

CHAIR McNAMEE: Thank you so much, Chip. Great info. Any hands from the Board either in follow up to Chip or otherwise? Not seeing any hands, so why don't we go into, let's do a three-minute caucus, and Caitlin if that's you with the timer, if you could get the timer going there. We'll come back, if you need more time, I'll look for your hand. But let's do three minutes, we'll come back and we will get to the vote on this motion. Three-minute caucus. Okay, that's the three minutes, does anybody need a little more time to caucus with their state? Please raise your hand if you do. Okay, not seeing any hands, so I'm assuming that folks are ready to vote. A question first to Toni. As this is final action, do you do a roll call vote, or can we still do the hand raising?

MS. KERNS: Jay, we can do the hand raising. This part isn't the final action, it's the approval of the final Addendum. But by default, because I read the names of the states of the hands that are up, it ends up being like a roll call. It's really the final approval of the document that we would need technically a roll call.

CHAIR McNAMEE: Great, and then just a note is that Eric Reid will be voting for Rhode Island. Okay, so with that, hopefully that was clear to everybody. We have a motion, it was made by Dan McKiernan, seconded by Cheri Patterson. All those in favor of the motion, please raise your hand.

MS. KERNS: Mr. Chairman, I'm sorry to do this to you, but you made a friendly amendment, so do you mind reading the motion?

CHAIR McNAMEE: Well sure, is it okay if I read it?

MS. KERNS: That would be great.

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CHAIR McNAMEE: All right, to reread the motion due to the friendly amendment. Move to approve Option B: Implement electronic tracking requirements for federally-permitted lobster and Jonah crab vessels with commercial trap gear area permits, exempting Federal Area 5 Waiver Permits from the vessel tracking requirement In Addendum XXIX.

As a part of selecting Option B, have the Board commit to a multi-committee (Tracker Subcommittee, Lobster Technical Committee, and Law Enforcement Committee) review of the vessel tracking program after two full years of implementation, including assessing the uses and the utility of the data to date. The motion was made by Dan McKiernan and seconded by Cheri Patterson. Are we good to go now, Toni?

MS. KERNS: We are good to go now.

CHAIR McNAMEE: All those in favor of the motion, please raise your hand.

MS. KERNS: I'm going to let the hands settle for just a minute. I have Connecticut, New York, NOAA Fisheries, Massachusetts, Virginia, Rhode Island, New Jersey, Delaware, New Hampshire, Maryland, and Maine. Make sure I have everybody. I will put the hands down. I'm ready to go.

CHAIR McNAMEE: All those opposed to the motion, please raise your hand.

MS. KERNS: I have no hands up.

CHAIR McNAMEE: Okay, any abstentions?

MS. KERNS: I have no abstentions.

CHAIR McNAMEE: Finally, any null votes?

MS. KERNS: I have no null votes.

CHAIR McNAMEE: Great, so the motion passes. Thank you all very much for that.

MS. KERNS: Caitlin can give you the count.

MS. STARKS: That was 11 in favor.

**CHAIR McNAMEE: Okay, the motion passes 11 in favor, no objections, no abstentions, no null votes. All right, so that dispenses with that motion. I'll now look to the Board to see if there is a follow up motion, and I see Megan Ware's hand. Go ahead, Megan.**

MS. WARE: As I alluded, I have a motion on the implementation date that I think staff has. Great, I will read this into the record. **Move that we request that NOAA publish the final rule on vessel tracking by May 1, 2023, with an implementation date no later than December 15, 2023. States in conjunction with ASMFC staff will work in 2022 to develop an implementation plan, including a standard operating procedure and the request for quotes from vessel tracking companies. The results of this shall be reported back to the Board at a future meeting.**

CHAIR McNAMEE: Motion made by Megan Ware; I see a hand up. I should ask the question, is there a second? I see a hand up by David Borden. David Borden seconds the motion. Okay, Megan, do you wish to speak to your motion?

MS. WARE: Yes, that would be great. You know I think it's important to move efficiently on this implementation, but also balance that with a sense of practicality. What I want to avoid is setting an implementation date that we can't meet, or that is going to result in a really rushed, empty process that undermines the efforts we're trying to take.

As the motion alludes to, I think there are a couple steps that need to happen between now and then to kind of operationalize this. The Addendum talks about a standard operating procedure. We need to develop a list of approved tracking devices. I suspect there may need to be some work by ACCSP to accept and match tracking data. I know some states, including Maine, are likely going to explore hiring a staff to work on this.

Then I think most critically, we need NOAA's rule for the federal reporting requirement, EVTRs could be

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in place. With all that in mind, I think this motion clearly states that the Board is hoping for NOAA to move efficiently on the rulemaking process. It also acknowledges the steps that need to be taken. Then it sets an implementation date of December 15, acknowledging that some states may need a bit of buffer time to get up and running. But nothing would prohibit a state from an earlier implementation date if that is what they desire.

CHAIR McNAMEE: Thank you, Megan. David Borden, do you wish to speak as the seconder?

MR. DAVID V. BORDEN: Yes, thank you, Mr. Chairman, it will be brief. Megan, I think said it well. But I would just like to emphasize that I think one of the things that is really important is this issue of standard operating procedures and guidelines. Since a lot of the decisions that will be made build on the prior decision, that we need to get working on this.

Basically, have like a technical team start working through those technical issues, and resolve those as soon as possible. The last point I would emphasize. I think it's important to keep the Board apprised of developments on this issue. I think there should be like a report to the Board at every subsequent meeting on where this is. Thank you.

CHAIR McNAMEE: I have a request, and that is the word we, move that we. I am wondering if somebody would be willing to offer a friendly amendment to change the 'we' to the Commission. Megan, I see your hand up.

MS. WARE: I'm happy to make that change, and take that as a friendly.

CHAIR McNAMEE: David, is that okay with you?

MR. BORDEN: Yes.

CHAIR McNAMEE: Other Board members wishing to speak to the motion. Okay, Mike Luisi. Go ahead, Mike.

MR. LUISI: I just wonder, given that friendly. Since this is the Lobster Board and not the full Commission, if it would be better stated as Move that the Lobster Board request.

CHAIR McNAMEE: Okay.

MR. LUISI: If we're making a change there, I think that is more accurate. Just a suggestion.

MS. KERNS: Mr. Chair, typically when the Commission sends letters over to NOAA, in particular for documents that we approve, usually you send it on behalf of the Commission, but Bob, you can correct me.

CHAIR McNAMEE: Okay, so maybe we're okay with the modification that we've made. Thanks for bringing it up though, Mike, just to check. All right, I will go out for some quick comments from the audience, and I see Brian Thibeault's hand up, so go ahead, Brian.

MR. THIBEAULT: Thank you again, Mr. Chair. Just obviously, appreciate the Board hearing this whole topic out. I hope some weight went into it, into your thoughts. Through the whole public comment process in this, I listened to every state up and down the coast. Again, the financial aspect seems to be the biggest concern by fishermen. I request out of the Lobster and Jonah Board, and I know the Amendment can't get changed here, or that the motion. That this money needs to come through, needs to be enough of it, needs to be allocated to this project for the success rate of it, and would just like to have that in everybody's head as the Board is apprised of the progress into the future. I just feel that is a very important part of it. Again, up and down the coast that seemed to be one of the larger questions. Whether it's Mr. McKiernan's grant idea or any other part of the process, that just seemed to be very important.

If that money does get delayed, have respect please to the industry of that potential implementation date possibly gets moved back the same amount of duration that the money could get delayed. That's

it. Again, I appreciate the time to speak at the meeting, and have a good afternoon.

CHAIR McNAMEE: Thank you, Brian. Okay, not seeing any other hands from the public. I'm going to come back to the Board. Any remaining comments from the Board? No seeing any hands, so let's go ahead and caucus. Let's do, I think folks are okay here, so let's just do one minute.

I just want to make sure people have time to communicate, so a one-minute caucus, and we'll come back and take the vote. All right, does anybody need any more time, please raise your hand. Okay, not seeing any hands. I will call the question. All those in favor. Actually, Toni, is this another one where I should read it because of the friendly?

MS. KERNS: Yes, I think so. Sorry.

CHAIR McNAMEE: It's quite all right, I hope my dogs don't bark again. Move that the Commission request that NOAA publish the final rule on vessel tracking by May 1, 2023, with implementation no later than December 15, 2023. States in conjunction with ASMFC staff will work in 2022 to develop an implementation plan, including a standard operating procedure and the request for quotes from vessel tracking companies. The results of this shall be reported back to the Board at a future meeting. Motion by Megan Ware and seconded by David Borden. All those in favor of the motion please raise your hand.

MS. KERNS: Letting the hands settle. I have Maine, Maryland, Delaware, New Hampshire, New Jersey, Rhode Island, Virginia, Massachusetts, New York, and Connecticut. I will put the hands down.

CHAIR McNAMEE: Okay, all those opposed to the motion please raise your hand.

MS. KERNS: I have no hands.

CHAIR McNAMEE: Any abstentions?

MS. KERNS: NOAA Fisheries. I'll put the hands down.

CHAIR McNAMEE: Finally, any null votes?

MS. KERNS: I have no hands. Caitlin can give you the count.

**MS. STARKS: That was 10 in favor, 0 opposed, 1 abstention from NOAA Fisheries, and 0 null votes.**

**CHAIR McNAMEE: All right, thank you for that, Caitlin.** Okay, so we have a motion on the Addendum, and then a motion on the timeline. Caitlin, Toni, is there any other motions that need to be made for this action?

MS. STARKS: Yes, Mr. Chair, we will need a motion to approve the Addendum as amended today. I think I have a motion that Maya can put up as a standard.

**CHAIR McNAMEE: I'm already getting some interest here on the Board. Wait for that to pop up on the screen here. Looking for someone to make the motion to approve Addendum XXIX to the Lobster FMP and Addendum IV to the Jonah Crab FMP as amended today. Anyone wishing to make that motion please raise your hand. I've got hands already, and I saw Dan McKiernan's first. Thanks for that, Dan. Then anyone willing to second the motion. I see Cheri Patterson.**

**MS. PATTERSON: Yes, thank you, I'll second the motion.**

CHAIR McNAMEE: All right, so we have a motion, it's been seconded. Let's see, any comments from anyone on the motion? Joe Cimino, I see your hand is up. I don't know if that was for a second or a comment, oh there it goes. Dan or Cheri, did you want to make any comments? Maybe not, not hearing any. All right. I think we're okay to not caucus on this one. Why don't we go ahead and go right to the question? All those in favor of the motion please raise your hand.

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The Board will review the minutes during its next meeting.

MS. KERNS: I have Maine, Maryland, Delaware, New Hampshire, New Jersey, Rhode Island, Virginia, Massachusetts, NOAA Fisheries, New York and Connecticut. I'll put the hands down, I think that's the full Board.

CHAIR McNAMEE: To be sure, any objections to the motion? Not seeing any hands. Any abstentions? No seeing any hands, and any null votes. Not seeing any hands. **The motion passes. I think that one was 11 in favor, no objections, no abstentions, no null votes.** Thanks everybody. Now is that all of our business on the Addendum, Caitlin or Toni?

MS. STARKS: I think that is all, Mr. Chair.

CHAIR McNAMEE: All right, I've got a hand up. David Borden, go ahead, David.

MR. BORDEN: I'll make this really quick. When Bob Beal was discussing funding for this action, I think he used two years, and I know that the State Directors administrators are going to be considering whether or not it should be two years or more. I would encourage the state administrators to appropriate money to cover it for three years. Thank you.

CHAIR McNAMEE: Thank you for that advice, David, I appreciate it. Okay, is there any other business? That was our one action item for today, nothing else left on the agenda. Is there any other business that anyone would like to bring before the Board? Looking for a hand. Not seeing any. I think that does it. Thank you all very much for that. It took a while to get here, but I think that was a really important action today, so good work to the Board getting through that. Oh, I've got a hand up, go ahead, Dan.

MR. McKIERNAN: Jay, excellent job running the meeting today.

## ADJOURNMENT

CHAIR McNAMEE: Thank you very much, Dan. I appreciate it. Do I have a motion to adjourn? I've got a hand up from Steve Train, is there a second? Hand up from Cheri Patterson. Any objections to adjourning the meeting? With that we will adjourn the meeting. Thank you everybody, have a good evening.

(Whereupon the meeting adjourned at 3:30 p.m. on March 31, 2022.)

***Atlantic States Marine Fisheries Commission***

**DRAFT ADDENDUM XXVII TO AMENDMENT 3 TO THE AMERICAN  
LOBSTER FISHERY MANAGEMENT PLAN FOR PUBLIC COMMENT**

***Increasing Protection of Spawning Stock in the Gulf of Maine/Georges  
Bank***



**January 2022**



*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

# American Lobster Draft Addendum XXVII for Public Comment

## Public Comment Process and Proposed Timeline

In August 2017, the American Lobster Management Board (Board) initiated Draft Addendum XXVII to increase the resiliency of the Gulf of Maine/Georges Bank (GOM/GBK) stock. Work on this addendum was paused due to the prioritization of work on take reduction efforts for Atlantic right whales. The Board reinitiated work on Draft Addendum XXVII in February 2021, and has since revised the goal of the addendum to consider a trigger mechanism such that, upon reaching the trigger, measures would be automatically implemented to increase the overall protection of spawning stock biomass of the GOM/GBK stock. This management action was initially in response to signs of reduced settlement and the combining of the GOM and GBK stocks following the 2015 Stock Assessment, and more recently in response to a continuation of those trends observed in the 2020 Stock Assessment. This document presents background on the Atlantic States Marine Fisheries Commission's management of lobster, the addendum process and timeline, a statement of the problem, and management measures for public consideration and comment.

The public is encouraged to submit comments regarding the proposed management options in this document at any time during the addendum process. The final date comments will be accepted is **Month, Day 2022 at 5:00 p.m. EST**. Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comments, please use the contact information below.

Mail: Caitlin Starks

Atlantic States Marine Fisheries Commission  
1050 N. Highland St. Suite 200A-N  
Arlington, VA 22201  
Fax: (703) 842-0741

Email: [comments@asmfc.org](mailto:comments@asmfc.org)  
(Subject line: Lobster  
Draft Addendum XXVII)

*May – Dec 2021*

Draft Addendum for Public Comment Developed

*January 2022*

Board Approved Draft Addendum for Public Comment

*TBD*

Public Comment Period Including Public Hearings

*TBD*

Board Reviews Public Comment, Selects Management Measures, Final Approval of Addendum XXVII

*TBD*

Implementation of Addendum XXVII Provisions

# American Lobster Draft Addendum XXVII for Public Comment

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# American Lobster Draft Addendum XXVII for Public Comment

## 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-XXVI 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 Gulf of Maine/Georges Bank (GOM/GBK) stock (subject of this draft addendum) is primarily comprised of three Lobster Conservation Management Areas (LCMAs), including LCMA 1, 3, and Outer Cape Cod (OCC) (Figure 1). There are three states (Maine through Massachusetts) which regulate American lobster in state waters of the GOM/GBK stock; however, landings from the GOM/GBK stock occur from Rhode Island through New York and these states regulate the landings of lobster in state ports.

The Board initiated Draft Addendum XXVII as a proactive measure to protect the GOM/GBK spawning stock. Since the early 2000's, landings in the GOM/GBK stock have exponentially increased. In Maine alone, landings have increased three-fold from 57 million pounds in 2000 to a record high of 132 million pounds in 2016. Maine landings have declined slightly but were still near time-series highs at 101.8 million and 96.6 million in 2019 and 2020, respectively. However, since 2012, lobster settlement surveys throughout the GOM have generally been below the time series averages in all areas. These surveys, which measure trends in the abundance of newly-settled and juvenile lobster, can be used to track populations and forecast future landings. Consequently, persistent lower densities of settlement could foreshadow decline in recruitment and landings. In the most recent years of the time series, declines in recruit indices have already been observed.

Given the American lobster fishery is one of the largest and most valuable fisheries along the Atlantic coast, potential decreases in abundance and landings could result in vast economic and social consequences. In 2016, the at-the-dock value of the American lobster fishery peaked at \$670.4 million dollars, representing the highest ex-vessel value of any species landed along the Atlantic coast that year. Ex-vessel value has since declined slightly but not proportionally to declines in landings. The vast majority of the overall landings value (>90%) comes from the GOM/GBK stock, and more specifically from the states of Maine through Rhode Island. As a result, the lobster fishery is an important source of jobs (catch, dock side commerce, tourism, etc.) and income for many New England coastal communities. The lack of other economic opportunities, both in terms of species to fish and employment outside the fishing industry, compounds the economic reliance of some coastal communities on GOM/GBK lobster – particularly in Maine.

Draft Addendum XXVII responds to signs of reduced settlement and the combination of the GOM and GBK stocks following the 2015 Stock Assessment and the continuation of reduced settlement observed in the 2020 Stock Assessment. The Board specified the following objective statement for Draft Addendum XXVII:

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*Given persistent low settlement indices and recent decreases in recruit indices, the addendum should consider a trigger mechanism such that, upon reaching the trigger, measures would be automatically implemented to increase the overall protection of spawning stock biomass of the GOM/GBK stock.*

Draft Addendum XXVII considers implementing management measures—specifically gauge and vent sizes—that are expected to add an additional biological buffer through the protection of spawning stock biomass (SSB). The addendum also considers immediate action upon final approval to standardize some management measures within and across LCMAs in the GOM/GBK stock. The purpose of considering more consistency in measures is to resolve discrepancies between the regulations for state and federal permit-holders, to provide a consistent conservation strategy, and simplify enforcement across management areas and interstate commerce.

## 2.0 Overview

### 2.1 Statement of Problem

While 2016 landings in the GOM/GBK lobster fishery were the highest on record, settlement surveys over the past five years have consistently been below the 75<sup>th</sup> percentile of their time series, indicating neutral or poor conditions. Additionally, there is evidence of declines in recruit abundance in ventless trap survey and trawl surveys for the GOM/GBK stock since the most recent stock assessment. These declines could indicate future declines in recruitment and landings. Given the economic importance of the lobster fishery to many coastal communities in New England, especially in Maine, potential reductions in landings could have vast socioeconomic impacts. In addition, the 2015 Stock Assessment combined the GOM and GBK stocks into a single biological unit due to evidence of migration between the two regions. As a result, there are now varying management measures within a single biological stock. In response to these two issues, the Board initiated Draft Addendum XXVII to consider the standardization of management measures across LCMAs.

However, in 2021, the Board revised the focus of Addendum XXVII to prioritize increasing biological resiliency of the stock over standardization of management measures across LCMAs. Increased resiliency may be achieved without completely uniform management measures, so the main objective of the Addendum is to increase the overall protection of SSB while also considering management options that are more consistent than status quo. Increasing consistency across management areas may help to address some assessment and enforcement challenges, as well as concerns regarding the shipment and sale of lobsters across state lines.

### 2.2 Status of the GOM/GBK Fishery

The GOM/GBK fishery has experienced incredible growth over the last two decades. Throughout the 1980s, GOM/GBK landings averaged 35 million pounds, with 91% of landings coming from the GOM portion of the stock. In the 1990s, landings slightly increased to an average of 53 million pounds; however, landings started to rapidly increase in the mid-2000s. Over a one year span (2003-2004), landings increased by roughly 18 million pounds to 86 million pounds. This growth continued through the 2000s with 97 million pounds landed in

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2009 and 113 million pounds landed in 2010. Landings continued to increase and peaked at 156 million pounds in 2016 (Figure 2).

In the peak year of 2016, Maine alone landed 132.7 million pounds, representing an ex-vessel value of over \$541 million. The states of Maine through Rhode Island (the four states that account for the vast majority of harvest from the GOM/GBK stock), landed 158 million pounds in 2016, representing 99% of landings coastwide. Total ex-vessel value of the American lobster fishery in 2016 was \$670.4 million, the highest value recorded for the fishery and the highest valued fishery along the Atlantic coast in 2016. While landings and ex-vessel value have both declined slightly from peak levels in 2016, they remain near all-time highs. Coastwide landings and ex-vessel value for 2017-2020 averaged 133.2 million pounds and \$591.5 million, respectively.

### **2.3 Status of the GOM/GBK Stock**

#### **2.3.1 2020 Stock Assessment**

Results of the 2020 Benchmark Stock Assessment indicate a dramatic overall increase in the abundance of lobsters in the GOM/GBK stock since the late 1980s. After 2008, the rate of increase accelerated, and the stock reached a record high abundance level in 2018. Based on a new analysis to identify shifts in the stock that may be attributed to changing environmental conditions and new baselines for stock productivity, the GOM/GBK stock shifted from a low abundance regime during the early 1980s through 1995 to a moderate abundance regime during 1996-2008, and shifted once again to a high abundance regime during 2009-2018 (Figure 3). Spawning stock abundance and recruitment in the terminal year of the assessment (2018) were near record highs. Exploitation (proportion of stock abundance removed by the fishery) declined in the late 1980s and has remained relatively stable since.

Based on the new abundance reference points adopted by the Board, the GOM/GBK stock is in favorable condition. The average abundance from 2016-2018 was 256 million lobsters, which is greater than the fishery/industry target of 212 million lobsters. The average exploitation from 2016-2018 was 0.459, below the exploitation target of 0.461. Therefore the GOM/GBK lobster stock is not depleted and overfishing is not occurring.

Stock indicators based on observed data were also used as an independent, model-free assessment of the lobster stocks. These indicators included exploitation rates as an indicator of mortality; young-of-year (YOY), fishery recruitment, SSB, and encounter rates as indicators of abundance, and total landings, effort, catch per unit effort, and monetary measures as fishery performance indicators. Additionally, annual days with average water temperatures  $>20^{\circ}\text{C}$  at several temperature monitoring stations and the prevalence of epizootic shell disease in the population were added as indicators of environmental stress. The  $20^{\circ}\text{C}$  threshold is a well-documented threshold for physiological stress in lobsters. Epizootic shell disease is considered a physical manifestation of stress that can lead to mortality and sub-lethal health effects.

While the stock assessment model and model-free indicators supported a favorable picture of exploitable stock health during the recent 2020 Stock Assessment, the assessment conversely

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noted YOY indices did not reflect favorable conditions in recent years and indicate potential for decline in recruitment to the exploitable stock in future years (Table 1). Specifically, YOY indices in two of five regions were below the 25<sup>th</sup> percentile of the time series (indicating negative conditions) in the terminal year of the assessment (2018) and when averaged over the last five years (2014-2018); the remaining three regions were below the 75<sup>th</sup> percentile (indicating neutral conditions).

Mortality indicators generally declined through time to their lowest levels in recent years. Fishery performance indicators were generally positive in recent years with several shifting into positive conditions around 2010. Stress indicators show relatively low stress, but indicate some increasingly stressful environmental conditions through time, particularly in the southwest portion of the stock.

As recommended in the 2020 stock assessment, a data update process will occur annually to update American lobster stock indicators, including YOY settlement indicators, trawl survey indicators, and ventless trap survey indices. The first annual data update was completed in 2021 and the results are provided in Appendix A.

### **2.3.2 YOY Surveys**

Since the terminal year of the assessment (2018), YOY indices have continued to show unfavorable conditions in the GOM/GBK stock. There have been sustained low levels of settlement observed from 2012 through the assessment and in the time period since the assessment terminal year in 2018. In Maine, 2019 and 2020 YOY indices were below the 75<sup>th</sup> percentile of their time series throughout all statistical areas sampled. In New Hampshire, sustained low levels of settlement have been seen from 2012 through 2020. In Massachusetts, the 2019 index was below the 25<sup>th</sup> percentile of its time series and rebounded slightly in 2020, but remained well below the 75<sup>th</sup> percentile.

Sustained and unfavorable YOY indices are concerning as they could foreshadow poor future year classes in the lobster fishery. Lobster growth is partially temperature-dependent and it is expected that it takes seven to nine years for a lobster to reach commercial size. Thus, decreased abundance of YOY lobsters today could foreshadow decreased numbers of lobsters available to the fishery in the future. Given there have been eight consecutive years of low YOY indices in the GOM, this trend may soon be reflected in the GOM/GBK stock. What is more concerning is that declines in the Southern New England (SNE) stock, which is currently at record low abundance, began with declines in YOY indices. Specifically, SNE YOY indices began to decline in 1995, two years before landings peaked in 1997, and roughly five years before landings precipitously declined in the early 2000's.

There are several hypotheses as to why the YOY indices have been low and what this could mean for the future of the GOM/GBK stock. One hypothesis is that declines in the YOY indices are reflecting a true decline in the newly-settled portion of the stock, and are related to declining food resources (specifically zooplankton). Carloni et al. (2018) examined trends in lobster larvae to explore linkages between SSB and YOY abundance. The study found a

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significant increasing trend in stage I larval abundance consistent with the increases in SSB in the GOM. Planktonic postlarvae on the other hand, had a declining trend in abundance similar to trends for YOY settlement throughout western GOM. The study also found significant correlations between lobster postlarvae and the copepod *C. finmarchicus*, but there were no relationships with other zooplankton. This suggests recruitment processes in the GOM could be linked to larval food supply.

Declines in the YOY indices could also be an artifact of the lobster population moving further offshore. Recent work suggests warming in the GOM on the scale of decades has expanded thermally suitable habitat areas and played a significant role in the increase of observed settlement into deeper areas, particularly in the Eastern Gulf of Maine (Goode et al. 2019), so lobster settlement may be diluted across a greater area. Given the YOY surveys typically occur inshore, the surveys may be unable to account for increased abundance of YOY lobsters farther offshore. In an effort to test this theory, the TC looked at potential increases in the habitat available for recruitment in the GOM/GBK stock due to warming waters. Specifically, the TC calculated the quantity of habitat by depth in the GOM. Results showed that incremental increases in depth result in incremental increases in recruitment habitat and small observed decreases in recruit densities in shallow waters; there is no evidence that incremental increases in depth result in exponential increases in available habitat. In order for the diffusion of YOY lobsters over a larger area to completely explain the observed decreases in the YOY indices, the habitat available to recruitment would have to more than double. This suggests dilution effects from increased habitat availability alone are not sufficient to explain decreases in the YOY indices, and there are likely other changes occurring in the system.

### **2.3.3 Ventless Trap Surveys and Trawl Surveys**

While YOY surveys have detected declines in the number of newly settled lobsters, results of the ventless trap survey (VTS) and trawl surveys, which encounter larger sized lobsters just before they recruit to the fishery, have only exhibited evidence of potential decline in the most recent years and interpretation of these trends are complicated by sampling restrictions and limited surveys in 2020 resulting from the COVID-19 pandemic. VTS indices show declines since peaking in 2016, especially in the eastern regions. The ME/NH Fall Trawl Survey, which was the only trawl survey to sample in 2020, showed a decline in recruit lobster abundance, while 2019 indices for other trawl surveys remained at high levels and were above the previous year for spring surveys but consistently below the 2018 levels for the fall surveys.

It is important to continue to closely monitor these surveys as marked decreases in the VTS and/or trawl surveys would confirm the declines seen in the YOY surveys.

### **2.4 Economic Importance of the American Lobster Fishery**

Much of the concern regarding the declines in the lobster indices result from the vast economic importance of the lobster fishery to much of the GOM. For the states of Maine through Massachusetts, lobster is one of the most valuable fisheries and the large majority of landings come from the GOM/GBK stock.

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For Maine, American lobster is an essential economic driver for the coastal economy. Lobster annually represents more than 75% of Maine’s marine resource landings by ex-vessel value (79% in 2020). The landings and value peaked in 2016 with more than 132 million pounds harvested and provided more than \$540 million dollars in ex-vessel value<sup>1</sup>. The lobster harvester sector includes more than 5,770 license holders of which 4,200 are active license holders who complete more than 270,000 trips a year selling to 240 active lobster dealers (Maine DMR, unpublished data). The lobster distribution supply chain contributes an additional economic impact of \$1 billion annually (“Lobster to Dollars”, 2018). Not included in these numbers are the vessel crew members and other associated businesses (bait vessels and dealers, boat builders, trap builders, and marine supply stores) that are essential in delivering lobsters to consumers worldwide, supporting the industry, and driving Maine’s coastal communities.

The American lobster fishery is the most valuable commercial fishery in New Hampshire with an ex-vessel value of over \$35 million in 2019, the last year prior to the economic impacts of the COVID-19 pandemic, and over \$25 million in 2020. The value of lobster landed accounted for over 94% of the value of all commercial species landed in New Hampshire. The lobster fishery in New Hampshire includes over 300 licensed commercial harvesters, over 200 of which are active, who sold to more than 30 licensed lobster dealers (Renee Zobel, personal communication). The importance of the economic impact of the lobster fishery to New Hampshire is also seen in the over 450 businesses licensed to sell lobster to consumers at the retail level.

For Massachusetts, American lobster is the second most valuable fishery in terms of overall landings value, and the most valuable of all fisheries conducted within Massachusetts state waters. The total estimated value for annual lobster landings in Massachusetts has been over \$85 million per year on average for 2015-2019. On average, landings from the GOM/GB stock make up 93% of the total lobster landings for Massachusetts; 70% of this comes from LCMA 1, 14% from LCMA 3, and 8% from LCMA OCC (Massachusetts DMF, unpublished data).

Though the state is not directly situated on the GOM, a significant contingent of the Rhode Island commercial lobster fleet harvests lobsters in GOM/GBK. In 2019 and 2020, approximately 30% of Rhode Island’s commercial landings (2019: 604,459 pounds, 2020: 497,705 pounds) came from statistical areas in GOM/GBK. The estimated ex-vessel value for lobsters from this stock was approximately \$3.8 million in 2019 and \$2.9 million in 2020.

### **2.5 Current Management Measures in the GOM/GBK Stock**

Lobster are currently managed under Amendment 3, and its 26 addenda. One of the hallmarks of Amendment 3 was the creation of seven LCMAs along the coast. The GOM/GBK stock is primarily comprised of LCMAs 1 and OCC as well as the northern half of LCMA 3. Each management area has a unique set of management measures. Table 2 shows the current measures for each area. Because the GOM/GBK stock is now assessed as a single area the result

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<sup>1</sup> <https://www.maine.gov/dmr/commercial-fishing/landings/documents/lobster.table.pdf>

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is a diverse suite of regulations for each LCMA within a single stock unit, creating challenges for assessing the impacts of management measures within the stock. Specifically, the minimum gauge size (the smallest size lobster that can be legally harvested) in LCMA 1 is 3 ¼" while it is 3<sup>3</sup>/<sub>8</sub>" in LCMA OCC and 3<sup>17</sup>/<sub>32</sub>" in LCMA 3. Likewise, the maximum gauge size (the largest size lobster that can be legally harvested) differs among the three areas, with a 5" maximum gauge size in LCMA 1, a 6 ¾" maximum gauge size in LCMA 3 and for federal permit holders in LCMA OCC, and no maximum gauge size for state-only OCC permit holders. V-notch definitions are inconsistent where LCMA 1 implements a no tolerance for possession of any size v-notch or mutation and LCMA 3 defines a v-notch as greater than 1/8" with or without setal hairs while OCC has different definitions for federal permits (similar to LCMA 3) state only permits (> ¼" without setal hairs). V-notch requirements are also inconsistent, with LCMA 1 requiring all egg-bearing lobsters to be V-notched, LCMA 3 only requiring V-notching above 42°30' line, and no requirement in OCC.

Several concerns have been noted regarding the current management measures beyond these disparities. At the current minimum sizes, growth overfishing is occurring in the LCMA within the GOM/GBK stock. Growth overfishing refers to the harvest of lobsters at sizes smaller than the size where their collective biomass (and fishery yield) would be greatest, and when they have very large scope for additional growth. This is demonstrated by the potential increases in catch weight associated with increasing the minimum gauge size (see Appendix B). In LCMA 1, most of the catch consists of individuals within one molt of minimum legal size, which results in a much smaller yield-per-recruit (YPR) than could be achieved if lobsters were allowed to survive and grow to larger sizes before harvest. While the size distribution of the lobsters harvested in LCMA 3 is much broader than inshore (the fishery is less recruit-dependent) there is still considerable potential for additional growth, and delaying harvest could increase yield per recruit in this region as well. Another concern is the loss of conservation benefit of measures across LCMA lines due to inconsistent measures between areas. The 2015 assessment combined the GOM and GBK areas into one stock because the NEFSC trawl survey showed evidence of seasonal exchange and migration of lobsters between areas. Loss of conservation benefit occurs when lobsters are protected in one area but can be harvested in another when they cross the LCMA boundaries.

### 2.6 Biological Benefits of Modifying Gauge Sizes

Of the existing biological management measures for the lobster fishery, the minimum and maximum gauge sizes are most likely to have biological impacts on the GOM/GBK stock and fishery. Analyses were performed by the American Lobster Technical Committee to evaluate the impacts of alternate minimum and maximum sizes for the LCMA within the stock. For LCMA 1, analysis involved updating existing simulation models with more recent data to estimate the impacts of specific minimum and maximum gauge size combinations on total weight of lobsters landed, number of lobsters landed, SSB and exploitation. A separate analysis for LCMA 3 was performed due to concerns that the offshore fishery in LCMA 3 is considerably different from the inshore (which tends to drive stock-wide modelling results). For OCC, simulations were run with both LCMA 1 and LCMA 3 parameters because it is considered a transitional area. The full report on these analyses is included in Appendix B.

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Based on these analyses, several general assumptions can be made about potential changes to the minimum and maximum gauge sizes. Increasing the minimum legal gauge size in LCMA 1 is projected to result in large increases in SSB; while increasing the minimum gauge size for LCMA 3 and OCC is projected to result in much smaller increases in SSB relative to LCMA 1. This is primarily because of the significantly larger magnitude of the LCMA 1 fishery and that the current minimum legal size in LCMA is significantly below the size at maturity; meanwhile, the current minimum gauge sizes in LCMA 3 and OCC are much closer to the size at maturity and, additionally, landings from these areas account for only a small fraction of the fishery.

Minimum sizes that approach or exceed the size at maturity produce increasing returns on SSB as this allows a much larger portion of the population to reproduce at least once. Therefore, increasing minimum legal size in LCMA 1 to  $3^{15}/_{32}$ " (88 mm) is projected to result in a near doubling of SSB. This would significantly increase egg production potential and may provide some buffer against the effects of future changes in productivity. At the same time, this change would be expected to produce only marginal decreases in the total number of lobsters landed but result in a net increase in YPR and total weight of catch.

Generally, decreasing maximum gauge sizes is projected to have larger effects for LCMA 3 both relative to increasing the minimum size in LCMA 3 and to changing the maximum sizes for the other LCMA's. However, relative to increasing the minimum size in LCMA 1, the positive impact to the overall stock projected to result from decreasing the maximum gauge sizes in LCMA 3 and OCC is significantly smaller.

### **2.7 Potential Benefits of Increasing Consistency of Measures**

Beyond the biological concerns for the GOM/GBK lobster stock, the disparities in the current measures also create challenges for stock assessment, law enforcement, and commerce. Increasing consistency among the measures for the LCMA's within the stock could have benefits in each of these areas, which are described in the following sections.

#### ***2.7.1 Stock Boundaries***

A complicating factor in the management of lobster is that the boundaries of the LCMA's do not align with the biological boundaries of the stocks (GOM/GBK vs. SNE). This is particularly challenging in LCMA 3 which spans both GOM/GBK and SNE. The intricacy of the stock boundaries is further complicated by the fact that many vessels fishing out of Rhode Island and Massachusetts, which are harvesting lobsters on Georges Bank, must travel through the SNE stock area to reach their port of landing. In addition, these vessels may be permitted to fish in multiple management areas, including areas that span both lobster stocks.

To date, no Commission addendum has included a recommendation that Federal permits delineate which stock a harvester in LCMA 3 is eligible to fish. In addition, management actions responding to the decline in the SNE stock have been applied throughout LCMA 3. In this case, management measures targeting the GOM/GBK stock would also be applied to all LCMA 3 harvesters regardless of location and stock fished.

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## **2.7.2 Improve Enforcement**

A potential advantage of more consistent management measures is the ability to improve enforcement throughout the stock. Currently, disparate management measures hinder the ability for law enforcement to enforce various regulations in the lobster fishery. For example, vessels landing in Massachusetts harvest lobsters from four LCMAs, each of which has a different set of minimum gauge sizes (ranging from 3 ¼" to 3 17/32") and maximum gauge sizes (ranging from 5" to no maximum gauge size). As a result, at dealers only the most liberal measure can be implemented as a strict possession limit. The Law Enforcement Committee has continually recommended the use of standardized management measures in the lobster fishery, as inconsistent regulations mean that the least restrictive regulations becomes the enforceable standard once product leaves the dock. In addition, regulatory inconsistencies decrease the likelihood of successful prosecution of violators.

## **2.7.3 Interstate Shipment of Lobsters**

Increasing consistency in regulations may also address concerns regarding the sale and shipment of lobsters across state lines. With decreased landings in SNE and expanding markets for the GOM/GBK stock, there has been increased demand for the shipment of lobsters across state lines. This movement of lobster can be complicated by the fact that the gauge sizes differ across LCMAs, and many states implement the minimum and maximum gauge sizes as possession limits rather than landing limits per state regulation or law. This means the gauge sizes apply to anyone in the lobster supply chain, not just harvesters. While these strict regulations improve the enforcement of gauge sizes, it can complicate interstate shipment of lobsters, particularly given the minimum size in LCMA 1 is smaller than the other management areas. As a result, some dealers must sort lobster by size in order to ship product across state lines.

Moving toward more consistent minimum sizes within the inshore LCMAs would help alleviate this issue by easing the ability of states to participate in the GOM/GBK lobster supply chain. This would not only reduce the burden on dealers that sort product by size but also enhance the enforcement of gauge sizes in the fishery.

## **3.0 Proposed Management Options**

The following management options consider modifications to the management program with the goal of increasing protection of the GOM/GBK spawning stock. The final management program selected will apply to LCMAs 1, 3, and OCC.

- Issue 1 addresses the standardization of a subset of management measures within LCMAs and across the GOM/GBK stock.
- Issue 2 considers applying either a trigger mechanism or a predetermined schedule for implementing biological management measures that are expected to provide increased protection to the SSB.

### **3.1 Issue 1: Measures to be standardized upon final approval of Addendum XXVII**

This issue considers options to modify some management measures immediately upon final approval of the Addendum to achieve more consistency in measures within and across LCMAs.

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One option proposes to modify some of the OCC measures to address differing regulations for state and federal permit holders. Specifically, for state-permitted fisherman in state waters there is no maximum gauge size and the V-notch definition is  $\frac{1}{4}$ " without setal hairs. For federal permit holders, the maximum gauge size is  $6\frac{3}{4}$ " and the V-notch definition is  $\frac{1}{8}$ " with or without setal hairs. The disparity between regulations for different harvesters within the same area creates challenges for enforcement.

Options are also proposed to standardize V-notch regulations across the LCMAs within the GOM/GBK stock, as well as regulations related to the issuance of tags for trap tag losses. Uniformity in these measures would benefit enforcement and apply a consistent conservation strategy across the stock unit.

### **Option A: Status Quo**

This option would maintain the current management measures for each LCMA at final approval of the addendum.

### **Option B: Standardized measures to be implemented upon final approval of addendum**

The Board may select more than one of the below options. The states would be required to implement the selected management measures for the fishing year specified by the Board at final approval of the addendum.

- **Sub-option B1:** Upon final approval of the addendum, implement standardized measures within an LCMA to the most conservative measure where there are inconsistencies between state and federal regulations within GOM/GBK stock LCMAs. This would result in the maximum gauge being standardized to  $6\frac{3}{4}$ " for state and federal permit holders, and the V-notch possession definition being standardized to  $\frac{1}{8}$ " with or without setal hairs in OCC. This means harvest is prohibited for a female lobster with a V-shaped notch greater than  $\frac{1}{8}$ ".
- **Sub-option B2:** Upon final approval of the addendum, implement a standard V-notch requirement across all LCMAs in the GOM/GBK stock. This would result in mandatory V-notching for all eggerys in LCMA 1, 3, and OCC.
- **Sub-option B3:** Upon final approval of the addendum, implement a standard V-notch possession definition of  $\frac{1}{8}$ " with or without setal hairs for LCMAs 1, 3, and OCC. Any jurisdiction could implement more conservative regulations.
- **Sub-option B4:** Upon final approval of the addendum, standardize regulations across LCMAs 1, 3, and OCC to limit the issuance of trap tags to equal the harvester trap tag allocation. This would mean no surplus trap tags would be automatically issued until trap losses occur and are documented.

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### 3.2 Issue 2: Implementing management measures to increase protection of SSB

The primary objective of this action is to increase the protection of SSB in the GOM/GBK stock. The proposed options consider changes to the minimum and maximum gauge sizes along with corresponding vent sizes for the LCMAs within the stock. The proposed measures are expected to 1) increase SSB, and 2) result in the minimum gauge size increasing to meet or exceed the size at 50% maturity (L50) for each LCMA (LCMA 1: eastern GOM L50 = 88 mm, western GOM L50 = 83 mm, LCMA 3: Georges Bank L50 = 91 mm). Appendix B includes a full technical report of analysis performed to project the impacts of various gauge size combinations on total weight of lobsters landed, number of lobsters landed, SSB and exploitation.

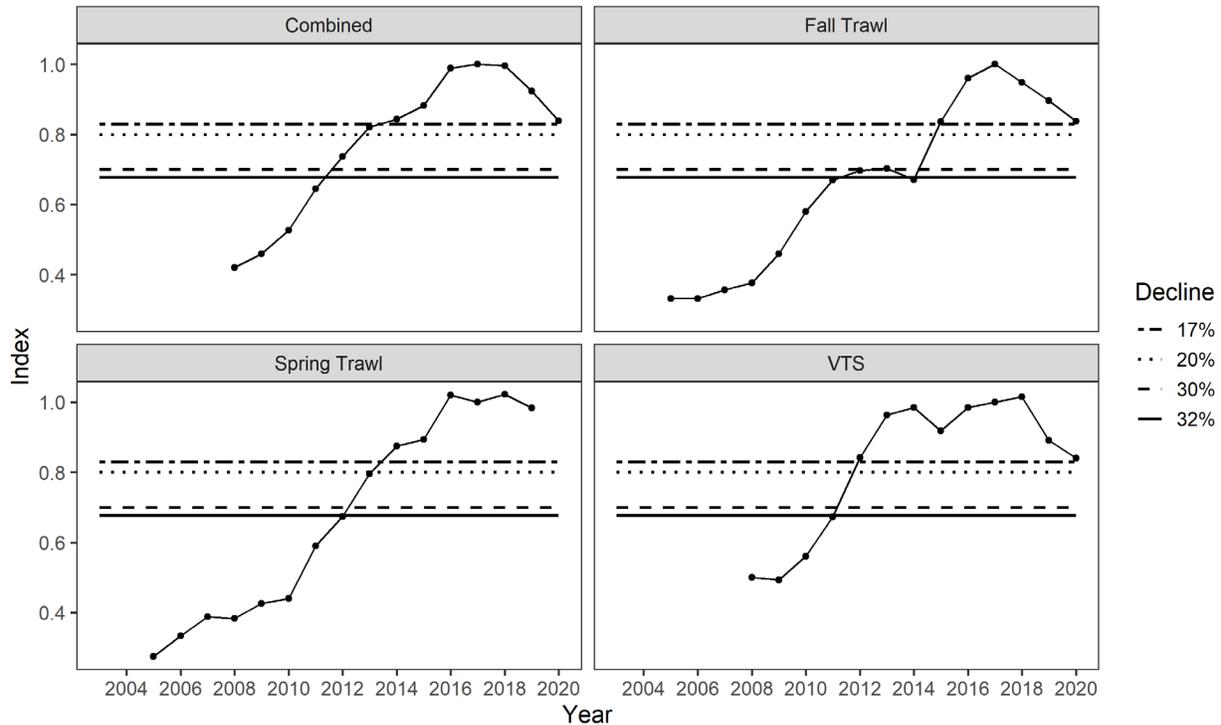
This issue proposes two approaches for implementing management changes to increase protection of SSB. One approach, which is applied in Options A through D, is to establish a trigger mechanism whereby pre-determined management changes would be triggered upon reaching a defined trigger level based on observed changes in recruit (71-80 mm carapace length) abundance indices. The proposed mechanism includes establishing up to two management triggers based on recruit conditions observed in three surveys that were used to inform the assessment model estimates of reference abundance and stock status for the GOM/GBK stock. These recruit indices include: 1) combined ME/NH and MA spring trawl survey index, 2) combined ME/NH and MA fall trawl survey index, and 3) model-based VTS index.

Each management trigger is defined by a certain level of decline in the indices from an established reference period. The reference value for each index is calculated as the average of the index values from 2016-2018. The percent declines in the indices are expected to approximate comparable declines in overall abundance of the stock, and relate to the abundance reference points established by the Board. The analyses conducted to develop the trigger mechanism and evaluate its performance in appropriately triggering management are described in detail in Appendix C. Figure 1 (top left panel) shows the calculated trigger index compared to the four proposed trigger levels in this document.

A second approach, which is applied in Option E, is to establish a pre-determined schedule for future changes to the management measures. This approach is proactive in nature and addresses the issue of growth overfishing by increasing the minimum legal size while the stock conditions are favorable.

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**Figure 1. Scaled survey-specific indices and combined trigger index compared to proposed trigger levels. Top-left: combined trigger index which would be used to trigger changes in management measures. Top-right: moving three year average of fall trawl survey indices. Bottom-left: moving three year average of spring trawl survey indices. Bottom-right: moving three year average of VTS indices.**



## Option A: Status Quo

Under this option there would be no additional changes to the management measures for the LCMAs within the GOM/GBK stock beyond the option selected under Issue 1.

## Option B: Gauge size changes triggered by 17% decline, and 32% decline in trigger index

This option would establish two triggers based on observed changes in indices of recruit abundance compared to the reference level of the trigger index. The first trigger point would be a change in the recruit abundance indices greater than or equal to a 17% decline from the reference abundance level (equal to the average of the index values from 2016-2018). Upon this trigger level being reached, the minimum gauge size for LCMA 1 would increase by  $\frac{1}{16}$ " from the current size ( $3\frac{1}{4}$ "") to  $3\frac{5}{16}$ " for the following fishing year. All other measures would remain status quo unless triggered by a change in recruit abundance indices. The second trigger point would be a change in the recruit abundance indices greater than or equal to a 32% decline from the reference abundance level. Upon this trigger level being reached, the minimum gauge size for LCMA 1 would increase again by  $\frac{1}{16}$ " from the  $3\frac{5}{16}$ " to  $3\frac{3}{8}$ " for the following fishing year, and the maximum gauge size in LCMA 3 and OCC would decrease to 6". The table below lists the management measures that would be automatically implemented when each trigger point is reached, with changes from the current measures in bold. The vent size in LCMA 1 would be adjusted once, corresponding with the final minimum gauge size

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change associated with Trigger 2. The final gauge and vent size changes are expected to maintain similar retention rates of legal lobsters and protection of sub-legal sizes to the current gauge and vent sizes. The final vent size is also consistent with the current vent size used in SNE for the same minimum gauge size of  $3\frac{3}{8}$ ".

Option B	LCMA 1	LCMA 3	OCC
Trigger 1 (17% decline)	<b>Minimum gauge:</b> <b><math>3\frac{5}{16}</math>" (84 mm)</b> Maximum gauge: status quo, 5" Vent size: status quo	Minimum gauge: status quo, $3\frac{17}{32}$ " (90 mm) Maximum gauge: status quo, $6\frac{3}{4}$ " (171 mm) Vent size: status quo	Minimum gauge: status quo, $3\frac{3}{8}$ " (86 mm) Max: status quo, $6\frac{3}{4}$ " (171 mm) Vent size: status quo
Trigger 2 (32% decline)	<b>Minimum gauge:</b> <b><math>3\frac{3}{8}</math>" (86 mm)</b> Maximum gauge: status quo <b>Vent size: 2 x <math>5\frac{3}{4}</math>" rectangular; <math>2\frac{5}{8}</math>" circular</b>	Minimum gauge: status quo <b>Maximum gauge: 6"</b> Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: 6"</b> Vent size: status quo

The proposed increases to the minimum gauge sizes in LCMA 1 and OCC are expected to increase the proportion of the population protected from harvest by the fishery before being able to reproduce. The proposed decreases to the maximum gauge sizes in LCMA 3 and OCC are expected to enhance resiliency by placing forever protections on a small proportion of the population, including larger lobsters of both sexes.

### Option C: Gauge size changes triggered by 20% decline, and 30% decline in trigger index

This option is identical to Option B above, with the exception of the trigger levels that would result in changes to the management measures. Under this option, the first trigger point would be a change in the recruit abundance indices greater than or equal to a 20% decline from the reference abundance level (equal to the average of the index values from 2016-2018), and the second trigger point would be a change in the recruit abundance indices greater than or equal to a 30% decline from the reference abundance level. The measures that would be implemented when each trigger level is reached are shown in the table below.

Option C	LCMA 1	LCMA 3	OCC
Trigger 1 (20% decline)	<b>Minimum gauge:</b> <b><math>3\frac{5}{16}</math>" (84 mm)</b> Maximum gauge: status quo, 5" Vent size: status quo	Minimum gauge: status quo, $3\frac{17}{32}$ " (90 mm) Maximum gauge: status quo, $6\frac{3}{4}$ " (171 mm) Vent size: status quo	Minimum gauge: status quo, $3\frac{3}{8}$ " (86 mm) Max: status quo, $6\frac{3}{4}$ " (171 mm) Vent size: status quo

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Trigger 2 (30% decline)	<b>Minimum gauge:</b> <b>3 3/8" (86 mm)</b> Maximum gauge: status quo <b>Vent size: 2 x 5 3/4"</b> <b>rectangular; 2 5/8"</b> <b>circular</b>	Minimum gauge: status quo <b>Maximum gauge: 6"</b> Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: 6"</b> Vent size: status quo
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### Option D: Gradual change in gauge sizes triggered by 17% decline in trigger index

This option considers establishing a trigger level which, upon being reached, would initiate a series of gradual changes in gauge sizes for the LCMAs in the GOM/GBK stock. The minimum gauge size would change in increments of  $1/16$ ", and the maximum gauge size would change in increments of  $1/4$ ". The first change would be triggered by a change in the recruit abundance indices greater than or equal to a 17% decline from the reference abundance level (equal to the average of the index values from 2016-2018). Following this initial change, incremental changes to the gauge sizes would occur every other year. The gauge size changes that would be implemented at each step, and the final gauge sizes that would be reached for each area are shown in the table below. The vent size in LCMA 1 would be adjusted once, corresponding with the final minimum gauge size change in year 5. The final gauge and vent size changes are expected to maintain similar retention rates of legal lobsters and protection of sub-legal sizes to the current gauge and vent sizes. The final vent size is also consistent with the current vent size used in SNE for the same minimum gauge size of  $3 3/8$ ".

Option D	LCMA 1	LCMA 3	OCC
<b>Current Measures (Year 0)</b>	Minimum gauge: $3 1/4$ " Maximum gauge: 5" Vent size: status quo	Minimum gauge: $3^{17/32}$ " Maximum gauge: $6 3/4$ " Vent size: status quo	Minimum gauge: $3 3/8$ " Maximum gauge: $6 3/4$ " Vent size: status quo
Trigger 1 (17% decline) (Year 1)	<b>Minimum gauge:</b> <b><math>3 5/16</math>" (84 mm)</b> Maximum gauge: status quo Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: <math>6 1/2</math>"</b> Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: <math>6 1/2</math>"</b> Vent size: status quo
Intermediate gauge sizes (Year 3)	<b>Minimum gauge:</b> <b><math>3 3/8</math>" (86 mm)</b> Maximum gauge: status quo Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: <math>6 1/4</math>"</b> Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: <math>6 1/4</math>"</b> Vent size: status quo
Final gauge and vent sizes (Year 5)	Minimum gauge: $3 3/8$ " Maximum gauge: status quo <b>Vent size: 2 x <math>5 3/4</math>"</b> <b>rectangular; <math>2 5/8</math>"</b> <b>circular</b>	Minimum gauge: status quo <b>Maximum gauge: 6"</b> Vent size: status quo	Minimum gauge: status quo <b>Maximum gauge: 6"</b> Vent size: status quo

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### Option E: Scheduled changes to minimum gauge size in LCMA 1

This option considers establishing a predetermined schedule for implementing gradual changes to the minimum gauge and vent size in LCMA 1 to increase the SSB (see table below for the proposed changes). The first step increases the minimum gauge size in LCMA 1 by  $\frac{1}{16}$ " to  $3\frac{5}{16}$ " for the 2023 fishing year. In the final year of adjustments, the minimum gauge size in LCMA 1 would be increased to  $3\frac{3}{8}$ " for the 2025 fishing year. The vent size in LCMA 1 would also be adjusted once, at the same time the final gauge size is implemented in 2025. The final gauge and vent size changes are expected to maintain similar retention rates of legal lobsters and protection of sub-legal sizes to the current gauge and vent sizes.

Option E	LCMA 1	LCMA 3	OCC
2023 fishing year measures	<b>Min: <math>3\frac{5}{16}</math>" (84 mm)</b> Max: status quo Vent size: status quo	Min: status quo Max: status quo	Min: status quo Max: status quo
2025 fishing year measures	<b>Min: <math>3\frac{3}{8}</math> (86 mm)</b> Max: status quo <b>Vent size: <math>2 \times 5\frac{3}{4}</math>" rectangular; <math>2\frac{5}{8}</math>" circular</b>	Min: status quo Max: status quo	Min: status quo Max: status quo

### 3.3 Implementation of Management Measures in LCMA 3

Although only a portion of LCMA 3 encompasses the GOM/GBK stock (see Section 2.8 Stock Boundaries for additional information), any measures selected by the Board pertaining to LCMA 3 would apply to all LCMA 3 permit holders, including those that fish in the SNE stock.

Given the objective of this addendum is specific to protecting the GOM/GBK spawning stock, new management measures must either apply to all LCMA 3 harvesters regardless of location and stock fished (and therefore also impact the SNE fishery) or new measures would have to be stock (and geographic area) specific in order to only affect the GOM/GBK fishery. For example, an LCMA 3 harvester seeking to continue fishing in GOM/GBK would either have to declare and be permitted to fish within the GOM/GBK stock area to be held accountable, or opt to not participate in the GOM/GBK fishery to avoid the more restrictive measures. Applying the selected measures to only the GOM/GBK portion of LCMA 3 would create a significant administrative burden to appropriately divide LCMA 3 in a way to minimize impacts and issue permits and enforce measures based on this division. In addition, dividing LCMA3 creates potential for confusion and noncompliance among LCMA 3 permit holders, particularly as there are other ongoing activities in this area affecting a permit holder's fishing plans, including closures for protected species, development of other ocean uses, and the overlap with the Jonah crab fishery. To date, there have been no Commission addenda that included a recommendation that Federal permits specify the stock area in which an LCMA 3 harvester is eligible to fish.

Applying the measures across the entire management area is consistent with previous changes to the management measures in LCMA 3. When several addenda implemented reductions in

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fishing capacity (Addendum XVIII) and the Area 3 conservation tax (Addendum XIX) to address the declining condition of the SNE stock, the measures were also applied to the GOM/GBK portion of LCMA 3, which was not overfished nor experiencing overfishing. Though the impacts of the proposed measures on the SNE stock and fishery have not been analyzed, it is likely that the proposed changes would have only trivial negative impacts to catch and positive impacts to SSB considering the current depleted status of the stock.

### 4.0 Compliance

If the existing FMP 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 provisions included in the addendum. A final implementation schedule will be identified based on the management tools chosen.

### 5.0 Recommendations for Actions in Federal Waters

The management of American lobster in the EEZ is the responsibility of the Secretary of Commerce through the National Marine Fisheries Service. The Atlantic States Marine Fisheries Commission recommends that the federal government promulgate all necessary regulations in Section 3.0 to implement complementary measures to those approved in this addendum.

### 6.0 References

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## 7.0 Tables and Figures

**Table 1.** Existing 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 <sup>1</sup> (possession)	Zero Tolerance	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs <sup>1</sup>	1/8" with or w/out setal hairs <sup>1</sup>	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs <sup>1</sup>
Max. Gauge (male & female)	5"	5 1/4"	6 3/4"	5 1/4"	5 1/4"	5 1/4"	State Waters none Federal Waters 6 3/4"
Season Closure				April 30-May 31 <sup>2</sup>	February 1-March 31 <sup>3</sup>	Sept 8-Nov 28 <sup>4</sup>	February 1-April 30

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Table 2. GOM/GBK model-free indicators for the 2020 Stock Assessment. The left table shows the GOM spawning stock abundance, the right table shows GBK spawning stock abundance.

SPAWNING STOCK ABUNDANCE						
Mean weight (g) per tow of mature females						
Survey	NESFC		ME/NH		MA 514	
	fall	spring	fall	spring	fall	spring
1981	175.32	400.28			502.65	430.53
1982	39.45	113.58			626.48	151.21
1983	206.03	234.21			844.76	67.08
1984	234.64	443.81			593.77	126.47
1985	499.62	2771.23			919.56	93.81
1986	267.97	502.99			231.88	112.97
1987	85.35	497.40			194.34	148.62
1988	186.56	244.92			200.58	88.14
1989	325.69	247.15			293.61	230.26
1990	216.65	516.20			1048.72	241.94
1991	247.11	430.56			335.80	165.54
1992	193.95	453.31			512.83	212.89
1993	284.34	484.30			120.59	229.72
1994	430.32	720.67			783.17	285.01
1995	464.96	390.15			520.26	171.71
1996	734.25	872.53			569.39	156.53
1997	568.34	1083.76			235.18	114.78
1998	381.81	1182.44			282.79	170.21
1999	1444.07	807.41			365.53	282.12
2000	585.66	1281.05	4430.55		533.40	236.55
2001	511.25	1498.42	2446.85	690.89	165.74	235.85
2002	1789.42	2022.04	4638.64	1436.34	324.34	175.73
2003	985.93	2343.63	3949.63	1226.05	129.67	72.99
2004	685.89	2773.35	3610.67	907.07	120.27	259.35
2005	465.35	1670.29	4805.25	1990.08	248.23	489.12
2006	681.87	1810.96	3698.94	1327.93	240.27	410.97
2007	445.78	1536.47	3163.24	1437.85	176.95	139.94
2008	805.10	1894.91	4080.36	1107.00	559.70	300.35
2009	1787.92	1864.92	6906.45	1747.30	630.52	219.83
2010	2850.60	2476.79	5793.51	1886.61	1424.75	211.52
2011	2317.94	2089.39	6169.40	2013.80	1268.44	267.51
2012	3215.29	3516.38	4174.85	2287.55	889.87	124.81
2013	3299.56	2499.71	5363.14	2007.92	1135.54	300.86
2014	4979.28	3083.09	5891.58	3010.73	768.88	382.81
2015	3553.44	3665.39	8488.62	2233.05	1947.04	418.46
2016	3692.26	5142.42	7691.01	2613.49	3712.66	1119.26
2017	3274.69	6566.80	4629.68	2530.74	2309.44	564.30
2018	2093.20	3555.09	5242.34	2005.07	2782.55	550.68
<b>2014-2018 mean</b>	3518.57	4402.56	6388.65	2478.62	2304.11	607.10

<b>25th median</b>	272.06	487.57	4015.00	1355.03	242.26	149.27
<b>75th</b>	539.79	1389.74	4638.64	1938.34	526.83	224.78
<b>75th</b>	1789.05	2443.50	5842.54	2178.24	878.60	296.52

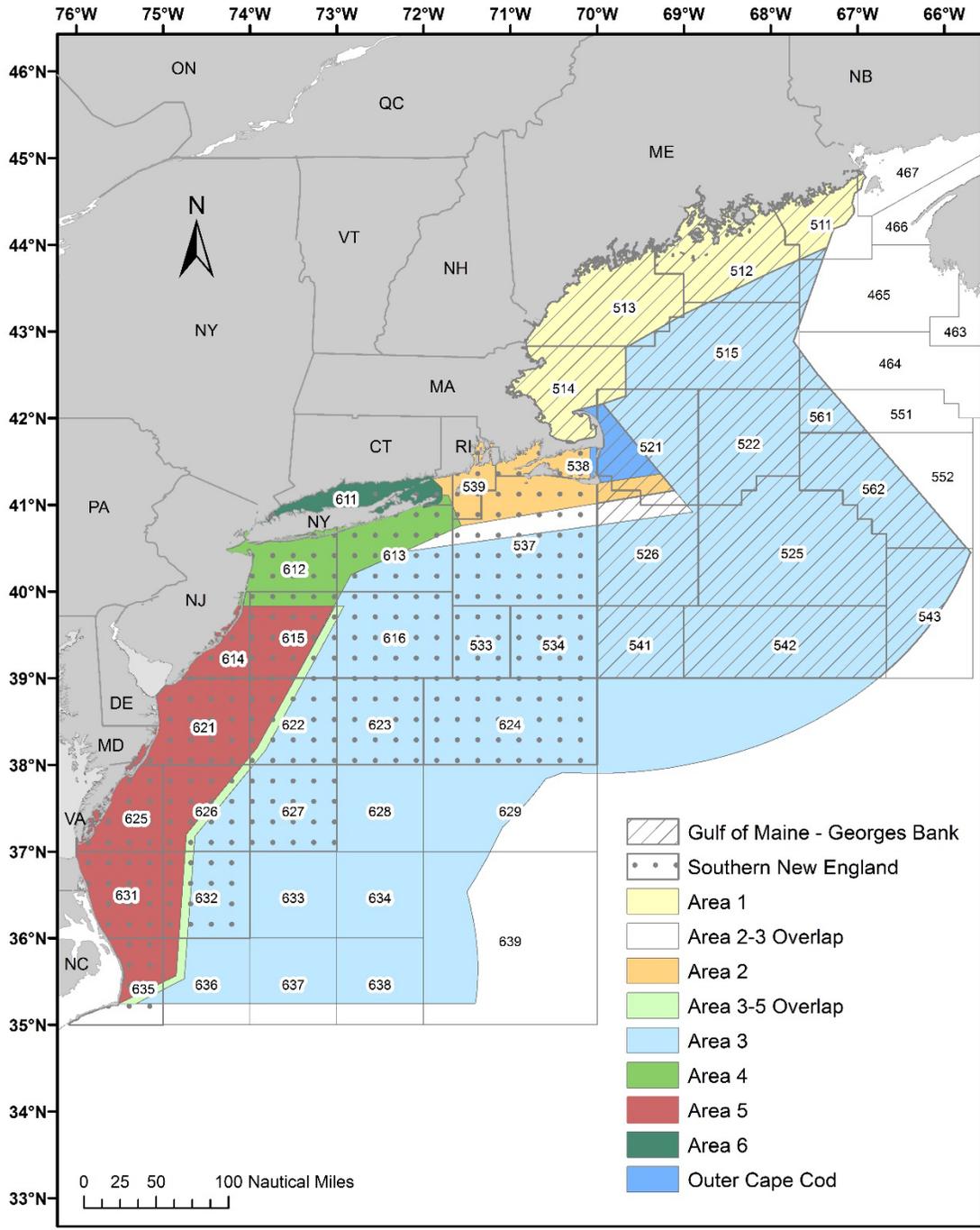
  

SPAWNING STOCK ABUNDANCE		
Mean weight (g) per tow of mature females		
Survey	NESFC	
	fall	spring
1981	707.14	69.71
1982	670.07	123.96
1983	643.84	152.05
1984	397.33	45.17
1985	504.87	39.00
1986	491.96	307.05
1987	537.31	113.27
1988	695.27	307.49
1989	933.18	161.43
1990	761.64	103.62
1991	848.03	164.32
1992	817.25	213.11
1993	626.81	126.03
1994	774.61	41.77
1995	939.85	71.74
1996	1051.09	482.61
1997	754.00	62.46
1998	993.56	64.67
1999	1363.68	395.66
2000	945.69	132.57
2001	1756.38	313.41
2002	2183.80	341.90
2003	1030.19	842.92
2004	1557.16	298.95
2005	1404.20	491.00
2006	2123.43	465.72
2007	1859.53	728.26
2008	3074.33	1827.61
2009	3703.99	1336.34
2010	2120.51	1126.52
2011	4681.76	1113.11
2012	2696.38	1510.08
2013	2530.26	1369.39
2014	3012.69	1833.98
2015	3743.71	1509.13
2016	3020.98	2138.96
2017	6627.18	3749.60
2018	9630.86	725.09
<b>2014-2018 mean</b>	5207.09	1991.35

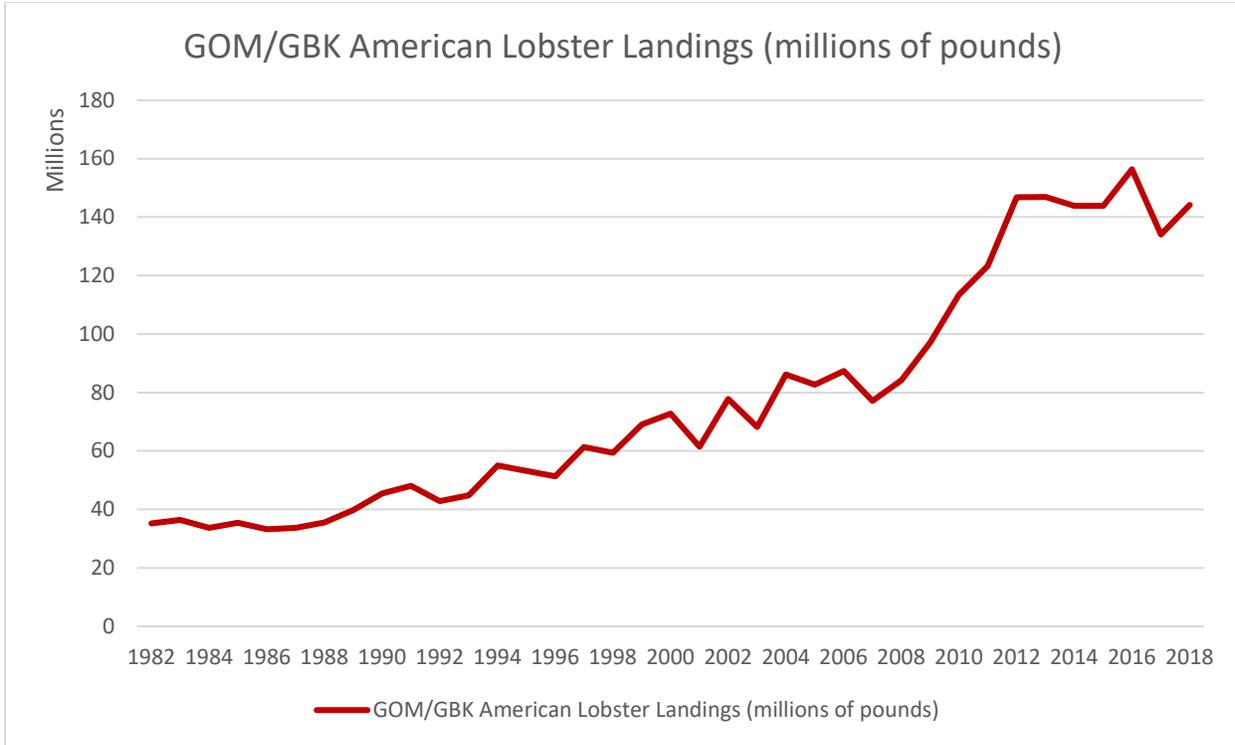
<b>25th median</b>	755.91	124.47
<b>75th</b>	1040.64	310.45
<b>75th</b>	2443.64	1045.56

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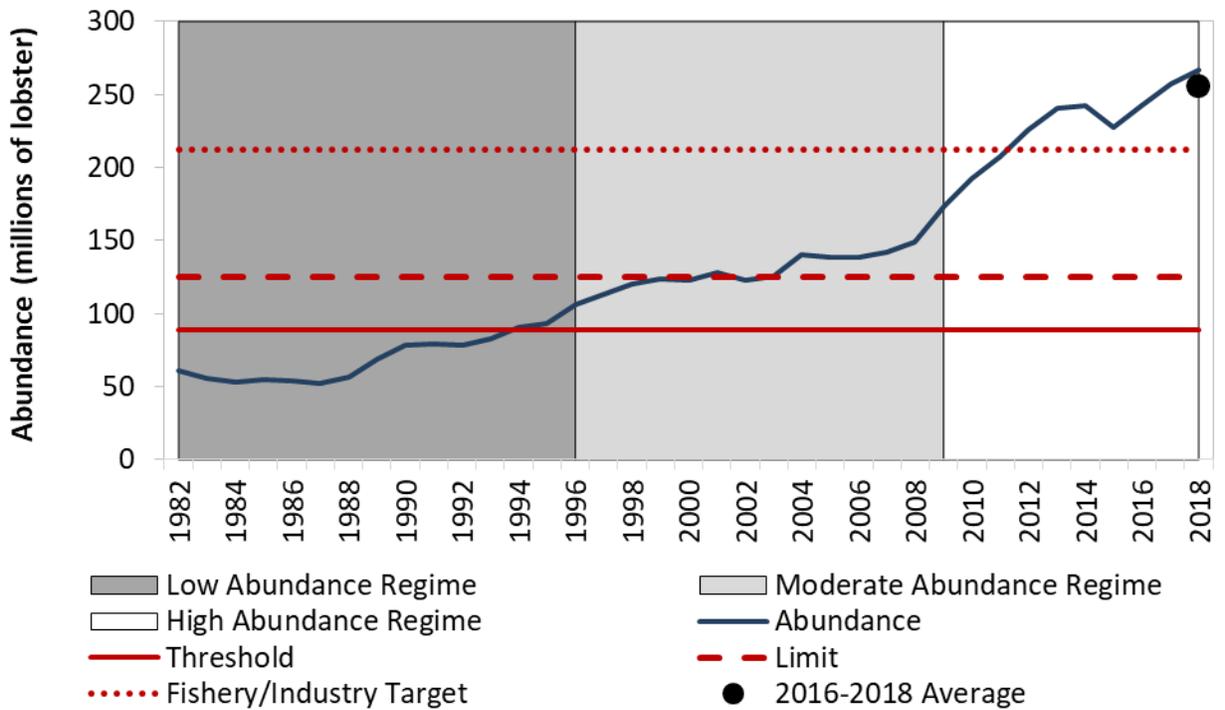


**Figure 1.** Lobster conservation management areas (LCMA) in the American lobster fishery. LCMA 1, 3, and OCC make up the majority of the GOM/GBK stock.

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**Figure 2.** Landings in the GOM/GBK stock (1982-2018). Stock specific landings are updated during each benchmark stock assessment.



**Figure 3.** Stock abundance

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## Appendix A. 2021 Annual Data Update of American Lobster GOM/GBK Stock Indicators

### Background

An annual Data Update process between American lobster stock assessments was recommended during the 2020 stock assessment to more closely monitor changes in stock abundance. The objective of this process is to present information—including any potentially concerning trends—that could support additional research or consideration of changes to management. Data sets recommended for this process were generally those that indicate exploitable lobster stock abundance conditions expected in subsequent years and include:

- YOY settlement indicators
- Trawl survey indicators, including recruit abundance (71-80 mm carapace length lobsters) and survey encounter rate
- Ventless trap survey sex-specific model-based abundance indices (53 mm+ carapace length lobsters)

For this first Data Update, data sets were updated with data since the stock assessment (i.e., 2019 and 2020). Indicator status (negative, neutral, or positive – see table below) was determined relative to the percentiles of the stock assessment time series (i.e., data set start year through 2018).

Indicator	< 25 <sup>th</sup> percentile	Between 25 <sup>th</sup> and 75 <sup>th</sup> percentile	> 75 <sup>th</sup> percentile
YOY settlement (larval or YOY)	Negative	Neutral	Positive
Trawl survey recruit abundance	Negative	Neutral	Positive
Trawl survey encounter rate	Negative	Neutral	Positive
Ventless trap survey abundance	Negative	Neutral	Positive

The five year means provided during the stock assessment (2014-2018) for terminal indicator status determinations were also updated with the new years of data. This treatment of data is consistent with the stock indicators provided during stock assessments (see Section 5 in the stock assessment report for more detail) with two important notes. First, the ventless trap survey abundance indices have not been presented as stock indicators in past assessments due to concerns that the short time series is not representative of the stock’s productivity potential. These indices are included in this Data Update, along with the other data sets, specifically to show changes in stock conditions since the 2020 stock assessment. The Technical Committee recommended these indices be presented as indices by NOAA statistical area. Stratification of the ventless trap survey was designed around these statistical areas, unlike the trawl surveys, and these indices provide better spatial resolution to examine abundance trends within the stock boundary. The ventless trap survey index model developed during the stock assessment was structured to estimate stockwide indices and has not been evaluated for estimating indices by statistical area, so these indices are design-based calculations as opposed to model-based indices originally recommended for the Data Update process. Second, the covid-19 pandemic had substantial impacts on data collection in 2020 and many of the trawl surveys providing these data sets did not sample which impacts the updated five year means provided in the results. Below are the results of the data updates by sub-stock.

### Results

#### *Gulf of Maine (GOM)*

- YOY conditions showed improvements, but were still not positive (Table 1 and Figure 1).

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- Updated five year means were all neutral, whereas two of five were negative during the stock assessment.
- All 2019 and 2020 values were neutral except the MA 514 value in 2019 which was negative.
- Trawl survey recruit abundance indicators showed positive conditions similar to conditions during the stock assessment (Table 2 and Figure 2).
  - Five of six indicators were not available for 2020 due to covid-19 sampling restrictions.
  - Updated five year means were all positive, as they were during the stock assessment.
  - The only value available for 2020 (ME/NH Fall) was the first neutral annual value observed since 2015.
  - Fall indicators tended to show declining trends in the last few years of available data that were not apparent in spring indicators.
- Trawl survey encounter rates were similar to conditions during the stock assessment, but did show some deterioration from positive to neutral conditions (Table 3 and Figure 3).
  - Five of six indicators were not available for 2020 due to covid-19 sampling restrictions.
  - Three of six updated five year means were neutral, whereas only one was neutral during the stock assessment. All others were positive.
- Ventless trap survey indices showed abundance declining since the stock assessment (Table 4 and Figure 4).
  - Six of eight updated five year means were neutral, whereas only four of eight were neutral during the stock assessment. All others were positive.
  - The two positive updated five year means were for the two sexes in the northern-most statistical area (511). Despite the positive means, the 2020 values for both sexes showed strong declines to neutral conditions.
  - The female survey value in 2020 and the male value in 2019 and 2020 in the southern-most statistical area (514) were negative, the first negative values observed in the stock since 2014.

### **Georges Bank (GBK)**

- Trawl survey recruit abundance indicators showed deteriorating conditions since the stock assessment (Table 5 and Figure 5).
  - No indicators were available for 2020 due to covid-19 sampling restrictions.
  - Updated means for one of the two indicators changed from neutral to negative. Both were neutral during the stock assessment.
  - These indicators tend to be noisier than some of the other abundance indicators, with high interannual variability and lack of discernible trends.
- Trawl survey encounter rates were positive and similar to conditions during the stock assessment (Table 6 and Figure 6).
  - No indicators were available for 2020 due to covid-19 sampling restrictions.
  - Updated means for both indicators were positive. This is unchanged from the stock assessment.

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## Tables and Figures

Table 1. GOM abundance indicators: YOY indices.

YOUNG-OF-YEAR INDICES					
Survey	ME				MA
	511	512	513 East	513 West	514
1981					
1982					
1983					
1984					
1985					
1986					
1987					
1988					
1989			1.64		
1990			0.77		
1991			1.54		
1992			1.30		
1993			0.45		
1994			1.61		
1995		0.02	0.66		1.01
1996		0.05	0.47		0.00
1997		0.05	0.46		0.10
1998		0.00	0.14		0.03
1999		0.04	0.65		0.43
2000	0.00	0.10	0.13	0.17	0.07
2001	0.24	0.43	2.08	1.17	0.43
2002	0.13	0.29	1.38	0.85	1.00
2003	0.22	0.27	1.75	1.22	0.78
2004	0.18	0.36	1.75	0.67	1.13
2005	1.59	1.36	1.77	0.82	1.11
2006	0.58	1.13	0.84	0.82	0.46
2007	0.84	1.34	2.01	1.27	1.38
2008	0.42	0.83	1.08	0.97	0.33
2009	0.69	0.48	1.25	0.45	0.17
2010	0.28	0.72	0.80	0.47	0.50
2011	0.41	1.10	2.33	0.67	0.64
2012	0.53	0.73	1.06	0.22	0.09
2013	0.10	0.20	0.48	0.12	0.00
2014	0.16	0.43	0.83	0.33	0.11
2015	0.11	0.22	0.43	0.05	0.00
2016	0.13	0.21	0.47	0.12	0.08
2017	0.16	0.36	0.70	0.20	0.08
2018	0.27	0.32	0.71	0.20	0.03
2014-2018 mean	0.17	0.31	0.63	0.18	0.06
2019	0.42	0.61	1.03	0.35	0.06
2020	0.29	0.49	1.17	0.25	0.19
2016-2020 mean	0.25	0.40	0.82	0.23	0.09
25th	0.15	0.18	0.52	0.20	0.08
median	0.24	0.34	0.84	0.47	0.25
75th	0.48	0.72	1.59	0.84	0.67

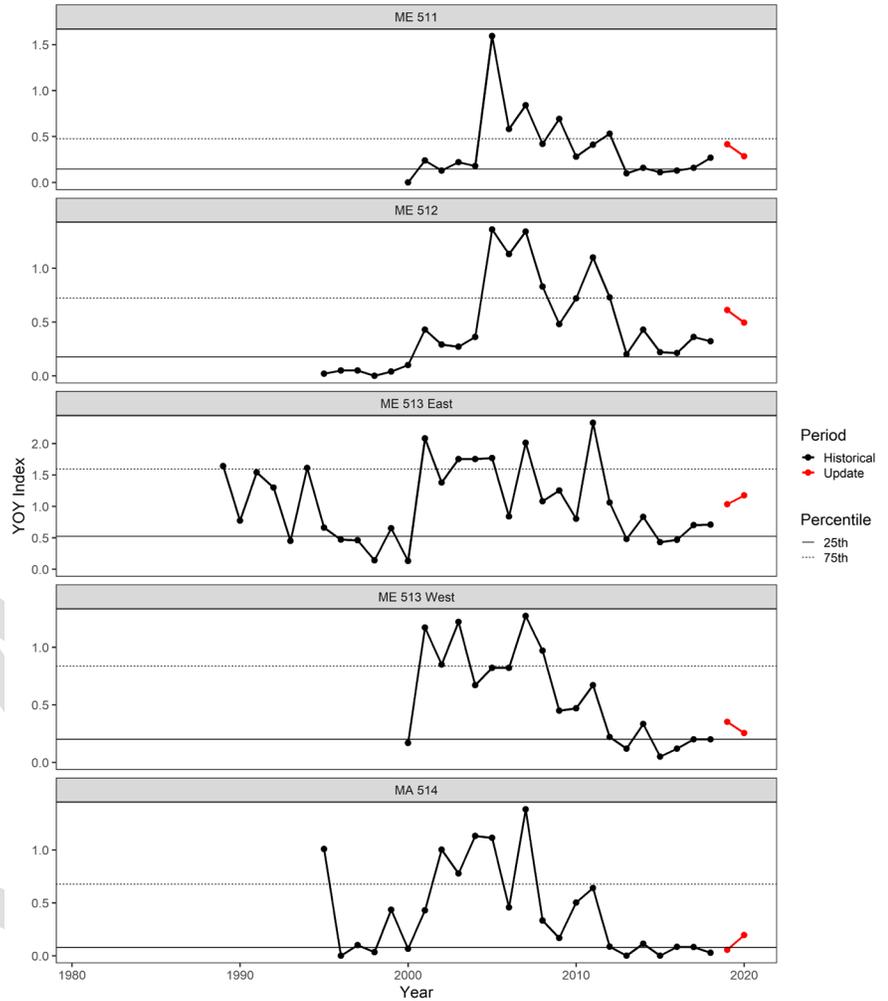


Figure 1. GOM abundance indicators: YOY indices.

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Table 2. GOM abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)						
Abundance of lobsters 71 - 80 mm CL (sexes combined)						
Survey	NEFSC		ME/NH		MA 514	
	Spring	Fall	Spring	Fall	Spring	Fall
1981	0.13	0.06			6.43	4.80
1982	0.29	0.42			2.77	3.89
1983	0.28	0.90			1.77	9.71
1984	0.20	0.31			2.17	6.13
1985	0.14	1.41			4.44	9.50
1986	0.27	1.29			2.99	3.83
1987	0.67	0.57			2.42	1.17
1988	0.67	1.21			2.50	4.14
1989	0.00	1.61			4.45	7.53
1990	0.27	1.76			6.12	15.36
1991	0.55	1.41			2.74	7.55
1992	0.50	1.37			4.32	9.01
1993	0.25	0.86			5.14	3.20
1994	0.15	2.75			7.54	13.87
1995	1.45	1.44			4.55	12.18
1996	0.76	4.59			3.11	11.96
1997	2.02	2.12			4.59	6.48
1998	1.59	2.16			4.52	7.54
1999	1.51	3.01			4.25	8.73
2000	4.64	3.01		24.09	4.25	8.89
2001	1.05	1.51	9.28	17.81	4.31	1.59
2002	1.08	1.91	22.00	22.41	3.41	5.00
2003	1.41	0.36	10.65	18.32	1.96	0.67
2004	0.84	2.26	7.55	12.29	2.47	1.30
2005	0.34	0.87	18.51	25.90	4.40	2.12
2006	2.17	1.27	18.07	18.30	6.09	5.29
2007	1.62	0.64	15.91	16.82	0.77	1.58
2008	0.99	2.41	17.88	31.61	2.54	6.14
2009	4.88	4.90	24.72	32.67	3.20	8.91
2010	2.98	4.53	17.66	37.35	2.20	9.53
2011	10.27	11.83	39.25	46.09	5.24	14.98
2012	11.25	6.74	36.55	37.12	3.03	11.35
2013	10.93	18.12	34.50	37.86	4.82	12.16
2014	11.66	21.54	50.79	41.95	3.35	7.05
2015	14.44	17.89	38.51	67.99	7.09	17.86
2016	13.25	22.54	50.83	60.07	13.58	17.41
2017	15.74		48.42	48.13	7.85	13.63
2018	14.15	15.87	42.77	55.84	5.25	25.62
2014-2018 mean	13.84	19.46	46.27	54.80	7.43	16.31
2019	16.69	7.62	46.37	50.85	10.78	14.61
2020				34.65		
2016-2020 mean	14.95	15.34	47.10	49.91	9.37	17.82
25th median	0.30	1.21	17.72	20.36	2.75	4.30
75th	1.07	1.76	23.36	32.67	4.28	7.55
	4.23	4.53	39.07	44.02	5.06	11.81

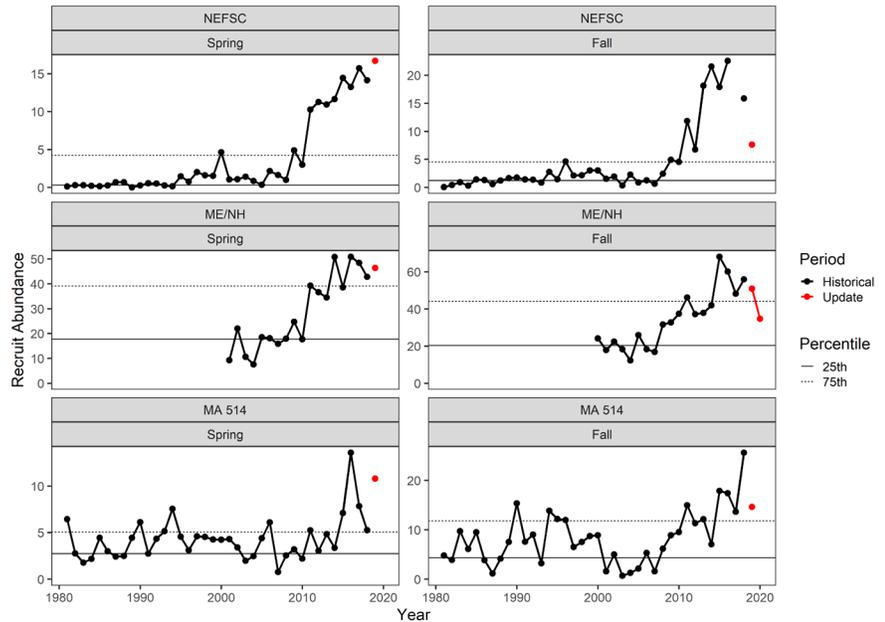


Figure 2. GOM abundance indicators: trawl survey recruit abundance.

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Table 3. GOM abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE						
Proportion of positive tows						
Survey	NEFSC		ME/NH		MA 514	
	Spring	Fall	Spring	Fall	Spring	Fall
1981	0.44	0.25			0.86	0.73
1982	0.34	0.18			0.50	0.70
1983	0.26	0.33			0.76	0.76
1984	0.28	0.36			0.76	0.76
1985	0.38	0.49			0.71	0.67
1986	0.33	0.47			0.68	0.83
1987	0.43	0.24			0.85	0.54
1988	0.31	0.30			0.76	0.58
1989	0.19	0.35			0.78	0.95
1990	0.41	0.32			0.86	0.95
1991	0.42	0.32			0.87	0.94
1992	0.40	0.24			0.93	0.77
1993	0.41	0.39			0.97	0.82
1994	0.45	0.40			1.00	0.93
1995	0.41	0.37			0.93	0.93
1996	0.54	0.54			0.91	0.96
1997	0.64	0.35			0.93	0.86
1998	0.52	0.40			0.76	0.69
1999	0.51	0.42			0.73	0.91
2000	0.63	0.42		0.94	0.93	0.98
2001	0.57	0.40	0.88	0.86	0.93	0.72
2002	0.75	0.53	0.94	0.95	0.91	0.73
2003	0.69	0.44	0.92	0.85	0.82	0.55
2004	0.87	0.31	0.89	0.86	0.84	0.56
2005	0.77	0.36	0.95	0.91	0.95	0.67
2006	0.72	0.60	0.93	0.93	0.91	0.88
2007	0.72	0.43	0.97	0.85	0.51	0.54
2008	0.84	0.49	0.92	0.86	0.83	0.75
2009	0.82	0.63	0.98	0.92	0.89	0.87
2010	0.85	0.75	0.98	0.96	0.87	0.98
2011	0.83	0.74	0.99	0.96	0.89	0.85
2012	0.86	0.78	0.98	0.98	0.91	0.95
2013	0.87	0.73	1.00	0.93	0.96	0.96
2014	0.90	0.71	1.00	0.99	0.79	0.96
2015	0.93	0.69	1.00	0.96	0.98	0.95
2016	0.94	0.75	1.00	0.96	0.96	0.97
2017	0.86		0.99	0.94	0.84	0.98
2018	0.86	0.71	0.98	0.96	0.84	0.90
2014-2018 mean	0.90	0.72	0.99	0.96	0.88	0.95
2019	0.83	0.71	0.99	0.95	0.85	0.93
2020				0.96		
2016-2020 mean	0.87	0.72	0.99	0.95	0.87	0.94

25th	0.41	0.35	0.93	0.89	0.78	0.72
median	0.60	0.42	0.98	0.94	0.86	0.86
75th	0.84	0.60	0.99	0.96	0.93	0.95

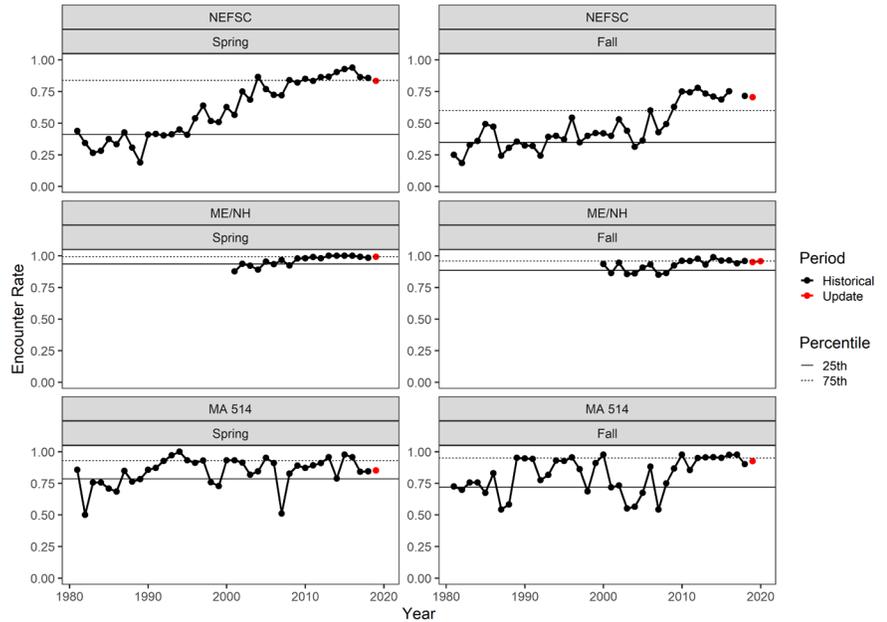


Figure 3. GOM abundance indicators: trawl survey encounter rate.

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Table 4. GOM abundance indicators: ventless trap survey abundance.

VENTLESS TRAP ABUNDANCE								
Abundance of lobsters ≥ 53 mm CL								
Survey	511		512		513		514	
	Female	Male	Female	Male	Female	Male	Female	Male
1981								
1982								
1983								
1984								
1985								
1986								
1987								
1988								
1989								
1990								
1991								
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000								
2001								
2002								
2003								
2004								
2005								
2006	7.65	5.34	6.87	5.38	5.73	4.37	3.10	3.40
2007	5.06	3.91	3.95	3.83	5.82	4.35	1.85	1.84
2008	4.94	3.87	5.78	4.95	5.78	4.97	2.77	2.51
2009	3.60	2.65	6.31	5.35	6.89	5.53	2.72	2.66
2010	5.66	3.90	6.95	5.69	6.61	5.27	2.49	2.22
2011	8.70	6.52	11.10	8.48	7.32	5.60	3.47	2.60
2012	10.95	7.64	12.06	9.47	11.40	7.72	5.21	4.52
2013	11.14	7.95	11.87	8.64	9.36	6.49		
2014	10.38	6.63	11.92	8.04	7.74	4.96	3.15	2.35
2015	8.47	4.63	10.39	7.70	8.57	5.50	4.01	3.16
2016	14.59	9.15	14.34	10.75	10.78	7.56	4.79	3.56
2017	11.69	7.07	11.61	8.52	8.46	5.56	3.38	2.45
2018	15.10	9.43	11.26	8.23	9.57	6.37	3.47	2.43
2014-2018 mean	12.05	7.38	11.90	8.65	9.02	5.99	3.76	2.79
2019	12.93	8.27	8.23	5.96	8.59	5.20	2.85	1.93
2020	7.65	5.44	7.95	5.95	9.29	6.61	2.50	1.69
2016-2020 mean	12.39	7.87	10.68	7.88	9.34	6.26	3.40	2.41
25th median	5.66	3.91	6.87	5.38	6.61	4.97	2.76	2.41
75th	11.14	7.64	11.87	8.52	9.36	6.37	3.61	3.22

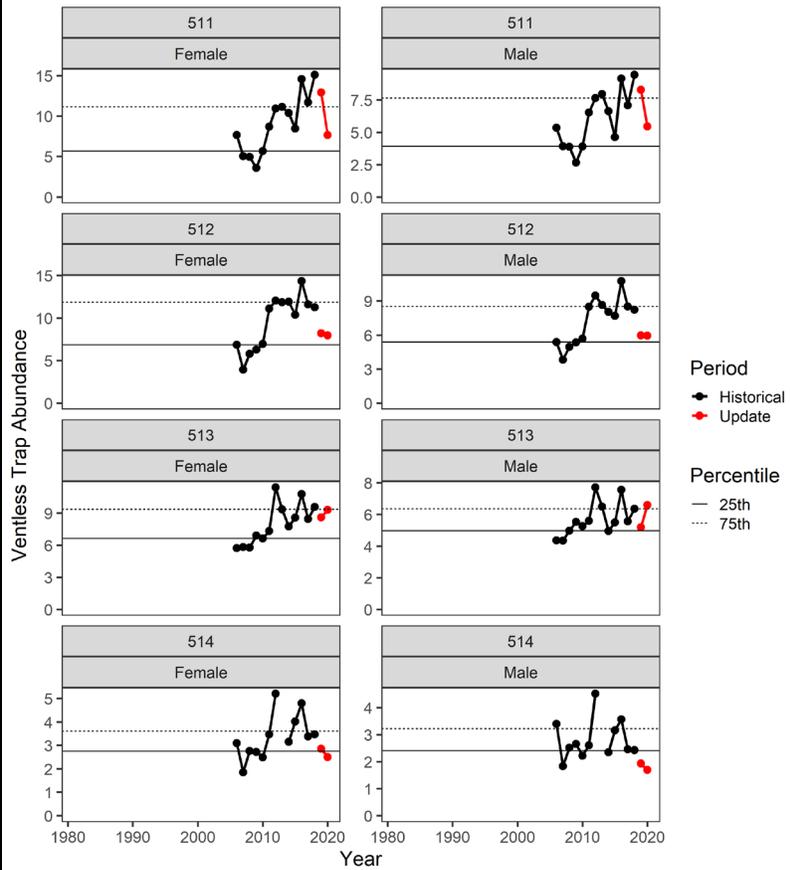


Figure 4. GOM abundance indicators: ventless trap survey abundance.

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Table 5. GBK abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)		
Abundance of lobsters 71 - 80 mm CL (sexes combined)		
Survey	NEFSC	
	Spring	Fall
1981	0.08	0.28
1982	0.18	0.41
1983	0.16	0.33
1984	0.09	0.40
1985	0.19	0.26
1986	0.57	0.64
1987	0.43	0.54
1988	0.09	0.36
1989	0.04	0.23
1990	0.44	0.47
1991	0.08	0.34
1992	0.13	0.62
1993	0.50	0.22
1994	0.01	0.13
1995	0.03	0.14
1996	0.00	0.35
1997	0.06	0.90
1998	0.01	0.33
1999	0.07	0.29
2000	0.27	0.33
2001	0.47	0.45
2002	0.06	0.56
2003	0.29	0.16
2004	0.04	0.18
2005	0.09	0.13
2006	0.16	0.12
2007	0.03	0.23
2008	0.05	0.17
2009	0.30	0.33
2010	0.30	0.15
2011	0.09	0.35
2012	0.15	0.17
2013	0.14	0.24
2014	0.16	0.21
2015	0.06	0.44
2016	0.15	0.13
2017	0.35	
2018	0.04	0.22
2014-2018 mean	0.15	0.25
2019	0.16	0.13
2020		
2016-2020 mean	0.17	0.16
25th	0.06	0.18
median	0.11	0.29
75th	0.25	0.40

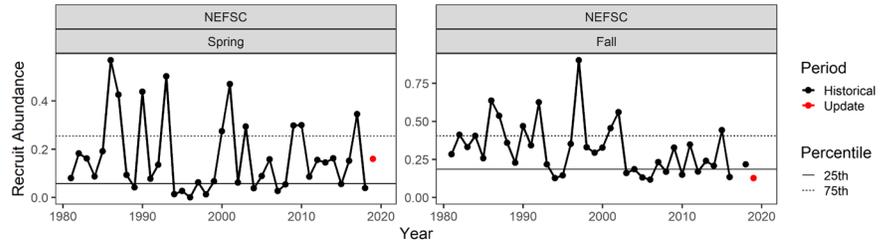


Figure 5. GBK abundance indicators: trawl survey recruit abundance.

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Table 6. GBK abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE		
Proportion of positive tows		
Survey	NEFSC	
	Spring	Fall
1981	0.23	0.52
1982	0.23	0.43
1983	0.18	0.38
1984	0.12	0.34
1985	0.19	0.35
1986	0.27	0.36
1987	0.18	0.35
1988	0.34	0.40
1989	0.14	0.38
1990	0.18	0.44
1991	0.19	0.45
1992	0.26	0.49
1993	0.22	0.36
1994	0.11	0.38
1995	0.14	0.42
1996	0.16	0.40
1997	0.10	0.48
1998	0.10	0.40
1999	0.16	0.58
2000	0.23	0.41
2001	0.23	0.49
2002	0.29	0.55
2003	0.27	0.44
2004	0.18	0.53
2005	0.16	0.58
2006	0.24	0.54
2007	0.26	0.46
2008	0.29	0.55
2009	0.34	0.54
2010	0.38	0.62
2011	0.30	0.69
2012	0.35	0.57
2013	0.33	0.65
2014	0.37	0.61
2015	0.27	0.59
2016	0.45	0.55
2017	0.40	
2018	0.29	0.59
2014-2018 mean	0.36	0.58
2019	0.36	0.57
2020		
2016-2020 mean	0.37	0.57
25th median	0.18	0.40
75th	0.23	0.48
	0.29	0.55

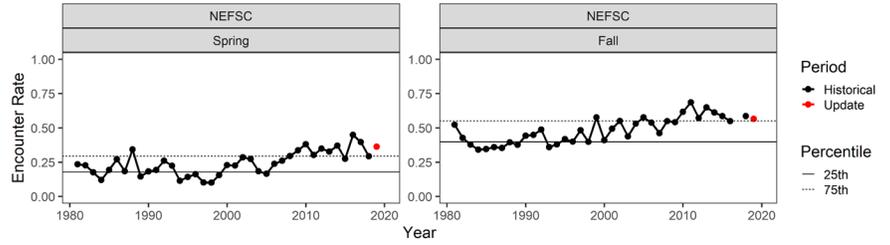


Figure 6. GBK abundance indicators: trawl survey encounter rate.

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**Appendix B.** Analysis of alternate minimum and maximum sizes as management options for Lobster Management Areas in the Gulf of Maine. Report to the ASFMC Lobster TC and PDT.

Burton Shank and Jeff Kipp

Sept. 9, 2021

The Lobster TC provided analysis to the ASFMC Lobster Board ahead of the Spring 2021 meeting with estimated outcomes to the Gulf of Maine / Georges Bank lobster fishery given the implementation of alternative management measures (min and max gauge size), including changes to total weight of lobsters landed, number of lobsters landed, Spawning Stock Biomass (SSB) and Exploitation. The analysis included an attempt to examine how fisheries in different LCMAs would be affected though the population simulation model was not re-parameterized for each LCMA. In discussions, we concluded that the simulations for LCMA1 were probably reasonably accurate because:

1. Many of the inputs for the simulations are taken from the 2020 stock assessment. Because the vast majority of the landings come from LCMA1, the stock assessment parameters are essentially already tuned to the parameters of the LCMA1 fishery.
2. LCMA1 is primarily a recruitment-based fishery in inshore or nearshore habitats and, therefore, likely to be representative of the full stock model.

However, there was concern that the offshore fishery in Lobster Management Area 3 was considerably different from the full stock model and, thus, may have inaccurate outcomes due to a mis-parameterized simulation model. The parameters for the Outer Cape Cod fishery are probably somewhere between LCMA1 and LCMA3 as it consists of both a resident lobster population and a seasonally-migrating population, moving between inshore and offshore habitats.

To address these differences between the LCMAs in population simulations, we performed the following:

1. For the LCMA1 simulations, we used the stock assessment parameters as the inputs.
2. For LCMA3 simulations, we attempted to manually tune the population simulation model to match the catch characteristics of the LCMA3 fishery, under the assumption that a simulation model that could reproduce the catch characteristics of the fishery may more accurately project changes in the fishery given changing management measures.
3. For the OCC simulations, we ran two sets of simulations, using the input parameters for both LCMA1 and LCMA3 under the assumption that this bounds the dynamics we might see in OCC.

For all simulations, populations were initiated with zero abundance and run for 50 years with constant recruitment to allow population abundances and length comps to reach equilibrium.

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The equilibrium populations were then compared across the various legal selectivity scenarios to determine the effect of these different management alternatives.

For a simple, model-free analysis of the fishery catch composition for LCMA1 and LCMA3, we calculated the cumulative proportion of catch by weight at length by converting catch-at-size to weight-at-size and weighting for unequal sex ratios and seasonality of landings.

### LCMA1 Simulations

The input parameters for the LCMA1 simulations were primarily drawn from the 2020 stock assessment. This includes the recruitment seasonality, length composition and sex ratio, growth model, gear, legal and conservation selectivities and mean estimated fishing mortality from the terminal years.

### LCMA1 Results

The cumulative catch weight-by-length curve indicates that the mean size of lobsters landed in the LCMA1 fishery is within the smallest legal size bin (83-91mm, Figure 1). Nearly 90% of the catch are below 100mm CL and only about 2% of the catch are over 120mm CL. This supports the perspective that LCMA1 landings involve a narrow range of small lobster sizes and is primarily a recruitment-dependent fishery.

Increasing the minimum legal size is projected to decrease the total number of lobsters landed but result in a net increase in yield-per-recruit (YPR) and total weight of catch (Table 1 and 2). However, the magnitude of these changes are small enough that they may not be detectable in the actual fishery given inter-annual variations in recruitment and catch. Changing the maximum legal size is projected to have very little effect on either catch number or weight.

Note that these are purely yield-per-recruit simulations so recruitment subsidies from increased SSB are not assumed in the calculations of catch weight or number so, thus, probably represent a conservative, lower bound. A less conservative upper bound would be the product of change in YPR and the change in SSB.

Increasing the minimum legal size is projected to result in large increases in SSB (Table 3). Minimum legal sizes that approach or exceed the size of maturity produce increasing returns on SSB as this allows a much larger portion of the population to reproduce at least once. Thus, increasing minimum legal size to 88mm is projected to result in a near doubling in SSB. Increasing maximum size can result in a large decrease SSB, particularly as the minimum legal size increases and more of the population survives to reach the current maximum legal size.

Increasing legal size would result in moderate to large decreases in exploitation as more of the stock becomes protected (Table 4) with exploitation decreasing by nearly 30% at a minimum legal size of 88mm. As with catch weight and number, changing maximum legal size has little effect on exploitation rates as these sizes represent a very small portion of the LCMA1 population.

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## LCMA3 Simulations

We first analyzed the port and sea sampling data provided for the 2020 benchmark assessment but constrained to LCMA3 to estimate fishery characteristics, including catch size composition, catch sex ratio, and conservation selectivity (discarding due to egg-bearing or V-notch status).

We then specified the conservation selectivity from the biosamples and current legal selectivity appropriate for LCMA3 in the population simulation model and iteratively tuned the following parameters:

1. Fully-selected fishing mortality, assumed constant across seasons
2. Recruitment sex ratio
3. Recruitment size composition for each sex.

For a given tuning run, the population simulation model was provided an updated set of input parameters and projected forward 25 year to reach equilibrium. The resulting catch composition from the model run was then compared to the average catch composition from the last five years of the biosamples to determine accuracy of the simulation models. Comparisons were conducted both visually for obvious lack-of-fit and by correlating the simulated and observed catch compositions. Correlations were performed on both the catch proportions and logit-transformed catch proportions, the latter to place more emphasis on length compositions that occur in smaller proportions.

Once the model was tuned to perform as well as might be expected, given minor, seasonal lack-of-fit that could not be easily resolved, the simulation model was then run with the tuned parameters for all combinations of proposed minimum and maximum size limits. We then summarized the outputs from the different simulations as values relative to the current minimum and maximum size regulations in place for LCMA3.

## Results

The cumulative catch weight-by-length curve indicates that 110 mm carapace length is the approximate mean size of lobsters landed in the LCMA3 fishery (Figure 1). However, the cumulative curve is nearly linear from 90mm through 130mm, indicating lobsters across this size range are about equally important to the landings of this fishery. Lobsters less than about 92mm constitute the lower 10% quantile of landings while lobsters greater than 136mm constitute the upper 10% quantile with lower and upper quartiles around 98mm and 123mm respectively. This suggests that LCMA3 landings include a broad range of lobster sizes, unlike typical inshore lobster fisheries that are primarily recruitment-driven.

The final tuned parameters included a quarterly fishing mortality of 0.1 (0.4 total annual mortality) and a 70:30 female to male recruitment sex ratio. The tuned recruit length compositions are bi-modal for both sexes, indicating recruitment to the fishery comes both from growth of smaller individual within the LCMA and immigration from outside the LCMA (Figure 2). With these compositions, about 80% of male recruitment and 30% of female

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recruitment is attributed to growth with the remainder of new individuals coming from immigration from outside the LCMA.

Fitting the simulation length comps by manually tuning these parameters resulted in reasonably good fits to the observed length compositions (Figures 3, 4, and 5). Some lack-of-fit is still evident within seasons but this lack-of-fit is generally contrary to the lack-of-fit observed in other seasons, making it difficult to further improve the fit with just the parameters of interest. Correlations between observed and predicted compositions were 0.981 for simple proportions and 0.97 for logit-transformed proportions, suggesting both high and low proportion values for observed length comps are well matched by the simulation and we deemed this adequate to a basis to examine alternative management options.

Decreasing either the minimum or maximum legal size is projected to decrease total weight of catch (Table 5). However, contrary to the previous analysis for the full stock or inshore LCMA's, changes to the maximum size have much larger impacts on landings than changes to the minimum size, particularly once the maximum size drops to between 140 and 150mm. Decreasing the maximum size from 171mm to 127mm is projected to decrease landings by about 30% while decreasing the minimum size from 90mm to 83mm is only projected to decrease landings by a couple of percent.

Decreasing the minimum legal size is projected to marginally increase the number of lobsters being landed but decreasing the maximum size marginally to moderately decreases the number of lobsters landed, producing neutral effects for many of the management options explored here (Table 6).

Decreasing maximum legal size from current regulations is projected to increase SSB, possibly significantly, but decreasing minimum sizes would decrease SSB (Table 7). The greatest observed increase would be from holding the minimum size at current values but maximally decreasing maximum sizes, essentially narrowing the length range where lobsters are legal, which is estimated to result in a 64% increase in spawning stock. As above, changes to maximum size have bigger effects on SSB than changes to minimum sizes.

Decreasing maximum sizes would result in a decrease in exploitation but decreasing minimum sizes would increase exploitation (Table 8), countering each other and paralleling patterns observed for SSB. Because the calculation of exploitation is based on numbers of individuals rather than mass, decreasing minimum sizes have larger effects on exploitation than observed above for landings or SSB. Again, changes in exploitation increase rapidly with decreasing maximum sizes once the alternate maximum gauge size reaches a size that includes a significant portion of the catch for the LCMA.

### OCC Simulations

Due to time and data constraints, we did not attempt to tune a simulation model for OCC. Rather, we assume that population dynamics and fishing mortality rates in OCC are bounded by

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the conditions observed in the LCMA1 and LCMA3 fisheries. Thus, we ran simulations for OCC using the OCC legal size range with both the LCMA1 and LCMA3 parameterizations and present both sets of results with the understanding that results for OCC should fall between these extremes.

In general, outputs (catch weight, number, SSB and exploitation) show different responses for the LCMA1 than the LCMA3 parameterizations. LCMA1 parameterizations tend to produce simulations that are very sensitive to changes in minimum legal size but not maximum legal size, while simulations with LCMA3 parameterization only slightly sensitive to changes in minimum legal size but moderately to highly sensitive to changes in maximum legal size.

Total weight of landings is projected to be sensitive to changing minimum legal size with the LCMA1 parameterization but be insensitive with the LCMA3 parameterization (Table 9 A & B). With the LCMA1 parameterization, decreasing minimum size is projected to decrease landings by ~5% while increasing legal size to 88mm would increase landings by 8%. Conversely, landings weight is insensitive to changes in maximum legal size for the LCMA1 parameterization but sensitive to changes for the LCMA3 parameterization.

Total catch number simulations shows trend similar to catch weight with the LCMA1 parameterization being sensitive to changes in minimum size and the LCMA3 parameterization sensitive to changes in maximum size (Figure 10 A & B). The pattern otherwise holds that larger minimum legal sizes result in lower catch numbers.

For SSB, the LCMA1 parameterization is responsive to both changes in minimum and maximum legal size while the LCMA3 parameterization is more sensitive to changes in maximum size (Figure 11 A & B). For example, decreasing minimum legal size to 127mm would increase SSB by between 24% and 65% for the LCMA1 and LCMA3 parameterizations, respectively. The ranges of minimum size tested in simulations produce changes in SSB in the range of -26% to +76% for the LCMA1 parameterization and -1% to +6.8% for the LCMA3 parameterization.

Decreasing minimum legal size produce increases moderate to small increases in exploitation (16% to 4% for LCMA1 and LCMA3 parameterizations, respectively, Figure 12 A & B). Either increasing minimum legal size or decreasing maximum legal size decrease serve to decrease exploitation with a maximum decrease of ~39% observed at the largest minimum and smallest maximum size and the LCMA3 parameterization.

### Discussion

There is a stark difference in cumulative landings by size between LCMA1 and LCMA3. LCMA1 is clearly a recruitment-based fishery that would be highly sensitive to variations in recruitment. The LCMA3 fishery, in contrast, is fishing a broad range of lobster sizes, and therefore ages, and is thus somewhat buffered from interannual variation in recruitment dynamics.

The LCMA1 fishery is highly sensitive to changes in minimum legal size because of high exploitation rates on newly-recruited lobsters. The range of minimum sizes tested in

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simulations encompasses size range that represents the majority of landings for the inshore / nearshore fishery. Thus, changes to minimum size would dramatically change the length composition of the catch. Increases in the minimum size will have temporarily but significantly depress landing in the years immediately after are implemented but the benefits to SSB would be similarly immediate. Increasing the minimum legal size can add to the resilience of the fishery by marginally increasing the spread of effort across multiple year classes and significantly increasing SSB and egg production which may buffer the effects in any future change in productivity.

Generally, decreasing maximum gauge sizes have larger effects for LCMA3 both relative to decreasing minimum sizes in LCMA3 or for changing maximum sizes for the other LCMA3s. This matches the conclusions based on the cumulative catch curve (Figure 1) that showed that the LCMA3 fishery lands a much broader size range of individuals than the inshore LCMA3s, with the upper portion of length compositions overlapping proposed alternative maximum sizes.

This analysis for LCMA3 matches previous analysis conducted for inshore LCMA3s, finding that larger minimum legal sizes had positive effects across population parameters including higher catch weights, increased SSB and decreased exploitation. However, decreasing maximum legal sizes has mixed effects, decreasing immediate landings but increasing SSB, potentially by a larger margin. Because recruitment subsidies from increasing SSB are not included in this simulation, the net effect of these two opposing changes are uncertain. While decreasing maximum legal sizes would decrease immediate landings and make a larger portion of the population inaccessible to the fishery permanently (i.e. excluded lobsters won't grow into a legal size in the future), this increase in SSB may eventually produce a recruitment subsidy that could offset this loss of catch. The net effect would depend on multiple factors including the connectivity of the added SSB to larval settlement habitat and the migration patterns of these large females into adjacent habitats including inshore Gulf of Maine and international waters.

Finally, it is important to note the importance of large female lobsters that dominate the landings for much of LCMA3. This both highlights the partial dependence of this fishery on immigration from adjacent habitats and adds uncertainty to this analysis. The growth and molt cycling of such large females is poorly understood and are not particularly well informed in the current growth model. Thus, the tuned parameters may be biased by mis-specification of the growth model and results in this analysis may be sensitive to the growth model used in some cases. Interpretation of tuned parameters and confidence in the precise results of this analysis should be taken with some caution. However, the general patterns of changing catch, SSB and exploitation with changes in minimum and maximum legal sizes is consistent across this and previous analyses so may be treated with higher confidence.

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## Cumulative Distribution of Catch Weight by Size

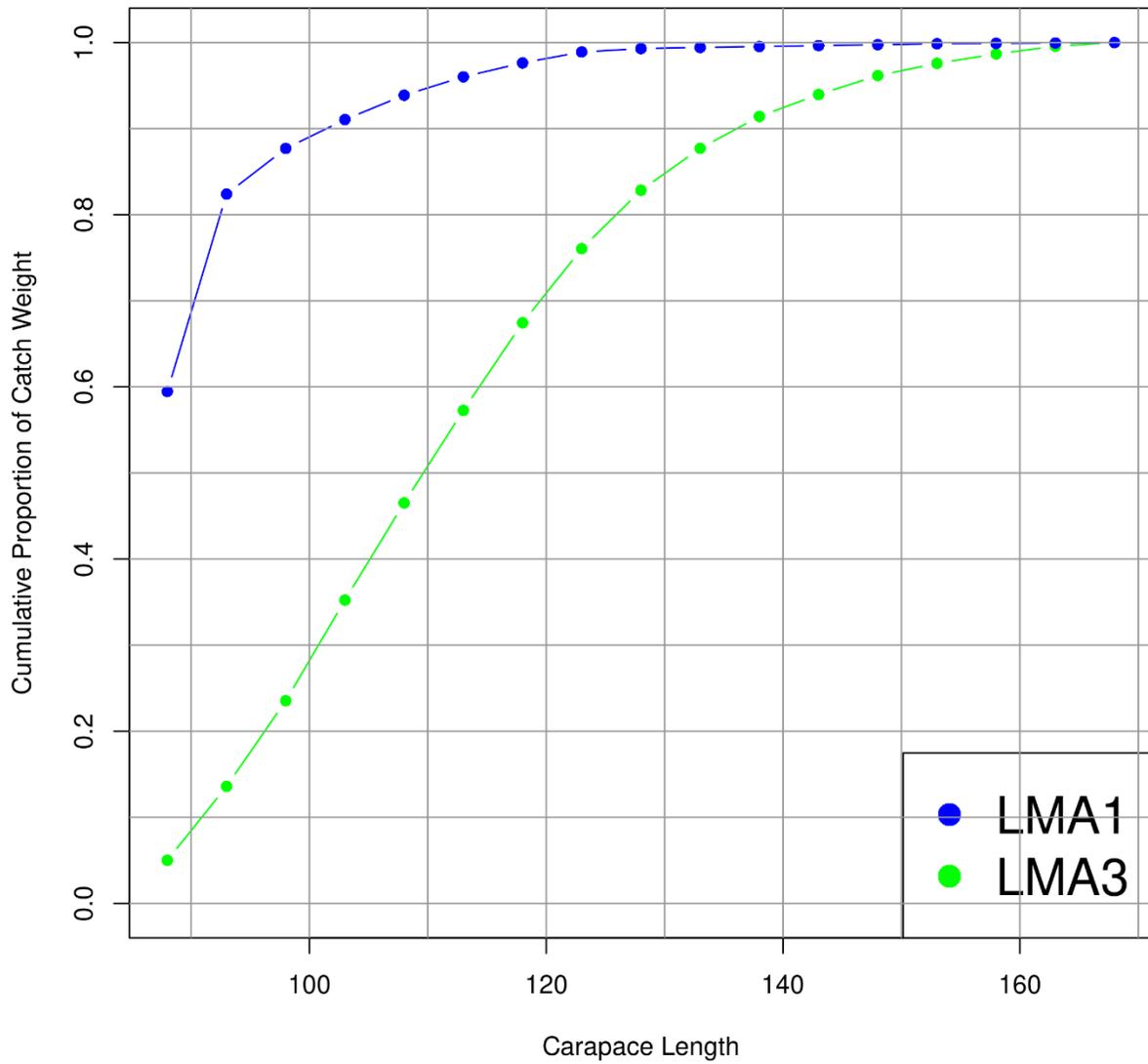


Figure 1. Cumulative proportion of catch weight by carapace length. To interpret, lobsters less than 90mm constitute approximately 8% of landings, while lobsters less than 130mm constitute approximately 85% of landings.

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## Recruit proportions for tuned population model

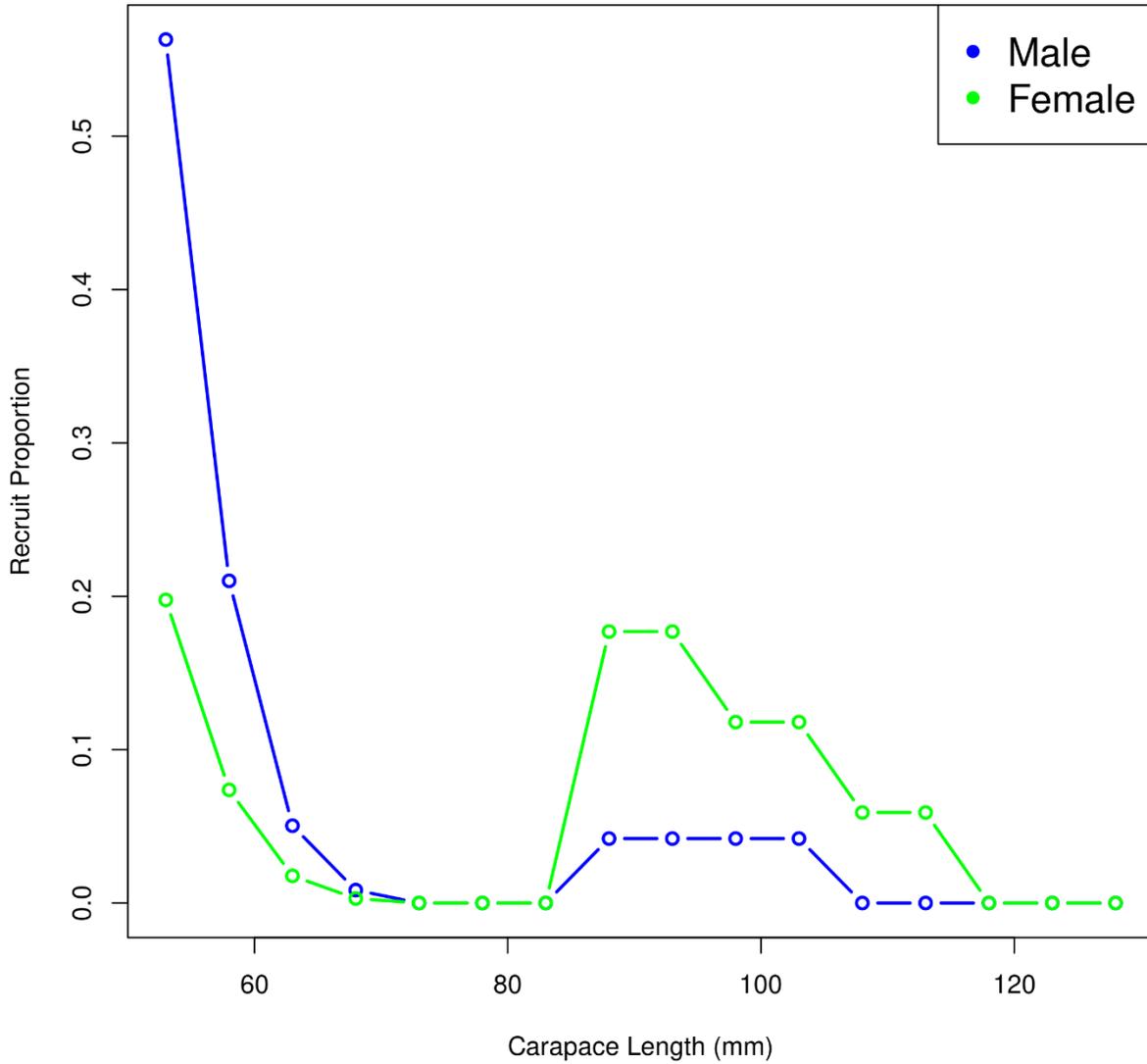


Figure 2. Tuned recruitment length compositions for the fitted model. The bi-modal length distribution suggests a combination of recruitment by growth (individuals <70mm) and migration (individuals >85 mm) with males primarily recruiting by growth and females primarily recruiting by migration as mature adults.

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## Catch Length Comps Observed in Biosamples and Predicted

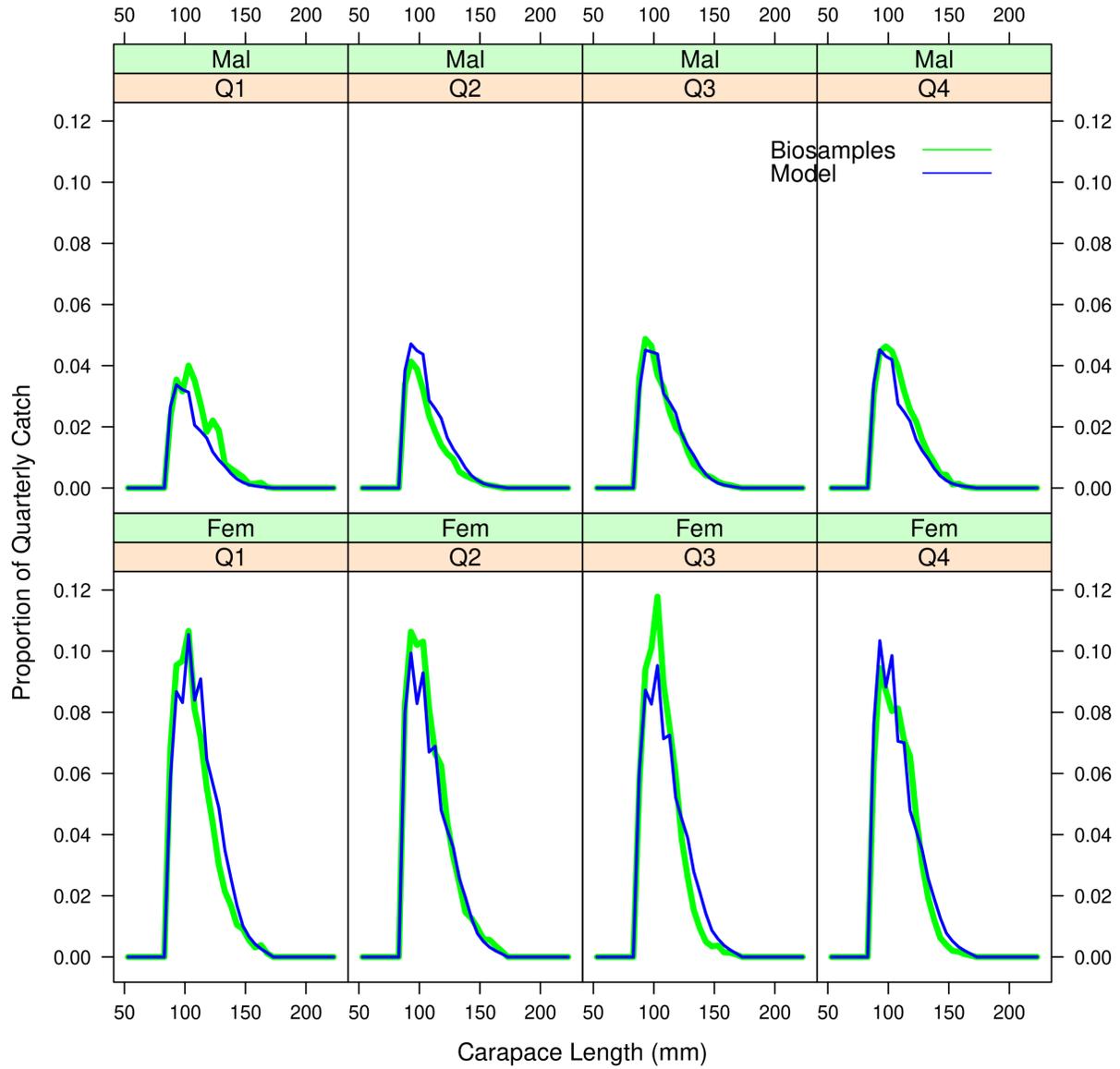


Figure 3. LCMA 3 catch length compositions by sex and quarter based on biosampling and from the tuned population model.

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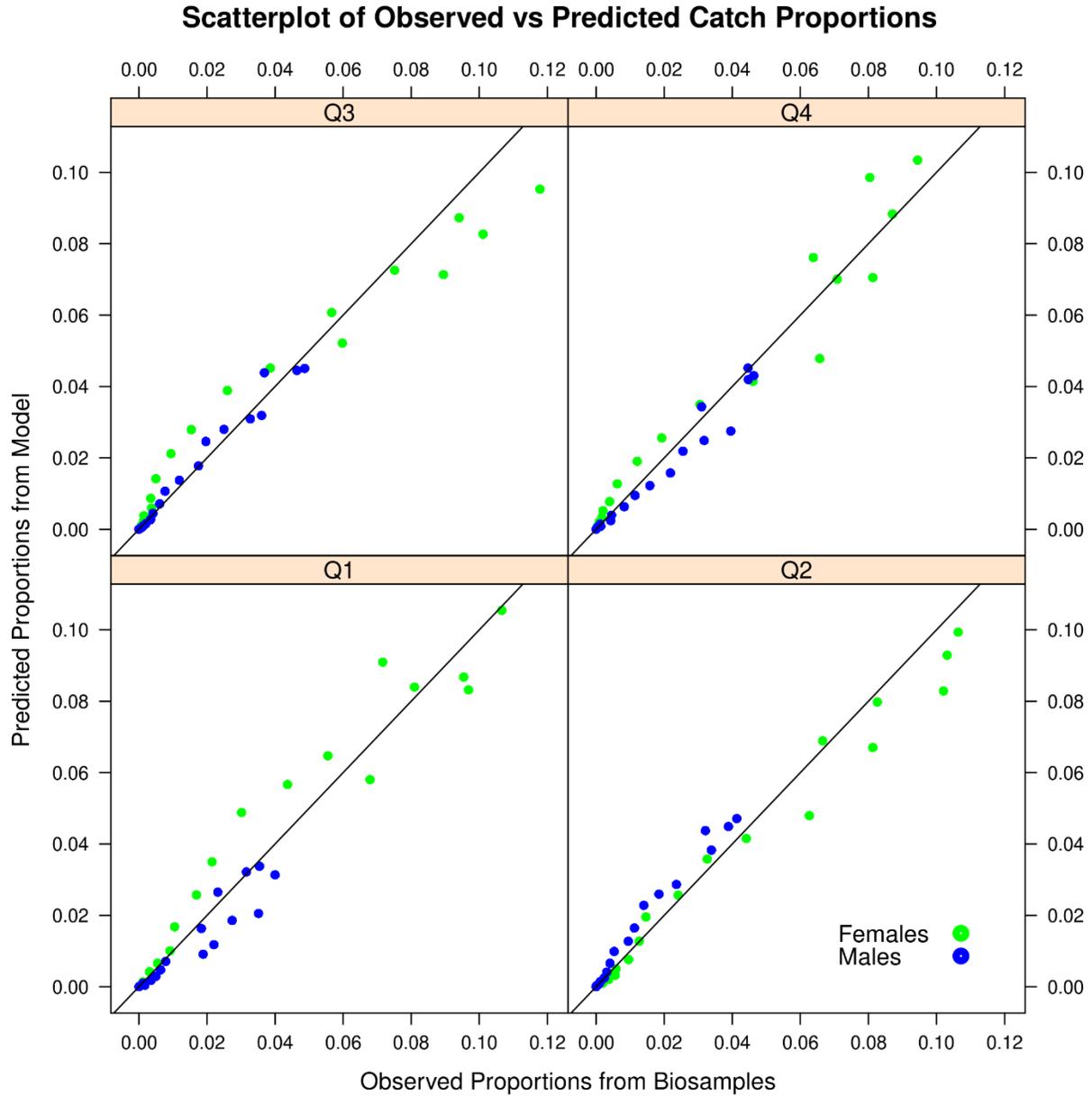


Figure 4. Relationship between length composition proportions observed in biosamples and predicted in the tuned population model by quarter and sex. The diagonal 1:1 line shows an ideal fit between the data sets.

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## Scatterplot of Observed vs Predicted Catch Proportions in Logit space

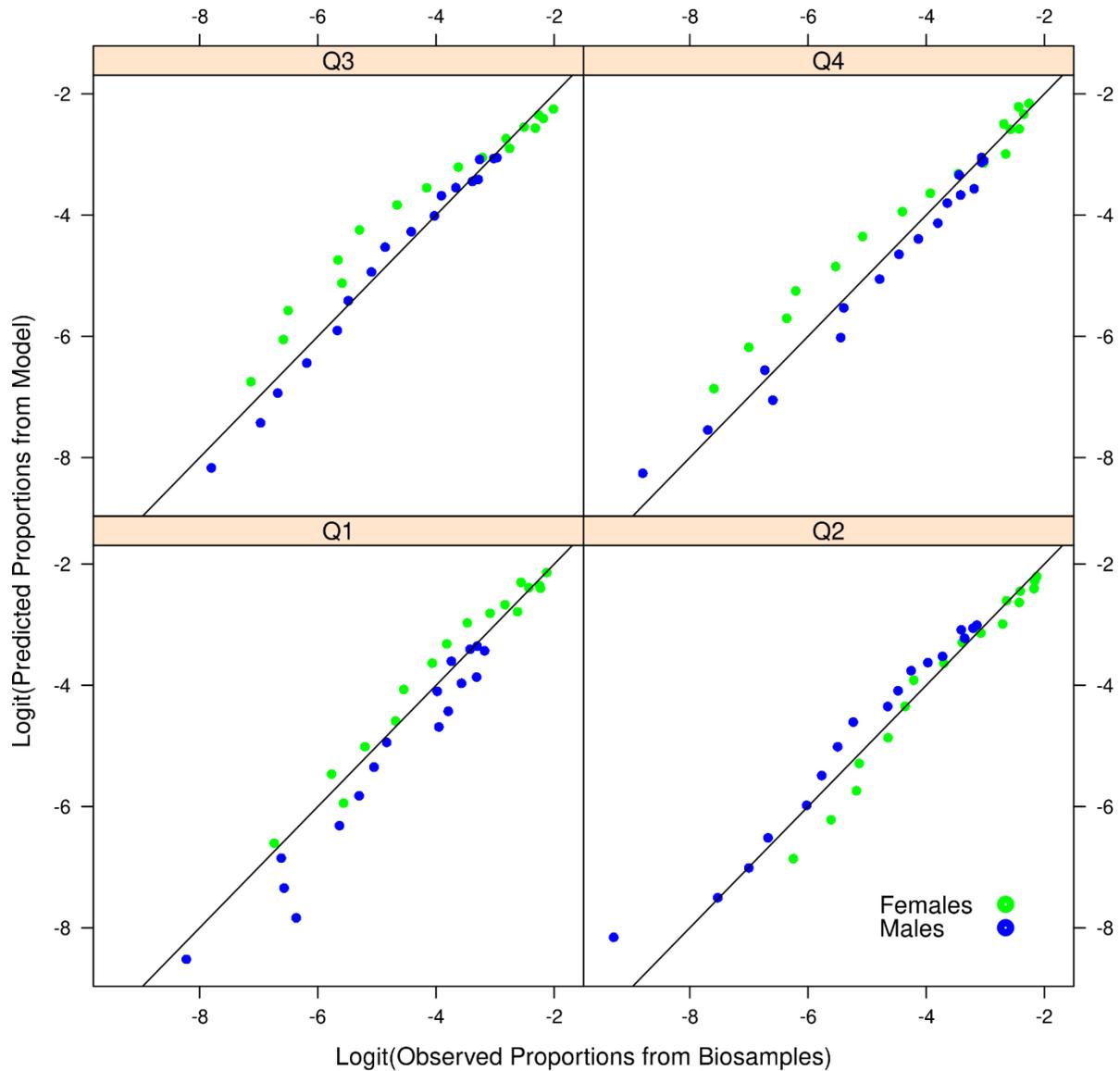


Figure 5. Relationship between length composition proportions observed in biosamples and predicted in the tuned population model by quarter and sex. Data points are logit-transformed to emphasize fit to lengths that occur in low proportions. The diagonal 1:1 line shows an ideal fit between the data sets.

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Table 1. LCMA1 projected relative changes to Weight of Landings resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						None
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	
Minimum Gauge Size	3.25in / 83mm	0.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
	3.31in / 84mm	3.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
	3.38in / 86mm	5.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
	3.47in / 88mm	13.00%	14.00%	14.00%	14.00%	14.00%	14.00%	14.00%
	3.53in / 90mm	14.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
	3.594in / 91mm	16.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%

Table 2. LCMA1 projected relative changes to Number of lobsters Landed resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						None
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	
Minimum Gauge Size	3.25in / 83mm	0.00%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
	3.31in / 84mm	-2.00%	-1.80%	-1.80%	-1.80%	-1.80%	-1.80%	-1.80%
	3.38in / 86mm	-3.60%	-3.30%	-3.30%	-3.30%	-3.30%	-3.30%	-3.30%
	3.47in / 88mm	-8.50%	-8.10%	-8.00%	-8.00%	-8.00%	-8.00%	-8.00%
	3.53in / 90mm	-9.50%	-9.00%	-9.00%	-9.00%	-9.00%	-9.00%	-9.00%
	3.594in / 91mm	-11.30%	-10.80%	-10.70%	-10.70%	-10.70%	-10.70%	-10.70%

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Table 3. LCMA1 projected relative changes to Spawning Stock Biomass resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	0.00%	-16.50%	-18.30%	-18.50%	-18.50%	-18.60%	-18.60%
	3.31in / 84mm	19.00%	-1.40%	-3.60%	-3.80%	-3.90%	-3.90%	-3.90%
	3.38in / 86mm	38.00%	13.90%	11.30%	11.00%	10.90%	10.90%	10.90%
	3.47in / 88mm	98.00%	61.00%	56.90%	56.60%	56.50%	56.40%	56.40%
	3.53in / 90mm	117.00%	75.80%	71.30%	70.90%	70.70%	70.70%	70.70%
	3.594in / 91mm	151.00%	101.70%	96.40%	95.90%	95.70%	95.70%	95.60%

Table 4. LCMA1 projected relative changes to Exploitation resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	0.00%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%
	3.31in / 84mm	-8.50%	-7.70%	-7.60%	-7.60%	-7.60%	-7.60%	-7.60%
	3.38in / 86mm	-14.40%	-13.60%	-13.50%	-13.50%	-13.50%	-13.50%	-13.50%
	3.47in / 88mm	-29.40%	-28.40%	-28.30%	-28.30%	-28.30%	-28.30%	-28.30%
	3.53in / 90mm	-32.10%	-31.00%	-30.90%	-30.90%	-30.90%	-30.90%	-30.90%
	3.594in / 91mm	-36.50%	-35.40%	-35.30%	-35.20%	-35.20%	-35.20%	-35.20%

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Table 5. LCMA3 projected relative changes to Weight of Landings resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-31.30%	-14.60%	-6.30%	-4.20%	-2.80%	-2.10%	-0.80%
	3.31in / 84mm	-31.20%	-14.30%	-6.00%	-3.80%	-2.40%	-1.60%	-0.40%
	3.38in / 86mm	-31.20%	-14.00%	-5.60%	-3.40%	-2.00%	-1.20%	0.00%
	3.47in / 88mm	-31.10%	-13.60%	-5.00%	-2.70%	-1.30%	-0.50%	0.80%
	3.53in / 90mm	-31.40%	-13.40%	-4.60%	-2.30%	-0.90%	0.00%	1.30%
	3.594in / 91mm	-31.70%	-13.20%	-4.10%	-1.70%	-0.30%	0.60%	1.90%

Table 6. LCMA3 projected relative changes to Number of lobsters Landed resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-11.10%	-0.80%	3.20%	4.00%	4.50%	4.70%	5.00%
	3.31in / 84mm	-12.20%	-1.70%	2.30%	3.20%	3.70%	3.90%	4.20%
	3.38in / 86mm	-13.20%	-2.60%	1.50%	2.30%	2.80%	3.10%	3.40%
	3.47in / 88mm	-15.20%	-4.20%	-0.10%	0.80%	1.30%	1.50%	1.80%
	3.53in / 90mm	-17.10%	-5.90%	-1.70%	-0.80%	-0.30%	0.00%	0.30%
	3.594in / 91mm	-19.50%	-7.90%	-3.60%	-2.60%	-2.10%	-1.90%	-1.50%

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Table 7. LCMA3 projected relative changes to Spawning Stock Biomass resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						None
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	
Minimum Gauge Size	3.25in / 83mm	56.00%	19.00%	3.00%	-1.50%	-3.80%	-5.20%	-6.90%
	3.31in / 84mm	57.00%	20.00%	3.00%	-0.80%	-3.10%	-4.50%	-6.20%
	3.38in / 86mm	59.00%	21.00%	4.00%	0.00%	-2.40%	-3.70%	-5.50%
	3.47in / 88mm	61.00%	23.00%	6.00%	1.50%	-0.90%	-2.30%	-4.10%
	3.53in / 90mm	64.00%	25.00%	8.00%	3.80%	1.40%	0.00%	-1.80%
	3.594in / 91mm	69.00%	29.00%	11.00%	6.70%	4.20%	2.80%	1.00%

Table 8. LCMA3 projected relative changes to Exploitation resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

		Maximum Gauge Size						None
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	
Minimum Gauge Size	3.25in / 83mm	-20.40%	-0.30%	8.40%	10.30%	11.40%	11.90%	12.50%
	3.31in / 84mm	-22.30%	-2.40%	6.30%	8.10%	9.20%	9.70%	10.30%
	3.38in / 86mm	-24.10%	-4.40%	4.10%	6.00%	7.00%	7.50%	8.10%
	3.47in / 88mm	-27.40%	-8.10%	0.30%	2.20%	3.10%	3.70%	4.30%
	3.53in / 90mm	-30.60%	-11.60%	-3.30%	-1.50%	-0.50%	0.00%	0.60%
	3.594in / 91mm	-34.20%	-15.60%	-7.50%	-5.70%	-4.80%	-4.20%	-3.70%

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Table 9. OCC projected relative changes to Weight of Landings resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 parameterizations.

**A.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-5.60%	-5.00%	-4.90%	-4.90%	-4.90%	-4.90%	-4.90%
	3.31in / 84mm	-2.70%	-2.00%	-1.90%	-1.90%	-1.90%	-1.90%	-1.90%
	3.38in / 86mm	-0.90%	-0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
	3.47in / 88mm	6.60%	7.80%	8.00%	8.00%	8.00%	8.00%	8.00%
	3.53in / 90mm	7.40%	8.80%	8.90%	8.90%	8.90%	8.90%	8.90%
	3.594in / 91mm	9.30%	11.00%	11.20%	11.20%	11.20%	11.20%	11.20%

**B.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-30.40%	-13.50%	-5.20%	-3.00%	-1.60%	-0.80%	0.00%
	3.31in / 84mm	-30.30%	-13.20%	-4.80%	-2.60%	-1.20%	-0.40%	1.00%
	3.38in / 86mm	-30.30%	-13.00%	-4.40%	-2.20%	-0.80%	0.00%	1.00%
	3.47in / 88mm	-30.30%	-12.50%	-3.80%	-1.50%	-0.10%	0.70%	2.00%
	3.53in / 90mm	-30.60%	-12.40%	-3.40%	-1.10%	0.40%	1.20%	3.00%
	3.594in / 91mm	-30.90%	-12.10%	-2.90%	-0.50%	1.00%	1.90%	3.00%

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Table 10. OCC projected relative changes to Number of lobsters Landed resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 parameterizations.

**A.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	3.40%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
	3.31in / 84mm	1.30%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%
	3.38in / 86mm	-0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	3.47in / 88mm	-5.40%	-4.90%	-4.90%	-4.90%	-4.90%	-4.90%	-4.90%
	3.53in / 90mm	-6.40%	-5.90%	-5.90%	-5.90%	-5.90%	-5.90%	-5.90%
	3.594in / 91mm	-8.30%	-7.70%	-7.70%	-7.70%	-7.70%	-7.70%	-7.70%

**B.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-13.80%	-3.70%	0.10%	0.90%	1.40%	1.60%	1.90%
	3.31in / 84mm	-14.80%	-4.60%	-0.70%	0.10%	0.60%	0.80%	1.10%
	3.38in / 86mm	-15.80%	-5.50%	-1.50%	-0.70%	-0.20%	0.00%	0.30%
	3.47in / 88mm	-17.70%	-7.10%	-3.10%	-2.20%	-1.70%	-1.50%	-1.20%
	3.53in / 90mm	-19.60%	-8.70%	-4.60%	-3.70%	-3.20%	-3.00%	-2.70%
	3.594in / 91mm	-21.90%	-10.70%	-6.40%	-5.50%	-5.00%	-4.80%	-4.50%

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Table 11. OCC projected relative changes to Spawning Stock Biomass resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 parameterizations.

**A.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-9.80%	-24.70%	-26.40%	-26.50%	-26.60%	-26.60%	-26.60%
	3.31in / 84mm	7.00%	-11.10%	-13.10%	-13.30%	-13.30%	-13.30%	-13.30%
	3.38in / 86mm	24.30%	2.70%	0.30%	0.10%	0.00%	0.00%	0.00%
	3.47in / 88mm	78.20%	45.10%	41.50%	41.20%	41.10%	41.00%	41.00%
	3.53in / 90mm	95.50%	58.50%	54.40%	54.00%	53.90%	53.90%	53.90%
	3.594in / 91mm	126.20%	81.80%	77.00%	76.60%	76.50%	76.40%	76.40%

**B.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	63.00%	24.00%	7.00%	2.00%	-0.10%	-1.50%	-3.30%
	3.31in / 84mm	64.00%	25.00%	7.00%	3.00%	0.60%	-0.70%	-2.60%
	3.38in / 86mm	65.00%	26.00%	8.00%	4.00%	1.40%	0.00%	-1.80%
	3.47in / 88mm	67.00%	27.00%	10.00%	5.00%	2.90%	1.50%	-0.30%
	3.53in / 90mm	71.00%	30.00%	12.00%	8.00%	5.30%	3.90%	2.00%
	3.594in / 91mm	75.00%	34.00%	15.00%	11.00%	8.30%	6.80%	4.90%

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Table 12. OCC projected relative changes to Exploitation resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 parameterizations.

**A.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	15.60%	16.50%	16.50%	16.50%	16.50%	16.50%	16.50%
	3.31in / 84mm	5.80%	6.70%	6.80%	6.80%	6.80%	6.80%	6.80%
	3.38in / 86mm	-1.10%	-0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
	3.47in / 88mm	-18.40%	-17.30%	-17.10%	-17.10%	-17.10%	-17.10%	-17.10%
	3.53in / 90mm	-21.50%	-20.20%	-20.10%	-20.10%	-20.10%	-20.10%	-20.10%
	3.594in / 91mm	-26.70%	-25.30%	-25.20%	-25.20%	-25.20%	-25.20%	-25.20%

**B.**

		Maximum Gauge Size						
		5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
Minimum Gauge Size	3.25in / 83mm	-26.00%	-7.30%	0.80%	2.60%	3.60%	4.10%	4.60%
	3.31in / 84mm	-27.70%	-9.20%	-1.20%	0.60%	1.50%	2.00%	2.60%
	3.38in / 86mm	-29.40%	-11.10%	-3.20%	-1.40%	-0.50%	0.00%	0.60%
	3.47in / 88mm	-32.50%	-14.50%	-6.70%	-5.00%	-4.10%	-3.60%	-3.00%
	3.53in / 90mm	-35.40%	-17.70%	-10.00%	-8.40%	-7.50%	-7.00%	-6.50%
	3.594in / 91mm	-38.80%	-21.50%	-13.90%	-12.30%	-11.40%	-10.90%	-10.40%

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## Appendix C. Trigger Mechanism Analysis and Recommendation

Recruit (71-80 mm carapace length) indices are used as model-free indicators of recruitment to the lobster fishery in the following year. During the 2020 stock assessment, recruit indicators were found to be correlated with the stock assessment model estimates of reference abundance (78+ mm carapace length), providing a reliable means to track abundance changes and potential need for management response more frequently than through intermittent stock assessments. There are eight GOM/GBK stock recruit indicators updated for each assessment: spring and fall indices for each of the ME/NH, MA DMF, NEFSC GOM, and NEFSC GBK bottom trawl surveys. The NEFSC indicators in the GOM and GBK regions are considered to be indicators of offshore recruitment which differs from the GOM/GBK stock-wide recruitment dynamics. Therefore, the American Lobster Technical Committee (TC) recommended using only the inshore surveys (ME/NH and MA DMF) where the bulk of the population and fishery occur, which are assumed to be more representative of stock-wide recruitment. These trawl surveys employ similar methodologies and, along with selectivity and swept area calibration factors, can be combined into two indices, a spring index and a fall index. Additionally, the TC recommends using the standardized index from the Ventless Trap Survey as an indicator of recruitment during the summer.

To calculate a trigger index, each of the three individual indices were scaled to their 2017 reference levels so they are on the same scale. The one year lag expected between recruit indices and reference abundance due to growth results in 2017 recruit indices mapping to the terminal year reference abundance used in the 2020 stock assessment status determination (2018). The TC recommended linking the trigger index to the reference abundance in this way so the trigger index is an indication of proportional changes to the reference abundance since the 2020 stock assessment. Proportional changes in the trigger index are compared directly to proportional changes between the terminal year reference abundance and abundance reference points established in the assessment to provide an early indication of reference abundance falling below the reference points. Scaled indices were then averaged across surveys to generate a single trigger index. The final trigger index value represents proportional change from 2017 recruitment (and, therefore, expected proportional change from the reference abundance one year later in 2018 - the terminal year of the stock assessment). A value of one indicates no change, a value greater than one indicates an increase (e.g., 1.2 indicates a 20% increase), and a value less than one indicates a decrease (e.g., 0.8 indicates a 20% decrease).

During the 2020 stock assessment, the peer review panel supported using a smoothing algorithm, such as the running average used in past assessments, to determine stock status, but also recommended exploring alternatives (e.g., running median) to evaluate the robustness of status determinations. To evaluate performance of different methods for a trigger mechanism, akin to evaluating stock status in a stock assessment, a simulation analysis was conducted using the trigger index annual point value, three-year running average, and three-year running median to identify need for management action. For each method, all three individual indices were scaled to a 2017 reference level calculated with the same method used to calculate the

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index. That is, the 2017 reference level was the 2017 point value for the annual index trigger method, the 2015-2017 average for the three-year running average trigger method, and the 2015-2017 running median for the three-year running median trigger method. The scaled individual and combined indices are compared to various trigger points related to assessment abundance reference points in Figure 1.

The TC treated 0.68 (i.e., a 32% decline) as the trigger for action in the simulation analysis. This decline represents the proportional change between the terminal year stock assessment reference abundance level and the boundary between the high and moderate abundance regimes. Each individual index was projected from 2018 to 2025 following a steady decline that reflected a 32% decline from the observed 2017 index value in 2021. This projected trend is hypothetical to evaluate the performance of the three calculation methods being considered and does not necessarily reflect the true status or projection of the population. It was unclear what impacts the method used to calculate the starting point of the projected trend would have on performance of each trigger mechanism, so declines projected from the (1) 2017 point value, (2) 2015-2017 running average, and (3) 2015-2017 running median were evaluated in three separate scenarios. Indices were then sampled from these simulated trends with CVs equal to the average CV over the respective index's time series, assuming a lognormal error structure. These simulations only consider observation error and do not account for process error. Indices were scaled to their reference level as described above, averaged across surveys, and the combined trigger index was evaluated for whether or not it would trigger action ( $\leq 0.68$ ) in each year of the projection period. This was repeated 1,000 times for each scenario and action determinations were tallied by year for each of the methods.

Results show similar patterns between the scenarios using a simulated decline from the 2017 point value and from the 2015-2017 average (Table 1; Figures 2-3). The 2015-2017 running median was equal to the 2017 point value for all indices, so the results with a simulated decline from this value were identical to the 2017 point value scenario (Table 2; Figure 4). Incorrect action is triggered very infrequently ( $< 3\%$  of the time) by the annual and running median methods in the first two years of the projection period and never by the running average method. On average, the annual and running median methods incorrectly triggered action about 9% of the time and about 15 times more frequently than the running average method the year before the decline reached the threshold (2020), but also correctly triggered action  $\approx 38\%$  of the time and roughly twice as frequently as the running average method in the year when the threshold was met (2021). The running average method then tended to perform as well as or better than the other methods from 2022-2025, albeit generally at smaller margins of difference, as all methods tended to perform relatively well in these later years when the decline is exacerbated. The delayed response of the running average method can be seen in Figures 5-7, where the median trigger index value across simulations tends to be slightly higher than the annual and running median methods. The variance in index values, however, is lower for the running average method resulting in more consistency across simulations in terms of guidance for management action, whereas the other methods result in mixed guidance for some of the more extreme simulations in more years than the running average method.

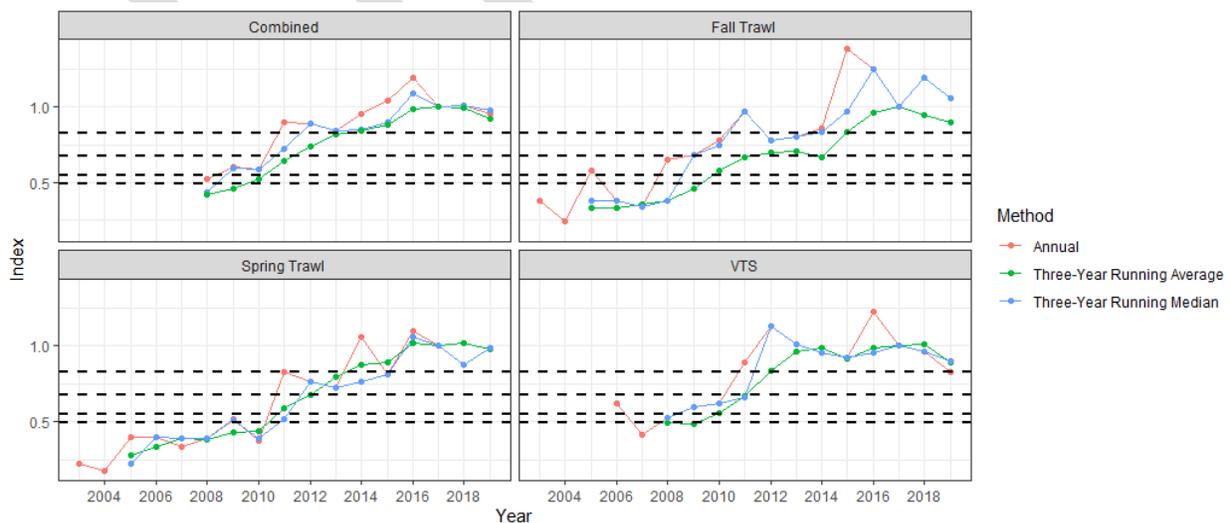
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Based on these results, the trigger mechanisms using the annual point value and the running median may be considered precautionary methods that perform better for an immediate trigger, on average, but with more variable guidance than the running average method. The running average method may provide a less responsive trigger mechanism that is less likely to incorrectly trigger premature action, and performs well and more consistently after the initial risk of not triggering action when first needed.

The TC recommended the running average method for calculating the trigger index. The individual surveys display interannual variation that might be related to environmental impacts on catchability (for example), an issue that was identified in the stock assessment and is expected to continue to impact these indices index data sets into the future. This simulation analysis suggests the running average method is more robust to interannual variation than the other methods and therefore can be interpreted with higher confidence.

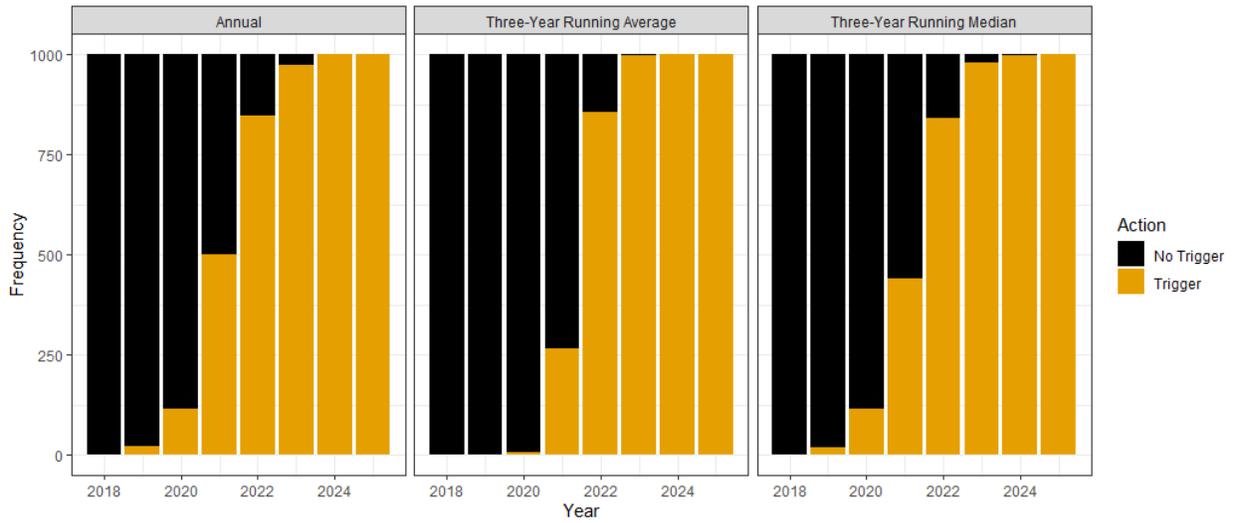
**Table 1.** Percentage of 1,000 simulated indices that triggered action for three simulated decline starting point scenarios, and the averages of these scenarios. The simulated stock was projected to decline 32% in 2021.

Simulated Decline Starting Point	Index Calculation Method	2018	2019	2020	2021	2022	2023	2024	2025
2017 Point Value	Annual	0%	2%	12%	50%	85%	97%	100%	100%
	Three-Year Running Average	0%	0%	1%	27%	86%	100%	100%	100%
	Three-Year Running Median	0%	2%	12%	44%	84%	98%	100%	100%
2015-2017 Average	Annual	0%	0%	3%	21%	59%	89%	99%	100%
	Three-Year Running Average	0%	0%	0%	3%	46%	95%	100%	100%
	Three-Year Running Median	0%	0%	3%	19%	60%	90%	99%	100%
2015-2017 Running Median	Annual	0%	2%	12%	50%	85%	97%	100%	100%
	Three-Year Running Average	0%	0%	1%	27%	86%	100%	100%	100%
	Three-Year Running Median	0%	2%	12%	44%	84%	98%	100%	100%
Average	Annual	0%	2%	9%	40%	76%	94%	100%	100%
	Three-Year Running Average	0%	0%	1%	19%	73%	98%	100%	100%
	Three-Year Running Median	0%	1%	9%	36%	76%	95%	100%	100%

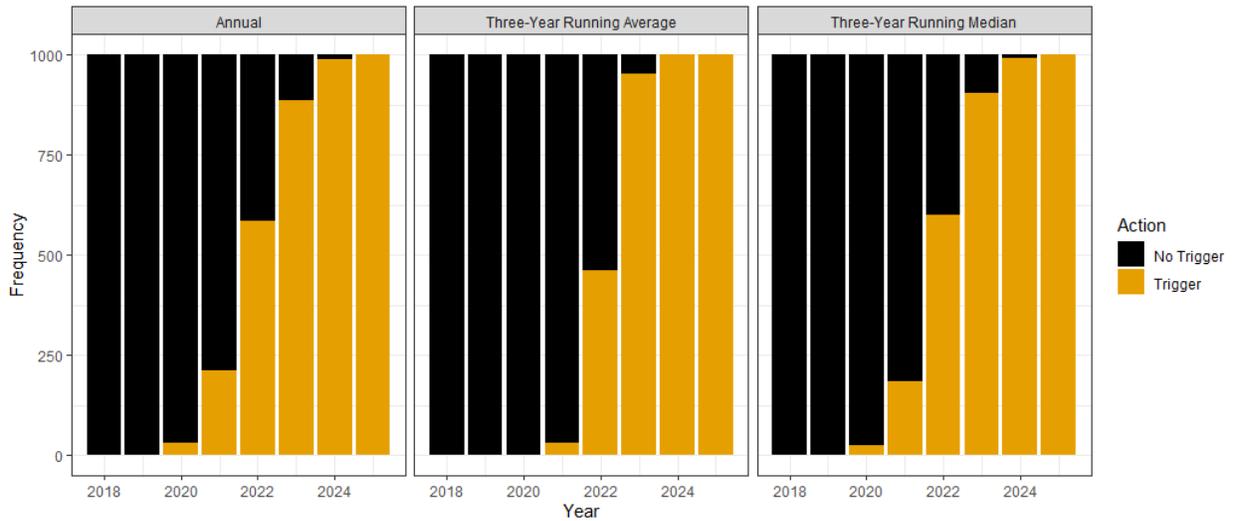


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**Figure 1.** Scaled individual and combined indices using three calculation methods compared to four trigger levels (0.83 – Fishery/Industry Target, 0.68 – Moderate/High Abundance Regime Shift Level, 0.55 – Abundance Limit, 0.49 – Abundance Threshold) identified from potential reference abundance declines (dashed lines).

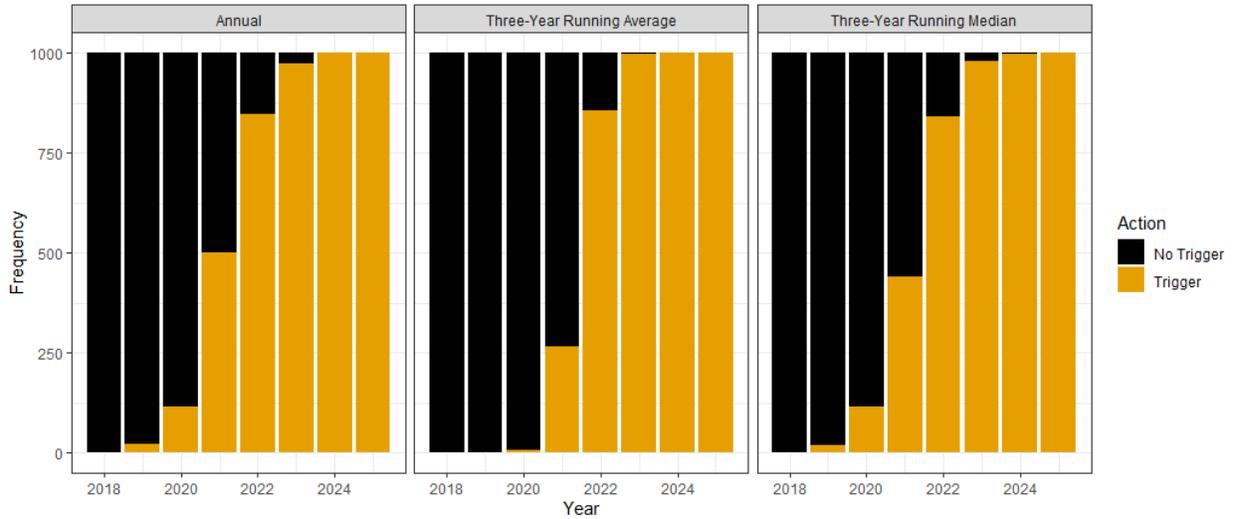


**Figure 2.** Annual action determinations by method from 1,000 simulated indices with the simulated population declining from the 2017 point value. The simulated stock was projected to decline 32% in 2021.

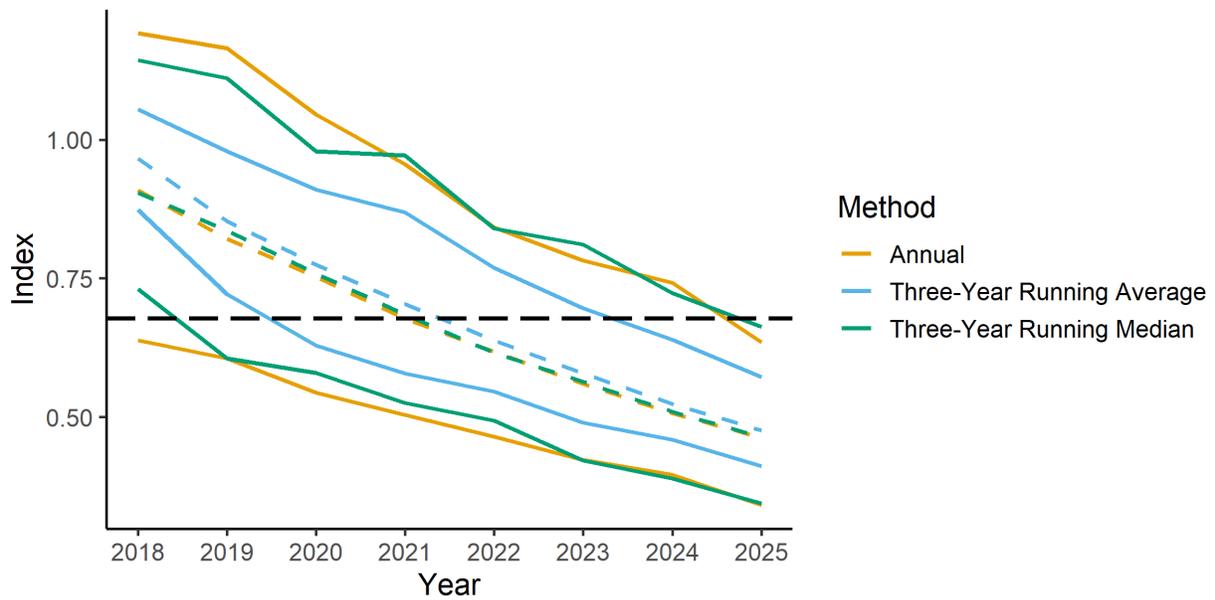


**Figure 3.** Annual action determinations by method from 1,000 simulated indices with the simulated population declining from the 2015-2017 average. The simulated stock was projected to decline 32% in 2021.

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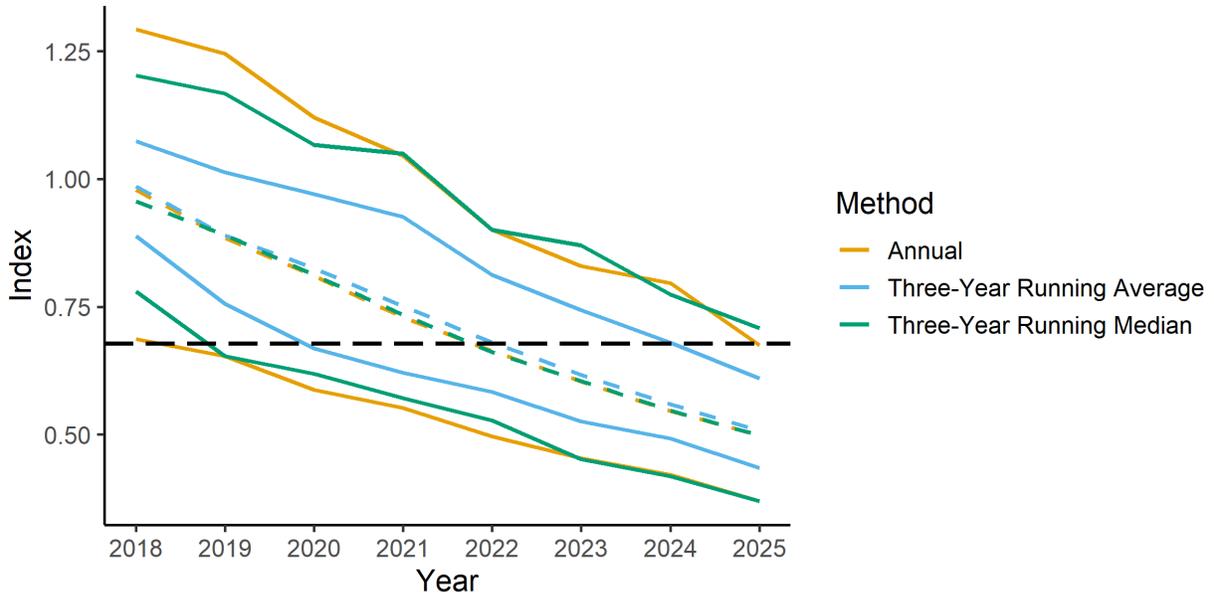


**Figure 4.** Annual action determinations by method from 1,000 simulated indices with the simulated population declining from the 2015-2017 median. The simulated stock was projected to decline 32% in 2021.

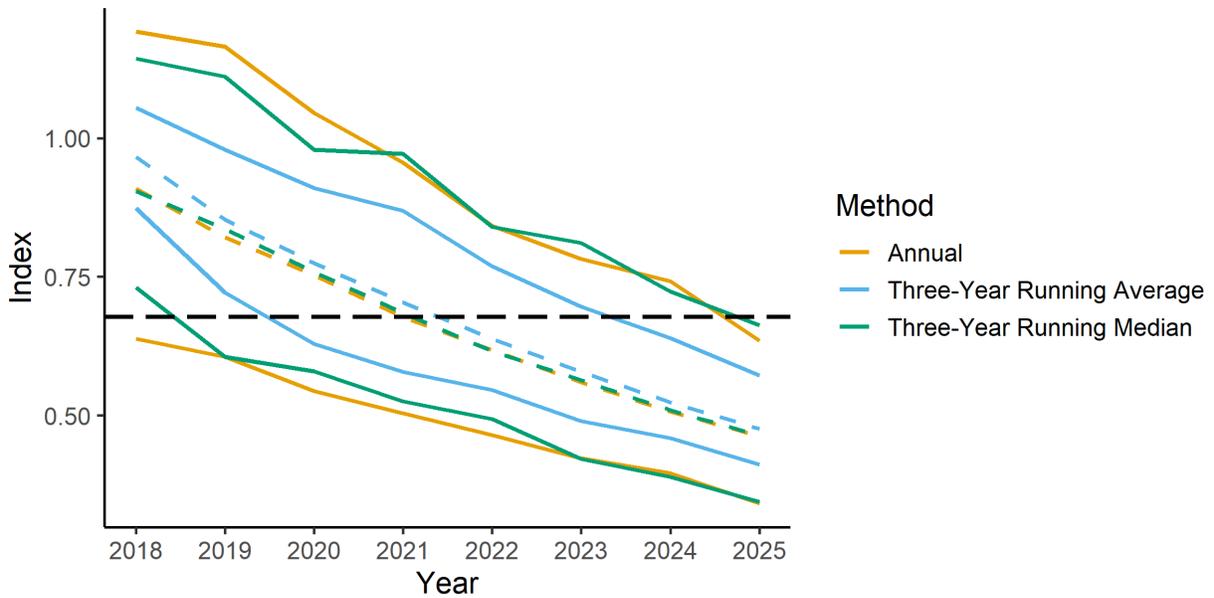


**Figure 5.** Distribution of index values by method from 1,000 simulations with the simulated population declining from the 2017 point value. The dashed colored lines are the median index values across simulations, the solid color lines are the minimum and maximum index values across simulations, and the dashed black line is the trigger level. The simulated stock was projected to decline 32% in 2021.

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**Figure 6.** Distribution of index values by method from 1,000 simulations with the simulated population declining from the 2015-2017 running average. The dashed colored lines are the median index values across simulations, the solid color lines are the minimum and maximum index values across simulations, and the dashed black line is the trigger level. The simulated stock was projected to decline 32% in 2021.



**Figure 7.** Distribution of index values by method from 1,000 simulations with the simulated population declining from the 2015-2017 running median. The dashed colored lines are the median index values across simulations, the solid color lines are the minimum and maximum index values across simulations, and the dashed black line is the trigger level. The simulated stock was projected to decline 32% in 2021.



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

July 18, 2022

**To: American Lobster Management Board**  
**From: Tina Berger, Director of Communications**  
**RE: Advisory Panel Nominations**

Please find attached new nominations to the American Lobster Advisory Panel – Chris Welch, a commercial trap fisherman from Maine; Todd Alger, a recreational diver from Massachusetts and Eric Lorentzen, a commercial inshore/offshore trap harvester from Massachusetts. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or [tberger@asmfc.org](mailto:tberger@asmfc.org).

Enc.

cc: Caitlin Starks

M22-54

**Maine (4)**

Jon Carter (comm/pot)  
333 Main Street  
Bar Harbor, ME 04609  
Phone: (207)288-4528  
[CARTERLOB@GMAIL.COM](mailto:CARTERLOB@GMAIL.COM)  
Appt. Confirmed: 5/30/96  
Appt. Reconfirmed 7/26/00  
Appt. Reconfirmed 1/2/06  
Appt Reconfirmed 5/10  
Confirmed Interest: 10/21

**Christopher Welch**  
**339 Alfred Road**  
**Kennebunk, ME 04043**  
**Phone: 207.205.2093**  
[littleskeet@ymail.com](mailto:littleskeet@ymail.com)

Eben Wilson (commercial inshore/offshore trap)  
5 Lincoln Street  
PO Bix 87  
East Boothbay, ME 04544  
207.380.6897  
[ebensail@gmail.com](mailto:ebensail@gmail.com)  
Appt Confirmed 1/25/22

Jeff Putnam (commercial inshore - out to 20 miles - trap)  
107 Littlefield Road  
Chebeague Island, ME 04017  
207.650.3327  
[Putnamjeff543@gmail.com](mailto:Putnamjeff543@gmail.com)  
Appt Confirmed 1/25/22

**New Hampshire (2)**

Robert Nudd (comm/inshore pot)  
531 Exeter Road  
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Phone (eve): (603)926-7573  
[LOBSTAMAN@MYFAIRPOINT.NET](mailto:LOBSTAMAN@MYFAIRPOINT.NET)  
Appt. Confirmed: 10/30/95  
Appt. Reconfirmed 9/15/99  
Appt. Reconfirmed 1/2/06  
Appt Reconfirmed 5/10  
Confirmed Interest: 9/21

James A. Willwerth (comm./trap)  
10 Mill  
Hampton Falls, NH 03844  
Phone (day): (603) 765-5008  
Phone (eve): (603) 926-3139  
[JAW080257@comcast.net](mailto:JAW080257@comcast.net)  
Appt Confirmed 10/22/12

**Massachusetts (4)**

Arthur Sawyer Jr. (comm pots)  
368 Concord Street  
Gloucester, MA 01930  
Phone: (978)281-4736  
FAX: (978)281-4736  
[sooky55@aol.com](mailto:sooky55@aol.com)  
Appt. Confirmed: 1/29/01  
Appt. Reconfirmed 1/2/06; 5/10; 9/15; 8/18  
Confirmed Interest: 9/21

Grant Moore (comm/offshore pot)  
4 Gooseberry Farms Lane  
Westport, MA 02790  
Phone (day): 508.971.2190  
Phone (eve): 508.636.6248  
FAX: 508.636.5789  
[grantmoore55@gmail.com](mailto:grantmoore55@gmail.com)  
Appt. Confirmed 11/2/15  
Appt. Reconfirmed 8/18  
Confirmed Interest: 9/21

**Todd Alger (recreational diver)**  
**7 Holly Street**  
**Hingham, MA 02043**  
**Phone: 339.236.0736**  
[Todd.alger@gmail.com](mailto:Todd.alger@gmail.com)

**Eric Lorentzen (comm/inshore/offshore pot)**  
**173 Spring Street**  
**Hull, MA 02045**  
**Phone: 774.217.0501**  
[ericcreedlorentzen@gmail.com](mailto:ericcreedlorentzen@gmail.com)

**Rhode Island (2)**

Lanny Dellinger (comm./pot)  
160 Snuffmill Road  
Saunderstown, RI 02874  
Phone (day): (401)932-5826  
Phone (eve): (401)294-7352

[lad0626@aol.com](mailto:lad0626@aol.com)

Appt Confirmed 2/21/06

Appt Reconfirmed 5/10

**Vacancy (comm/offshore pot)**

**Connecticut (2)**

John Whittaker (comm./pot)

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Groton, CT 06340

Phone (day): (860)287-4384

Phone (eve): (860)536-7668

FAX: (860)536-7668

[whittboat@comcast.net](mailto:whittboat@comcast.net)

Appt Confirmed 2/21/06

Appt Reconfirmed 5/10

Confirmed Interest: 9/21

Vacancy (comm pot)

**New York (2)**

George Doll (comm/inshore pot)

70 Seaview Avenue

Northport, New York 11768

Phone: (631)261-1407

FAX: (631)261-1407

Appt. Confirmed: 11/29/00

Appt. Reconfirmed 1/23/06

Appt Reconfirmed 5/10

James Fox (comm/pot)

152 Highland Drive

Kings Park, NY 11754

Phone: (631)361-7995

[jcfox22@verizon.net](mailto:jcfox22@verizon.net)

Appt. Confirmed: 10/16/01

Appt. Reconfirmed 1/23/06

Appt Reconfirmed 5/10

**New Jersey (2)**

Jack Fullmer (rec)

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Allentown, NJ 08501

Phone: (609) 298 – 3182

[JF2983182@MSN.COM](mailto:JF2983182@MSN.COM)

Appt Confirmed 2/21/06

Appt Reconfirmed 5/17/10

Confirmed Interest: 9/21

John Godwin (processor)

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Point Pleasant Beach, NJ 08742

Phone: 732.245.0148

FAX: 732.892.3928

[JOHN@POINTLOBSTER.COM](mailto:JOHN@POINTLOBSTER.COM)

Appt Confirmed 11/2/15

**Maryland**

Earl Gwin

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Berlin, MD 21811

Phone: (401) 251-3709

Email: [sonnygwin@verizon.net](mailto:sonnygwin@verizon.net)

Appt confirmed 11/1/15

Confirmed Interest: 9/21



ATLANTIC STATES MARINE FISHERIES COMMISSION

AUGUSTARCV '22FEB'7

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: Christopher Welch State: Maine
(your name)

Name of Nominee: Christopher Welch

Address: 339 Alfred Rd

City, State, Zip: Kennebunk ME 04043

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

Phone (day): 207-205-2093 Phone (evening): Same

FAX: Email: littleskeet@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

- 1. AMFSC 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 [checkmark]

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

yes [checkmark] no

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

Maine Lobstermans Assoc.

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

Lobster

tuna

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

Lobster

tuna

Halibut

**FOR COMMERCIAL FISHERMEN:**

1. How many years has the nominee been the commercial fishing business? 18 years

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

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

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? 50/50 inshore offshore, season dependent

**FOR CHARTER/HEADBOAT CAPTAINS:**

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

2. Is the nominee employed only in the charter/headboat industry? yes \_\_\_\_\_ no \_\_\_\_\_

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

3. How many years has the nominee lived in the home port community? 33 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.

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**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):

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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.

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**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):

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**FOR ALL NOMINEES:**

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

I was contacted by Megan Ware about possibly joining this commission, board member for the MLA for 4 years participated in the Lobster ~~area~~ Leadership program

Nominee Signature: Chris Welch

Date: 1-2-21

Name: Christopher Welch  
(please print)

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

Chris Welch  
State Director

\_\_\_\_\_  
State Legislator

\_\_\_\_\_  
Governor's Appointee

Signed on behalf of State Delegation



**ATLANTIC STATES MARINE FISHERIES COMMISSION**

**Advisory Panel Nomination Form**

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

Form submitted by: Daniel McKiernan State: MA  
(your name)

Name of Nominee: Todd Alger

Address: 7 Holly Street

City, State, Zip: Hingham, MA 02043

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

Phone (day): 339-236-0736

Phone (evening): 339-236-0736

FAX: \_\_\_\_\_

Email: todd.alger@gmail.com

**FOR ALL NOMINEES:**

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

1. American lobster
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

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

yes \_\_\_\_\_ no 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.

South Shore Neptunes Dive Club

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

lobster

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

lobster

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**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? \_\_\_\_\_ years

2. Is the nominee employed only in the charter/headboat industry? yes \_\_\_\_\_ no \_\_\_\_\_

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

\_\_\_\_\_

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

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

\_\_\_\_\_

**FOR RECREATIONAL FISHERMEN:**

1. How long has the nominee engaged in recreational fishing? 24 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? \_\_\_\_\_ 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.

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**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):

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**FOR ALL NOMINEES:**

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

I have been a recreational lobster diver for over 20 years. I am a past president and past vice president of the South Shore Neptunes Dive club and currently on the Neptunes board of directors and multiple committees. I live in Hingham, MA. I dive for lobster from my kayak, which is registered with the Gloucester Harbormaster who rents me a space for my kayak at the Lanes Cove Kayak Rack. I also dive for lobster from power boats as far north as Nahant and as far south as Minot Light. I dive for lobster from shore in Cape Ann and at various sites on the south shore and north shore.

Nominee Signature: Todd Alger

Date: 6/29/2022

Name: Todd Alger  
(please print)

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

Daniel J. McKeenan

State Director

Janet M. Redke

State Legislator

Raymond W. King

Governor's Appointee



# ATLANTIC STATES MARINE FISHERIES COMMISSION

## Advisory Panel Nomination Form

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

Form submitted by: Daniel Mckiernan State: MA  
(your name)

Name of Nominee: Eric Lorentzen

Address: 173 Spring Street

City, State, Zip: Hull, MA 02045

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

Phone (day): 774-217-0501

Phone (evening): 774-217-0501

FAX: \_\_\_\_\_

Email: ericreedlorentzen@gmail.com

**FOR ALL NOMINEES:**

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

1. American Lobster

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

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

yes \_\_\_\_\_ no 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.

MIA Lobstermen's ASSOC.  
South Shore Lobstermen's ASSOC  
Boston Harbor ASSOC.

Madrios Duck Lobstermen's Co-op  
MIA Striped Bass ASSOC.  
Spillwage Bank Charter Boat ASSOC.

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

lobster  
Junck crab  
menhaden

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

same as above plus  
striped bass

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**FOR COMMERCIAL FISHERMEN:**

1. How many years has the nominee been the commercial fishing business? 23 years
2. Is the nominee employed only in commercial fishing? yes  no
3. What is the predominant gear type used by the nominee? lobster trap and purse seine
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? Lobster: offshore + inshore, Purse seine: inshore

**FOR CHARTER/HEADBOAT CAPTAINS: N/A**

1. How long has the nominee been employed in the charter/headboat business? \_\_\_\_\_ years
2. Is the nominee employed only in the charter/headboat industry? yes \_\_\_\_\_ no \_\_\_\_\_  
If "no," please list other type(s) of business(es) and/occupation(s): \_\_\_\_\_  
\_\_\_\_\_
3. How many years has the nominee lived in the home port community? \_\_\_\_\_ years  
If less than five years, please indicate the nominee's previous home port community.  
\_\_\_\_\_

**FOR RECREATIONAL FISHERMEN:** N/A

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.

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**FOR SEAFOOD PROCESSORS & DEALERS:** N/A

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):

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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.

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**FOR OTHER INTERESTED PARTIES:** N/A

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):

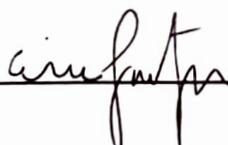
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**FOR ALL NOMINEES:**

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: 5-20-22

Name: Eric Lorentzen  
(please print)

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



\_\_\_\_\_  
State Director

\_\_\_\_\_  
State Legislator

\_\_\_\_\_  
Governor's Appointee

# Atlantic States Marine Fisheries Commission

## Atlantic Striped Bass Management Board

August 2, 2022  
1:30 p.m. – 5:00 p.m.  
Hybrid Meeting

### 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 (*M. Gary*) 1:30 p.m.
2. Board Consent 1:30 p.m.
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment 1:35 p.m.
4. Consider Fishery Management Plan Review and State Compliance for the 2021 Fishing Year (*E. Franke*) **Action** 1:45 p.m.
5. Progress Update and Board Guidance on 2022 Stock Assessment Update 2:30 p.m.
  - Technical Committee (TC) Report (*K. Drew*)
  - Provide TC Guidance for Management Options to Consider if the Assessment Indicates Reduction is Needed for Rebuilding
  - Discuss Timeline for Responding to the Assessment
6. Consider Next Steps for Draft Addendum I on Quota Transfers (formerly Draft Addendum VII) **Possible Action** 4:00 p.m.

*Motion from October 2021: Move to defer until May 2022 consideration by the Atlantic Striped Bass Board of Draft Addendum VII to Amendment 6 to allow further development and review of the transfer options.*
7. Other Business/Adjourn 5:00 p.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# MEETING OVERVIEW

## Atlantic Striped Bass Management Board

August 2, 2022

1:30 p.m. – 5:00 p.m.

Hybrid

Chair: Marty Gary (PRFC) Assumed Chairmanship: 01/22	Technical Committee Chair: Vacant	Law Enforcement Committee Rep: Kurt Blanchard (RI)
Vice Chair: Megan Ware (ME)	Advisory Panel Chair: Louis Bassano (NJ)	Previous Board Meeting: May 4, 2022
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, NMFS, USFWS (16 votes)		

### 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 2022

**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. Fishery Management Plan Review (1:45-2:30 p.m.) Action

#### Background

- State Compliance Reports for the 2021 fishing year were due on June 15, 2022.
- The Plan Review Team reviewed each state report and compiled the annual FMP Review (**Supplemental Materials**).

#### Presentations

- Overview of the FMP Review Report by E. Franke

#### Board Actions for Consideration

- Accept 2021 FMP Review and State Compliance Reports.

### 5. Progress Update and Board Guidance on 2022 Stock Assessment (2:30-4:00 p.m.)

#### Background

- The 2022 stock assessment update for Atlantic striped bass is currently underway with results expected in October 2022.
- Amendment 7 includes a provision allowing the Board to adjust management measures via Board action if the 2022 assessment indicates a reduction is needed to achieve stock rebuilding by 2029.

- The Technical Committee (TC) met in June 2022 to discuss what guidance is needed from the Board in order for the TC to calculate new management options to achieve stock rebuilding, if a reduction is needed (**Briefing Materials**).

**Presentations**

- Technical Committee Report by K. Drew

**Board guidance for consideration at this meeting**

- Provide guidance to the TC for management options to consider if the assessment indicates a reduction is needed for rebuilding.
- Discuss timeline for responding to the assessment.

**6. Draft Addendum I to Amendment 7 (4:00-5:00 p.m.) Possible Action**

**Background**

- In August 2021, the Board initiated Draft Addendum VII to Amendment 6 to consider allowing the voluntary transfer of commercial striped bass quota between jurisdictions that have commercial quota.
- Given the recent approval of Amendment 7, this draft addendum will now be referred to as Draft Addendum I to Amendment 7.
- In September 2021, the PDT developed the draft addendum for Board review and provided a memo to the Board outlining concerns regarding quota transfers (**Briefing Materials**).
- The Board deferred consideration of the draft addendum until May 2022 and subsequently postponed discussion until August 2022.

**Presentations**

- Overview of Draft Addendum I by E. Franke

**Board Actions for Consideration**

- Consider next steps for Draft Addendum I.

**7. Other Business/Adjourn (5:00 p.m.)**

## Atlantic Striped Bass

### Activity level: High

**Committee Overlap Score:** Medium (TC/SAS/TSC overlaps with BERP, Atlantic menhaden, American eel, horseshoe crab, shad/river herring)

#### Committee Task List

- SAS/TC – Conducting the 2022 stock assessment update
- TC – June 15<sup>th</sup>: Annual compliance reports due

**TC Members:** Michael Brown (ME), Kevin Sullivan (NH), Gary Nelson (MA), Nicole Lengyel Costa (RI), Kurt Gottschall (CT), Caitlin Craig (NY), Brendan Harrison (NJ), Tyler Grabowski (PA), Margaret Conroy (DE), Alexei Sharov (MD), Luke Lyon (DC), Ingrid Braun (PRFC), Brooke Lowman (VA), Joshua McGilly (VA), Charlton Godwin (NC), Jeremy McCargo (NC), Peter Schuhmann (UNCW), Tony Wood (NMFS), Steve Minkkinen (USFWS), John Ellis (USFWS), Katie Drew (ASMFC), Emilie Franke (ASMFC)

**SAS Members:** Michael Celestino (NJ, Chair), Gary Nelson (MA), Alexei Sharov (MD), Hank Liao (VMRC), John Sweka (USFWS), Margaret Conroy (DE), Katie Drew (ASMFC)

**Tagging Subcommittee (TSC) Members:** Stuart Welsh (WVU, Chair), Angela Giuliano (MD), Beth Versak (MD), Brendan Harrison (NJ), Chris Bonzek (VIMS), Gary Nelson (MA), Ian Park (DE), Jessica Best (NY), Josh Newhard (USFWS), Katie Drew (ASMFC), Emilie Franke (ASMFC)

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

**Westin Crystal City  
Arlington, Virginia**

**May 4, 2022**

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

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

## INDEX OF MOTIONS

1. **Approval of Agenda** by consent (Page 1).
2. **Approval of Proceedings of January 26, 2022** by consent (Page 1).
3. **Move to approve Option B in Section 4.4.1, such that for the 2022 stock assessment: F rebuild is calculated to achieve the SSB target by no later than 2029 using the low recruitment regime assumption as identified by the change point analysis and Move to approve Option B in Section 4.4.2, such that: If the 2022 stock assessment results indicate the Amendment 7 measures have less than a 50% probability of rebuilding the stock by 2029 (as calculated using the recruitment assumption specified in Amendment 7) and if the stock assessment indicates at least a 5% reduction in removals is needed to achieve F rebuild, the Board may adjust measures to achieve F rebuild via Board action (Page 6). Motion by Michael Armstrong; second by John McMurray. Motion carried (15 in favor, 1 null) (Page 10).**
4. **Main Motion**  
**For Tier 1 Fishing Mortality Triggers in Section 4.1, move to approve options A1, B1, and C1, such that:**
  - **If an F trigger is tripped, reduce F to a level that is at or below the target within 1 year.**
  - **If F exceeds the F threshold, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under Option A (1 year).**
  - **If F exceeds the F target for two consecutive years and female SSB falls below the SSB target in either of those years, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under sub-option A (1 year).**Motion by Justin McNamee; second by Megan Ware (Page 18).  
**Motion to Amend**  
**Move to amend to remove the F target trigger** (Page 19). Motion by John Clark; second by Tom Fote. Motion fails (3 in favor, 12 opposed) (Page 20).  
**Main Motion**  
**For Tier 1 Fishing Mortality Triggers in Section 4.1, move to approve options A1, B1, and C1, such that:**
  - **If an F trigger is tripped, reduce F to a level that is at or below the target within 1 year.**
  - **If F exceeds the F threshold, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under Option A (1 year).**
  - **If F exceeds the F target for two consecutive years and female SSB falls below the SSB target in either of those years, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under sub-option A (1 year).**Motion by Justin McNamee; second by Megan Ware. Motion carried (15 in favor, 1 opposed) (Page 20).
5. **Move to approve Tier 2 Options A2, B1, and C1 (within Section 4.1), such that the SSB triggers are:**
  - **The Board must implement a rebuilding plan within two years of the SSB management trigger being tripped.**

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

**INDEX OF MOTIONS (continued)**

- **If female SSB falls below the threshold, the striped bass management program must be adjusted to rebuild the biomass to the target level within an established timeframe (not to**
- **If female SSB fall below the target for two consecutive years and F exceeds the target in either year, the striped bass management program must be adjusted to rebuild the biomass to a level that is at or above the target within an established timeframe (not to exceed 10-years).**

Motion made by Megan Ware; second by Cheri Patterson (Page 20). Motion carried (15 in favor, 1 null) (Page 23).

6. **Move to approve Tier 3 Options A2 and B3 [within Section 4.1], such that the recruitment trigger is: If any of the four JAIs used in the stock assessment model to estimate recruitment (NY, NJ, MD, VA) shows an index value that is below 75% of all values (i.e., below the 25th percentile) in the respective JAI from 1992–2006, which represents a period of high recruitment, for three consecutive years, then an interim F target and interim F threshold calculated using the low recruitment assumption will be implemented, and the F-based management triggers defined in Section 4.1 will be reevaluated using those interim reference points. If an F-based trigger is tripped upon reevaluation, the striped bass management program must be adjusted to reduce F to the interim F target within one year (Page 23). Motion by Michael Armstrong; second by Dennis Abbott. Motion carried (16 in favor) (Page 24).**

7. **Main Motion**

**Move to approve Tier 4 Option A: Status Quo, no deferred management action. If a trigger trips, the Board must take action (Page 24). Motion by Jim Gilmore; second by Cheri Patterson.**

**Motion to Substitute**

**Move to substitute Option F: Board has already initiated action (e.g., developing addendum) in response to a different trigger (Page 25). Motion by John Clark; second by Joe Cimino. Motion carried (9 in favor, 5 opposed, 2 abstentions) (Page 30).**

**Main Motion as Substituted**

**Move to approve Tier 4 Option F: Board has already initiated action (e.g., developing addendum) in response to a different trigger. Motion carried (15 in favor, 1 abstention) (Page 30).**

8. **Main Motion 4.2.2**

**In Section 4.2.2, move to approve Option B2-a no harvest, spawning closure required (Page 38). Motion by Megan Ware; second by Michael Armstrong**

**Motion to Substitute**

**Move to substitute Option B1-a, All recreational targeting prohibited for minimum 2 weeks during a wave with at least 15% of striped bass directed trips (MRIP) (Page 39). Motion by Jim Gilmore; second by Mike Luisi. Motion failed (16 opposed) (Page 44).**

**Main Motion**

**In Section 4.2.2, move to approve Option B2-a no harvest, spawning closure required (Page 45). Motion by Megan Ware; second by Michael Armstrong. Motion failed (4 in favor, 11 opposed, 1 abstention) (Page 45).**

These minutes are draft and subject to approval by the Atlantic Striped Bass Management Board.

The Board will review the minutes during its next meeting.

**INDEX OF MOTIONS (continued)**

9. **In Section 4.2.2., move to approve a modified option C1: It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time when fishing recreationally** (Page 45). Motion by John Clark; second by Dennis Abbott. Motion carried (16 in favor) (Page 45).
10. **Move to accept Option D2 from Section 4.2.2, Recommended Outreach and Education** (Page 46). Motion by Roy Miller; second by Loren Lustig. Motion carried by consent (Page 46).
11. **Move to approve Option C2 from Section 4.2.2, Option for Incidental Catch Requirement: Striped bass caught on any unapproved method of take would be returned to the water immediately without unnecessary injury** (Page 46). Motion by Chris Batsavage; second by Matt Gates. Motion carried (12 in favor, 3 opposed, 1 null) (Page 49).
12. **Main Motion**  
**Move to approve in section 4.6.2 options B1-a and B1-c: CE programs would not be approved when the stock is overfished and CE programs would not be approved when overfishing is occurring. These restrictions apply to non-quota managed recreational fisheries, with the exception of the Hudson River, Delaware River, and Delaware Bay recreational fisheries** (Page 53). Motion by Michael Armstrong; second by John McMurray.  
  
**Motion to Amend**  
**Move to amend to remove B1-c, “and CE problems would not be approved when overfishing is occurring”** (Page 54). Motion by John Clark; second by Tom Fote. Motion carried (8 in favor, 7 opposed).  
  
**Main Motion as Amended**  
**Move to approve in section 4.6.2 options B1-a: CE programs would not be approved when the stock is overfished. These restrictions apply to non-quota managed recreational fisheries, with the exception of the Hudson River, Delaware River, and Delaware Bay recreational fisheries.** Motion carried (16 in favor) (Page 55).
13. **Move to approve in Section 4.6.2 Option C2: CE proposals would not be able to use MRIP estimates associated with a PSE exceeding 40 and move to approve in section 4.6.2 option D1: Proposed CE programs for non-quota managed fisheries would be required to include an uncertainty buffer of 10%, except D2 a buffer of 25% would be required when MRIP estimates PSE exceeds 30%** (Page 55). Motion by Michael Armstrong; second by Justin McNamee. Motion carried (13 in favor, 1 opposed, 2 abstentions) (Page 57).
14. **Move to approve in Section 4.6.2, Option E2 such that CE proposals for non-quota managed fisheries must demonstrate equivalency to the percent reduction/liberalization projected for the FMP standard at the state-specific level** (Page 57). Motion by Michael Armstrong; second by Jim Gilmore. Motion carried (13 in favor, 1 opposed, 2 abstentions) (Page 60).
15. **Move that all provisions of Amendment 7 be effective immediately except for gear restrictions. States must implement gear restrictions by January 1, 2023** (Page 61). Motion by Megan Ware; second by John Clark. Motion carried unanimously (Page 61).

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The Board will review the minutes during its next meeting.

**INDEX OF MOTIONS (continued)**

16. **Move to recommend to the Commission the approval of Amendment 7 to the Striped Bass Interstate Fishery Management Plan as amended today** (Page 61). Motion by Cheri Patterson; second by David Sikorski. Motion carried unanimously (Page 62).
17. **Move to approve Jamie Lane representing North Carolina to the Striped Bass Advisory Panel** (Page 64). Motion by David Sikorski; second by Chris Batsavage. Motion carried (Page 64).
18. **Move to elect Megan Ware as Vice-Chair of the Atlantic Striped Bass Management Board** (Page 64). Motion by Cheri Patterson; second by Eric Reid. Motion carried (Page 64).
19. **Move to adjourn** by consent (Page 64).

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**ATTENDANCE**

**Board Members**

Megan Ware, ME, proxy for P. Keliher (AA)	Kris Kuhn, PA, proxy for T. Schaeffer (AA)
Steve Train, ME (GA)	Loren Lustig, PA (GA)
Sen. David Miramant, ME (LA)	G. Warren Elliott, PA (LA)
Cheri Patterson, NH (AA)	John Clark, DE (AA)
Ritchie White, NH (GA)	Roy Miller, DE (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Mike Armstrong, MA, proxy for D. McKiernan (AA)	Mike Luisi, MD, Administrative proxy
Raymond Kane, MA (GA)	Robert Brown, Sr., MD, proxy for R. Dize (GA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	David Sikorski, MD, proxy for Del. Stein (LA)
Jason McNamee (AA)	Pat Geer, VA, Administrative proxy
David Borden, RI (GA)	Bryan Plumlee, VA (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Shanna Madsen, VA, proxy for Sen. Mason (LA)
Matt Gates, CT, proxy for J. Davis, CT (AA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
Bill Hyatt, CT (GA)	Jerry Mannen, NC (GA)
Jim Gilmore, NY (AA)	Bill Gorham, NC proxy for Rep. Steinberg (LA)
Scott Curatolo-Wagemann, NY, proxy for E. Hasbrouck (GA)	Marty Gary, PRFC
John McMurray, NY, proxy for Sen. Kaminsky (LA)	Dan Ryan, DC, proxy for J. Seltzer
Joe Cimino, NJ (AA)	Rick Jacobson, USFWS
Tom Fote, NJ (GA)	Chris Wright, NMFS

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

**Ex-Officio Members**

Kurt Blanchard, Law Enforcement Representative

**Staff**

Bob Beal	Maya Drzewicki	Sarah Murray
Toni Kerns	Emilie Franke	Mike Rinaldi
Tina Berger	Lisa Havel	Deke Tompkins
Kristen Anstead	Chris Jacobs	Geoff White
Katie Drew	Jeff Kipp	

**Guests**

John Abplanalp, Tight Line Adv.	Dave Bard, NOAA	Alan Bianchi, NC DENR
Karen Abrams, NOAA	Megan Barrow, NYS DEC	Kalil Bodhdan
Max Appelman, NMFS	Mike Barry	Christopher Borgatti
Lee Arco	Rick Bellavance	Michael Bowen, Stonybrook
Jerry Audet	John Bello	Bill Brantley, NC DENR
Pat Augustine, Coram, NY	Jessica Best, NYS DEC	Andrew Briggs

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**Guests (continued)**

Jeff Brust, NJ DEP	Adam Kenyon, VMRC	Mike Ruccio, NOAA
Craig Cantelmo	Thomas Kosinski	Lenny Rudow
Michael Celestino, NJ DEP	Chris LaPorta, NYS DEC	Brendan Runde, TNC
Benson Chiles, Chiles Consulting	Nils Larson	Sean Breit Rupe, TM Law
Germain Cloutier	Carl Lobue, TNC	Chris Scott, NYS DEC
Heather Corbett, NJ DEP	Brooke Lowman, VMRC	Tara Scott, NOAA
Richard Cody, NOAA	Dee Lupton, NC DENR	Alexei Sharov, MD DNR
Allison Golden, CBF	John Maniscalco, NYS DEC	Greg Shute
Margaret Conroy, DE DFW	Casey Marker, MD DNR	Philip Simon
Heather Corbett, NJ DEP	Paul Marzolla	Andrew Sinchuk, NYS DEC
Nichole Lengyel Costa, RI DEM	Owen Mulvey-McFerron	Somers Smott, VMRC
Dan Couture	Dan McKiernan, MA (AA)	Ross Squire
Nathan Cowen	Conor McManus, RI DEM	Kevin Sullivan, NH F & G
Caitlin Craig, NYS DEC	Frank Meisel	John Sweka, US FWS
Maureen Davidson, NYS DEC	Nichola Meserve, MA DMF	Chad Tukey
Grant DePhillips	Steve Meyers	Craig Ueker
Greg DiDomenico	Mike Millard	Jim Uphoff, MD DNR
Evan Dintaman	William Mitchell	Taylor Vavra, Strippers Forever
Chris Dollar	Brandon Muffley, MAFMC	Beth Versak, MD DNR
Mark Eustis, Grey Owl Analytic	Brian Neilan, NJ DEP	Ralph Vigmostad
Peter Fallon, Maine Strippers	Robert Newberry	Daniel Walsh
Lynn Fegley, MD DNR	Josh Newhard, US FWS	Craig Weedon, MD DNR
Tony Friedrich, ASGA	Tom O'Connell	Andrew Werkama
Tom Fuda	George O'Donnell, MD DNR	Ben Whalley
Lewis Gillingham, VMRC	Tyler O'Neill	Tim Wheeler, <i>Bay Journal</i>
Angela Giuliano, MD DNR	Derek Orner	Peter Whelan
Willy Goldsmith, ASGA	Patrick Paquette	Sarah Widman
Pam Lyons Gromen, Wild Oceans	Patrick Perrotto	Kate Wilke, TNC
Jaclyn Higgins, TRCP	Wes Phillips	Angel Willey, MD DNR
Greg Hinks, NJ DEP	Michael Pierdinock	Brian Williams
William Hoffman, MA DMF	Michael Piper, Abrams Capital	John Page Williams
Jacob Holtz, MD DNR	Kelly Place	Joshua Winger, NC DENR
Jeffrey Horne, MD DNR	Michael Plaia	Jordan Wisecup, <i>Congressional Sportsmen</i>
Harry Hornick, MD DNR	Nick Popoff, FL FWS	Charles Witek
Jesse Hornstein, NYS DEC	Will Poston, ASGA	Steven Witthuhn
Bob Humphrey	Evan Priovolos	Michael Woods
Bob Jeter	Dominick Pucci	Chris Wright, NOAA
Jeff Kaelin, Lund's Fisheries	Marcus Quenzer	Renee Zobel, NH F&G
Julia Kaplan, MA DMF	Jill Ramsey, VMRC	Erik Zlokovitz, MD DNR
Kurt Karwacky	Courtney Roberts	
Carrie Kennedy, MD DNR	John Robertson, OptOnline	
Greg Kenney, NYS DEC	Cody Rubner	

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The Atlantic Striped Bass Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, a hybrid meeting, in-person and webinar; Wednesday, May 4, 2022, and was called to order at 11:30 a.m. by Chair Martin Gary.

### **CALL TO ORDER**

CHAIR MARTIN GARY: Good morning, everybody. I would like to call to order the Atlantic States Marine Fisheries Commission's Atlantic Striped Bass Management Board meeting for May 4, 2022. My name is Marty Gary; I am the Administrative Representative for the Potomac River Fisheries Commission, and I am the Chairman of this Board.

The Vice-Chairman is currently vacant. We'll be addressing that vacancy later in this meeting. Our Technical Committee Chair is also vacant at this current time. Our Advisory Panel Chair is Lou Bassano of New Jersey. Our LEC representative is Deputy Chief Kurt Blanchard of Rhode Island, and our FMP Coordinator is Emilie Franke, and Dr. Katie Drew, seated to my right is the ASMFC Stock Assessment Scientist for striped bass.

Before we get going, I just wanted to, I know these folks aren't new to our coastal community, they are actually veterans. But there are some faces here at the Board that aren't typically here. I want to welcome Scott Wagemann for New York, who is proxy for Emerson Hasbrouck. Welcome, Scott.

Robert T. Brown is proxy for Russel Dize of Maryland. Robert T. has been at this meeting for this species several times before, but he's proxy for Russel Dize, seated over here on the right. Matt Gates is here as proxy for Dr. Justin Davis of Connecticut. Matt, welcome. Rick Jacobson for the U.S. Fish and wildlife Service.

Rick, welcome to the Striped Bass Board. Virtually online is Chris Wright, for NOAA Fisheries. With that, I would like to go ahead and get into the meeting.

### **APPROVAL OF AGENDA**

CHAIR GARY: First order of business is the Approval of the Agenda. We'll do this by consent. Are there any additions or modifications of the agenda that was distributed and presented to the Board? Joe Cimino.

MR. JOE CIMINO: Given this journey we're about to embark on, and given the date, I just wanted to start us off by saying, may the fourth be with you!

CHAIR GARY: Thank you, Joe. All right, so if there are no other comments on the agenda, we'll consider that approved by consent.

### **APPROVAL OF PROCEEDINGS**

CHAIR GARY: Next order of business is the Approval of the Proceedings from January, 2022. Are there any changes or modifications from those proceedings that were sent out via e-mail, and posted on the website? Seeing none; we'll approve the proceedings from January, 2022 by consent.

### **PUBLIC COMMENT**

CHAIR GARY: Our next item on the agenda is Public Comment, so this is for items that are not on the agenda. I am going to look to the back of the room, and I do see one hand raised. I will also look to Katie to help me with those folks that may be online that may want to offer public comment, to see how many folks we have.

DR. KATIE DREW: I do not see any hands online.

CHAIR GARY: Okay, so we had one individual, and he has come to the public microphone. If you could identify yourself. Go ahead.

MR. PHIL ZALESK: My name is Phil Zalesak; I'm from southern Maryland, I'm a recreational fishing advocate, if you will. All I want to do is propose something that has nothing to do with the process which you're reviewing right now. It has to do with fishing regulations for 2023 for your reviewed consideration, as you go back to your states.

Draft Proceedings of the Atlantic Striped Bass Management Board Webinar  
May 2022

I encourage you to contact your Technical Committees to review what I'm about to say here. Based on documented research, I propose three recommendations. First is establish a harvest slot, if you will, for striped bass from 18 to 28 inches. Why. Well, according to the Virginia Institute for Marine Science, 18-inch females start producing about a million eggs per year.

When they get up to 35 inches, they are producing between a million and a half to two million eggs per year. Why would I want to take one of those out of the water, when I could get something else that would be less productive, in terms of making juveniles. Second, according to Draft Amendment 7 data, Page 128.

Release mortality rate has exceeded the harvest mortality rate for the last four years. I questioned Emilie Franke about this, and she said yes, that's right, Phil. I did my research, and she was dead on and I was dead wrong. But essentially, if you do the research, you're going to find a former Maryland Department of Natural Resource scientist, who said that in the summer months when the oxygen is not very high and the salinity is low, the mortality rate can go up to 70 percent, 70 percent.

If anybody is interested in these links, I would be glad to provide those. The third point I want to make is that in the Atlantic menhaden reduction harvest, removing 26 percent of the total allowable catch from the entire Atlantic coast, the Virginia portion of the Chesapeake Bay is not supported by science. I thank you for your time this morning. Have a good day.

CHAIR GARY: Thank you, Mr. Zalesak. All right, so we're going to go into Item Number 4 on our agenda. This is Draft Amendment 7 for Final Approval, and this is a final action. We will have a one-hour lunch break. Just a few notes on process for everyone. Because Amendment 7 was just out for public comment, our intention is not to take public comment when the Board is voting on options.

I think hopefully all the folks from the public that are listening in that care so much for this species, as we all do, understand that we have a lot of empathy for public comment. I tried to take that into account at the January meeting. But we've had that public comment, and the public really did turn out, great participation at the hearings, as we'll hear from Emilie in a moment, and through the written comments. The Board members have had an opportunity to see that. We really need to maintain our focus and attention to these proceedings that we're going to have today.

I just want to manage expectations on public participation. If I really feel a compelling need, we will reach to the public. But at this point we're really trying to constrain this to the Board discussion. Also, I want to go on the record as saying, as the sole Board member for the Potomac River Fisheries Commission, I don't have fellow delegation members like the states do.

I will be voting on the options today. We're going to discuss each of these options issue by issue. Emilie, who I'll turn this over to in a moment, will present one issue at a time, review the options, public comments and Advisory Panel recommendations. The Law Enforcement Committee representative Kurt Blanchard will also present the LEC input on recreational release mortality.

After the presentation on each issue, our intention is to take questions first, followed by motions and discussion. Most importantly, I think because of the complexity and because of the interlinkage of a lot of the components in this document, our goal will be to get motions up to the table as soon as possible.

I think folks have had a lot of time to look over the materials and the positions, so we can discuss them if that is the preference. But I think if we can get motions up on the table, if somebody has a substitute we can go that way, but to get them up quickly I think would be helpful. We will have a one-hour lunchbreak.

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We're going to shoot for 12:30, and I have one sequential rearrangement, where we're going to use the rebuild issue and move that up front first, try to address that, and hopefully we can get that done by 12:30. If we get a little bit bogged down, we can delay that until after lunch. We'll go now to a voice that you're all very familiar with, who is participating virtually, Ms. Emilie Franke, to go ahead to introduce this Draft Amendment 7 for Final Approval, final action. Emilie, I am going to turn it over to you.

#### **DRAFT AMENDMENT 7 FOR FINAL APPROVAL**

MS. EMILIE FRANKE: Thank you so much, Mr. Chair, and I'm disappointed I can't be there in person today. But I want to thank you, Mr. Chair, and also the Commission Team, especially Maya, Toni and Katie for all their help preparing for this meeting today. I would also like to thank Maya for all her help compiling all the public comments for this Draft Amendment.

To get us started today I'll review the background and timeline for the Draft Amendment, and then as Mr. Chair stated, I'll review the four issues and the proposed options, including the Public Comment Summary and the AP Recommendations. We'll present issue by issue and pause for Board discussion after each issue.

To review the background here, the last amendment to the striped bass fishery management plan was adopted in 2003, and that was Amendment 6. Since then, the status and understanding of the stock and the fishery has changed quite considerably, and the most recent 2018 benchmark stock assessment indicated the stock is overfished, and experiencing overfishing. These results tripped the management triggers requiring the Board to take action to end overfishing, and to address the overfished status of the stock. In April, 2020, the Board implemented Addendum VI to Amendment 6 to end overfishing, and those Addendum VI measures are designed to achieve at least an 18 percent reduction in coastwide removals.

Then following that Addendum VI action, in August, 2020, the Board initiated development of this Amendment 7. This Amendment is intended to update the management program to better align with current fishery needs and priorities, and to build on that Addendum VI action to initiate stock rebuilding.

In January of this year, the Board approved Draft Amendment 7 for public comment, and the Draft Amendment has proposed options to address four issues. Those are management triggers, recreational release mortality, the stock rebuilding plan, and conservation equivalency. The full Amendment 7 timeline is shown here.

Following the scoping process, that public information document process last year, in May of last year, the Board selected which issues to include in the Draft Amendment. Then in January, 2022, as I mentioned, the Draft Amendment was approved for public comment, and that public comment period was open through April 15th. Today at this May Board meeting, the Board will review that public comment, and consider selecting final measures for the Amendment.

The Board actions for consideration today are selecting the management options, and the implementation dates, and considering approval of the final document. The management options are in the four issue sections listed here. Then the Board will also need to discuss Section 4.10, which is the recommendation to the Secretary of Commerce, and Section 5.2, which is the compliance schedule.

Before moving into the proposed management options, I just want to point out what is staying the same at this time, as far as the measures in the Draft Amendment. Draft Amendment 7 maintains the same recreational size and bag limit requirements as Addendum VI. That is the one-fish at 28 to less than 35 inches for the ocean, and one-fish at an 18-inch minimum for the Bay.

Draft Amendment 7 also maintains the same commercial size limits and the same commercial

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quota allocations as Addendum VI, which was that 18 percent quota reduction from Addendum IV levels. All approved Addendum VI conservation equivalency programs and state implementation plans are maintained for these measures, until these measures are changed in the future.

For example, these measures might be changed in response to this upcoming stock assessment if needed. If these measures are changed in the future, then new implementation plans and new conservation equivalency proposals would be required. Draft Amendment 7 states that the Chesapeake Bay Spring Trophy Fishery is part of the ocean fishery for management purposes, and so would be subject to the same requirements as the ocean fishery. With that background information I'll get into the proposed options.

#### **REVIEW OPTIONS AND PUBLIC COMMENT SUMMARY**

MS. FRANKE: I'll review the options, the public comment summary and the AP recommendations for each issue. As Mr. Chair stated, we'll also hear from the Law Enforcement Committee on recreational release mortality, and we'll start with the rebuilding plans section here, so that's Section 4.4, and we will pause for discussion after each issue. As far as the public comments that we received, these public comments were accepted through April 15, 2022, and we received 4,689 written comments, 1,149 of those were individual comments, 3,397 of those were received through 25 different form letters.

Then 51 organizations also submitted comments. One of those organization's letters listed 92 supporting businesses and organizations. Then for the public hearings, 12 public hearings were held for 11 jurisdictions in March. Eight of those hearings were conducted via webinar only, three were conducted in person, and one hearing was conducted in a hybrid format.

Four hundred and ninety-three individuals attended those hearings, not including state staff, Commission staff, or Commissioners and Proxies.

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Some of those individuals did attend and participate in multiple hearings. Then also just a note that live polling or a show of hands vote were used at most of the hearings for some of the proposed options, and the public comment summary memo in the meeting materials indicates when a poll or a vote was used.

#### **ADVISORY PANEL REPORT**

MS. FRANKE: Then as far as the Advisory Panel input, the Striped Bass AP met twice via webinar in April, to discuss the AP input on all of the proposed options. Then the Law Enforcement Committee met via webinar in April as well, to discuss input on the recreational release mortality options.

#### **REBUILDING PLAN**

I will kick us off here, moving into the proposed options section with Section 4.4, which is the stock rebuilding plan.

Starting with the statement of the problem, the stock is overfished, which tripped the current management trigger requiring the Board to rebuild the stock by 2029. Those Addendum VI measures implemented in 2020 are expected to contribute to that stock rebuilding. But there has been some concern about recent low recruitment estimates, and how that low recruitment might impact the stock's ability to rebuild.

A Technical Committee analysis as part of this Draft Amendment 7 process identified 2007 to 2020 as a low recruitment period, or low recruitment regime for the stock. The results of the next stock assessment are expected later this year in October, and this stock assessment will provide stock projections to determine if the stock will reach the rebuilding target by 2029, and again this will include two years of data under the Addendum VI reductions.

The assessment will also calculate what level of fishing mortality is needed to rebuild the stock, and that is referred to as F rebuild. This section in the Draft Amendment includes two sets of options,

specifically related to that 2022 assessment. The first considers which recruitment assumption to apply to the rebuilding calculations, and the second set of options considers how the Board could respond to that assessment, if action is needed to achieve stock rebuilding.

Starting with the recruitment assumption options from the 2022 assessment. Option A would be the status quo. F rebuild is calculated to achieve the SSB target by 2029, so to rebuild the stock by 2029, using the standard recruitment method from the assessment. This means that those stock rebuilding projections would estimate future recruitment based on the entire time period from 1990 forward, so based on all those highs and lows that we've seen over the past 30 years. Then Option B for the recruitment assumption. This is where F rebuild would be calculated to achieve the target by 2029 using the low recruitment regime assumption. This means that the stock rebuilding projections would estimate future recruitment based on the low recruitment period only. This low recruitment assumption is more conservative, and might result in more restrictive management measures as compared to Option A.

The next set of options in this section addresses how the Board could respond to the 2022 assessment if a reduction is needed to rebuild the stock by 2029. Option A, status quo, the Board would go through the typical addendum process to develop new measures to achieve the stock rebuilding target. The addendum process typically takes about six to nine months, so any new measures could be implemented likely in 2024.

Then as far as public comments, the addendum process includes those formal public hearings and a formal draft addendum document to provide public comments on. Then Option B, the alternative here, would allow the Board to change management measures more quickly, by taking action at a Board meeting, so by taking a Board vote. I'm going to read the option here, because it has some specific parameters.

If the 2022 stock assessment results indicate that Amendment 7 measures have less than a 50 percent probability of rebuilding the stock by 2029, as calculated using the recruitment assumption specified in Amendment 7, and if the stock assessment indicates that at least a 5 percent reduction in removals is needed to achieve F rebuild, then the Board may adjust measures to achieve F rebuild via Board action.

If the Board passed a motion with those management changes sometimes later this year following the stock assessment, those new measures could likely be implemented in 2023. Probably not at the beginning of the year, but maybe sometime in the spring or the summer. Then as far as the public comments for this type of response process, this process would include the opportunity for public comments during the Board meeting itself when the Board was considering any new measures. Then any written comments could be submitted before the Board meeting per Commission protocols for submitting comments leading up to Board meetings.

I'll now go into the public comment summary for these two sets of options. For the recruitment assumption, a majority of comments favored Option B, which is the low recruitment assumption for the 2022 assessment. In order to take the most conservative approach, and noting support for a conservative/aggressive rebuilding plan.

Those that noted support for the Option A, standard recruitment method indicated that striped bass recruitment is naturally variable from year to year. Then as far as the Board response to the 2022 assessment. If needed, a majority of public comments favored Option B, which is using that Board action process to respond if a reduction is needed to achieve rebuilding. Commenters noted the importance of taking quick action to address the need to rebuild the stock. There were some comments in support of the status quo addendum process, Option A, and those comments noted the importance of a thorough public comment process and sufficient time for analysis before selecting new measures. Then for the Advisory Panel input on

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these options. You'll notice for many of the issues and options, the Advisory Panel did not come to consensus. For this recruitment assumption, three AP members support actually using both Options A and B for the recruitment assumption.

They noted it's important to compare the results of both the standard recruitment method and the low recruitment assumption. Then six AP members supported Option B, which is the low recruitment assumption, due to the concern from recent observed low recruitment. Then as far as the process for responding to the assessment, eight AP members supported Option B, which is that faster board action process, so the Board can respond quickly if needed.

But AP members did emphasize the importance of opportunities for public comment and for Advisory Panel input, even during this faster process. With that I am happy to take any questions on this section, or the public comments, so I will turn it back over to you, Mr. Chair.

CHAIR GARY: We'll open this up for questions for staff. Go to John Clark.

MR. JOHN CLARK: Thank you for the great presentation, Emilie. I just had a question on the rebuilding assumptions there. If we go with the recruitment assumption of low recruitment. Since we're doing this before we actually go to the triggers, is this going to lock us in to using the low recruitment assumption for the trigger also, the recruitment trigger?

MS. FRANKE: No. Selecting a recruitment assumption for this particular stock assessment does not impact what the Board decides to choose, as far as what the recruitment trigger should be, and what the response to the recruitment should be.

CHAIR GARY: Other questions for Emilie on the rebuild, the recruitment assumption and the Board response? If there aren't any, as I mentioned before, I think our best strategy to go forward is to

see if we can get a motion up on this, if the Board has one. Dr. Armstrong.

DR. MICHAEL ARMSTRONG: I am going to make one motion for both pieces of this. If the Board Chair thinks that might complicate things we can break them apart, but let me put it out there, and we'll see how it goes. For the recruitment assumption for the 2022 assessment.

**Move to approve Option B for the low recruitment assumption to be used in the 2022 stock assessment's calculation of the F rebuild needed to achieve the SSB target, no later than 2029, and for the process of responding to the 2022 assessment, move to approve Option B, to allow the Board to adjust measures to achieve F rebuild via Board action.**

CHAIR GARY: Thank you, Mike, do we have a second to that motion? John McMurray. Okay, we'll go ahead and open this up. Actually, we'll go back to you, Mike, for any justification you want to add to this.

DR. ARMSTRONG: Yes, I mean I think it's fairly self-explanatory, and certainly this goes with the public's will. To be honest, the low recruitment assumption, I'm not sure how much it's going to matter in this particular rebuilding, because the recent low recruitment is not going to be part of SSB for a number of years, but it's going to make a big difference for longer term recruitments. We're all very troubled by the last three years of recruitment in Chesapeake Bay, and for the response.

I made that motion at the last meeting to include this, and I was very surprised that the public supports, sort of taking out the public hearing process in order to expedite. It's clear the public wants us to expedite things and eliminate the addendum process, just for this time.

CHAIR GARY: John, did you want to add any comments as a seconder?

MR. McMURRAY: Yes, I'll try to be brief here. For one, the low recruitment scenario seems like the more prudent, cautious way to move forward, although it probably will result in more difficulty in rebuilding. But as for the second part, I think we're already pretty late in initiating a rebuilding plan, and this would certainly help us expedite things.

I think the public has been very clear they want less delay, they want us to act expediently, and I know that there has been some concern about public comment and general engagement. But I think the document makes it clear that we will be able to submit comment via writing letters or even at the meeting if time allows. It just makes sense.

CHAIR GARY: We'll open it up to the Board for discussion on the motion. Joe Cimino.

MR. CIMINO: I have to apologize, because I was slow in getting my hand up for questions in the discussion. I'm curious maybe Emilie could answer. I kind of tend to agree with the AP members that said we should be looking at everything. I mean there is no doubt that this low recruitment assumption is probably the most prudent thing.

That's what Dr. Drew and others would be telling us. I am not 100 percent sure why we would tie their hands and not allow the experts to paint the best picture possible for us. I'm curious, would status quo still allow us to look at a low recruitment assumption. Maybe, Katie, that's a question for you, and not just force this issue.

MS. FRANKE: Thanks, Joe, and Mr. Chair, I can start here before turning it over to Katie. If the Board did select Option A for the recruitment assumption, status quo, standard recruitment method. That doesn't prevent the stock assessment from looking at the low recruitment assumption also.

But the TC would need specific guidance from the Board stating that they wanted the assessment to look at that low recruitment assumption also. Also, in terms of just the number of different projections, you know looking at both the standard recruitment method and the low recruitment assumption,

would be a lot more projections that would need to be developed. I'll turn it over to Katie for that.

DR. DREW: Yes, I think Emilie covered it for sure. We could look at it, but it does increase the amount of work on the TC in a compressed amount of time. I think the other issue is it does come down more on the side of risk tolerance for the Board, rather than a specific scientific question. In the sense that if we could predict what recruitment is going to be in the next few years, we would be in a different scenario. I don't think the Stock Assessment Committee can tell you, this is the right answer or this is the wrong answer. We can give you both of them, and then you'll just have to come back and have that discussion again after you've seen the results.

CHAIR GARY: Does that answer your question, Joe? All right, thank you. Next up we have Chris Wright, NOAA Fisheries.

MR. CHRISTOPHER WRIGHT: I don't know who this would go to, but if this was to be approved, would we vote concurrent with the 2022 assessment in October or November, or would it be a later date. Second part is, will there be any guidance on viable measures?

MS. FRANKE: Thanks, Chris. To your first question. The exact timeline of how this faster Option B Board process would ensue is something that would have to be discussed over the next couple of months. If this option were approved, then the TC would have to present, along with the stock assessment results in October.

The TC would also provide potential options for the Board to consider to achieve any sort of reduction indicated by the assessment. As far as when the Board would discuss and vote on those options, that is something that would need to be worked out over the next couple of months. Then, can you repeat the second part of your question, please?

MR. WRIGHT: Sure, and thanks for the first answer. Will there be any guidance on the viable measures?

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MS. FRANKE: Yes. At the August meeting, so the next Board meeting. If this Option B, faster Board process was approved, then the TC would come back seeking guidance from the Board on what types of options the TC should look at. Katie will provide a little bit more detail after the Draft Amendment discussions on the stock assessment process, which is Agenda Item Number 5. If the Board approved this faster Board option, the Board would need to provide some guidance to the TC in August, as to what types of measures the TC should be looking at.

CHAIR GARY: Chris, does that answer all of your questions?

MR. WRIGHT: Yes, thank you.

CHAIR GARY: Additional questions for staff on the motion. Bill Hyatt, Connecticut.

MR. WILLIAM HYATT: Good morning, it is not so much a question, maybe, just sort of thinking aloud. I generally support this motion in its entirety, and I recognize that it certainly represents the overwhelming will of the public comment that we received. But I have to admit that I've got some angst with Option B, the Board action, or the second part of the motion.

I realize that the public has said, really and spoken kind of loud and clear, that they want fast action taken. I guess what I don't entirely trust is that when the time comes that the shortened timeframe for providing, and shortened options for providing public comment, are going to be at that point in time deemed satisfactory by the public. I guess I'm saying I support the motion, but I was hoping that I would hear some more conversation, some more discussion, some more folks opinions on the second half of this, and whether or not they think that it's going to play out to the satisfaction of the public, the way they are indicating at this point in time.

CHAIR GARY: I guess we're still on questions, but it looks like we may pivot into comments. But Tom Fote.

MR. THOMAS P. FOTE: I'll wait until comments.

CHAIR GARY: Are there additional questions for staff? Well, Tom, I think we're ready for comments. You're up.

MR. FOTE: We said that the public came out to basically say this, but I look at the numbers. We had 493 people attend all the public hearings online, and we polled those people. We've got a representation of the people that were online basically at these hearings. But when I look at the number of 493, the last time we did a public, Amendment 6, I had about half of that just in the state of New Jersey.

Then I realized that also, when I look at my old meeting, I used to have 500 people at a striped bass hearing. Now a lot of people have gotten turned off about going, because they figure they don't listen to what we have to say. I don't look at this the same way some of you people look at it. I look at it as we're not reaching out to the public, or the public get involved.

Also, we weren't putting any restrictions that they knew of in this thing, because everything was going to be status quo until the new stock assessment, so maybe they didn't show up to the public hearings. But when I look at that number, 493 people attending all the public hearings. I mean I look at New Jersey and Pennsylvania, we had a joint hearing.

Then I looked who was on the hearing. There were 15 members of staff, between Pennsylvania and New Jersey, and there was 50 members of the public. I said, what am I doing, and we're polling those people as if they represent the 800,000 anglers in New Jersey, and I don't know how many anglers you have that saltwater fish on the Delaware River.

But I know it must be between the two states we have a little more than a million and a half, or it's close to that. All we're doing is basically looking at 50 people. I have a real problem with that, I think we're not doing our job of communicating, or I think

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people are Zoomed out. I mean we all are Zoomed out. We don't really want to go to meetings as much as we're going, and the public just got turned off from the whole process, I don't know. I don't see this as a representation that other people see.

CHAIR GARY: Thank you, Tom. I know I listened to every single one of the hearings. I saw a lot of the same names. I saw the staff that you were talking about for the respective jurisdictions present. But I don't know, and at least from my observations, if technology was a huge impediment. It seems like those folks that I cross paths with understood how to access it. We've always struggled with getting folks to engage. I honestly found the technology was an asset, from a coastwide basis, and I got a chance to really understand some of the perspectives in different geographic areas. It had its pros and it had its cons. Additional discussion from the Board. We're going to go to Ritchie White and then John Clark.

MR. G. RITCHIE WHITE: I strongly support the motion, definitely concern about the public not having their normal amount of input, but for the last few years I've heard no comment in any way, shape, or form that said you're going too fast, that the fishing needs to slow down. All we hear is, what is wrong with the Commission?

You guys don't act fast enough. We're in this situation, if you had acted faster, we might not be in this situation. I think the public has been extremely clear about us taking a fast response to the results of the 2022 stock assessment. That would be my take, and again I support this motion.

CHAIR GARY: We go to John Clark.

MR. CLARK: I don't oppose the motion, but I just wonder if we're creating unrealistic expectations here. I mean the whole implication of this motion is that fishing is the only problem that striped bass have. We cut the harvest 25 percent in 2015, then another 18 percent in 2019. The stock really hasn't responded that well yet. I see that, I understand the frustration.

Then, because we're not looking at the reference points here, if we're going to rebuild to the target of SSB, we've never hit the target according to the latest assessment, even when the stock was at a historical high. You know again, it's not that I oppose this, I'm just saying I think it builds up unreal expectations, and it puts too much emphasis that the only problem facing striped bass is that we're fishing too many of them. I think you know there is just a lot of other things going on.

CHAIR GARY: Dennis Abbott.

MR. DENNIS ABBOTT: I support the motion, and to comment to Mr. Clark's comment that we're creating unrealistic expectations. I don't think that we have been achieving expectations of the public in the past, and I think this is a chance for us to at least have an opportunity to achieve some expectations, whatever they may be. As we move down the road, we can always change things, but we need to go in this direction, and I would suggest that we move this towards a vote as quickly as possible to move this along.

CHAIR GARY: We'll take a couple more comments before we call the question. Tom, I would like to go to you, but I want to make sure we spread the love around a little bit. Does anybody else on the Board who hasn't spoken yet that would like to offer comment? All right, Tom, I think you're going to have the last say, and then we're going to call the question.

MR. FOTE: Yes. If I thought if we cut back the catch even further, we would do something about the recruitment I would support it 100 percent. My problem is, we're setting up, as John pointed out, expectations. We've done that, and really if you look at the stock assessment and you look at the guidance from the stock assessment. It doesn't depend on spawning stock biomass, the same way with summer flounder and other species, and yet that's the only tools we have. What we really have a problem here is with catch and release mortality, and this plan is not dealing with that. I'll just leave it at that as my comment, thank you very much.

CHAIR GARY: Thank you, Tom, I appreciate the comment. We'll go ahead and call the question.

MS. FRANKE: Mr. Chair, sorry to interrupt, this is Emilie. I just wanted to ask the maker and seconder of the motion. Staff would recommend adding into the motion the text from the options themselves, to make it abundantly clear, as up on the screen. I just wanted to check with Dr. Armstrong and Mr. McMurray if they are okay with that specification, and to ask Mr. Chair or Dr. Armstrong to read the full motion into the record.

CHAIR GARY: Mike, I'll yield to you.

DR. ARMSTRONG: Yes, I'm fine with that except for the reading part. All right, do you want me to read the whole thing? **Move to approve Option B in Section 4.4.1 such that for the 2022 stock assessment: F rebuild is calculated to achieve the SSB target by no later than 2029 using the low recruitment regime assumption as identified by the change point analysis.**

**Move to approve Option B in Section 4.4.2, such that: if the 2022 stock assessment results indicate the Amendment 7 measures have less than a 50 percent probability of rebuilding the stock by 2029 (as calculated using the recruitment assumption specified in Amendment 7) and if the stock assessment indicates at least a 5 percent reduction in removals is needed to achieve F rebuild, the Board may adjust measures to achieve F rebuild via Board action.**

CHAIR GARY: Just to be sure, John, are you comfortable as a seconder with what Emilie mentioned?

MR. McMURRAY: Yes, Mr. Chairman.

CHAIR GARY: All right, is there a need to caucus? We would like a one-minute caucus. Okay, we'll go ahead and call the question. It's been read into the record. I'll look to staff to correct me. I'm sorry, go ahead, Dennis, do you have a question?

MR. ABBOTT: Could I request a roll call vote?

CHAIR GARY: Good question. I think, let me see if this satisfies that desire, Dennis. The way we've been conducting this, because we have participants that are attending virtually, is to go ahead and get a show of hands. But Toni is going to read those, correct? It's sort of, you're getting the roll call. Will that suffice, Dennis?

MR. ABBOTT: That's satisfactory, entirely.

CHAIR GARY: Just to be clear, we're going to call the question in just a moment. I'll ask who is in favor, we'll do a show of hands, and then Toni is going to get the show of hands for the virtual participants' affirmation, and then we'll do the nays the same way, but Toni will read those all out, so we know who voted accordingly. All those in favor of the motion, please raise your hands.

MS. TONI KERNS: I have Rhode Island, Massachusetts, Connecticut, New York, U.S. Fish and Wildlife Service, Pennsylvania, it's tricky on this side. I'm going to have to go to the front. North Carolina, Virginia, Maryland, District of Columbia, Delaware, Maine, New Hampshire, Potomac River Fisheries Commission and now I'm not in front of my computer, NOAA Fisheries. Thank you, Katie.

CHAIR GARY: All those opposed please raise your hands. It appears none, or none in the room, and any on line? None opposed. Are there any abstentions? Any null votes? New Jersey.

**MS. FRANKE: Mr. Chair, I have 15 in favor, 0 against, and 1 null.**

CHAIR GARY: **Okay, the motion passes.** All right, then in accordance with what we had laid out in terms of our plan, the Striped Bass Management Board will now break for lunch, and do we want to adjust that time schedule or keep it at an hour, stay at an hour, okay. We're going to break now, and let's say 1:20 acceptable? We'll be back and reconvene the Striped Bass Board at 1:20 p.m. Thank you.

(Whereupon the Board convened for lunch at 11:30 a.m. and reconvened at 1:20 p.m.)

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CHAIR GARY: Atlantic States Marine Fisheries Commission's Atlantic Striped Bass Management Board meeting for May 4, 2022, reconvening after our lunch break. We are going to now pick up with Section, I'm going to check off with Emilie, our Fishery Management Plan Coordinator, and make sure we're in sync here.

But Emilie, correct me if I'm wrong, we're going to pick up with your presentation for Section 4.1, and you're going to go through each of the tiers collectively, so we're going to go through all four tiers, and then you're going to go back to the public feedback, AP feedback and the questions. Do I have that kind of right?

MS. FRANKE: Yes, thank you, Mr. Chair, I'll present on all four tiers, including the public comments and AP feedback, and then I can take any questions.

CHAIR GARY: Thank you, Emilie, I'll turn it over to you then if you're ready.

### **MANAGEMENT TRIGGERS**

MS. FRANKE: This next section today is Section 4.1, which is Management Triggers. As far as the statement of the problem for these management triggers, there have been a number of shortfalls and concerns about the current management triggers. The first is because fishing mortality can be variable from year to year, especially when spawning stock biomass is below the target. There has been some concern that these triggers could result in a continued need for management action.

There has also been some concern that the short time for taking action in response to these triggers is in conflict with management stability, and the Board has previously been criticized for changing management before the stock has had a chance to respond to past management changes. There is also some concern about the uncertainty around point estimates, and there are also some questions about the recruitment trigger, since it has only tripped one time, but there have been some long periods of low recruitment.

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To address these concerns, the proposed options in Draft Amendment 7, Section 4.1, consider whether to change any of the status quo triggers. There are four tiers of options to consider. Tier 1 is the fishing mortality triggers; Tier 2 is the female spawning stock biomass triggers. Tier 3 is the recruitment trigger, and Tier 4 considers deferred management action. When considering these options, it's important to note how often these triggers are evaluated.

Fishing mortality and spawning stock biomass triggers are evaluated every two to three years, following stock assessments, while the recruitment trigger, Tier 3, is evaluated every year. Then the Tier 4 deferred management options consider whether the Board needs to respond immediately if a trigger is tripped.

We'll start with Tier 1, which is the fishing mortality triggers. The first question is, how quickly does the Board need to act to reduce F to the target if a trigger is tripped? A1 is the status quo, where management must be adjusted to reduce F to the target within one year. A2 would extend that timeline to reduce F to the target within two years.

Option B in Tier 1 defines the F threshold trigger. B1 is the status quo, where the trigger is tripped if fishing mortality exceeds the threshold in the most recent year, so if overfishing is occurring. The alternative B2 would trip if the two-year average of fishing mortality exceeds that threshold. This option was developed to help address variability, concerns about variability and the data by using an average of multiple years.

Option C defines the F target trigger. The status quo, C1 trips if fishing mortality exceeds the target for two consecutive years, and if spawning stock biomass is below the target in either year. The alternative C2 would only look at fishing mortality alone, so would trip if F is above the target for three consecutive years, and then C3 would eliminate the F target trigger in favor of just focusing on the F threshold trigger.

As far as public comments on the fishing mortality triggers, most comments supported the status quo Option A1, reducing F to the target within one year, noting that the Board should respond promptly to triggers. Then as far as the Advisory Panel input on this first part of the fishing mortality triggers, 10 AP members supported Option A1 that is status quo, reducing F to the target within one year, noting the public support for that option and the public's desire for conservative management.

On the other hand, 5 AP members supported Option A2, reducing F to the target within two years, noting that flexibility to reach the target is acceptable, and that F is partly based on MRIP data, so having more time to make adjustments would make sense considering the uncertainty there. Also noting that it can be difficult to implement regulations in one year for some states, and then finally noting that management stability is important, and allowing two years would avoid that kneejerk reaction the Board has been criticized for in the past. As far as the fishing mortality trigger definitions, most comments favored the status quo B1 and C1 F triggers, noting that those status quo triggers are adequate, and action should not be delayed.

Then as far as the Advisory Panel on the F trigger definition, 10 AP members support the status quo B1, noting that as soon as overfishing is occurring the Board should take action, and the public's desire for conservative management. On the other hand, 5 AP members support Option B2 using that two-year average, noting that F is partly based on MRIP data, so using an average would help address concerns about MRIP uncertainty and the fluctuation of F from year to year.

As far as the F target trigger, there was unanimous support on the AP call for the status quo C1 target trigger, and there was also a general AP recommendation that the target trigger should be maintained and not eliminated, and that the Board should keep both a target and a threshold triggers, because the gap between the fishing mortality target and threshold might increase in the future, and we should be managing to the F target, to avoid

any unintended consequences from variations in the MRIP data.

Moving on to Tier 2, which are the female spawning stock biomass triggers. If a female spawning stock biomass trigger is tripped, management must be adjusted to rebuild the stock to the spawning stock biomass target within ten years. The first set of options asks, should there be a deadline for getting a plan in place to rebuild the stock. The status quo option A1 is no deadline for when a rebuilding plan must be implemented.

The alternative A2 would require the Board to implement a rebuilding plan within two years from when the trigger is tripped. Then Options B and C for the Tier 2 are the SSB trigger definitions. For the spawning stock biomass threshold trigger, the status quo B1 is tripped if the stock is overfished. The Alternative B2 would eliminate this threshold trigger in favor of just focusing on the target trigger, and for that SSB target trigger the status quo C1 trips if SSB is below the target for two consecutive years, and if F exceeds the target in either year.

The alternative C2 would just look at spawning stock biomass alone, and trip if SSB is below the target for three consecutive years, and then the alternative C3 would eliminate the target trigger in favor of just focusing on the threshold trigger. Just a note that there has to be at least one SSB trigger, so the Board cannot eliminate both SSB triggers.

As far as the public comments on the SSB triggers, most comments support Option A2, which is that two-year deadline for a rebuilding plan, noting that the Board should have designated a formal rebuilding plan more quickly after the last assessment. Then for the trigger definitions, most comments favored the status quo trigger definitions, B1 and C1, noting that the status quo triggers are adequate and both the target and threshold triggers should be maintained.

There were some comments in support of either changing the target trigger to just look at SSB alone, which would be C2, or eliminating the target trigger, which would be C3. Then from the Advisory Panel

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there was unanimous support for Option A2, that two-year deadline to implement a rebuilding plan to take action as quickly as possible to rebuild the stock. For the SSB threshold trigger there was unanimous AP support for the status quo, B1. The trigger trips if SSB is below the threshold, where the stock is overfished. The AP noted the need to take action if the stock is overfished, and again the public's desire for conservative management. Then for the SSB target trigger. All except one AP member supported the status quo trigger C1.

The AP noted that both the target and threshold triggers are important, since SSB could decline below the target, due to factors besides fishing mortality such as environmental conditions or recruitment. Then on the other hand there was one AP member that supported Option C3, which would eliminate the SSB target trigger, because fishing mortality is the only thing we can directly control, so the focus should be on those F triggers.

Moving on to Tier 3, the recruitment trigger. Option A for the recruitment trigger considers the definition of the trigger, and Option B considers options for responding to the recruitment trigger. That recruitment trigger again is evaluated every year based on those juvenile abundance indices.

As was brought up at the last Board meeting, Draft Amendment 7 states that during years when stock assessments are conducted, the recruitment trigger should be evaluated concurrently, when possible, with the F and SSB triggers when assessment results are presented to the Board. For example, since there is an assessment this year the recruitment trigger would be evaluated in October, alongside the stock assessment.

Option A for the recruitment trigger defines that trigger. The question here is how sensitive should the recruitment trigger be to alert the Board to periods of low recruitment? A1 is the status quo option, which is designed to identify recruitment failure. This option is the low sensitivity option that only tripped one time since 2003.

This A1 trigger trips if any of the six juvenile abundance indices are below the 25th percentile of their defined reference period for three consecutive years. The alternative options A2 and A3 are designed to be more sensitive. A2 is the moderate sensitivity option, which would have tripped three times since 2003, and A2 would trip if any of the four JAIs used in the stock assessment, so those are the JAIs from New York, New Jersey, Maryland and Virginia if any of those four are below the 25th percentile of a defined high recruitment period.

Then A3 is the high sensitivity option. That would have tripped six times since 2003, and A3 would trip if any of the four JAIs used in the stock assessment is below the median of that defined high recruitment period. Then Option B here considers that management response to that recruitment trigger. If the recruitment trigger is tripped, should there be a prescribed management response, and if so, how conservative should that response be?

The status quo Option B1 is the most flexible response, where the Board decides the appropriate management action. Then both alternative options here, B2 and B3, may require action to reduce fishing mortality if the recruitment trigger is tripped. B2 would be the most conservative response and may require action to reduce fishing mortality more often. This B2 option would calculate an interim F target based on a low recruitment assumption, and if F is greater than that interim F target, then the Board must reduce fishing mortality to that interim F target within one year. This comparison of F to the interim F target is more conservative than the existing management triggers. Option B3 would be the moderately conservative option. This might also require reducing F, but it uses the existing management trigger definitions. B3 would calculate an interim F target and interim F threshold using the low recruitment assumption.

Those F triggers would be reevaluated using those interim F reference points based on the low recruitment assumption, and if one of those F triggers is tripped, when those triggers are

reevaluated, the Board must then reduce F to that interim F target.

As far as the public comments on the recruitment trigger, most public comments supported Option A3, which is that high sensitivity trigger.

Then the second highest supported was Option A2, which is that moderate sensitivity trigger. Many comments noted the importance of a more sensitive trigger, and noted that responding to low recruitment could help mitigate future stock declines by responding early. Then from the Advisory Panel, the Advisory Panel was pretty split across the three different recruitment trigger options here.

Five AP members supported A1, the status quo low sensitivity trigger, noting that trigger has worked effectively to identify true recruitment failure. Seven AP members supported A2 that moderate sensitivity trigger, based on the public support for a moderate trigger that is more sensitive than the status quo, but would not trip too often.

Then three AP members support A3, which is that high sensitivity trigger, noting that there needs to be a focus on recruitment, and the young of year data are a reliable predictor for the stock. Then as far as the public comments on the response to the recruitment trigger. Most of the public comments supported Option B2, which is that most conservative management response to the recruitment trigger.

Again, this would require reducing F if F is greater than an interim F target based on that low recruitment assumption. I will note here that some organizations supported a modified B2 option, where the Board would still make that comparison of F compared to that interim F target.

But the Board would make that comparison during the next stock assessment instead of making that comparison immediately after the recruitment trigger trips. Those organizations noted that that would be to avoid responding to the recruitment trigger in between stock assessments. Then as far

as the Advisory Panel input on the recruitment trigger response, six AP members supported the status quo B1 response, where the Board has flexibility to determine that response.

AP members noted that flexibility is important for the management program, especially considering the weak stock recruit relationship for striped bass. Then nine AP members supported that conservative B2 option, noting that if we don't react to low recruitment right away, then management will end up at the same point of a poor stock status in the future.

Then the final tier for management triggers here is Tier 4 deferred management action. The question here is, should there be flexibility to defer action in certain situations to address concerns about frequent management changes. If no flexibility is preferred Option A is the status quo, and this does not allow deferred management action. If a trigger is tripped at any time the Board must take the required action. But if flexibility is preferred, the Board could defer action until the next stock assessment in certain situations. The Board could choose one or more of the following options. Option B would allow differing action if it's been less than three years since the last action was implemented.

This would allow management to be in place for three years before changes are made. Option C would defer action if the F target trigger is tripped, and the SSB is above the target. Option D would defer if the F target trips, but SSB is projected to increase or remain stable over five years. Option E would defer if the F target trigger is tripped, and there is a 75 percent probability that SSB will be above the threshold over the next five years.

Then finally Option F could defer action if the Board has already initiated action in response to a different management trigger. For example, the Board could be in the process of developing an addendum in response to a fishing mortality trigger when the recruitment trigger might trip between assessments.

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This option would allow the Board to defer action on the recruitment trigger in this scenario, because the Board is already working on a different action to address the F trigger.

As far as the public comments on the deferred management action, most comments support Option A, no deferred management action.

These comments noted accountability and not delaying action in response to triggers. Those that supported deferring action through Options B through F noted the importance of flexibility and considering factors like how long management measures have been in place. As far as the Advisory Panel recommendations, 11 AP members supported Option A that status quo, no different action, noting the public's desire for immediate action and no delays. They noted that even if SSB is above the target, there should still be no delay in taking action.

But there were 3 AP members that supported Option C and D, to defer action if the F target trigger is tripped and SSB is above the target or projected to increase or remain stable. The AP members noted that these options would provide more stability for management and action would only be deferred if SSB is on a good trajectory. With that I am happy to take any questions.

CHAIR GARY: Thank you very much, Emilie, for your presentation. We'll now go to questions for the entirety of Section 4.1. John, you're the only hand. You have it.

MR. CLARK: Thank you for the presentation, Emilie. I'm just curious if in all the comments with the current reference points, seeing that the public opinion was overwhelmingly in favor of having both target and threshold triggers. The SSB has never, based on the current assessment and reference points, the SSB has never reached the target, and the fishing mortality has been above the target fishing mortality since 1994. This would seem to put us in a situation if those triggers are in a constant state of being tripped, of what, constant management action?

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MS. FRANKE: There were a handful of comments noting that concern about the reference points being too high, and that not able to attain that spawning stock biomass target. I'll turn to Katie if she has any insight, in terms of the triggers constantly being tripped.

DR. DREW: I guess it would, in theory we can make this work, but I don't know if we can make it work with a fishery that reflects what the Board and the public desire, in terms of regulations for striped bass management. I think that's kind of something for the Board to think about, is what would be required to maintain these targets and threshold going forward, and how much success we've had with that in the past.

CHAIR GARY: Did that answer your question, John?

MR. CLARK: Yes, thank you, Mr. Chair. I mean I suspected as much, but I just mean I complain about it every meeting, the reference points are just right now they are essentially unattainable, and if we have these triggers set where they are, we're constantly going to be having to take management action. I mean I don't see how can we rebuild to this SSB target? We've never hit it even when the stock was at a historic high.

CHAIR GARY: Jason McNamee.

DR. JASON McNAMEE: On this topic. I'll pose it as a question, because it is legitimate a question, but it sort of relates to what John was just talking about. In some of these options there is a notion of changing the recruitment assumption, and I believe the reference points are proxy reference points.

By nature of changing the recruitment assumption, in fact it may change those reference points as a result of that, if the recruitment assumptions get applied in that context. I just wanted to offer, it's not necessarily the case that these reference points are set in stone. They may change based on some of the things we may or may not do today, maybe, that's a question.

DR. DREW: Yes. The reference points are proxy reference points, so we're not using MSY, we're not using an SPR target or threshold. We are using the value of spawning stock biomass at a fixed point in time that 1995 value. Then the F reference point is sort of calculated from that, so that we look at what is the value of F that will get us to that SSB target in the long term.

That is dependent on the recruitment assumption, so that if you assumed that long term average recruitment, you're going to get a certain value of F to get you there in the long term. But if you think that recruitment is going to sort of fall into this lower recruitment regime for the foreseeable future or for a long stretch of time, that will actually bring the F reference point down.

Whether or not it will be a significant of noticeable change relative to where F is coming out of the assessment, maybe there is not difference. You would be above the target either way. That's something we'll have to look into for this assessment, but that is how these things would work out.

CHAIR GARY: Thanks, Jason, thanks Katie, additional questions for staff. Jim Gilmore.

MR. JAMES J. GILMORE: It's mainly for Emilie. When we get a Tier 3 and Tier 4, most of what I remember from the public hearings were that we're going very conservative on this, you know which is fine if we go in that direction. At the same time, we're dealing with some other species, summer flounder, scup, black sea bass, and we're doing a Harvest Control Rule.

We want to try to stabilize things over a longer period of time, but we're expanding on those fisheries while we're contracting on this. Just an anecdote. Last week I was getting screamed at, because we have to change our rules on summer flounder, and I just got them in before the fishery opened on Sunday.

A lot of what is being proposed here, if it goes through, we'll be into that mode where we will be

changing rules, as John had indicated that every year, we're going to be doing file regulations. The question to Emilie was, during any of those public meetings, is that going to be okay or did they understand that we may have delayed openings, because we have to go through our processes to file these rules every year.

We're always doing this by the skin of our teeth, because some of them, in fact I think South Carolina, they have to do a lot of it legislatively. That is something they need to consider that, yes well maybe we'll come up with a trigger, and we have to adjust something, but the fishery may be delayed opening, because we have to file our rules. Did we get any feedback on that or were there any comments on that, Emilie?

MS. FRANKE: You know one thing that I made sure to point out in my public hearing presentation is that this recruitment trigger is evaluated every year, right. If you have this response to the recruitment trigger, this recruitment trigger could potentially be tripping every year. You know we got a handful of comments noting support for management stability, but as you indicated, most comments were still focused on that most conservative response in reacting to low recruitment if that recruitment trigger trips.

CHAIR GARY: I think there has been a lot of discussions about these multiple iterations of this repetitive, and the closures the way you characterized it, and making sure the public was aware that may be part of this, if this is adopted. Any questions online, Katie? Nobody with hands raised? Any other questions among the Board members for Emilie or Katie? We have one more, Robert T. Brown.

MR. ROBERT T. BROWN: Yes, I was just wondering if the staff had looked into the predator fish, the invasive species the blue catfish may have something to do with this recruitment, as we have a large number of them in all our rivers now. They seem to be going unchecked back on the Potomac, and the Potomac is a unique river, because the principal part of the river itself is all that's in this

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report that I have, the amount of catfish that have been caught.

None of the creeks, bays or rivers that break off of it are in it. Back in 2003 there was 23,000 pounds of these blue catfish that were caught. In 2021 there were 2,412,887,000 pounds caught. It's probably in the state of Maryland probably close to 8 million pounds caught. I don't have a direct figure on that.

But anyhow, these figures are straight, now we've got close to 2.5 million pounds of catfish that is being caught out of the Potomac River, the proper river itself. With this amount of catfish in there, where we are getting our young of the year index numbers from, where we do a certain seine haul certain time of year and same place. It makes no difference if the tide is high or low. With this amount of catfish coming in there, they could move the young of the year index off.

Later on in the summer they maybe they are moved off down the shore some, they may move down the river some. We are seeing in the lower mid river, where I live at, more of the younger fingerlings or a little bigger, say 4, 5, 6 inches, more of them showing up. That is saying that look, they are surviving some kind of way with these catfish, but are we not getting a correct number because of this influx of blue catfish we have, which is going unchecked?

MS. FRANKE: Thanks for that question. We did hear a couple comments about the invasive catfish and predation on young of the year, particularly at the Chesapeake Bay public hearings. I think that would be something that could potentially be explored during the next benchmark stock assessment, in terms of the natural mortality that is taken into account for striped bass.

CHAIR GARY: Thanks Robert T, and thanks Emilie, and Katie is there anything you would add to that? I mean I guess the concern Robert T is expressing is, is predation of invasive catfish or other species considered?

DR. DREW: We don't explicitly consider it within the model. We know blue catfish are a concern for a lot of our young of year species, as an extra source of mortality. That is definitely something that we can pursue further. Obviously, there is a lot of different factors that drive recruitment, including predation, but also environmental factors.

I think from the model's perspective it doesn't matter why there has been a low recruitment event, the model just propagates that through. The model is also looking at not just those young of year indices, but also things like the age structure of the catch, so can we track those year classes through the catch? Do they show up in other indices, in the age structure of other indices?

It's possible that if your concern is that the blue catfish are changing the catchability of those young of year fish, so that maybe the index is artificially low. The model does have other sources of information on those Age 0, Age 1 fish to track them through the population, and get a better estimate of recruitment. But from the perspective of are the blue catfish causing the low recruitment or contributing to low recruitment, and thus are something that we need to change in some way or react to, we don't have the information on that right now.

CHAIR GARY: Thanks, Katie. Additional questions for staff. John McMurray.

MR. McMURRAY: I understand John Clark's concerns, and to some extent I share them. But my question is on the science side of thing. Does the science currently right now indicate that we can hit that target under the current recruitment scenario?

DR. DREW: You can get there if you reduce fishing mortality.

MR. McMURRAY: Follow up, Mr. Chairman. Okay, that's understood. I don't have the time series in front of me, but there were a number of years where we did come close and we did certainly hit the threshold a number of years. Is that correct?

DR. DREW: Yes. We came very close to the target in some years at the peak of abundance, and were above the threshold for a long part of the time series.

MR. McMURRAY: Thank you.

CHAIR GARY: Additional questions for staff, and then we'll try to pivot this to getting a motion up on the table. Any other questions? Okay, so in the spirit of focused and efficient discussion on these tiers, as Emilie suggested there is a lot of interlinkages. What I would like to do is see if we can't get then tier by tier a motion up, so we can have a starting point for discussion. I'll start out with Section 4.1, Tier 1, if anybody has a motion. Dr. McNamee.

**DR. McNAMEE: I've got a motion for this one that I will read here for you. For Tier 1 Fishing Mortality Triggers in Section 4.1, move to approve Options A1, B1, and C1, such that if an F trigger is tripped, reduce F to a level that is at or below the target within 1 year. For the next part, if F exceeds the F threshold, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under Option A, which for this motion is 1 year.**

**Finally, if F exceeds the F target for two consecutive years and female SSB falls below the SSB target in either of those years, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under sub-option A, which again is 1 year.** If I get a second, I have some reasoning to offer for that.

CHAIR GARY: Is there a second to Dr. McNamee's motion? Megan Ware, Maine. Jason, go ahead with your support for that.

DR. McNAMEE: I won't make this too long. What I've offered here is basically a current state or status quo. I think with some of the alternatives the idea was to incorporate some stability into the system, and that was mentioned a couple times,

both in the presentation and in some of the public comments.

There was a notion here of introducing stability, because there are large swings in F through time. That part is true. I was thinking about that and wondered if there was a way to kind of test that a little bit. Just as a quick kind of analysis, I took a vector of the year-to-year changes in F, and then a vector of a two-year average of the changes in F, and just kind of looked at the standard deviations of those two vectors. They are the same, they are roughly 0.08, I think is the number that I came up with. The way that I interpret that is you are not actually going to achieve that stability that you're looking for, at least with a two-year averaging approach. In other words, you're likely not going to achieve that stability benefit that you're looking for. Then if you take that and couple it with the risk that you incorporate with an averaging approach, which is that you're going to delay your action, or not take as much action as you might need to, and that is in both directions, going up or going down.

You've got this inherent risk from averaging, where you're sort of watering down the actual change. Just kind of thinking about it, in tradeoffs you're potentially not going to get the benefit you're looking for, and you're adding in a level of risk to your decision process. That is my reasoning behind kind of sticking with status quo, which I think reacts quicker to the output from the stock assessment.

CHAIR GARY: Megan, as the seconder do you want to add some comments to the motion?

MS. MEGAN WARE: Sure. I don't think I can beat an analysis of the different options, but I support the status quo options that Jason has put forward here, in particular for the F threshold trigger. Again, I heard comments about seeking management stability on that two-year average. But our goal is to manage to the F target.

If we're already at the F threshold, we've passed our goal. I'm comfortable with one year on the F threshold there. I also think I heard pretty clearly from the public that if the goal is management

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stability, the way to achieve that is with a rebuilt, healthy stock not the other way around. I'm comfortable keeping our status quo triggers for this.

CHAIR GARY: All right, we have a motion on the board and we have discussion, opening up on it. I'll open it up to the Board for discussion. Anybody online, Katie? John McMurray.

MR. McMURRAY: I support the motion, 99 percent of the public came back and told us they wanted to keep the status quo triggers. Absolutely they've been loud and clear that they want less delay, not more. As far as management stability goes, I have a hard time understanding that argument, because those triggers were tripped twice in the last 20 years, and both times within the space of a year the Board was able to get F under control, or F at target or below target. Really, I don't see any compelling reason at this point to change the management triggers that we have.

CHAIR GARY: Additional discussion. John Clark.

MR. CLARK: Just my concerns again about the current reference points. **I would just like to, I doubt it will go anywhere, but let me just make a motion to amend, just to remove the last section that has the F target trigger in there.** You know as I said, I'm just very concerned about where these reference points are right now. I just think that it is going to put us in a continuous state of very restrictive fishing for years and decades to come. I'll leave it at that if I can get, I'll see if there is any second on that.

CHAIR GARY: We have a motion to amend to remove the F target trigger in the main motion, is there a second to that motion? Tom Fote. John, any additional comments?

MR. CLARK: Like I said, I'm for the threshold trigger, just because of the situation we're in now. As we all know, this Amendment is not looking at the reference points again. The reference points over the years are the stock keeps getting bigger, and yet at the same time the stock keeps getting further away from the reference points.

It's hard to understand how that can keep happening. But as I said, I just think we've got a trigger here. We've been above the threshold F now for years. We almost got back to it three years ago, four years ago. You know the threshold trigger is going to be plenty with these reference points, the way I see it.

CHAIR GARY: Tom, as the seconder.

MR. FOTE: I agree with John. My concern is basically, sometimes over the years wonder why we didn't do something is because a new stock assessment said we weren't in the trouble that we thought we were the year before when we made changes in all the rules and regulations. I've gone through that. I put a slot limit in one year because we changed it, then next year they told me I had to take it out, because it wasn't as bad a shape as they thought it was. That's what I get concerns over, jumping through hoops over one year's data.

CHAIR GARY: Any discussion on this amended motion? Megan.

MS. WARE: I'm going to oppose the amended motion, but I'll just quickly note. There was unanimous support from the AP for keeping the F target trigger that is in the original motion, and given the diversity of folks that sit on that AP, whenever there is a unanimous decision from that AP, I consider it pretty strongly. I'll put that out there.

CHAIR GARY: Any other comments or discussion? I'll go ahead and call the question on the amended motion, if everyone is ready. All those in favor. Oh, caucus, I'm sorry, my fault. Go with a two-minute caucus. Okay, we'll go ahead and call the question then, and same process. Katie will take care of the hands online, and Toni will get those and we'll read them out. All those in favor of the amended motion, please raise your hands.

MS. KERNS: I have Delaware and New Jersey, and Pennsylvania.

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CHAIR GARY: All those not in favor of the motion, opposed to the motion, raise your hand.

MS. KERNS: New Hampshire, Maine, Maryland, District of Columbia, Virginia, North Carolina, New York, Connecticut, Massachusetts, Rhode Island, and Potomac River Fisheries Commission and NOAA Fisheries.

CHAIR GARY: All right the motion failed, I don't know if we have the metrics. Oh, I'm sorry, I'll catch this. Are there any null votes?

MS. KERNS: No nulls.

CHAIR GARY: Are there any abstentions?

MS. KERNS: No abstentions.

CHAIR GARY: No abstentions, now we can calculate.

**MS. FRANKE: Mr. Chair, I have 3 in favor and 12 opposed.**

**CHAIR GARY: All right, the motion fails, and we are back to the main motion.** I'll ask again, is there any other discussion on this main motion before we call the question? Seeing none; we'll go ahead and call the question on the main motion. Is there a need to caucus before this? I will call the main motion, all those in favor please raise your hands.

MS. KERNS: Rhode Island, Massachusetts, Connecticut, New York, New Jersey, Fish and Wildlife Service, Pennsylvania, North Carolina, Virginia, District of Columbia, Maryland, Maine, New Hampshire, Potomac River Fisheries Commission, and NOAA Fisheries.

CHAIR GARY: That is all the votes, there are no nulls, there are no abstentions there, and the final tally should be 16. I'll get better, John, I promise. That is opposed, thank you, John.

MS. KERNS: Delaware in opposition for the record.

**CHAIR GARY: The motion passes 15 to 1.** All right, so we're now moving on to Section 4.1 Tier 2, same process. We'll look for a motion to get the discussion started. Megan Ware of Maine.

**MS. WARE: My motion is move to approve Tier 2 Options A2, B1, and C1 (within Section 4.2), such that the SSB triggers are:**

- **The Board must implement a rebuilding plan within two years of the SSB management trigger being tripped.**
- **If female SSB falls below the threshold, the striped bass management program must be adjusted to rebuild the biomass to the target level within an established timeframe (not to exceed 10-years).**
- **If female SSB falls below the target for two consecutive years and F exceeds the target in either year, the striped bass management program must be adjusted to rebuild the biomass to a level that is at or above the target within an established timeframe (not to exceed 10-years).**

CHAIR GARY: Thank you, Megan, do we have a second to this motion? By Cheri Patterson, and Megan, if you want to go ahead with your justification.

MS. WARE: Sure, so for the two-year rebuilding plan I think the lack of a prescribed schedule has been detrimental to the Board so far. I think as you delay implementation of a rebuilding plan it means you need more restrictive measures to rebuild in fewer years. I also think that this is important for public confidence in the Board right now, for the Board to spell out how we plan to rebuild the stock in the 10-year timeframe. In terms of B1, if SSB falls below the threshold and we're overfished, we should take action.

To me that is status quo and good to maintain. Then C1 is also status quo, in regards to the SSB target trigger. Our goal for management as it says in this draft amendment is to rebuild and maintain the stock size at or above target SSB levels. I think a

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target trigger does support that goal, because it encourages the Board to take early indicators seriously and prioritize modest action early on, as opposed to more drastic action later.

I did see that there were some comments in our public comment about maybe the SSB target trigger being duplicative, I'll say, for the F target trigger and the recruitment trigger we'll talk about next. But I'm not sure that's a bad thing, given the status of the stock that we're at now. Again, I think it supports the Board achieving the goals we've laid out in this document.

CHAIR GARY: Cheri, as a seconder any thoughts?

MS. CHERI PATTERSON: No, I would essentially echo what Megan just said, thank you.

CHAIR GARY: All right, so we have a motion on the table and discussion goes to the Board. Any discussion on this motion? John.

MR. CLARK: No, I'm not going to make a motion this time, Mr. Chair. I just once again, my concerns are just in the Delaware, as I've stated many times, these stock levels that we are trying to rebuild to are just enormous. I mean when we were at the highest level here, when we did not hit the SSB target, the Bay that was all that was there.

I mean it's great to see a lot of striped bass, but I'm just saying it's putting a lot of pressure on the states that are really the producer nursery areas for the species. As long as we have these extremely conservative reference points, I just think we're going to be in a constant state of rebuilding. It's extreme.

CHAIR GARY: Mike Luisi.

MR. MICHAEL LUISI: I'll add on to John's point. I've been trying to figure out kind of when to say what I'm about to say, but I think it applies here. I'm going to support the motion. I think the options are strong and will help us try to get to the spawning stock biomass target. However, with the

considerable changes that we've seen in our environment, in our climate change.

We may not be able to get to that target, and I hope the Board will take that under consideration at some period of time. You know if we agree that the differences that are happening, or the changes that are occurring in the habitat, the Chesapeake Bay. Robert T. brought it up about the blue catfish. You know we just might not be able to achieve the target that recruitment, if we don't have successful recruitment, and it has to do with a lot of different factors. I just wanted to put that out there on the record that we just need to keep this in mind down the road.

CHAIR GARY: In our baselines it's been a changed Bay over the years, significantly from a lot of perspectives. Jason McNamee.

DR. McNAMEE: I in essence don't disagree with the concerns that were expressed so far. I just want to check something, because it's come up a couple times. In the case of SSB, and the target is set at a 1993 level of SSB, correct?

DR. DREW: It's 1995, but yes.

DR. McNAMEE: We have hit it.

DR. DREW: No, I'm sorry, the threshold it says 1995, the target is 25 percent above that.

DR. McNAMEE: Ah, okay. Now I understand, thank you.

CHAIR GARY: Thank you, Jason, I'll go to Mike Armstrong.

DR. ARMSTRONG: I agree with John on this one. I think we manage by F so we should have a trigger and a threshold for F, a target and threshold. I don't think we need an SSB target trigger, for all the points that have come up before. I think it's bad policy to set triggers we can't achieve, and being in a constant state of overfished.

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That's all, I think we probably should have addressed that SSB target in this Amendment, but we didn't for whatever reason. We will have to one day come back to it, because you can see the problems that are generating right now, trying to hit triggers and things for things we're not sure we can even get to.

But it will come out in the wash in the next couple of years with poor recruitment and however things come down the road. I'm not necessarily going to oppose this, but I don't think it's necessary. I think it's okay for us to operate in the SSB between threshold and target, because we're dealing with F, and F is the only way to get it back. I'll leave it at that.

CHAIR GARY: Additional discussion. Jim Gilmore.

MR. GILMORE: I'll just add my voice to the choir, because I think we're all in the same place. You know we've got an SSB we've never hit, and we've all agreed. I think Mike is right, we probably need to look at the reference points, and again we'll automatically get beat up that we're saying oh, we're trying to change the numbers so we can hit the stuff.

No, we're trying to, this should have been done with this so we could have had a real target that made sense. You know and it is affecting other things, because you know there are a bunch of species that aren't doing well. We don't know, some of it is climate change, some of it is probably interaction, and maybe this is too high.

Why maybe we don't have weakfish or something right now, and we really need to address that. Again, I'll support the motion, but we're being very conservative right now to maybe rebuild this, but we have to take a harder look as we move forward so we manage all of our species better.

CHAIR GARY: Chris Batsavage.

MR. CHRIS BATSAVAGE: I support the motion. I won't be too repetitive from the other comments, because I do agree with a lot of them, in terms of any kind of management expectations. However, I

think my support for this motion kind of goes back to past history of the striped bass stock, when they were at their highest availability in abundance in North Carolina.

It was at that time where in the stock assessment the stock was at its highest amount, regardless of what the reference points are. It's going to take a robust stock to get the fish back down to North Carolina, assuming other environmental factors that have changed in the last 20 years don't change the distribution. But I just know that we are not moving forward with a motion like this makes it really challenging, you know to see those fish expand throughout their entire range. That's why I'm supporting this.

CHAIR GARY: Do we have anybody online, Katie, that has raised their hands?

DR. DREW: No, I don't see any.

CHAIR GARY: All right, we'll continue additional discussion. We'll go John McMurray and then Tom Fote.

MR. McMURRAY: Believe me it's not lost on me that we couldn't achieve SSB target, even under a good recruitment scenario. Maybe we can't get there. That is not lost on me either, but maybe we can get there also, if we do control F. The science right now does say that we can, and the public is very clearly asking us to try. I think we need to make a good faith effort here to try, and I think worse case if we shoot for that target, we certainly are going to stay above threshold, or hopefully not certainly. That is the way I'm looking at it now.

CHAIR GARY: Tom.

MR. FOTE: We keep talking about the environmental factors that affect this fishery, but let's really talk about what has affected this fishery. In '95 there were very few striped bass fishermen, we were coming off a moratorium and there were quite a few people not fishing for striped bass, because you could fish for summer flounder, black sea bass, scup, and the only other regulations that

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were put on those species over the year that drove those fishermen to fish for striped bass.

The hook and release mortality were probably one-tenth of what it is nowadays, so you're basically not addressing the real problems going out of here. Maybe we will never be able to reach that '95 figure again, because the whole world has changed. Besides the environmental factors is the fishing practices of individuals. I mean I used to go out fishing at Thanksgiving time and I would be the only person out there in a boat. That no longer happens. As a matter of fact, the fishery starts at Thanksgiving now down in New Jersey, so it's changed completely from what it was in '95, and people are out there fishing in January that were fishing before. Boats stay in the water longer, they put the boats in the water earlier. Even though we have the bays closed in January and February, people are still fishing out in the bays catch and releasing fish in New Jersey. It's a different fishery and all that has got to affect it. Again, the hook and release mortality are probably 10 times, and I'm probably being conservative about the estimate, the increase.

CHAIR GARY: We've heard some concerns but no hard opposition. Is there any burning desire to continue discussion or can we call the question? We'll call the question. If we're ready, Toni. All right, so is there a need for a caucus, anybody with a show of hands to caucus, then we'll call the question. I'm sorry, Matt, go ahead. We'll caucus for one minute that's fine. Okay, I think we're ready. I'm going to try to see if we can get this passed by consent. Is there any opposition to this motion, by a show of hands? None online, Katie? Wait a minute. Joe.

MR. CIMINO: Yes, New Jersey would have ended up as a null on this vote.

CHAIR GARY: Okay, so we'll formally call the question. All those in favor of the motion raise your hands.

MS. KERNS: New Hampshire, Maine, Delaware, Maryland, District of Columbia, Virginia, North

Carolina, Pennsylvania, U.S. Fish and Wildlife Service, New York, Connecticut, Massachusetts, Rhode Island, Potomac River Fisheries Commission and NOAA Fisheries.

CHAIR GARY: Any opposed. Null votes, New Jersey. Abstentions, none.

**MS. FRANKE: Mr. Chair, I have 15 in favor 0 opposed and 1 null.**

**CHAIR GARY: All right, thank you, Emilie, so this motion passes.** We are on to Section 4.1 Tier 3, recruitment triggers. Again, same process. I would be looking for a motion to get up on the table. Dr. Armstrong.

**DR. ARMSTRONG: Okay, move to approve Tier 3 Option A2 and B3, those are the moderate options within Section 4.1, such that the recruitment trigger is: if any of the four JAIs used in the stock assessment model to estimate recruitment (NY, NJ, MD, VA) shows an index value that is below 75% of all values (the 25th percentile) in the respective JAI from 1992 to 2006.**

**The period of high recruitment, for three consecutive years, and then an interim F target and interim F threshold calculated using the low recruitment assumption will be implemented, and the F-based management triggers defined in Section 4.1 will be reevaluated using those interim reference points if an F-based trigger is stripped upon reevaluation, the striped bass management program must be adjusted to reduce F to the interim F target within one year.**

CHAIR GARY: Do we have a second to this motion? Dennis Abbott second. Mike, I don't want you to lose your voice, but can you go ahead and add any comment?

DR. ARMSTRONG: Sure. I think a medium value, sorry, medium is the wrong word. I think medium the most conservative one. Median is pretty, that's pretty high recruitment. I think that is too conservative. I think we would be tripping it all the time. This is considerably more conserved than

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what we're using now, and I think it would be a better trigger than what we have now.

CHAIR GARY: Dennis Abbott, would you like to add to that? No, okay. All right, we have a motion on the table. We'll open it up to the Board for discussion. Any discussion on this motion? Anyone on line, Katie that is interested? Jim Gilmore.

MR. GILMORE: I would support the motion, but Mike, did you have help writing that, or did you actually come up with that yourself?

DR. ARMSTRONG: The person who will be sitting in this chair in two years, Nichola Meserve, writes everything I say.

CHAIR GARY: All right, thank you, Jim, additional discussion on the motion. This is too easy. Okay, well no, Mike Luisi, Maryland.

MR. LUISI: Yes, just really quickly, Mr. Chairman. I'll definitely support the motion. I agree with Mike and the comments he made regarding a moderate approach here, rather than taking a large leap. Let's consider that moderate sensitivity and conservation response. I just wanted everyone to know I'll support the motion.

CHAIR GARY: Last call for any other comments, discussion on this motion. All right, is there a need to caucus? Yes, okay we'll go with a two-minute caucus. All right, well back to the motion. We'll go ahead and call the question. All of those in favor please raise your hands.

MS. KERNS: Rhode Island, Mass, Connecticut, New York, New Jersey, Fish and Wildlife Service, Pennsylvania, North Carolina, Virginia, District of Columbia, Maryland, Delaware, Maine, New Hampshire, Potomac River Fisheries Commission and NOAA Fisheries.

CHAIR GARY: Our count seems to be 16, so there wouldn't be any nulls, any abstentions or any opposed. That's what you have, Emilie?

**MS. FRANKE: Yes, Mr. Chair, I have 16 in favor.**

**CHAIR GARY: Thanks, Emilie, the motion passes unanimously.** All right, moving along, we are to Section 4.1 Tier 4, deferred management action. Would somebody be kind enough to offer up a motion on Tier 4? Anyone. Surely, we must have somebody that can get us started. Nobody online, Katie? Well, we can start with a discussion if you would like. Jim, do you want to get us out of the starting block here on this one?

**MR. GILMORE: Yes, I would move to, and it was the status quo option.** If you can Wordsmith it, folks, I would appreciate it.

CHAIR GARY: Jim, were you think Option A status quo? Is that what you were thinking, under Tier 4? It's no deferred management action. If a management trigger is tripped the Board must take the corresponding action. Is that your intent, Jim?

MR. GILMORE: Yes, next time I'll get Mike's ghost writer to help me beforehand though.

CHAIR GARY: Do we have a second to that motion? Cheri Patterson, New Hampshire has a second, and Jim, do you want to justify your motion?

MR. GILMORE: Sure, again it was primarily what we heard from the public at public hearings, and this was something that has worked. I mean it is the best part of management I think we've done over the years for striped bass, so we want to keep, when we have issues, we need to address them, so the one year makes sense.

CHAIR GARY: Thanks, Jim, anything, Cheri?

MS. PATTERSON: Yes, I agree with Jim. I think we need to have responsibility for not deferring any management action in our future. We need to address it.

CHAIR GARY: Any discussion on the motion? John.

MR. CLARK: Just a question. I mean one of the options says if a trigger trips, defer action until the next assessment if the Board has already initiated action in response to a different trigger. I'm just

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curious under this. As we are in perpetual trigger trip on some of these things, what happens? Let's say we've tripped the target for fishing mortality, we've tripped the target for spawning stock biomass, and now recruitment is bad. What are we going to do? I mean, it's kind of like we need the spinal tap amplifier that goes to 11 almost in this case.

CHAIR GARY: That was rhetorical, or you're looking for a staff response?

MR. CLARK: Well, I'm asking just because we're piling action on top of action here. I'm just asking, give me a practical example of what we would do if we've already taken action for one or more triggers being tripped, and then another one trips.

DR. DREW: Yes, this is Katie, I can try to answer that. I think one scenario for example would be this most recent, the 2020 recruitment trigger tripped. North Carolina's value tripped; this is the first time that status quo recruitment trigger had ever tripped was in 2021 the 2020 value was below that threshold. Of course, we had just taken management action, and 2020 was the implementation year for that response to a previous trigger.

The trigger that tripped in this case was just the Board thinks about it and doesn't do anything. But if we implemented now this more rigorous recruitment trigger and we had tripped, then the Board would be required to reevaluate that F trigger and respond to it, which would mean going back, figuring out if we need to reduce F further than what we had done with 2020, and put that into management practice. Obviously, that would be a little bit tricky, because you would be responding to it between assessment periods. But there are options on the table to basically if the trigger trips, the mandated action is to reduce F further. The Board would have to take action to reduce F to address that trigger, regardless of what had recently happened or not.

MS. FRANKE: This is Emilie, just to add on to that, and John also to your question about, you know you

referred to that Option F, which would defer management if the Board had already initiated action on another trigger, so that you know could come into play if we have. Let's say we have this assessment this year and the Board takes action after the assessment, and is maybe still working on the management response next year, and the recruitment trigger trips next year while the Board is still working on a management response.

I think that's the question is, does the Board finish out the action that already started, or does the Board now switch gears to address the recruitment trigger that just tripped. You know that is the question from the PDTs perspective, in terms of developing these options is, this complexity of addressing triggers, potentially every year if you might already be working on another action.

MR. GARY: John.

MR. CLARK: Right, I just wanted to follow up there, just again getting to the unrealistic expectations that would be had of what management could do here. I mean we can't have negative fishing mortality. We get to zero, we close everything, and you know that's the end of the game.

I mean are we seriously contemplating that right now we get three triggers in a row, and we go to a closed fishery. I don't know, I mean I'm just asking again semi rhetorically here, just because it just seems like we're straight jacketing the management process here, where there is an option that would allow us to defer if we had already taken action to address other triggers.

MS. FRANKE: Mr. Chair, I just wanted to jump in again, sorry to interrupt, just to clarify. That Option F would defer action if the Board had initiated action in another trigger. If the Board was in the process of working on an addendum, for example, in response to another trigger. Option B would allow the Board to defer if management action had been taken less than three years ago. They are two slightly different options.

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CHAIR GARY: All right, well thank you, John, thank you Emilie and Katie for clarifying as best we can. Any additional discussion on this motion? John.

MR. CLARK: In that case, in light of the discussion, if it's all right, Mr. Chair, **I would like to offer a substitute then, and I would substitute Option F, which is if a trigger trips, defer action until the next assessment if the Board has already initiated action in response to a different trigger.**

CHAIR GARY: Okay, we have a motion to substitute Option F. The Board has already initiated action, sample developing addendum, in response to a different trigger. The motion is by Mr. Clark. Is there a second to the motion? Joe Cimino. John, do you want to go ahead and expand on that?

MR. CLARK: Yes, I'm the designated crazy old man today, so I'll just keep going. As I said, I think we're getting into some very unrealistic expectations here. You know I haven't seen a negative fishing mortality rate yet. I think if we're already taking an action, I think the public deserves to know that we're not going to take another action until we get an action in place, and then we can move on from there.

CHAIR GARY: Joe, would you like to add to that?

MR. CIMINO: Yes, I just worry. I mean we have an incredible team that works on striped bass from the TC to the Stock Assessment Subcommittee, and the PDTs that we've put together over the years. But I think we're playing with a management experience that is going to put them in a place where they are not going to know what to tell us, you know if we're going from one to the other. It concerns me, so I think we at least need to have a discussion on this motion.

CHAIR GARY: We have a substitute motion now. Mike Luisi, go ahead.

MR. LUISI: I'm going to support the substitute for some of the reasons why that were already mentioned. But given the considerable struggle that we find ourselves in when we have to make

management changes on striped bass in Maryland, and the amount of time and effort that goes into it.

I just don't want to bind myself in a position to have to compound those changes each and every time, if we're already working on a particular change. Let's get that in place, get that in play, evaluate it, and then make a follow up decision at another time. I'm going to support the motion.

CHAIR GARY: Any other discussion on this motion? Mike Armstrong, and then Jason McNamee.

DR. ARMSTRONG: Yes, I can support this, but mainly because Mr. Gilmore's motion was way too short. No, I think this does give us flexibility, and it doesn't mean we can't take action. If we see something that is very dire. I have trouble wrapping my head around the options here, and I don't know how it will play out in various scenarios. But the main thing is we can react, it doesn't prohibit us from doing that and it gives us a little buffer.

CHAIR GARY: Jason.

DR. McNAMEE: I'm having a little trouble with this one. Coming in I liked both A, and I thought B would be okay too, for all of the reasons that John has brought up, you know this kind of notion of perpetual action here, I think is a fair kind of prognostication here. But it's conceivable that you initiate an action and its sort of going, and then you get additional information that says, potentially, oh, you weren't going far enough with that previous action, you need to actually take deeper cuts.

You know I can see one of these more flexible options providing a little too much flexibility potentially. I'm still really struggling with this one, because I do, I think it's fair to kind of think about this idea of, man we're in an action, we just keep going and snowballing here. I'm also fearful of that, but it is my hope, we don't know that is going to happen, first and foremost. I think if that starts to occur, then I think this is an adaptive process. We can sort of adjust. Just based on a lot of the public comment, you know I think there was a lot of people that were looking for quicker, more refined

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action for striped bass, because it's so important to people. I think the original motion kind of gets at that. I just wanted to offer my interim thoughts at this point, so thank you, Mr. Chair.

CHAIR GARY: We'll go to Megan and then back to Jim Gilmore and then Cheri.

MS. WARE: I actually have a question; I think for Emilie about this one. I'm trying to think about it. I think based on what we just took with action in terms of the management triggers. The only trigger that trips in off assessment years is the recruitment trigger. I'm thinking this is the only trigger that could fall under Option F, because it is the only one where you would be taking action outside of an assessment that has been prompting you to take action. I'm wondering if that is correct, if I'm thinking about this correctly, Emilie.

MS. FRANKE: Yes, that is correct. The PDT developed this option specifically to address the fact that if the Board, you know it has a required response to the recruitment trigger. That required response could happen in between stock assessments. Due to the fact that developing an addendum, for example, takes several months.

There could be the scenario where, let's say the recruitment trigger trips and the Board starts an action in response to that recruitment trigger, and they are in the process of developing an addendum. But during the process of developing that addendum we get a new stock assessment that trips the F trigger.

In this case, because the Board is in the process of developing an addendum to the recruitment trigger that tripped, the Board could defer action on the assessment F trigger, because the Board has already started developing that addendum for the recruitment trigger, or it could be the reverse in that we get an assessment, trips an F trigger and the Board starts an addendum to address that F trigger.

While the Board is still developing the addendum for that F trigger, the recruitment trigger suddenly

trips the next year. In that case you could defer on the recruitment trigger, because you were already working on that addendum for the F trigger. Yes, to be clear, this option addresses that potential for the Board to be working on developing an action, so in that development process, while another trigger trips.

This Option F does not apply to the situation where you implemented a measure in January 1, and then the recruitment trigger trips six months later. This option does not apply there, because the Board wasn't in the process of responding. The Board had already responded, so the Board would still have to respond to that next recruitment trigger. Does that make sense?

MS. WARE: Yes, that does. If I could have a follow up. Let's take the first example, where we are responding to the recruitment trigger outside an assessment, and then we have to respond to that F target or threshold trigger during an assessment. Based on what we just passed for the recruitment trigger, that would be looking at an intermediate F, I think is what we called it, with a low recruitment assumption, based on the F targets we already have. If the F targets would then trip a trigger, I think we're maybe already reacting to that with a low recruitment assumption. Is that correct?

MS. FRANKE: Yes, so I'm going to turn to Katie and see if maybe she can jump in.

DR. DREW: Sure. Yes, I think it kind of matters what order things happen in. Let's say the recruitment trigger, let's say recruitment trigger tripped in 2021, and under the new scenario we would look at the F target, and we are, obviously we look back at that last assessment and we would say, woops, we were below the F target with the standard recruitment assumption, but now we are above the new interim F target, based on the lower recruitment.

We need to react and bring that F down to that new interim target, which is lower and more conservative. We would need to take action. Then we do the assessment, or start that process rolling,

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and then because we usually evaluate that during the summer, the assessment comes in, and in this case, we would probably still say, here is the newest information on F, and based on the recruitment trigger we would probably use that new low recruitment in the assessment, etcetera.

Maybe yes, you're already like, well we just have a better grasp now of where F is relative to that F target. Maybe it doesn't matter. But I think the flip side is probably where you get yourself into a little more trouble, where we do the assessment and it says we are at or below the target in the terminal year, using the standard recruitment assumption, or it says we're above that standard F target, so we need to take a 10 percent reduction.

You start the management ball rolling. The recruitment trigger comes in, and it says actually we've tripped the recruitment trigger, we need to lower F even further. We have a new lower target, now you need a 12 percent reduction. In that situation, according to Option F, we would say, if we went with Option F we could say, look we've already kicked off this addendum reducing harvest by 10 percent to get us back to our standard F target. We're going to wait and see how that plays out, before we respond to the recruitment trigger.

If that happened the year after, we would still have to respond to that recruitment trigger. I'm not sure if that actually helps clarify anything or not, but I think there are a lot of moving parts that can play off of each other. But in some scenarios, it will trip either way, and you would just be responding to the same information.

MS. WARE: Thank you much, I appreciate the indulgence on those questions.

CHAIR GARY: I think we have Jim and then Cheri.

MR. GILMORE: Just Option F was my second choice, but why I liked Option A better was, because I still thought, John, you said it a few times this morning, you're not an attorney. I'm not an attorney, but I've dealt with enough of them that my first thing, well, if a second thing triggered it according to what

you thought, the argument as a technicality. We did start an action. Again, that is not being completely facetious, I wasn't trying to get around it or a loophole. But I think that gives us more latitude, because we could still do additional measures under that Option A, but now we're saying with the Option F it's like, well we're not going to do anything until we get through those first triggers.

Again, I'm not opposed to Option F, because it was my second choice, but I did think that Option A not only was in response to what the public said, but also gave us latitude that we could do multiple things if we hit one of the triggers, or multiple triggers.

CHAIR GARY: Cheri and then John Clark.

MS. PATTERSON: I was with Jay there for a while, going back and forth with this. The thing I would never want to see, and this is putting it simplistically, is if we're dealing with an issue with the spawning stock biomass, and then all of a sudden recruitment gets triggered, and now we might be contracting, or fisheries are in F trigger.

You might be now contracting the population from both ends, while we're waiting to deal with one or the other. I think we're just not able to respond quick enough under those sorts of dire circumstances. I'm not saying we're going to get there, but I agree with Jim that Option A still allows us to think through it, and react quickly if need be.

CHAIR GARY: I'm trying to think who we had on deck there, John, I'm sorry, John Clark.

MR. CLARK: I just wanted to point out that Option A doesn't say we may take action, it says we must take action, so I'm going lawyer on you again, Jim. When something says you must take action, that means if a second one tripped, we would have to take a second action, whereas Option F gives us more flexibility. That is my interpretation.

CHAIR GARY: Thank you, John, and we have Bill Hyatt.

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MR. HYATT: I think my question may have just been answered. I just needed a little bit of clarification on Option F. I just want to make sure that Option F doesn't require that you defer action until the next assessment, it gives you the latitude to if you choose. Are we certain that I'm thinking of that correctly?

MS. FRANKE: Thanks, Bill for that question, that is correct. These deferred management options give the Board the ability to defer action, but the Board does not have to.

CHAIR GARY: Thank you, Bill, Tom Fote.

MR. FOTE: I just think of what we're going through with black sea bass and scup right now, and because we're dealing with the Mid-Atlantic Council it has no flexibility and cannot do anything, we're just screwing the recreational anglers again this year. I don't want to be put in the position where we needlessly do something just because the triggers say this. That is why I'm supporting F, because it gives us more flexibility.

CHAIR GARY: Well, you can tell there is a bit of trepidation, I guess, between these two, and I want to make sure we have adequate discussion. I'll keep this open, and make sure everybody has had their opportunity to say their piece. Is there any more discussion? We're on the substitution. John McMurray.

MR. McMURRAY: It just struck me that last comment, ability to defer, but the Board does not have to. My gut is telling me that approving any option that would allow the management board to do nothing when the management triggers are tripped, probably isn't a great idea given public perception in the Board's history. I'm not really understanding how the original motion would constrain us into simply. Well, I don't understand how having more flexibility here is a good idea, and I'll just leave it at that.

CHAIR GARY: We'll take one more comment and then we'll go ahead and call the question. We have David Borden on the webinar.

MR. DAVID V. BORDEN: I still support Option A. I mean the sentence in there does not say we're going to have to take immediate action. The Board and the Commission will have to evaluate all the other priorities if we get to that point, and decide on a timeline to take action. I just view it as embedded in that some flexibility.

MS. FRANKE: Mr. Chair, if I could just, David, just to clarify. For Option A, no deferred management action. For that option, if any of the management triggers are tripped, the Board is required to respond to that trigger.

MS. KERNS: Emilie, if I'm correct, the way the Board has voted on some of the options, there are timeframes identified that the Board must follow then, and some of those are within a year.

MS. FRANKE: Right.

CHAIR GARY: David, did that clarify?

MR. BORDEN: Yes, but my point is still the same. If there is going to be a discussion about all of the other Commission commitments at that point, and then we're going to figure out what the appropriate timeline is.

CHAIR GARY: We're getting a different perspective from staff. Toni, can you clarify?

MS. KERNS: Well, David, the plan would require the Board to act within that timeframe, and we wouldn't have that flexibility of what's going on with other management plans, we would have to build that into this Board's actions for the year.

CHAIR GARY: Jason McNamee.

DR. McNAMEE: Kind of keeping along this thread, I'll kind of talk in examples not to it. It's made it easier for me when we've been doing that. If you, so we took an action based on the stock assessment, and then the out year we tripped a recruitment trigger. Is it conceivable that we could look at the action we're already taking and say, that management that we've initiated meets what we

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would have to do for the recruitment trigger anyway? We're going for the same goal of F, and therefore that would meet this Option A?

DR. DREW: It's possible that the numbers could work out that way. I think you would, so you could roll the dice and hope for the best. I think we usually craft these measures, and this response to get to a very specific probability of achieving that F target. If that F target is lowered that is going to ripple back through all of our calculations.

Where before we could get away with a 10 percent reduction, with a lower F target maybe we need a 12 percent reduction. Maybe the answer is you can't actually get the difference between the 10 and the 12 percent, so the measures we chose would have given you a 12 percent anyway, and that is the best that we could do.

In which case, great, high fives all around. But you know I think that is one outcome. But the other potential outcome of this is that we would go through trying to achieve a specific F target that our measurements and our regulations define are options for that specific F target, and that specific reduction. Then when the interim recruitment trigger lowered that F target to a more conservative low recruitment F, then as I said those calculations would all have to be redone, and it may require a larger reduction and a different set of measures.

CHAIR GARY: All right, thank you, Katie, thank you, Jason. Any burning desire to continue the discussion or we can call the question. Let's call the question. Yes, you may caucus. I was going to ask. Let's take a two-minute caucus. Okay, we'll go ahead and call the question. This is a motion to substitute Option F. The Board has already initiated action, an example of developing an addendum, in response to a different trigger. The motion was by John Clark, seconded by Joe Cimino. We'll go ahead and ask all those in favor to raise their hand.

MS. KERNS: Massachusetts, Connecticut, New Jersey, Pennsylvania, Virginia, District of Columbia, Maryland, Delaware, Potomac River Fisheries Commission.

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CHAIR GARY: All of those opposed to this motion.

MS. KERNS: Rhode Island, New York, North Carolina, Maine, New Hampshire.

CHAIR GARY: Any abstentions?

MS. KERNS: Fish and Wildlife Service and NOAA Fisheries.

CHAIR GARY: Any null votes? No nulls.

**MS. FRANKE: Mr. Chair, I have 9 in favor, 5 opposed, and 2 abstentions.**

**CHAIR GARY: Okay, move to substitute carries and becomes the main motion.** All right, we'll give it a try. This is now the main motion; we'll go ahead and make this main motion and get it up on the screen. Okay, we'll try this the easy way. Is there any opposition to this motion? Again, for the record, is there any opposition to this motion? Any abstention, any null votes?

**MS. KERNS: Just for the record there was one abstention, NOAA Fisheries.**

**CHAIR GARY: All right Emilie, you, have it?**

**MS. FRANKE: Yes, Mr. Chair, so that would be 15 in favor 0 opposed and 1 abstention.**

CHAIR GARY: Our next section is going to be recreational release mortality, but I would like to take a ten-minute break. We have some cookies in the back, so Maya, if you could set the timer for ten minutes, then we'll reconvene.

(Whereupon a recess was taken.)

#### **RECREATIONAL RELEASE MORTALITY**

CHAIR GARY: We'll transition into the next section of the document; this is Section 4.2.2 Recreational Release Mortality. Per the usual sections of how we've processed through this, Emilie is going to go ahead and provide a presentation. We'll also have a presentation by Deputy Chief Kurt Blanchard from

Rhode Island from the Law Enforcement Committee, and then we'll go into questions after that. Emilie, I'll turn it over to you at this point.

MS. FRANKE: Thank you, Mr. Chair, and thank you, Kurt, for being with us. I will go through my presentation and then I will turn it over for the Law Enforcement Committee input. This is Section 4.2.2, measures to address recreational release mortality. For the statement of the problem, recreational release mortality is a large component of overall fishing mortality, because the striped bass fishery is predominantly recreational, and most of the catch is released alive.

Since 1990, about 90 percent of all striped bass caught recreationally were released alive, and 9 percent of those striped bass caught and released alive are assumed to die from that fishing interaction. The current recreational management program primarily uses bag limits and size limits, which constrains harvest, but this is not designed to control effort, which makes it difficult to control the overall fishing mortality.

Addendum VI did start to address recreational release mortality by requiring the circle hooks when fishing recreationally with bait. Before I get into the options, I just wanted to note a correction that was made to the Draft Amendment in this Recreational Release Mortality Section. The correction was to Figure 4, which summarizes the current recreational seasons that are in place, and New York's current seasonal closure in the tidal Hudson from December through March is a no-targeting closure.

That figure had previously noted that closure was a no-harvest closure, but it is in fact a no-targeting closure. Moving into the options in Draft Amendment 7. These options consider ways to reduce recreational release mortality via effort controls to reduce the number of trips interacting with striped bass, additional gear restrictions to help increase the chance of survival after a striped bass is released, and options for outreach and education. Option A is the status quo, which is only having that circle hook requirement in place. In addition to that current requirement, the Board

could consider adding seasonal closures under Option B, adding gear restrictions under Option C, and/or adding outreach and education under Option D. The status quo is Option A. Again, where we have the circle hook requirement as the only requirement in place to specifically address Recreational Release Mortality. This requires the use of circle hooks when fishing recreationally for striped bass with bait, and there is an exemption for artificial lures with bait attached.

Currently it is recommended that striped bass caught incidentally on any unapproved method of take must be returned to the water immediately, without unnecessary injury. As far as public comments. Just to start off, there were 4 organizations that indicated they only support Option A, so they indicated they would not support any of the additional measures or options to address Recreational Release Mortality, due to the inability to quantify the benefit of those measures.

But otherwise, all the other public comments that commented on this section noted support for one or more additional measures. We'll start with the next slide, which starts with Option B, which is the Seasonal Closure Options. Option B1 would be state-specific closures, during which all recreational targeting of striped bass would be prohibited for a minimum two-week period in each state.

Determining when these closures would occur is based on MRIP data on striped bass directed trips. The intent is to have a closure during a time when the fishery is active, either during a wave with at least 15 percent of striped bass directed trips, which is B1-a, or during a wave with at least 25 percent of striped bass directed trips, which is B1-b.

If the Board selects one of these closure options under B1, the Board must also consider Tier 1, to determine whether the existing no-targeting closures implemented by Maryland and the Potomac River would meet the new closure requirement. Moving on, Option B2 considers spawning closures to protect spawning fish.

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Option B2-a would prohibit recreational harvest during Wave 1, and Wave 2, so January through April in spawning areas, which are the Chesapeake Bay, the Delaware River or Bay, the Hudson River, and the Kennebec River. The states that border those spawning areas will determine the boundaries of those closures. Option B2-b would prohibit all recreational targeting for at least 2 weeks during Wave 2 or Wave 3 on the spawning grounds, which may not necessarily be the entire spawning area.

Again, as determined by the states to determine when that closure would occur based on peak spawning. Again, states will determine the boundaries of those spawning ground closures. Just a couple notes for these spawning closure options. Existing closures would be applied toward meeting these requirements, and any new or existing spawning closure boundaries would be reviewed by the Technical Committee, and included in state implementation plans.

For the public comments on these closure options. Of these proposed seasonal closure options, the spawning area closures prohibiting harvest for January through April, which is B2-a, was the most supported closure option. Some commenters noted that spawning closures should include closures in staging areas to protect pre-spawned fish. Then of the closure options, Option B1, the statewide seasonal closures prohibiting targeting for two weeks was the least supported option. Some commenters noted they would support these closures if they were no harvest closures, and some noted that if closures were implemented that these closures should occur during the summer.

In addition to some comments in support of these seasonal closures, there were also comments that noted specific opposition to seasonal closures, including over 100 comments at the public hearings that indicated no support for any seasonal closure option. Comments we heard at the hearings and some of the written comments that noted opposition to some or all of the closure options, noted particular opposition to no targeting closures due to enforcement concerns.

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Also note a concern about the negative economic impacts of closure, and also concern about the inability to quantify the reduction achieved from implementing closures. There are also several comments noting specific opposition to closures in the Hudson River. Then some comments also noted that closures could be considered in the future, but there is not enough information or data to inform that consideration right now.

Then as far as the Advisory Panel input, there was no AP support for B1, the no targeting closures for two weeks. The AP members noted that the benefits of these closures are unclear, and management issues like having different closures in each state may outweigh the potential benefits, and again that closures could be a future tool, but there is not enough information to discuss this now.

Then 3 AP members supported Option B2-a, no harvest in spawning areas for January through April, as this would decrease effort to help address concern about fishing pressure on spawning fish. Then 3 members also supported B2-b that no targeting on spawning grounds for two weeks. But 1 AP member noted the difficulty of identifying all those specific spawning grounds for closures.

Moving on to Option C, which would be the additional gear restrictions. Option C1 would prohibit the use of any device other than a non-lethal device to remove striped bass from the water, or to assist in releasing a striped bass. The example presented at all the public hearings is this option would prohibit the use of gaffs. Option C2 would require that striped bass caught on any unapproved method of take would be returned to the water immediately without unnecessary injury.

Again, this is currently a recommendation, but selecting this Option C2 would make this a requirement coastwide. For example, if you're fishing for something else with a J hook with bait, and you incidentally catch a striped bass. You would need to release that striped bass, because you weren't using a circle hook. Then as far as the public comments on gear restrictions.

There was general support for both gear restriction options and at the public hearings in particular there were relatively more comments in support of gear restrictions, as compared to comments in support of seasonal closures. Then for the Advisory Panel input. Eight AP members supported that Option C1, prohibit any device other than a non-lethal device. Four AP members supported Option C2 that incidental catch requirement. AP members noted that that is a commonsense provision that aligns with existing gear restrictions. But there were also 2 AP members that specifically were opposed to this incidental catch requirement Option C2. They noted concern about the impacts of this type of provision, like requiring children and young anglers to have to release striped bass if caught incidentally, and also noted that striped bass fisheries are diverse, with many different gear types.

It might be difficult to implement, because there are so many different types of approved and unapproved methods of take. Then Option D, to wrap up, is the outreach and education options to promote best handling and release practices. D1 would require outreach and education, which would be included in annual state compliance reports, and D2 would recommend outreach and education, which many states are already doing.

Then as far as the public comments, there was general support for outreach and education, with most comments supporting D1, the required outreach. Again, noting that outreach and education is one of the most important strategies that should be prioritized. Then as far as the Advisory Panel recommendation, there was a unanimous recommendation that the Board reconsider requiring outreach and education at a later date, after the Board can more clearly define what the required elements of state outreach will be.

The AP recognized that outreach and education is critically important, and support those efforts. But the Draft Amendment doesn't provide enough information on what exactly those requirements

would be. The AP recommends the Board reconsider this at a later time, after the Board has identified those required elements.

Then finally, there were some other comments, both at the hearings and the written comments related to Recreational Release Mortality. Some comments noted concern about MRIP data and high uncertainty, and concern about the 9 percent release mortality estimate. Some recommended new recreational release mortality studies to include state or region-specific and sector-specific release mortality estimates.

Some AP members supported that recommendation. Additionally, there were some comments supporting other types of gear restrictions, including requiring barbless hooks and banning treble hooks.

With that I will turn it over to Deputy Chief Kurt Blanchard to give the Law Enforcement Committee report.

#### **LAW ENFORCEMENT COMMITTEE REPORT**

DEPUTY CHIEF KURT BLANCHARD: Law Enforcement Committee met via webinar April 18, 2022 to provide input on the Striped Bass Draft Amendment 7 options addressing recreational release mortality. The LECs input and recommendations are summarized below for each of the proposed options. These options are being considered for implementation, in addition to the status quo circle hook requirements.

Option B, Effort Controls, Seasonal Closures. The Law Enforcement Committee emphasized previously discussed concerns that no targeting closures would be unenforceable, particularly considering striped bass often overlap with other recreationally targeted species, for example bluefish, and enforcement cannot prove targeting intent. On the other hand, no harvest closures would be enforceable. For spawning closures, the LEC noted the closure area should be clearly defined for implementation. Determine specific boundaries and/or rivers for the closures. Option C,

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Additional Gear Restrictions. For Option C1, which proposes prohibiting any device other than a non-lethal device to remove a striped bass from the water, or to assist in releasing a striped bass.

The LEC is concerned that the provided definition of a non-lethal device is too broad. With such a broad definition, implementing this option as written would be difficult to enforce, and could be confusing to anglers who use methods like spearfishing to target striped bass. Some states permit this activity.

To improve enforceability, the LEC recommends being more specific, either by identifying which lethal device are prohibited or by identifying which non-lethal device are permitted for use. If the Board's intent with this option is to prohibit gaffing specifically, the LEC recommends using the following language instead of the non-lethal device language.

It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time when fishing recreationally. The above recommended language is based on Virginia's striped bass regulations regarding gaffs. Other examples of state regulations regarding gaffs and striped bass are included at the end of this memo for reference.

Regarding the approach of listing non-lethal devices that would be permitted to use, the LEC discussed an example of language in federal regulation for bringing sea turtles onboard, net or hoist required. However, the LEC concluded it may be difficult to sufficiently capture all non-lethal devices in such a list. The LEC supports Option C2, which would require striped bass caught on any unapproved method of take to be returned to the water immediately without unnecessary injury.

The LEC noted that making this requirement for incidentally caught striped bass aligns with and strengthens gear restrictions. Option D, Outreach and Education. The LEC supports outreach and education efforts to help increase compliance with these regulations. However, the LEC noted the outreach options in Draft Amendment 7 do not

provide specific details on how or what type of outreach would be conducted.

Related to circle hooks, at a previous meeting, December 2021, the LEC recommended conducting outreach to manufacturers, to address questions about what qualifies as a circle hook. We also recognize, I'm adlibbing here a little bit, that a lot of states and jurisdictions have implemented education programs that are pretty effective and well received. Shared Waterbodies or Neighboring States. The LEC highlighted the importance of consistent regulations in shared waterbodies among neighboring states.

Different regulations between two neighboring states presents special enforcement challenges, and are often confusing to the angler. The following is some examples of the existing state regulations regarding striped bass and the use of gaffs. Maine, it is unlawful to use a gaff to land any striped bass. New Hampshire, the taking of striped bass by gaffing shall be prohibited. Connecticut, striped bass may only be taken by angling, spearfishing is prohibited, and the use of a gaff in the taking of striped bass is prohibited. Virginia, it shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time. Mr. Chair, these are the LEC comments for this proposal. I'm here for questions if anybody has any, thank you.

CHAIR GARY: Thank you very much, Kurt, for your presentation, and thank you, Emilie. I'll open it up to the Board. If it suits the Board, because there is an interlinkage here, it might be good to have Emilie and Kurt handle this section in tandem. I'll open it up to questions now, and we'll start with Senator Miramant.

SENATOR DAVID MIRAMANT: Was there any way to judge whether the people who thought that the mortality number for catch and release was too low or too high, since there was a lot of objections to it, and wanted it redefined?

MS. FRANKE: Thanks, Senator, for that question. I think most comments were that the estimate is too high, and that you know when they are on the water, they are not seeing that the release

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mortality would be that high as the 9 percent estimate.

CHAIR GARY: Chris Batsavage.

MR. BATSAVAGE: Just out of curiosity, how many states allow spearfishing for striped bass, or which states allow spearfishing for striped bass?

MS. FRANKE: I'm going to turn to the Board members if they could answer that question for their state.

CHAIR GARY: Eric, could you answer that, so Rhode Island. Tom, are you responding for New Jersey?

MR. FOTE: Yes, New Jersey.

CHAIR GARY: Delaware as well and Virginia.

MR. CLARK: We don't specifically disallow it, so it is allowed.

CHAIR GARY: Does that answer the question, Chris? Okay, additional questions for Emilie and Kurt. John.

MR. CLARK: Yes, I have a question for Mr. Blanchard. Kurt, what was the reason you said you didn't want to list non-lethal methods of taking striped bass out of the water? How many different methods do you guys see? I mean, I'm thinking of course dip nets, or nets to take the fish on, but are there other things out there these days that people are using?

DEPUTY CHIEF BLANCHARD: The discussion around what would be lethal/non-lethal and listing of that was generated basically of what other techniques are out there and available to folks. If we got into a situation of, there is a new device out there and how does that fit in? Does that meet the regulation/not meet the regulation? We were going back and forth on the lethal/non-lethal, and trying to list those, similar, probably where your mind is right now on it is there is not a lot out there, but what could come new down the road. That really kind of generated right back around with a discussion and it was pretty candidly stated, it

appears that we want to prohibit gaffing. This is what it appears that the industry wants, and so why don't we just say that?

CHAIR GARY: Tom Fote and then John McMurray.

MR. FOTE: When I look at area closures or time of year closures, and I always look, they say well the most trips are this period of time, so maybe that's where we look at it. But shouldn't we look at it on when the most mortality takes place? I wonder if the TC actually looked at it, because you think about it. If we're fishing in the spawning time the water temperature is 48 degrees, 50 degrees, it's cold.

You are not putting a lot of stress on it; the fish gets out and the air temperature is about 40 degrees or 50 degrees. We've all been out fishing, we know it's cold at that period of time. But, and so the hook and release mortality might, since this is an average, might be 3 percent. Now we take that same hook and release mortality, we look at it according to Maryland studies, it's basically, what is it 30 or 40 percent depending on the water temperature?

We're actually doing 10 times the hook and release mortality at different periods of time. If we're looking to reduce the hook and release mortality, should we be looking at when it would basically allow more of the fish to be released alive, and not on what time of the year, whether it was a spawning season or not, but when the water is warm. Now if you're going to talk about this, now I'm not saying we should be doing it.

But if you're going to do this you've got to look at the right time to do this, and when you're doing 2 percent hook and release mortality that is not the time to do a closure. When you're doing 40 percent hook and release mortality and those fish are going, and especially usually that time of year using heavier gear. When you go into summertime, people out there, freshwater, everything looking at light tackle, and it is more stressful. If you're looking at, how do we basically do that, shouldn't we be looking at that? That's a question I'm asking for Katie.

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MS. FRANKE: Thanks. Katie, I can jump in real quick first, and just note that the PDT did develop an option when the Board first reviewed Draft Amendment 7 that would have required a closure during Wave 4, because of those high-water temperatures. But the Board removed that option in favor of keeping the options in that would provide a little bit more flexibility as to when those state closures would occur.

DR. DREW: Yes, and just to follow up from the Technical Committee side. I think we have in the past tried to sort of figure out what mortality would be, based on when and where these fish are caught. But we've sort of struggled with getting detailed enough information. You know we get this at the wave level, and that's sort of the general inland offshore area.

We found that we had a hard time sort of figuring out where those breaks would occur, in terms of higher mortality/lower mortality et cetera. But that's definitely something I think we're interested in pursuing in the future. But as Emilie said, that was an option that was on the table for exactly the reasons that you laid out.

CHAIR GARY: John McMurray.

MR. McMURRAY: I have a question for Mr. Blanchard regarding the no target closures. Kurt, on the water is there any way to determine what it actually is people are targeting? I mean I understand intuitively you know when someone is in Raritan Bay in April, they are targeting striped bass. If they say they are targeting bluefish, I think it won't hold up in court that they were targeting striped bass if there is no fish onboard. Maybe you could clarify that for me.

DEPUTY CHIEF BLANCHARD: The targeting versus harvest concept, and we've been on record with this even with circle hooks, as far as targeting. It's just next to impossible. When you get these types of enforcement actions and you're bringing them back home, you're bringing them to state courts or even administrative hearings and things like that.

The proof is on us to present and say, we've got to prove beyond a reasonable doubt that these folks were targeting striped bass. We all know the dynamics of fishing out there, and whether you're fishing on striped bass, bluefish, you could be fishing summer flounder and still pick up striped bass. For us to say they are specifically targeting either striped bass or specifically targeting bluefish, it's just next to impossible for us to do that.

CHAIR GARY: Online we have Roy Miller and then we're going to go to Tom Fote and then John Clark.

MR. ROY W. MILLER: I just wanted to point out that historically in Delaware we've had spawning ground closures. Those closures are in effect for the months of April and May, when actual spawning is predicted to occur. Now there is also a couple of requirements for the use of circle hooks when fishing with bait. There are other fisheries that are present that time of year, catfish, (faded out) white perch.

What I'm wondering is, if we do not select any of these additional spawning ground closures, then B2-a would encompass all of Waves 1 and 2, instead of just April and May in our case. If we reject spawning ground closures, are states required to maintain their existing spawning ground closures? That is one question. The second question is, what if wanted to only have a spawning ground closure during the period when the spawning is expected? Is that allowable within the confines of what went to public hearings?

MS. FRANKE: This is Emilie, so just to repeat your first question. If the Board did not select any of the spawning closure options, so anything under B2, would states that already have spawning closures in place be required to keep their current closures, and no. Spawning closures have always been recommended as part of the striped bass FMP. If the Board didn't select any required closures, then spawning closures would continue to be recommended.

To your second question about, would a spawning closure during the time at which spawning is

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actually anticipated to occur, would that be within the options presented? B2-a, which is the spawning area closure for January to April, specifies the time period of January to April. The Board could work within that timeframe of January to April. Then as far as B2-b, that two-week no targeting closure on the spawning grounds, you know that is up to the state anytime within Wave 2 or Wave 3.

CHAIR GARY: Roy, did that answer your question?

MR. MILLER: Mostly. I guess that for instance, if B2-b, well, I assume we would adopt either B2-a or B2-b, so it doesn't encompass, neither option encompasses our existing spawning ground closure. We would have to make a change, and that change might be too restrictive or not restrictive enough.

CHAIR GARY: Thank you, Roy, so we'll go to Tom Fote and then John Clark.

MR. FOTE: I noticed when New York clarified that it was a non-targeting closure up in the Hudson River, and I think Maryland used to have a non. How did you enforce both of those, so we get an idea what you did to enforce those?

MR. LUISI: Yes, thanks, Mr. Chairman. The way that our enforcement officers handled the non-targeting in our summer two-week period is that they told me that, well, first of all it's in our regulations. The terminology is there. But they need to see a fisherman catching striped bass during that period of time.

If he or she continues to catch striped bass they can consider that to be the targeting of it. If you're under the Bay bridge and you're fishing for something else and you start catching stripers one after another, and you don't move or change location or method of fishing. But they have to visually watch it and see it.

MR. GILMORE: Yes, it was similar to what Mike said. It was law enforcement discretion, and they would have methods to look at. They couldn't just do it by what gear they were using, they had to essentially look at some sort of fishing effort that

was going on. You know, in law enforcement, Kurt's right. This is a very difficult thing to enforce.

But I think the other part of this too is when you put in a rule like this, it's the rule of 80/15/5, 80 percent of the fishermen are going to abide by it, 15 percent may not, because they don't know about it, and 5 are going to actively ignore it. You are getting a significant benefit from it, even with this targeting rule, because I mean the more conscientious guys will.

Again, Kurt, I've heard it from my guys. This is like very difficult to enforce, and it doesn't hold up in court I guess is the bigger problem, because they bring it in, and a lot of the judges whatever just don't really. But again, that's pretty much what we do, what Maryland does.

MR. FOTE: Thank you.

CHAIR GARY: Tom, that answered your question, so we'll go over to John, you're good? Okay, so I believe Roy Miller is online, he had his hand up. It's down. Steve Train.

MR. STEPHEN TRAIN: Dennis, I want you to listen carefully to this. I agree with Tom Fote. You don't hear that very often, I know. We are looking at closures, and we eliminated what I think is the most effective time period. I mean Tom, you spoke very well earlier when you said the problem with mortality here is numbers of people.

The numbers of people fish harder when the weather is good, and when the weather is good the water is warmer, and the mortality levels increase on the release. Of all the species we manage, you would think my mailbox would fill up on lobsters or menhaden. It fills up on this, because people want this fishery saved.

They don't want to actually be the ones that have to do something to save it, they want to keep catching fish. But they want it saved. I think that the time period we're killing these fish is when most people are active, and that's what we need to be looking at. The mortality rate on catch and release will go from the 9 percent they don't believe to 30 or 40

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percent when that water gets warm. We shouldn't be bringing those fish out of the water then, period.

CHAIR GARY: It seems like we're almost on the cusp of transitioning to a discussion, but are there any additional questions for Kurt or Emilie specifically? Okay, so working off what has been successful so far, which is to get something on the floor in a motion to put forward discussion, rather than debate, an array of different options here.

We have circle hooks. We have that tool that's an option to adopt and stay there. But I guess the question I would have as Chair to this Board is, if there is advocacy for any of these other options or sub-options, is anybody willing to put those up as a motion to kind of help this conversation along, so we can do it effectively? I'll open it up to the Board. We have a number of options and sub-options to consider. Megan Ware of Maine.

MS. WARE: I think it would be helpful for the Board to continue to have this discussion we're having, and specifically about spawning closures, so per your guidance I'll make a motion on that to facilitate a discussion. **I would move to select Option B2-a, no harvest spawning closure required.** If I get a second, I'll at last provide my thoughts on this option, but again, I'm hoping to prompt discussion with this.

CHAIR GARY: Is there a second to Megan's? Dr. Mike Armstrong. Okay, Megan, go ahead and expand on your rationale.

MS. WARE: Yes, thank you. In some ways I kind of feel like the spawning closures are maybe more of the lower hanging fruit in this document. I understand we all have specific TC analysis on these, but it seems like a somewhat, in my opinion, commonsense management tool to be protecting the spawning striped bass.

I think, well I acknowledge from the table, I think a lot of jurisdictions or areas are already using spawning protections to some extent. I think there is an advantage of including that in the FMP, because then it becomes compliance criteria for a

state. I think there are some advantages there, in making sure that spawning protections are maintained by the states. As an example, you know Maine has spawning protections. There would be no repercussions at the Board level if Maine were to remove those, so I see some advantages in including this in the FMP. I've leaned more towards Option B2-a, as opposed to the two-week no targeting for a couple of reasons. Obviously, we've heard from the Law Enforcement Committee their concerns about no targeting closures, so B2-a is a no harvest closure.

Then I also have some concerns with the two-week timeframe in the no targeting closure. I think the effectiveness of the two-week closure may vary year to year, spawning doesn't happen the same week every year. If you're not right on the money with those two weeks, I'm not sure how strong the benefit would be.

CHAIR GARY: Mike, did you want to add to that?

DR. ARMSTRONG: No, I think Megan covered most of it. But I will say we've done studies that show various species change their behavior after they've been hooked, so actually I would prefer non-targeting, but I defer to Law Enforcement that it's probably unenforceable. Lack of harvest will keep probably people targeting. The catch and release people will do it, but it will take some of the pressure off. But you can change behavior of fish on a spawning ground when you're catching them and releasing them.

CHAIR GARY: We'll open it up for discussion. We have a motion on the floor. Jim Gilmore.

MR. GILMORE: This becomes one of those times when it seems like a great idea, but let me give you the reality check on this. Right now, we have a spawning closure on the Hudson. Well, actually we have a slot, 18-28, and that fishery pretty much is prosecuted in the month of April. It's all males, it's a very small fishery, and essentially, we also eliminated the trophy, because we want to stay off of the breeding females. This accounts for maybe 2 percent of New York's striped bass mortality.

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This really isn't getting at it for New York, in terms of reducing catch and release mortality. It's not really doing anything. We had a very large turnout at our hearings. Essentially that was saying this essentially will kill the fishery, plus it will have other consequences to it. It will take that fishery and the people that prosecute it.

It's going to drive them into the coastal limit. Now, what we did was we eliminated female harvest, keep those spawners alive. This would turn it into the slot for the coast, and now we'll be targeting large females during part of the year, and we'll be doing exactly what we worked on for the last few years not to do.

Again, we took the trophy fish out so we would take no females. On top of that remember we're closing the spawning areas, but all those fish are lining up in the ocean in Raritan Bay. That's not being closed, we're still going to be hitting those fish. This thing sounds like maybe it does something positive, but it's doing the exact opposite in the Hudson River. **For that reason, I would move to substitute to Option B1-a.**

**CHAIR GARY: All right, we have a motion to substitute Option B1-a, by Mr. Gilmore.** Is there a second to that motion? Anybody on line Katie that wants to second it? Last call to a second. This is a move to substitute Option B1-a, 15 percent of the striped bass directed trips.

MS. FRANKE: Maya, you could to clarify B1-a, all recreational targeting would be prohibited for at least two weeks during a wave.

CHAIR GARY: Thank you, Emilie. Okay, so it reads correctly now, Emilie?

MS. FRANKE: A 2-week no targeting closures during a wave. Yes, perfect, thank you, Maya.

CHAIR GARY: Jim that's what you have, right? Okay, another call for this. **It's a move to substitute Option B1-a. All recreational targeting prohibited for a minimum 2 weeks during a wave with at least 15% of striped bass directed trips with MRIP data,**

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**motion by Mr. Gilmore.** Is there a second to this motion? Mike Luisi.

MR. LUISI: Yes, I'll second for discussion purposes.

CHAIR GARY: Jim, back to you to expand on your motion.

MR. GILMORE: Okay again, we're trying to rebuild the stock essentially by preserving the large females. Again, that was when we got to the last measures that we put in in 2020. It was essentially that is when we cut back on, we essentially took out our trophy fish. We put the slot in, and I think we provided quite a lot of data at the time to show our harvest. It documented very clearly that this fishery is prosecuted primarily in April, very small fish, all male.

If you read any of the document, those small fish are all male. Again, the whole idea of this was to, in the Hudson River, at least for that area, we were going to protect the spawn and get the maximum benefit out of it. After this motion came up again, we had, Tom Fote was saying we had a poor turnout.

In the Hudson River we've never had a turnout like this. In fact, I think if you adjusted the numbers, we probably had 4,000, relative to what we had on our coastal fishery turn out. Again, they were very clear, and they have been very gracious about it. I mean some of the hearings we had on Long Island got kind of nasty.

These guys are very much, even two years ago, very much into taking sacrifices, because the fishery is that important to them. That you've got a group that is willing to take cuts, in fact when they threw away the trophy fish, I was shocked that they were willing to do that. But again, it was just to preserve that small part of the year.

Again, they are trying to do the right thing. We've already got this closure in place. If we get into this, we're going to be forced into, okay fine, then they get the coastal limits. Starting on May 1, they are going to start fishing on the slot limit, 28-35, which

are now larger females that are females that are going up to spawn, and we're taking the spawning population out of the Hudson River. But again, leading up to that, we're not doing anything down in Raritan Bay. We're going to open that fishery, and they're going to be taking large females out of the stock that is going to try to come up the river. The original motion doesn't really, you know help out with catch and release for the Hudson River. It does the opposite of that. It's going in the direction where it's going to reduce the amount of spawning stock biomass you have. In any event, why I really think B1-a is the better way to go, because it gives all the states latitude to come up with tailoring their closure to their specific issue.

CHAIR GARY: Mike, I know you seconded it, you didn't want to add comment to that, right?

MR. LUISI: Well, I can, Mr. Chairman. I do agree with the concept of taking some action to address what I feel is the largest issue that we have, which is the dead discards in the recreational fishery. Requiring states to take this closure during a period of time when there is a reasonable amount of effort being place on it is something I certainly support.

Jim, I wonder if you would be willing to consider, so B1-a with a Sub-option a, so existing no targeting closures would fulfill the requirement. That would be something that I would be interested in, since we already have a two-week closure. We might not need to add to that and make it four weeks.

MR. GILMORE: Say that again, Mike.

MR. LUISI: B1-a and then in my notes here in the abbreviated options reference, there is a little section under there referring to Maryland and Potomac River Fisheries Commission, and the sub-option under that is the existing no targeting closures would fulfill B-1 requirements, or existing no targeting closures would not fulfill B1 requirements, and I would be interested in the first one.

MR. GILMORE: I'm not sure it gets us there, Mike. At this point, the trouble with this Addendum, there

are so many options to it. I don't know. At this point I'll say no, because I don't know if that is going to get us to where we need to get to. Again, I'm losing this fishery in the Hudson, and I think that still doesn't get us to where we need to be. Again, the impact of it is not only losing that fishery, it's then targeting large females, and that makes no sense to me.

CHAIR GARY: All right, so we've got Roy Miller online, then John McMurray, then John Clark.

MR. MILLER: I'm looking at Jim and Mike's substitute motion, and I'm not even sure that they address the same thing as the original motion. The original motion was specifically for spawning ground closures. This is something that Mike in particular is referencing their summer no targeting closure, which is designed to eliminate fishing mortality during the time of year when catch and release mortality can be expected to be at its highest, because of water temperature.

But they are doing the two different things. In my mind I can't substitute the one motion for the other motion, because this is not targeting the same thing. I appreciate Jim's problem, but I wish it wasn't a substitute position, I wish it was just a motion on its own.

CHAIR GARY: We'll go to John McMurray.

MR. McMURRAY: The original motion as Jim said, is something that will really affect New York specifically. The upper Hudson Valley is really their only access to striped bass as well, when they're spawning. I think the intent is good, but like Jim, I have to question whether or not any closure up there does much, given that they clearly get hammered before they go up there, and also on the way back.

But maybe before we go down this rabbit hole. I can't help but think that the larger question here is whether or not this type of seasonal closure even belongs in an amendment which is going to be around for 20 years, probably, if it's anything like Amendment 6 was, 90 percent of the fishery is

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catch and release, and it's pretty clear that effort not landings create the greatest social and economic benefits.

In view of that, reducing recreational effort should probably be a last resort and not a policy incorporated into an amendment. Closures could probably be better treated as a transient measure, better suited for an addendum that addresses a particular management issue, not a full amendment, which addresses a range of things.

I think I could even make the case that if we're going to consider no target closures or any closures, they should be considered in the rebuilding plan, not here. A rebuilding plan, well the intent is for it to have a relatively short life, and be superseded by more relaxed management measures once the stock has been rebuilt. But they probably don't belong in an amendment that may be in place for the next two decades.

MR. GARY: We're going to go to John Clark and then Matt Gates.

MR. CLARK: My question is more procedural. I was just wondering, we have a similar, not as severe problem as Jim has on the Hudson, but we already have a spawning closure on the Delaware and on the Nanticoke for April and May, which is not fitting with what the main motion is asking there.

I was just wondering, I mean I think at this point the Board could amend the main motion if it gets back to that to exempt existing spawning area closure programs, such as the ones that New York has on the Hudson and we have on the Delaware and the Nanticoke. Obviously, there are other ones up and down the coast, as seen in the Draft Amendment. Just wondering if that procedurally is possible, and if so if we could do something like that to amend, you know go back and amend the main motion if the substitute does not pass.

MS. FRANKE: Thanks, John, this is Emilie, and then I might turn to Toni. Yes, the Board could exempt certain areas from the B2-a requirement of no harvest in spawning areas for January through April,

or could adjust the timeframe, you know within the range of the option, which is January to April, so could adjust what the required timeframe is. But I'll turn to Toni if she has any thoughts on that.

MS. KERNS: It's the will of the Board of how you want to craft your motions. If the Board feels as though the crafting of the motion is within the scope of what went out for public comment, but the B2-a does specify it is Waves 1 and 2, which the Board would then have to decide if that is a two-week closure is providing the same, I guess positive impacts for spawning as the closures of Waves 1 and 2.

CHAIR GARY: John, did that help you?

MR. CLARK: Yes, I just think that you know I understand what Jim is getting at there, but I don't think that one works for most states, the substitute. If we can do something to encompass the programs that are already in effect right now, without affecting them, I think that would be the best way to go.

CHAIR GARY: Okay, we may come back to revisit that. We have, if I get this right. Well, we've got Matt Gates, then we've got Chris, and then Chris Wright. That's the queue, so go ahead, Matt.

MR. MATTHEW GATES: I can appreciate what Jim is trying to get at here, and to address his issue there in the Hudson. I think it is good to try to address the discard mortality issue. I think there may be sort of limited places where a two-week targeted closure might work. But I think in a lot of states and a lot of times, Connecticut for instance. I think if we tried to implement a two-week targeting closure, there would be no time of year I think that we could do that and still meet these requirements and have it be enforceable. I think just because it's not enforceable, I don't think I can support this substitute.

CHAIR GARY: We'll go to Chris Batsavage, then we have Chris Wright online, and then Pat Geer.

MR. BATSAVAGE: I don't support either the main or substitute motion. I have to agree with John

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McMurray. This is a pretty complicated issue when you look at the nature of the striped bass fishery along the entire coast. It's probably better addressed in a separate action later on, especially when we have a rebuilding plan and an updated stock assessment to get a better idea of what we need to do regarding fishing mortality.

I think in the not-so-distant future we may have some better information on what is the release mortality of striped bass with studies that are ongoing that could shed some more light, as far as what could be done. That way we can maybe develop the options in a different way, I guess, if need be. But I just don't know if what we have in this Amendment is ready for primetime yet.

CHAIR GARY: Over to Chris Wright on the webinar.

MR. WRIGHT: Yes, I don't know if the substitute is practical, and then I just wanted to mention that Option B2-a doesn't preclude the states from extending closures beyond April. I'm more in favor of the primary motion than the substitute. The substitute just doesn't seem like it would work across the board.

CHAIR GARY: We have Pat Geer.

MR. PAT GEER: I'm kind of torn between these two motions, because the first motion, the original motion would have zero effect on Virginia. We did away with our trophy fishery in 2019, as a result of Addendum VI. We were very proactive. We actually passed regulations prior to that being passed, and had them in place six months before the Addendum was passed.

Our spring season does not begin until May 16, so it has no impact on us at all. The alternative motion would have an impact, because about 90 percent of our harvest is in the fall, from October 4 through the end of the year, so that would have an impact on us. But if we're going to do something, if we want to have some real change, to me that would have some impact at least to my state.

CHAIR GARY: We have Ritchie White on the webinar, and then we'll go to Loren Lustig.

MR. G. RITCHIE WHITE: I guess I don't understand after we got the Law Enforcement report why we're looking at a targeting. If targeting is not enforceable, when would we ever put in something that we know will not work? I'm totally against the substitute, even though I understand the situation Jim is in, and that is a difficult one. But I'm against banning targeting, because it doesn't work.

CHAIR GARY: Loren.

MR. LOREN W. LUSTIG: I'm still thinking about what Jim Gilmore said about five minutes ago, and I believe Jim, you used the euphemistic term, common sense or lack thereof. It had the ring of truth as you described it, and I'm wondering how many of the anglers out there in the Hudson would come to your conclusion, and scratch their head and say what in the world is going on? I'm trying to find a way to support what you were speaking about there, Jim. I thank you for that.

CHAIR GARY: We have Joe Cimino, Jim Gilmore, and then John McMurray.

MR. CIMINO: Yes, I think Jim said something else that was pretty important, that if there is a regulation in place there is some amount of individuals, even if it's 50 percent not 80 percent that once they know about this they are going to comply. Isn't that important? I mean Law Enforcement gave us their opinion on what they can do about it.

But if we're trying to change angler behavior, then that is an entirely different question. I don't see how that can be myth. But with all that said, perhaps unfortunately, I think I'm in the same boat as Chris Batsavage, and I think with all that we've gone through with this, we still may need to take more time and do this at another time.

CHAIR GARY: Okay, I've got three people in queue, and I feel like we're starting to hear some repetition. But I know it's a serious subject, so I'm

going to make sure, especially Jim and John, who are New York folks who have the substitute up get their say in. David Borden is queued, so that's three. Is there somebody else who has not spoken to this that would like to speak to it? Thank you, Mike. We're going to wrap with Mike, so we've got four speakers. Go ahead, Jim Gilmore.

MR. GILMORE: To respond to Ritchie White's comment on the phone. The only reason this, we didn't have other options, so this was probably the best of the other options we had, so that's why I put this up. The understanding, you know what Pat said, it's got impacts in other places. If there is an option, and I'm not sure Toni said this all right.

But if we could go back to the main motion, and we could put in a qualifier that spawning areas that already have some sort of protection existing, that we could put that caveat in. I think that would fix the problem, if that is allowable. But then now we're into this option of maybe we'll table this whole thing. I think we've got two things, so B1-a again was not a thriller for me either, but it was one of the few options I had, so that's why it's up there. If we can go to one of those other alternatives maybe we can get out of this.

CHAIR GARY: Go ahead, John McMurray.

MR. McMURRAY: I seriously doubt we're going to see anything close to an 80 percent compliance rate with no target closures. People are going to fish, period. That is not why I raised my hand. I wanted to comment on Chris's comments about this not being ready for prime time, the closer section anyway.

We still don't even have spawning area maps. The public doesn't know what this is going to look like. I don't know what it's going to look like. Second, how on earth are we expected to time these two weeks? We don't know when stripers are going to be up there spawning. I mean I'm not familiar with the science.

But I'm pretty sure it has more to do with water temperatures and environmental factors than you

know a specific time of the year. I don't really see the utility here, and frankly, I don't see the need to have this entire section on closures in the document at this point. It's a last resort, I think. It's not something that we need to consider now.

CHAIR GARY: Okay, so, I think I've got this straight. We have the last three speakers, Mike Armstrong, David Borden and Kris Kuhn wanted to talk, so we're going to leave it there. That's where we're going to wrap. Mike, you're up.

DR. ARMSTRONG: I just want to speak because I was the seconder. I certainly don't support the substitute. There was no public support whatsoever for that kind of thing. I'm having doubts about the main motion also. Having listened to Jim. I came in not really understanding what closures were in place, and restrictions that we have. As Chris said, I don't think this is ready for prime time, I think we should move on from closures right now, seasonal closures.

CHAIR GARY: We'll go to David Borden then finish with Kris Kuhn.

MR. BORDEN: I totally support the concept of taking action to reduce discard, so I don't want anybody to misinterpret what I'm about to say. I think it is critical to do that to rebuild the striped bass stock. That said, I'm basically fall into the camp where I'm opposed to the substitute motion and the more this discussion has gone on, I'm finding myself in opposition to B2, because I just don't have a feeling that we're going to resolve the issue and come up with a serious alternative that's going to have meaningful impacts on the problem. My thinking is kind of in line with what Chris said. I think we would be better off keeping status quo, keep the circle hook regulation in place, but then commit in the form of forming a subcommittee to work on this with the intent of enfolding this into the rebuilding amendment, as a specific action. But I think we need some really serious, well thought out, enforceable provisions if we're going to do that. That would be my preference.

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CHAIR GARY: Kris, you have the last word.

MR. KRIS KUHN: I've had my hand up a couple times, so I'm going to apologize if I'm making some repetitive comments here. I just want to say, you know I've gone back and forth with this in my mind, as well as some of the others are, as we discuss these two options before us. I wanted to point out that there is a lot of similarities with the Pennsylvania fishery in the Delaware estuary and river as to what Jim Gilmore is describing.

Pennsylvania has taken measures to protect the large fish in the system, and the nuances of the fishery in Pennsylvania may be even more produced than New York's in that it's a very tight window for when those fish are available to recreational anglers, and that is April and May. Pennsylvania under Addendum VI to Amendment 6, had enacted a conservation equivalency proposal that restricted harvest from 21 to less than 24 inches.

That is such a narrow window, and focuses the harvest on the small males, and I fail to see how a closure in that area, a harvest closure in Pennsylvania waters would have any type of significant effect. I like what John Clark had mentioned and Jim Gilmore and some others around the room, potentially. If we could get back to the main motion where we could exempt certain areas that have those unique characteristics, I would be supportive of that.

CHAIR GARY: Thank you, Chris, I think Bob would like to add some comments.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Just a process question, not commenting in favor or in opposition of either motion. But just so everyone is aware. If the Board chose to vote down both of these motions, and we get to October or November and the stock assessment indicates additional reductions are needed.

The fact that these were voted down today does not preclude the Board from considering seasonal closures as part of the reaction to the stock assessment later this year. I wanted to make sure

everyone knew; you know voting these down doesn't hamstring them later for reduced flexibility later.

CHAIR GARY: Thank you, Bob, I think that might be actually pretty helpful to this conversation. Thanks to everyone for a pretty spirited discussion on this. We'll go ahead and call the question. We have the substitute on the board right now, go ahead and caucus, is there a need for a caucus? I'm thinking there might be. We'll make it a two-minute caucus. Jim, did you have a question?

MR. GILMORE: Just a quick comment. Just so everyone is clear on the Board that I am not turning into Pat Augustine when I vote against my own motion.

CHAIR GARY: Okay. Having caucused, let's go ahead and call the question. This is move to substitute Option B1-a, all recreational targeting prohibited for a minimum two weeks during a wave with at least 15 % of striped bass directed trips. Motion by Mr. Gilmore, seconded by Mr. Luisi. All in favor, please raise your hands. Nobody on the webinar. All opposed raise your hands.

**MS. KERNS: Can I just say on the record that of the full Board, all 16 are opposed.**

**CHAIR GARY: Emilie, it looks like the vote is 16 opposed, there are no nulls, no abstentions.**

We're back to the main motion. Are we ready? **We're back to the main motion in Section 4.2.2, move to approve Option B2, a no-harvest spawning closure required. Motion by Ms. Ware, a second by Dr. Armstrong.** Is there a need to caucus, anybody? No hands up. We'll call the question. All those in favor, please raise your hand.

MS. KERNS: I have Maine, U.S. Fish and Wildlife Service, Rhode Island and NOAA Fisheries.

CHAIR GARY: All those opposed, please raise your hand.

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MS. KERNS: Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, North Carolina, Virginia, Maryland, Delaware, Potomac River Fisheries Commission, and New Hampshire.

CHAIR GARY: Any abstentions?

MS. KERNS: District of Columbia.

CHAIR GARY: Any null votes? None.

**MS. FRANKE: Mr. Chairman, we have 4 in favor, 11 opposed and 1 abstention.**

**CHAIR GARY: Motion fails.** We are back to the discussion of Section 4.2.2 having that spirited debate. I guess I would ask if there is any additional advocacy for any of the other options. Emilie, question. We have in place Option A. We don't necessarily have to adopt that or vote for it, right?

MS. FRANKE: I would turn to Toni on that.

MS. KERNS: You do not have to approve an option that is already within the management plan.

CHAIR GARY: Just asking. Is there advocacy for anything else? I see John Clark's hand up. Go ahead, John.

MR. CLARK: Yes, now hopefully this will be a low hanging fruit. Move to prohibit gaffs as a method for handling striped bass. What would the proper wording be here? Let's see, move to prohibit gaffs. I just want to make sure it's worded the way that Law Enforcement. Oh, there we go. That makes life so much easier. **In Section 4.2.2, move to approve a modified option C1: It shall be unlawful for any person to gaff or attempt to gaff any striped bass any time when fishing recreationally.**

CHAIR GARY: All right, so we have a motion by John Clark, and Dennis Abbott has the second on that. All right, any discussion on that? Okay, that was quick, the exact opposite. I guess we can go ahead and call that question. Does anybody need to caucus? I've learned I need to ask that question, because it happened a couple times. All right, we'll go ahead and call the question. John read that into

the record, all in favor of this motion raise your hand.

MS. KERNS: All right, Rhode Island, Massachusetts, Connecticut, New York, New Jersey, U.S. Fish and Wildlife Service, Pennsylvania, North Carolina, Virginia, District of Columbia, Maryland, Delaware, Maine, New Hampshire, NOAA Fisheries and Potomac River Fisheries Commission.

**CHAIR GARY: I believe that is 16, so there are no nulls no abstentions.**

**MS. FRANKE: Yes, Mr. Chair, that is 16 in favor.**

CHAIR GARY: Thank you, Emilie. All right, still in Section 4.2.2. I'll ask the Board again, any of the other options in this section of the document? Does anyone wish to put a motion on the floor? John.

MR. CLARK: Not so much make a motion. Just based on the discussion before, can we bring back seasonal closures at a later time? Is that something? I believe Bob was saying that it's possible.

CHAIR GARY: Go ahead, Bob.

EXECUTIVE DIRECTOR BEAL: John, are you asking about during this meeting for the final approval of the Amendment, or at a later time such as once the new stock assessment is available?

MR. CLARK: I would think the latter, just because based on the previous discussion, it sounds like the options we gave ourselves here are causing a lot of heartburn.

EXECUTIVE DIRECTOR BEAL: Yes, then the short answer is yes. You can bring those back once we get the new stock assessment information.

MR. CLARK: Do we need to make a motion to that effect, or can we just?

EXECUTIVE DIRECTOR BEAL: No, I think the record is very clear on the intent to do that. The interest in

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perfecting those was pretty clear over the last 45 minutes or so.

CHAIR GARY: I guess one last call for this section of the document 4.2.2. Any of these other options would anybody like to see? Okay, we have Roy Miller on the webinar. Go ahead, Roy.

**MR. MILLER: Mr. Chair, I would like to move to accept Option D2 for outreach and education that is recommended outreach.**

CHAIR GARY: Roy, you said Option D2, is that correct?

MR. MILLER: Yes.

CHAIR GARY: Okay, we're just getting that up on the screen now. All right everybody, I'll go ahead and read this in, since you're over the webinar. It's move to accept Option D2 from Section 4.2.2, Recommended Outreach and Education. Motion by Mr. Miller. Is there a second to this motion? Loren Lustig. Roy, do you want to comment on your motion?

MR. MILLER: I'm not a big fan of required outreach. I think we all know what our capabilities are and what the best things we can do. I think it's mostly hard to define if we had a requirement for that (faded).

CHAIR GARY: Okay, thank you, Roy. Loren, did you want to add to that?

MR. LUSTIG: Yes, Mr. Chair. I certainly appreciate the implications of enhanced education. I don't know exactly how that could be achieved, but it's worth trying, so that is the reason for my second.

CHAIR GARY: All right, thank you, Loren. All right, so let's try this this way. **Is there anyone in opposition of this motion? Anyone Katie on the webinar? I wouldn't think. No opposition, so this motion passes by consent.** Thank you, Roy and Loren. I will just to do due diligence, since Roy put that up. I'll ask one more time, Section 4.2.2 before we move out of this section of the document, is

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there any other items. We have Jim Gilmore's hand up.

MR. GILMORE: Actually, not a new item, but just a recommendation for that last thing, and completely support it. But if all the states are going to go back and do some sort of effort on this, it might be really efficient. Recently we've done some videos on how to use tautog tagging or whatever. It might be something that we could do collectively, and make it a little bit easier to implement and less work for each state. I would be more than willing to help out with that.

CHAIR GARY: Okay, I appreciate that, Jim, that's a nice overture. Chris Batsavage, go ahead.

**MR. BATSAVAGE: I have one more. Move to approve Option C2, Striped bass caught on any unapproved method of take would be returned to the water immediately without unnecessary injury.**

CHAIR GARY: Thank you, Chris, we'll get that up on the board and then look for a second. All right, so we have the motion up. It's a motion by Chris Batsavage. Do we have a second to this motion? Matt Gates. Go ahead, Chris, you wanted to speak to your motion.

MR. BATSAVAGE: Yes, I think we heard from the Law Enforcement Committee that this helps the enforcement of the existing circle hook regulations for using natural bait. We have these measures already in place in North Carolina for our circle hook regulations. It just makes it a little clearer, as far as what's allowed and what's not, when it comes to using natural bait and you catch a striped bass.

CHAIR GARY: Matt, did you want to expand on that?

MR. GATES: I don't have anything to add to that.

CHAIR GARY: We have a motion on the floor, any discussion on this motion? Not seeing any hands raised, Katie, anybody on the webinar? Tom Fote.

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MR. FOTE: I was going to try and keep quiet on it. I always think, I've got a Governor's Surf Fishing Tournament coming up May 15, and it's going to have 4 or 500 kids on the beach fishing for things. I think they're fishing mullet rigs; they're fishing for summer flounder; they're fishing for striped bass. Fishing for anything they can catch, and those rigs are all differently.

I've got a ten-year-old kid that catches a 10-pound striped bass or a 15-pound striped bass, and I'm going to tell him he's got to release it. Now we have judges on the beach that do catch and release, so we're riding up and down. I have 25 judges going up in Island Beach State Park I'm running up and down. But the kid has got to hold the fish until we get there to judge it, then put it back in the water. I don't know. I have a problem with this, because if you're going fishing for striped bass, you are only allowed to keep one fish anyway.

Even if you're fishing for one fish from the beach, you are catching one fish, and then you basically do it. Does it really make that much difference whether it's on a J-hook or the fish is going to be kept? I'm saying that is your one fish you're going to keep, so you can't keep any more fish.

I think we're getting too particular here. We allowed for all kinds of crazy rigs that I never heard of to be exempted from this fish, because they were worm rigs or something else like that which we don't use in New Jersey. But I know we use mullet rigs, and we've used that historically for 20 years, where we put a mullet on a thing with two hooks, two hooks like this and not a circle hook, and it's the way it works effectively. Anyway, I have a concern over that.

CHAIR GARY: Dan Ryan.

MR. DANIEL RYAN: Thank you, Marty. I was over here cringing like Tom was. I wasn't going to say anything. But I actually can't support this, just because of the unique situation that we find ourselves in, in the district. We voluntarily protect the spawning stock; we don't open our season until

May 16. When we do, it's targeting small males, because that is all that's left.

This would effectively prevent a young urban youth fishing with a bobber and a night crawler from potentially keeping a 19-inch striped bass. I can't see the benefit of that for us. I understand that it's different for other jurisdictions, but because of our unique situation I won't be able to support this.

CHAIR GARY: Thank you, Danny. Any other discussion on this? We have Bill Hyatt on the webinar. Go ahead, Bill.

MR. HYATT: Just a question. Am I recollecting correctly that previously the Commission has endorsed this as a recommendation as it pertains to circle hooks? That is my question. Then secondarily, I mean angler education programs, one of their missions is to try to educate young anglers about the conservation consequences of the rules that apply to the sport.

While I recognize that there is some angst in having a youth have to release a fish that they have caught, simply because of the gear that they have caught it on. I tend to look at it as a learning experience, and I think in our state, our years of experience with angler education programs bear that out.

MS. FRANKE: This is Emilie. To answer your question, Bill, yes. This language is currently a recommendation as part of Addendum VI.

MR. HYATT: Given that, I think it's a logical step to, given the striped bass stock and given the support for this amongst the public to move it from a recommendation to a requirement.

CHAIR GARY: I see Tom has his hand up again. Before we go any further, I was kind of struck by what Danny Ryan said, and I wanted to ask Kurt Blanchard if he had any thoughts. I mean, I just want to make sure you are in concurrence.

DEPUTY CHIEF BLANCHARD: The discussion we're having right now is identical to the discussion we had on circle hooks. Tom's comments are almost

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identical to that, a little different scenario but very similar. Law Enforcement spoke to that at that time. We have implemented a mandatory compliance measure of circle hooks.

What you're saying is you're endorsing somebody taking a fish outside the bounds of a compliance measure. This is a perfect, in my opinion, this is law enforcement speaking, not managers, perfect, perfect teachable moment for a young kid about why you're returning that fish back to the water.

CHAIR GARY: Tom Fote.

MR. FOTE: Well, let me talk about the old kid, the old guy fishing from a dock and pier that has been fishing for blackfish because it was something else to take home to eat that day, and he hooks a striped bass and he hooks it on a blackfish hook. This is what I call environmental justice. We put these people out of the fishery, because we raised the size limit, where they are basically eliminated from fisheries unless you have a boat or something.

Now we're telling that guy that's maybe sat there every day trying to bring a fish home to eat, finally catches a striped bass, and we're going to tell him to release it. I understand the problems, but I also understand, I mean NOAA just put out a release today, and I've been yelling about MAFAC, what are we going to do about environmental justice, because that is supposed to be NOAA's new look. We basically make regulations all the time that disadvantage the poor, disadvantage the people that fish from docks and piers.

I've said this, and it's not getting anything new. I've been saying that for 35 years that I've been sitting around this table, and this is one of the perfect examples still. You know the guy throwing out a plug that had 6 treble hooks on it, is he doing more damage on the fish than the guy that is basically fishing for black fish and actually hits it from a J-hook?

Now we think we're doing great things, but let's be honest. All you're basically trolling an umbrella rig that's got all these hooks, and then you're dragging

it through the water, because you don't want to slow the boat down, because you're afraid that it's going to tangle on the bottom or something, so you're dragging them against the current and everything else. Sometimes you've got to use commonsense.

CHAIR GARY: Dennis Abbott.

MR. ABBOTT: I don't really, let's say I don't care about this a whole lot. I'm not concerned whether it passes or not. But a question for Kurt. Do you have a list of approved and unapproved methods of take for striped bass?

DEPUTY CHIEF BLANCHARD: I would say we do, in the respect of what we've identified, as far as circle hooks and those provisions. Outside of that I'm not aware of any.

CHAIR GARY: Any last thoughts before we call the question? Danny.

MR. RYAN: Just a follow up. I really appreciate the comments from Law Enforcement representative. But again, the situation that I find myself in as a bass tournament angler can be in the district using a bass lure, and that is a legal lure for catching rockfish during the season. The only impact that this would have for me in my jurisdiction would be to challenge an underserved community to potentially release a good catch.

I don't think this is circumventing the intent of the law. I think I need to try to stick up for those folks who are underserved, and those anglers that wouldn't lose the messaging of conservation, but they might be attracted to something that they would participate in for years to come.

CHAIR GARY: I would like to go ahead and call the question, if that's okay with the Board, but I would also like to have a two-minute caucus. Okay, we're going to go ahead and call the question. Toni, if you're ready. All those in favor please raise your hand.

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MS. KERNS: New Hampshire, Maine, Delaware, Virginia, North Carolina, Pennsylvania, U.S. Fish and Wildlife Service, New York, Connecticut, Massachusetts, Rhode Island and NOAA Fisheries.

CHAIR GARY: All those opposed raise your hand.

MS. KERNS: Maryland, District of Columbia, Potomac River Fisheries Commission.

CHAIR GARY: Are there any abstentions? Null votes.

MS. KERNS: New Jersey.

**MS. FRANKE: Thank you, Mr. Chair, I have 12 in favor, 3 opposed and 1 null.**

**CHAIR GARY: Thank you, Emilie, the motion carries.** We're back to the document, and we keep getting hands to go up, which is fine, so we're in Section 4.2.2 and we're not going to leave until we don't see hands up any more. I'll ask again, any other options that Board members would like to put out on the floor for a motion?

That might be it. Anybody on the webinar, Katie? No, okay. All right then, I think we have finished and completed 4.2.2. Our next section is going to be Conservation Equivalency. Section 4.6.2. What I would like to do is take a short five-minute break, but before you all get up and leave, I just want to set some expectations for how we would like to handle this going forward.

The day is getting later, we've done a pretty good job, I think moving through this. But this could be a difficult section, so I'm going to employ some of our typical strategies for and against, some things to kind of channel this discussion as productively as we possibly can. Go ahead and take a five-minute break. Maya, if you could set the clock we'll come back and start our Conservation Equivalency discussion. Thank you.

(Whereupon a recess was taken.)

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CHAIR GARY: All right, thank you everyone for your patience. We're going to go ahead and reconvene the Striped Bass Management Board. We are now into Section 4.6.2, Management Program Equivalency Conservation Equivalency, and Emilie, per our usual strategy, I'm going to go ahead and turn this over to you for your presentation.

### CONSERVATION EQUIVALENCY

MS. FRANKE: This is the final section with proposed management options, Section 4.6.2 Conservation Equivalency. For the statement of the problem, there is value in allowing states to implement alternative regulations based on the needs of their fisheries, but there are some challenges that have been identified.

This does create regulatory inconsistency among states and within shared waterbodies, and it's also difficult to evaluate the effectiveness of CE programs after they are implemented. There have been some concerns that some alternative measures implemented through CE could potentially undermine management objectives, and finally there has been limited guidance on how and when CE should be pursued, and how equivalency is defined.

The options in this section consider whether to adopt new default restrictions or requirements for the use of conservation equivalency. Option A is the status quo, which is Board discretion on how to use CE, and then Options B through E consider different types of restrictions or requirements. The Board can select sub-options under some, all or none of the option categories B through E for these potential restrictions or requirements. If a sub-option is not selected under an option category, then status quo for discretion remains in place for that particular issue. For example, if the Board doesn't select a specific PSE limit under Option C, then the PSE limit remains at the Board's discretion going forward.

I'll start out with Option A. Again, this is the status quo, where the Board has final discretion regarding the use of CE and the approval of CE programs. The

Board can decide to restrict the use of CE at any time for any FMP requirement. Moving into Option B. Option B considers default restrictions on the use of CE for certain fisheries, depending on stock status.

The Board could choose either B1-a or B1-b. B1-a would not allow CE if the stock is overfished, or B1-b would now allow CE if the stock is below the spawning stock biomass target. The Board could also or instead select Option B1-c, which would not allow CE if overfishing is occurring.

At a minimum, any of these restrictions selected under B1 would by default apply to non-quota managed recreational fisheries, except for the Hudson River, the Delaware River, and the Delaware Bay recreational fisheries. As a reminder, currently existing CE programs would remain in place until the Board takes action to change those FMP standards.

Currently existing CE programs from Addendum VI would remain in place until measures are changed. This next set of sub-options, B2 considers which fisheries those B1 stock status restrictions would apply to. Again, at a minimum the B1 stock status restrictions would by default apply to non-quota managed recreational fisheries, except for the Hudson River, the Delaware River and the Delaware Bay recreational fisheries.

Under this Option B2, the Board could also choose to extend those CE restrictions to one or more of the following. The Board could choose to extend those restrictions to the Hudson River, the Delaware Bay, and the Delaware River fisheries. The Board could choose to extend those restrictions to quota managed recreational fisheries, which would be the recreational bonus programs, and/or the Board could choose to extend restrictions to apply to the commercial fisheries.

The next set of sub-options, Option C would establish default precision standards for MRIP data used in CE proposals. These options are based on the PSE, the percent standard error associated with MRIP estimates. The higher PSE means that the MRIP data are less precise. These options would

not allow MRIP data to be used if they have a PSE over 50 for C1, over 40 for C2, or over 30 for C3. Thirty here would be the most restrictive option.

The next set of sub-options, Option D would establish a default uncertainty buffer for CE proposals for non-quota managed fisheries. An uncertainty buffer is intended to increase the probability that CE measures would achieve equivalency with the coastwide measure. Option D1 would require an uncertainty buffer of 10 percent for non-quota managed fisheries.

D2 would require a buffer of 25 percent, and D3 would require a buffer of 50 percent. For example, if a 20 percent reduction is required and there is a 10 percent uncertainty buffer, CE proposals would need to add on that buffer of 2 percent in this case, to demonstrate a total 22 percent reduction.

Then finally, Option E in this section considers establishing a default definition of what equivalency means for CE proposals for non-quota managed fisheries. Proposed CE programs would have to demonstrate equivalency to either E1, which is the percent reduction or liberalization projected at the coastwide level.

For example, this was the requirement for Addendum VI that each state was required to demonstrate equivalency to that 18 percent reduction, or under Option E2, proposals would have to show equivalency to the percent reduction projected at the state level, which would be that states piece of the overall reductions.

For a hypothetical example for Option E. Let's say we have management measure X, that is projected to achieve a 20 percent reduction coastwide. State A's piece of that reduction might be 25 percent and State B's piece might be 10 percent. Under Option E1, states submitting CE would have to show equivalency to that coastwide projected reduction of 20 percent, and under E2, states would have to use their state-specific projection. State A would have to show a 25 percent reduction for their CE proposal, and State B would have to show a 10 percent reduction.

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Moving into the public comments, most comments supported the category Option B, which is restricting the use of CE based on stock status. There were also comments in support of Option C, D, and E restrictions, and those in favor of restricting CE noted concerns about how CE has been used in the past, and the high uncertainty.

Some comments supported removing CE entirely from the management plan. Then those in favor of Board discretion, which is Option A, noted the importance of CE to address the unique needs of different states and regions and sectors to make management feasible. Moving in to the Advisory Panel input. Eight AP members supported Option A, which is that Board discretion, noting that maintaining that flexibility for states to address unique conditions is important, and that CE is essential to make management feasible with those different and unique conditions.

Those AP members also noted that CE in the Bay has been successful in increasing protection through the summer closures when the striped bass habitat is limited, and that some CE programs can reduce recreational release mortality by allowing for different size limits and fewer discards. Moving into the Option B comments specifically. There was most support for Option B1-a, not allowing CE if the stock is overfished, and some comments also favored B1-c, not allowing CE if the stock is experiencing overfishing.

Again, those types of restrictions would apply to non-quota managed recreational fisheries, except for the Hudson River, the Delaware River and the Delaware Bay. There were relatively few comments overall that supported extending those restrictions. Of those that did comment on that, most of those comments supported extending restrictions to recreational bonus programs, Option B2-b. As far as the Advisory Panel input, 3 AP members support B1-a, no CE if the stock is overfished. Two AP members support B1-c, no CE if overfishing is occurring. They noted the risk of CE should not be taken when the stock is in poor condition. One AP member commented specifically against B1-c,

noting that the overfishing threshold should not be used as a basis for restricting CE, due to the uncertainty with MRIP data.

The two AP members noted support for extending stock status restrictions to the Hudson River, Delaware Bay and Delaware River fisheries. For the PSE standard for MRIP data used in CE proposals, most comments favored the most restrictive PSE limit of 30, and many commenters noted the need to align with NOAA guidance on MRIP PSE levels.

For Option D, which is the uncertainty buffers for non-quota managed recreational fisheries, most comments favored the 25 percent buffer, B2. There were also some comments supporting either the 10 percent or the 50 percent buffers. Then for the definition of equivalency for non-quota managed recreational fisheries.

Most comments favored using the state-specific projection for CE proposals E2, noting the importance of accountability and concern about Addendum VI programs that were based off the coastwide projected reduction. Then finally, Advisory Panel input. Two AP members supported Option C2, which would be a PSE limit of 40. Noting that although MRIP data have some level of imprecision, they are the only data available to use, so the restrictive 30 PSE limit would be too restrictive.

Three AP members support Option C3, that PSE limit of 30, noting that that uncertainty should be minimized, and to align with NOAA's guidance. For uncertainty buffers, 3 AP members support Option B2, the uncertainty buffer of 25 percent, noting that the middle 25 percent is the right option, 50 percent would be unnecessary, but 10 percent would not be enough.

Two AP members support Option D1, which is that 10 percent buffer, noting that ideally the buffer would be somewhere between 10 and 25, but 10 would be the supported option here. Then for defining equivalency, 2 AP members support Option E2. CE proposals would have to demonstrate equivalency to the state-specific projection, noting

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that states should be responsible for their state-specific projected reduction. Mr. Chair, that's all I have. I am happy to take questions.

CHAIR GARY: Thank you, Emily, for your presentation. We'll turn it back to the Board for questions for Emilie on Section 4.6.2. Jason McNamee.

DR. McNAMEE: I think it's pretty explicit, but I just want to make sure. For Option E, I'll just kind of state this in potentially an unkind way. But this sort of gets away from the "choose your own adventure" version of, I pick the coastwide or I can pick something different, sort of like what we did during, I guess it was Addendum VI. Both of these would not allow that in either direction. I'll just leave it there. Hopefully my question makes some sense. I think it's to Emilie.

MS. FRANKE: Thanks for that question. Right, so Option E would put in a default requirement of which projected reduction states would need to use for their proposal. They wouldn't be able to choose. They would either have to go with the coastwide projection, as was used for Addendum VI, for example, or they would have to use the state-specific projected reduction. There is no choice. It would be either or.

CHAIR GARY: John Clark.

MR. CLARK: Thank you for the presentation, Emilie. I just wanted to check again, this is on B2, applicability. If something is chosen with B1, does anything need to be chosen for B2, or could a motion just include the restriction would be, for example, no CE if stock is overfished for example, but in terms of applicability the existing CE programs would continue as is, unless one of those applicability options is chosen. Correct?

MS. FRANKE: Right, so the Board does not need to select. You know if they select an option under B1, stock status restrictions, the Board does not need to select an option under B2, unless they wanted to extend those restrictions beyond the non-quota managed recreational fisheries, except for the

Hudson, Delaware River and Delaware Bay. The Board can select an option under B1, and not choose to extend those restrictions any further than the default.

CHAIR GARY: Does that answer your question, John, thank you. Thanks, Emilie. Next, we have Joe Cimino.

MR. CIMINO: I know a tremendous amount of work went into this. I'm curious about the precision standards, I've been looking into it a bit, and paying attention to MRIP for a long time. Did you look into it all like, I guess how much of the harvest is impacted by this, because not surprisingly, you get better precision in really high harvest times, where there is a lot of intercepts.

It's not hard for Maryland, Massachusetts or New Jersey to have waves that will be well within these precision standards. It would be prohibitive for smaller harvest times, when this may be most appropriate to try CE stuff. Was it looked at all and like kind of where and when the precision standards would impact management?

MS. FRANKE: No, there was no specific analysis as to what parts of management would be most affected by the precision standard limits.

CHAIR GARY: Any other questions for Emilie? Jason.

DR. McNAMEE: Just a quick math question. For the buffers, I think the way in the example that was offered, the 10 percent buffer is applied to the 20 percent reduction, so it's 0.2 times 0.1 is where the extra 2 percent comes from. Is that how that works?

MS. FRANKE: Yes, exactly.

DR. McNAMEE: Okay, thank you.

CHAIR GARY: All right, any additional questions for Emilie? Any online, Katie that are asking? No hands up there. Okay, so thank you, Emilie. Similar to the last section, the Board doesn't have to choose any

of these, or they could choose multiple options. We have Option A, the status quo.

I guess I would be looking again to the Board to see if we could advance advocacy for an option and get it out there for discussion, and go from there. If anybody has, Mike, you have your hand up. All right, Mike Armstrong.

DR. ARMSTRONG: Yes, I would love to do an omnibus one that gets it all done at once, but I think we need to do it piecemeal. This just deals with the first part. **Move to approve in Section 4.6.2 Options B1-a and B1-c: CE programs would not be approved when the stock is overfished and CE programs would not be approved when overfishing is occurring. These restrictions apply to non-quota managed recreational fishery, with the exception of the Hudson River, Delaware River, and Delaware Bay recreational fisheries.** If I get a second, I'll explain a little bit of it.

CHAIR GARY: Is there a second to Dr. Armstrong's motion? I have John McMurray. Go ahead, Mike, you want to expand on your rationale.

DR. ARMSTRONG: Actually, I don't really need to explain. I think it stands on its own. I think there isn't an awful lot of uncertainty, no matter how we craft it with CE, and our rules potentially become less effective. When things are dire and overfished or in an overfishing state, I think we should all be held to the same standard and move forward until the stock gets healthy.

CHAIR GARY: John, did you want to add to that?

MR. McMURRAY: Just that it's good policy to assume the sort of risk involved when you have a stock that is clearly in trouble. I think we've heard more than enough about how conservation equivalency and MRIP when it's used in such a small level is less precise, and we're assuming more risk.

CHAIR GARY: We have a motion on the floor, and I'll open it up to the Board for discussion. Joe Cimino.

MR. CIMINO: You know I don't necessarily disagree with what John just said. I mean there is a difference between risk and uncertainty, and we're dealing with uncertainty and probably the most prudent way is to treat it as risk. I support this B1-a with not allowing CE when the stock is overfished, but I think overfishing is a little bit of a stretch.

I think also that you know we're going to see a failure in overall reductions where we're preventing harvest but increasing dead discards to the extent that we're not achieving the reductions that we're attempting. Perhaps, you know it's been said here that we can't change angler behavior. One of the only things that we may be able to do then is possible CE programs that figure out a way to deal with it. I would prefer to leave that option open. I'm curious to see if something else comes up. But I think I would have to vote against this.

CHAIR GARY: I think I mentioned this. But I think given we're getting later in the day, I want to try to optimize our efficiency as best we can, and so one of those tools of course is for and against, alternating. Joe just spoke, I think against that so I would like to hear an option if somebody is in support of this, they have the comment. Go ahead, Megan.

MS. WARE: Yes, I'm going to support the motion. I think just to clarify. I'm understanding that this isn't choosing any of the B2 options, if I'm reading that correct, which I agree with at this point. You know I do think there is a bit of a crisis of confidence in the public's opinion on CE, and I think that this motion will work to improve the public's confidence in our management of striped bass particularly when the stock is not in good condition, so I'm going to support this motion.

CHAIR GARY: I'll switch to the opposition side, any other folks opposed to this motion would like to comment. Mike Luisi.

MR. LUISI: I'm kind of onboard with what Joe said. I think I can support B1-a when the stock is in poor shape, but if the stock is healthier, and we have an assessment that comes out with we're overfishing

in one particular year. I just find that that, in my mind it's a little too restrictive. I'm kind of with Joe. If we took out the B1-c and just left it at B1-a I could support it.

CHAIR GARY: Any other advocates for the motion? Once it starts getting repetitive, I think we need to decide whether we're going to vote for this motion or amend it. If you want to follow Mike's pathway. But any others in favor of this motion that want to speak to it somewhat differently than Megan and Mike have. It seems pretty straightforward. Any other folks opposed to the motion that have a different perspective they want to share? Go ahead, John.

**MR. CLARK: Well, just for the sake of discussion, and after hearing Joe and Mike, I think what they said makes a lot of sense, so I would just move to amend it to remove B1-c. Wait, is that the right one? Yes, B1-c from the motion.**

CHAIR GARY: The motion is to amend to remove B1-c by John Clark, is there a second to this motion? Tom Fote. John, do you want to expand the rationale?

MR. CLARK: Well, I think Joe and Mike explained it pretty well, and I agree with them. I think that the overfished definitely there, but the overfishing because of the way the data comes in, at times could make this very difficult for states that have relied on CE in the past.

CHAIR GARY: Tom, did you want to add to that? Fine, okay. Open this amended motion to the floor. Any comments, any discussion from the Board on this amended motion? Katie, is there anybody online? No, okay we're good. No too much comment on this. Well, we can call the question then. How about a two-minute caucus.

All right, folks, we'll go ahead and call this question. Before I do that though, I want to make sure we read this into the record. The motion on the table right now is move to amend to remove B1-c and CE programs would not be approved when overfishing is occurring. Motion is by Mr. Clark and it was

seconded by Mr. Fote. We'll go ahead and call the question. All those in favor please raise your hands.

MS. KERNS: New Jersey, Pennsylvania, North Carolina, Virginia, District of Columbia, Maryland, Delaware, Potomac River Fisheries Commission.

CHAIR GARY: All those opposed raise their hands.

MS. KERNS: Rhode Island, Massachusetts, Connecticut, New York, NOAA Fisheries, Maine, and New Hampshire.

CHAIR GARY: Any null votes? Any abstentions?

EXECUTIVE DIRECTOR BEAL: I got 8 in favor, 7 in opposition. But I think the total votes around the table are 16, so some jurisdiction may not have voted.

MS. KERNS: That is correct.

CHAIR GARY: Okay, the vote is 8 in favor 7 opposed. The Amendment passes and we modify the main motion, right? Take your time, Maya.

DR. ARMSTRONG: Point of order.

MS. KERNS: Yes.

DR. ARMSTRONG: Could we do a roll call? We seem to be missing a vote, right?

MS. KERNS: Fish and Wildlife Service did not vote.

CHAIR GARY: While we're waiting for Maya, go ahead, Senator Miramant.

SENATOR MIRAMANT: Just checking, because I haven't run into this yet here that if you're at the table you have the option not to vote, as opposed to being part of the categories that are noted at every vote?

CHAIR GARY: Go to Bob.

EXECUTIVE DIRECTOR BEAL: You know that has happened in the past. Jurisdictions are at the table and they decide not to vote or register an

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abstention or anything. We haven't obligated anyone to take action. We don't have a procedure on it, I could just talk about how the practice has occurred in the past.

CHAIR GARY: Okay, so we have the modified motion. Move to approve in Section 4.6.2 Option B1-a: CE programs would not be approved when the stock is overfished. These restrictions apply to non-quota managed recreational fisheries, with the exception of the Hudson River, Delaware River, and Delaware Bay recreational fisheries. We'll call the question. All in favor.

MS. KERNS: New Hampshire, Maine, Delaware, Maryland, District of Columbia, Virginia, North Carolina, Pennsylvania, Fish and Wildlife Service, NOAA Fisheries, New Jersey, New York, Connecticut, Massachusetts, Rhode Island.

CHAIR GARY: All those opposed. That's the full Board. Okay, that was 16.

MS. FRANKE: Mr. Chair, I had 15 in favor.

CHAIR GARY: Toni, did you get PRFC on that vote?

**MS. FRANKE: Oh, PRFC was the one I was missing, so I would have 16 in favor.**

**CHAIR GARY: Thank you, Emilie. Okay so that motion passes.** We're still in Section 4.6.2. There are other options similar to the last section we were in, in the document. Are there any other options here that Board members would like to put on the table for the Board's consideration? Dr. Armstrong.

DR. ARMSTRONG: Yes, this one I don't think you have it anywhere, so I'll read it slowly. Move to approve Option C2 such that CE proposals may not use MRIP estimates with an associated PSE exceeding 40 percent. Further, approve D1, a 10 percent uncertainty buffer for CE proposals in non-quota managed fisheries, except that D2 a 25 percent uncertainty buffer will apply when MRIP estimates used in the CE proposal exceed 30 percent.

MS. KERNS: Mike, is that in your e-mail right now?

DR. ARMSTRONG: No.

MS. KERNS: Okay.

MS. FRANKE: Toni, I can send it over to Maya in a second.

MS. KERNS: That would be great, Emilie.

MS. FRANKE: All right, it should be there shortly  
CHAIR GARY: Mike, if you like I'll save your voice. If you just think it's good, I'll read it in for you. It's up to you.

DR. ARMSTRONG: Oops, the only thing that is missing is just before 30 % at the end I think it needs to have a PSE in there. Good.

CHAIR GARY: All right, I'll go ahead and read this into the record, and Mike, correct me if it's wrong.  
**Move to approve in Section 4.6.2 Option C2: CE proposals would not be able to use MRIP estimates associated with a PSE exceeding 40 and move to approve in Section 4.6.2 Option D1: Proposed CE programs for non-quota managed fisheries would be required to include an uncertainty buffer of 10% except D2 a buffer of 25% would be required when MRIP estimates PSE exceeds 30%. This motion is by Dr. Armstrong. Is that correct, Mike?**

DR. ARMSTRONG: Yes.

CHAIR GARY: Okay, do we have a second to this motion? Jason McNamee. Mike, do you want to speak to it?

DR. ARMSTRONG: Yes, I'm going to apologize for relative complexity, but I've used MRIP data for a long time, and above 30 percent it gets messy. But I also realize to someone's point, there are states who are going to have to use data that is messier. I would normally vote to not go above 30 percent, but I would like to go 40 percent, but you have to pay a little extra penalty because of the really much

greater uncertainty going from 30 to 40 percent. That's my rationale.

CHAIR GARY: Jason, would you want to add anything to that?

DR. McNAMEE: Just really quick. I think the proposal is clever. It sort of offers a scaling uncertainty buffer. I like the concept. I'm interested in the discussion around it.

CHAIR GARY: All right, so we'll go ahead and open this up. We have the motion on the floor now. Open this up to the Board discussion. I'm going to go ahead and use our alternating for and against. We'll start with any Board members that are opposed to this. Does anybody want to speak to this? John McMurray.

MR. McMURRAY: I'm not entirely sure I'm opposed yet, but I'm not really clear on the rationale for 40 percent when the Draft Amendment clearly states National Marine Fisheries Service recommendation that MRIP estimates should be viewed with increasing caution as PSEs increase beyond 30.

If NMFS advises that the data with higher PSEs are not considered sufficiently reliable for most purposes, then it's pretty clear that that data should not be considered sufficiently reliable for calculating conservation equivalency. Thirty percent would appear to be the only option, at least from a science standpoint at this point, so I'm not really sure how that works with the later part of this motion, so maybe you could explain that to me.

CHAIR GARY: Mike, could you speak to John's concern?

DR. ARMSTRONG: Sort of. I agree. Scientifically it probably should be 30. I'm trying to add some flexibility for states to take on a little more uncertainty, but pay a penalty for going that route. I can't argue strongly against 30 percent, but if you think we should have a little more flexibility then that is a good motion. If not, then you should vote against it and go with 30.

CHAIR GARY: All right, thank you, John, and thank you, Mike. Would somebody like to speak for this motion, anyone else on the Board? Jason.

DR. McNAMEE: This is a four Mr. Chair, correct? This kind of gets back to John McMurray's question. The way I think this works is, so as Mike offered, it allows the flexibility. There could be circumstances where someone wishes to use conservation equivalency, and through no fault of their own the data that they have to work with has a PSE of 40, which goes against that guidance, which I also agree with isn't a great idea.

However, if you're starting to get up into those higher ranges, again thinking about the state that doesn't have a choice, the PSE is what it is, which they find out after the fact. They have to apply this uncertainty buffer, so you kind of start to ratchet your way back towards that 30 percent anyways. That is kind of the way it adds the flexibility of if you have high PSEs for the data you want to use, but then sort of lumps in an uncertainty buffer that pushes you back towards that 30 percent number. Just wanted to offer, I think that's how it works.

CHAIR GARY: All right, thanks, Jason, so we're back to any Board members that would like to speak against this motion. Chris Batsavage.

MR. BATSAVAGE: Yes, I appreciate what the motion is trying to achieve. I think I'm more in favor of a more simplistic version of, you know just you're using the 30 % PSE as the threshold and 25 percent buffer, just to more directly address the uncertainty in the MRIP data, and possibly incentivize states to try to find ways to improve their MRIP intercepts, to get their harvest estimates to a more acceptable PSE level. I'm not sure if I'm going to make a substitute motion at this point, but I just at least wanted to voice my concerns over the motion right now.

CHAIR GARY: Any other advocates and speak in favor at the Board for the motion? Tom.

MR. FOTE: I see other states, and I also see the problem of trying of trying to raise a budget anymore to basically spend on intercepts, it's really

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tough for any state to do that. In a smaller state there are less figures, because they're not picking up striped bass basically it impacts them. As I said, in New Jersey we have no problem, because we're always below the 30 percent. But other states might feel the problem.

CHAIR GARY: We've had a little bit of back and forth. I'm not sure we'll identify any other. Any other Board members either way who haven't stated anything? We have Roy up. Roy, go ahead, you're up.

MR MILLER: Well, very quickly to the maker of the motion. Was it your intent that Hudson River, Delaware River and Delaware Bay recreational fishery that this would not apply to those fisheries?

CHAIR GARY: Emilie, could you understand that? I couldn't quite get it.

MS. FRANKE: Yes, so Roy was asking if the maker of the motion's intent was for these restrictions not to apply to the Hudson River, Delaware Bay and Delaware River fisheries. What I'll say is, Roy, in the Draft Amendment that exception for the Hudson River, Delaware Bay and Delaware River fisheries only applies to Option B, so that stock status restrictions had that built in exception. But none of the other options have that built in exception for the Hudson, Delaware fisheries.

MR. MILLER: All right, thank you for that clarification.

CHAIR GARY: Thank you, Roy, thank you, Emilie. I'll just go one more time. Are there any perspectives that haven't been shared yet before we call the question? Is the Board ready to call the question? All right. Toni, are we ready? Do we need a caucus? All good, okay. All right, everyone in favor of this motion, please raise your hand.

MS. KERNS: New Hampshire, Maine, Delaware, Maryland, District of Columbia, Virginia, Pennsylvania, New Jersey, New York, Connecticut, Massachusetts, Rhode Island, and PRFC.

CHAIR GARY: All those opposed to this motion please raise your hand.

MS. KERNS: North Carolina.

CHAIR GARY: Abstentions.

MS. KERNS: NOAA Fisheries and Fish and Wildlife Service.

CHAIR GARY: Null votes. None.

**MS. FRANKE: Mr. Chair, I have 13 in favor, 1 opposed and 2 abstentions.**

**CHAIR GARY: Thank you, Emilie, the motion passes. Board members, we are still in Section 4.6.2.** Is it the will of the Board to advocate for another one of these options? Mike.

DR. ARMSTRONG: Who is the crazy old man now? **Motion to approve Option E2 such that proposed CE programs must demonstrate equivalency to the percent reduction/liberalization projected for the FMP standard at the state-specific level.** Anything close is fine.

CHAIR GARY: Does that read right, Mike?

MS. FRANKE: Maya, you could just add after such that CE proposals must demonstrate equivalency to, and you should be good.

CHAIR GARY: Do we need to reread it in? We're good, okay. We have a motion up on the table. Do we have a second to this motion? Jim Gilmore. Go ahead, Mike. Did you want to go ahead and provide your rationale?

DR. ARMSTRONG: No. I think it's self-evident. I think that's the way the calculations should go.

CHAIR GARY: Jim, any thoughts to add?

MR. GILMORE: Mike couldn't have said it any better.

MS. FRANKE: Mr. Chair, can I just ask for a clarification?

CHAIR GARY: Certainly.

MS. FRANKE: Just to the maker of the motion and the seconder, just if we could specify in the motion, such that CE proposals for non-quota managed fisheries must demonstrate equivalency.

DR. ARMSTRONG: Correct.

MS. FRANKE: Thank you so much, and thank you, Maya.

CHAIR GARY: We have the motion and it's out on the floor for discussion with the Board. I'll take any discussion now from the Board members. Jason.

DR. McNAMEE: I like doing something here so that we kind of collapse to one or the other. I'll offer that my preference was for E1, but let me ask a question if that's okay, Mr. Chair. This one, like in the example of the last action that we took, where New Jersey would have had to take a really high reduction relative to, these things aren't distributed equally along the coast.

New Jersey would have had a very high reduction relative to what the coastwide measure would have done, and Maine would have had a very low reduction. This E2 would hold them to those specific. They would have different numbers. New Jersey would have had to do that higher number; Maine would have been okay with a lower number. Am I understanding E2 correctly?

MS. FRANKE: Yes, that is correct. If a state wanted to implement CE, their CE proposal would have to demonstrate equivalency to whatever their state-specific projected reduction would be.

CHAIR GARY: Other discussions among the Board. We have John Clark and then Joe Cimino.

MR. CLARK: Mine is just more of a question. The state-specific level is based on the same MRIP numbers we're just dinging in the previous options, correct? I mean when we're calculating what a

state-specific part of a coastwide reduction would be, isn't that based on the same MRIP numbers, we're just saying above would be problematic in some of these cases?

MS. FRANKE: I might turn to Katie as to how those state-specific projections are calculated. Yes, I'll turn to Katie.

DR. DREW: I think they would be based on state-specific estimates from MRIP. Usually the state-specific length frequency, for example. In that case, if the PSEs were too high then you could not use that for a conservation equivalency plan, and so it wouldn't matter which one you had to match up against.

But there are definitely states that at the state-specific level have adequate PSEs, and thus could submit for a conservation equivalency under what we just passed. There is also, you know it depends on how detailed and how fine-scale you want to diverge from the overall coastwide measures. But generally, for most states, going down to the state-specific, for example length frequency would still have you within that 40 percent PSE that you could submit for.

MR. CLARK: If I could just follow up. I mean it just seems that it's like a double ding on a state that let's say the PSE was 40 percent, yet you're saying okay, when it comes to the state-specific reduction you have to take, we're not considering the uncertainty in the MRIP, but when it comes to your conservation equivalency proposal you come up with, we are taking full account of the uncertainty in the MRIP estimates, and we're making you add a special buffer onto there. I mean it just seems like it's like a double whammy on any state that was in that situation.

CHAIR GARY: Joe.

MR. CIMINO: I think there could be some real unintended consequences. You know I think a lot of us realized last go round that, Jay called it choose your own adventure, you know. You can't have this type of process where states are going after their own targets. In the last go round, at an 18 percent

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coastwide reduction with New Jersey trying to take a 40 percent reduction, and a whole bunch of other states under 10 percent.

There is an obvious motivation for them to just say, well why don't we do 8 instead of 18. On the flip side, you know what if it was us. Between the regulations in place and the availability of fish, how the projections of reductions are going to impact states is always different. We could constantly be seeing states that have a real motivation to go with this smaller number that is coming at them.

CHAIR GARY: Other discussion, John McMurray, and then we have Megan Ware.

MR. McMURRAY: I want to point out that in the public comment materials was a letter by the Attorneys General of Connecticut, Rhode Island and Massachusetts, and that letter points out that Option E1 doesn't comply with the Interstate Fishery Management Program's charter requirements for conservation equivalency programs.

That such programs achieve the same quantified level of conservation for the resource under management. E1 can and will undercut the success of management measures, and we saw that happen with Addendum VI. What we ended up with is a 42 percent chance of the measures achieving an 18 percent reduction, instead of the general 50 percent, which is what most people consider acceptable.

Now, I understand how this might be perceived as unfair to some states. But the way I look at it is if your state has a larger impact then you're going to have to take a larger reduction. You're going to have to assume a larger part of that burden, and that does make sense to me. I support the motion.

CHAIR GARY: Megan.

MS. WARE: Yes, I guess I'm just thinking of what Joe was just saying, in terms of, I'll use Maine as an example. Let's say we had an 8 percent reduction under the last Addendum. I don't think it was a

choice for us about like an 18 percent or an 8 percent reduction. Under coastwide measures we were achieving an 8 percent reduction, and if we had chosen CE, or under E2 it would still be an 8 percent reduction.

It's not like a windfall for Maine to say, oh we were going to take an 18 percent reduction. But now we're going to only have to take an 8 percent. We were taking an 8 percent reduction and we would still have to take an 8 percent reduction. I just wanted to clarify that, because I think that is an important part of this discussion.

CHAIR GARY: Megan, you're looking for clarification?

MS. WARE: No, I'm going to put that in the comment category. Thank you, though.

CHAIR GARY: I know Jason you have your hand up. I just want to see if somebody else that has not commented has had a chance that would like to comment. We can go a little bit further. It's an important topic. Any others that have not yet commented? Seeing none, Jason, you have it.

DR. McNAMEE: Coming back to my original question after the presentation. E1 is not what we did last time. You don't get to choose whether you're going to do the coastwide or a conservation equivalency. This is, I'm going to make it like a comment, but it's sort of a question, because now I'm confused based on the discussion.

E1 would just say, if that coastwide measure was meant to achieve an 18 percent reduction, everyone has to achieve an 18 percent reduction. The law of averages holds and you would meet that 18 percent reduction. E2 is sort of the flipside of the equation, where if you break off and do CE you have to meet your state-specific reduction for that same measure. Both things don't allow you to pick one or the other.

You're all in one way or the other. Either everybody is going to meet the same reduction, or everybody is going to have a unique reduction, but you can't

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pick which bucket you want to pick your regulations from. That is how I'm understanding the nuance between E1 and E2. Both of them are different from what we did last time, and they both should equally achieve the goal, because they're being applied across the board.

MS. FRANKE: Jason, I'll just jump in, since you noted it was sort of a question, just to clarify. Both options under E are if you choose to do CE what do you have to do. Both options specify, if you do CE this is the direction you have to go. For E1, if you do CE then you would need to demonstrate equivalency with your proposal to whatever the coastwide measure is.

In the case of Addendum VI, if states did CE, they had to show an 18 percent reduction. E2 would be if a state chooses to do conservation equivalency, they would have to show equivalency to their state-specific projected reduction. Both are in the category of, if you choose to pursue CE then here is what you have to do.

CHAIR GARY: Follow, Jason?

DR. McNAMEE: Yes. That is a completely different understanding than how I just tried to characterize it. I'm now onboard with the motion, because the important word there is if, so it sounds like there is still an option to not choose CE, and just go by the coastwide. There is choose your own adventure in E1. I guess in either, but at least in the case of E2 that improves consistency, because then you have to meet the original intent of that coastwide measure. Thanks for that.

DR. DREW: To clarify, E1 is what we did last time, where the Board had this specific discussion and chose what is now the Option E1.

MS. FRANKE: But also, to clarify to your point, Jason. Now I understand what you mean by choose your own adventure. States can still choose to take the adventure of the default coastwide measure or they can choose to pursue CE, in which case Option E would dictate what percent reduction they had to show.

CHAIR GARY: All right, so I'm going to read the motion into the record. Move to approve in Section 4.6.2, Option E2 such that CE proposals for non-quota managed fisheries must demonstrate equivalency to the percent reduction/liberalization projected for the FMP standard at the state-specific level. Motion is by Mr. Armstrong, seconded by Mr. Gilmore. Are you ready to call the question? Any need to caucus? Two minutes. I sense we might be ready to call the question. All of those in favor of the motion please raise your hands.

MS. KERNS: Rhode Island, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, North Carolina, Virginia, District of Columbia, Maryland, Maine, New Hampshire, Potomac River Fisheries Commission.

CHAIR GARY: All those opposed to the motion.

MS. KERNS: Delaware.

CHAIR GARY: Abstentions.

MS. KERNS: Fish and Wildlife Service and NOAA Fisheries.

CHAIR GARY: Null votes. Okay.

**MS. FRANKE: Mr. Chair, I have 13 in favor, 1 opposed and 2 abstentions.**

**CHAIR GARY: Thank you, Emilie, the motion passes.** Would it be sufficed to say that the Board has completed its work in Section 4.6.2 of this document?

MS. FRANKE: Yes, all the option categories have been discussed.

CHAIR GARY: I think before we move forward in the agenda, is there additional work, Toni, we need to do to complete this process?

MS. KERNS: We need a suggested implementation date, and then after that recommend approval to the Commission as modified today.

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MS. FRANKE: Toni, I was just going to ask if you could clarify if there needs to be discussion on the recommendation to the Secretary of Commerce.

EXECUTIVE DIRECTOR BEAL: I'll answer Emilie's question with a question. Are we making any recommendations to Federal Water Management, and through this I think the Federal EEZ is closed, and there is no recommendation here obviously to open that? I don't think we need to make a recommendation to the Secretary.

MS. FRANKE: Thank you.

CHAIR GARY: Megan, are you ready to make that motion?

MS. WARE: No recommendation to the implementation. Yes, well I can speak to that, and then if people agree I'll make the motion. I think, in thinking about what we've done, like management triggers, the rebuilding and the CE I think can all be immediate. I'm not sensing something that states have to do.

The only thing I'm thinking that states may have to do is change gear restrictions under the recreational measures, so maybe have two implementation dates, one that's immediate for everything I just talked about, and then an implementation date for the gear restrictions. My sense is people don't like to do that mid-year, so I'll throw out January 1, 2023. But I'm open to suggestions.

CHAIR GARY: Staff were indicating that has efficacy. Are there any concerns with what Megan just suggested, in terms of implementation dates? We're ready for a motion then, Megan? Okay.

MS. WARE: Yes, I am happy to make a motion. It looks like staff may have something here. I'm just going to give them a moment and then I'll read it in.

CHAIR GARY: Megan, would you do the honor of reading that into the record.

**MS. WARE: Absolutely. Move that all provisions of Amendment 7 be effective immediately except for gear restrictions. States must implement gear restrictions by January 1, 2023.**

CHAIR GARY: Second by Mr. Clark. All right, I don't think we need any discussion on that we just go with it. Any objections to this motion? Question.

MR. GILMORE: Just a practicality. I think I'm all okay with this, but effective immediately is always one of those such a vague term. As long as everybody is going to be reasonable about this, I don't have a problem. But if somebody says I didn't do it immediately, which is Friday or something. Just to be clear, we'll do what we can do under our state rules.

MS. KERNS: Well, I don't think you have any state rules that you have to change for all those provisions except for the gear restrictions, which you get time for. But Matt may have one.

MR. GILMORE: I agree.

CHAIR GARY: Go ahead, Matt.

MR. GATES: Gear restrictions that includes the striped bass caught on any unapproved methods have to be released. Is that part of the gear restriction? That's one part that.

MS. FRANKE: Yes, it was included in the gear restriction section of the Amendment, but we can perhaps be more specific. We could add Option C1 and C2 to the motion if that is helpful.

MS. KERNS: I don't think we have to change the motion, it's on the record for the Board, it's all the gear restriction section you have until January 1.

CHAIR GARY: Jim and Matt, are you okay with that? All good, okay. I'll ask again, is there any objection to this motion? Any abstentions, null votes? **Okay, the motion passes unanimously.** Any other work we need, Toni? Question, Cheri?

### **CONSIDER FINAL APPROVAL OF DRAFT AMENDMENT 7**

MS. PATTERSON: **Motion. I would like to move to recommend to the Commission the approval of Amendment 7 to the Striped Bass Interstate Fishery Management Plan as amended today.**

CHAIR GARY: Thank you, Cheri, second to that motion, Dave Sikorski. Is there anyone that is opposed to this motion? Any abstention? **The motion passes unanimously.** Thank you, everybody.

### **REVIEW OF THE 2022 STOCK ASSESSMENT UPDATE PROJECTION SCENARIOS**

CHAIR GARY: Okay, so we're ready to move in to the next part of the agenda item, it's Number 5 in the agenda.

This is the Review of the 2022 Stock Assessment Update Projection Scenarios. Katie is going to provide that for us. Noting that Board guidance is going to be needed. Katie will indicate this, and if the Board can't reach consensus we may need a motion, but hopefully that won't be the case. But Katie, I'll turn it over to you.

DR. DREW: Great, thanks. Hopefully we can cruise through this pretty quickly. Basically, as you all know, the stock assessment update for striped bass is going to be conducted this summer, and the results will be presented to the Board in October at annual meeting. But today I just wanted to review some of the things that we need some guidance from the Board on, in order to keep this on track so that we don't have a lot of back and forth that is going to slow down any implementation.

Basically, the stock assessment is going to tell you guys the stock status, in terms of the time series of F and SSB through 2021. That is going to be the terminal year of the assessment. We're also going to present a set of projections, which will include the probability of SSB in 2029 being at or above the SSB target under the current F, so that is kind of the probability of rebuilding under current F. Then we

will also present projections that will indicate the percent reduction in F and in catch necessary to rebuild by 2029.

If it's different from the current F. Then we will also present the management options for the Board action to reduce to achieve that reduction if necessary, so that we can take that quick Board action that the Board decided on today. The status quo projection scenario is going to tell you what is the probability of SSB in 2029 being at or above the SSB target under current F with the low recruitment assumption, because that is the option that we selected.

As you selected for Amendment 7, if the 2022 stock assessment results indicate that the Amendment 7 measures have less than a 50 percent probability of rebuilding the stock by 2029, as calculated using the recruitment assumptions that you have specified, then that is when you guys can take the Board action. Basically, that 50 percent is sort of linked to this next question.

We're going to tell you what status quo probability is, and then we're going to tell you what level of F is necessary to have a Z percent chance of being at or above the SSB target in 2029 with the low recruitment assumption. We need to know kind of what that rebuilding probability is that the Board has. The probability scenario for Addendum VI was a 50 percent chance of achieving F target. You guys selected in this case the Amendment 7 option that you wanted it to have a 50 percent chance or more of being rebuilt at that target.

I think we wanted to just verify that this is the correct probability that you guys want, and that you're not going to come back and ask for a different probability when we're talking about the rebuilding scenario. Basically, this is sort of, it's implied in the option you chose today. But we just want to verify that you are all good with that assumption, and that you're not looking for a higher or a lower probability of rebuilding down the road.

The other sort of option that we're going to need guidance on further down the road is, if you do

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need to adjust measures via Board action immediately after the assessment, the TC will need to calculate management options to achieve F rebuild to present with the assessment, so that in October you'll have the assessment results and you'll have management options, and you can make a decision at that point if you're ready.

At the August meeting is where we're going to ask you guys for specific guidance on those options. We want to present you with a limited suite of options, because we need to limit kind of what we're going to explore here. But that can be things like the sector reduction split. Do you want the commercial and the recreational fishery to take the reduction equally, or do you want to spread that differently across the sectors?

Are you looking for specific size limits? Are you looking for season limits? What kind of options do you want to see us present to you? We'll need a limited set of options that you think are most appropriate, and that you would have the highest chance of supporting, so that we can present to you a set of options ready to go in October. We just want to highlight this now, because we want you guys to be thinking about this before you come to the August meeting, and then have this have to have this discussion. I mean you also want to keep in mind the restrictions that you have placed on CE, so that when we present you with these options these are the options you are going to get, likely. Those are kind of the two questions or one question. Are you okay with the 50 percent probability of rebuilding as sort of your rebuilding probability target?

Number two, just be aware that we're going to need additional guidance on these options, and so be prepared to talk about that in August. I'm happy to take any questions, and I guess just get the temperature of the Board on that 50 percent probability of rebuilding.

CHAIR GARY: Questions for Katie, feedback to her on probability from the Board. Jason.

DR. McNAMEE: I guess in the absence of any other sort of information to compel us to do something different. I think 50 percent seems like a reasonable target, so I would support that.

CHAIR GARY: Thanks, Jason. Feedback from others. Looks like I'm getting nods and thumbs up. Katie, is that sufficient for you?

DR. DREW: Great, yes. The TC will go forward with using a 50 percent probability of achieving SSB target in 2029 to develop any recommended management options that will be presented in October.

#### **CONSIDER NEXT STEPS FOR DRAFT ADDENDUM VII TO AMENDMENT 6**

CHAIR GARY: Excellent, thank you, Katie. That brings us to Agenda Item Number 6, Consider Next Steps for Draft Addendum VII to Amendment 6, Possible Action. This is a motion from October, 2021. **That motion was *Move to defer until May 2022 consideration by the Atlantic Striped Bass Board of Draft Addendum VII to Amendment to allow further development and review of the transfer options.*** Emilie is going to present an overview of the Draft Addendum and the PDTs concerns, and it's possible that Delaware may have a motion or guidance for the PDT, and the timing for the Board's discussion on this Addendum.

MR. CLARK: I didn't mean to interrupt you, but I was asked if we might postpone this, and knowing that the Commissioners need their nourishment, Delaware has acceded to the request to **postpone until the next meeting**, and we just hope the Commissioners will remember fondly this gesture when this comes back up in August. Thank you.

#### **REVIEW AND POPULATE THE ADVISORY PANEL MEMBERSHIP**

CHAIR GARY: Thank you, John, I appreciate that clarity. All right, well, thank you, John, so that leaves us with two items, actually three. Review and populate the Advisory Panel membership, and

Tina, I think you were in on webinar. Are you ready, Tina?

MS. TINA L. BERGER: Yes, I am. I put forward for your review and approval the nomination of Jamie Lane, an estuarine and ocean gillnetter from North Carolina. Jamie replaces Riley Williams on the Panel. On her nomination form there was a question regarding criminal or federal fisheries violations that was not checked, but the state checked with its Marine Patrol staff, which confirmed that Jamie has no fisheries violations. I put forward this nomination for your review and approval.

CHAIR GARY: Thank you, Tina, do we have a motion, **well we have a motion to move to approve Jamie Lane, representing North Carolina to the Striped Bass Advisory Panel. Do we have somebody that can make that motion? Dave Sikorski, and Chris Batsavage for a second.** Are there any objections to this motion?

**Okay, seeing none, Ms. Lane is approved, and we look forward to her participation on the AP.** Thank you, Tina.

#### ELECT VICE-CHAIR

CHAIR GARY: Number 8 is the Election of a Vice-Chair, and I believe we have for this Board, for the Striped Bass Management Board, and I believe Cheri, you may have a motion.

**MS. PATTERSON: Yes, move to elect Megan Ware as Vice-Chair of the Atlantic Striped Bass Management Board.**

CHAIR GARY: Thank you, Cheri, I think we've got Eric Reid as a second for that motion. I'll ask the Board again, is there any objection to this motion for Megan Ware to be appointed Vice-Chair of the ASMFC Striped Bass Management Board. **Any objection? Seeing none; congratulations, Megan.**

#### OTHER BUSINESS

CHAIR GARY: Number 9, is there any other business to come before this Board today? Megan.

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MS. WARE: I don't know if you were planning to say this, Mr. Chair, but I just wanted to congratulate Emilie on this. This is a huge action for a coordinator to take, and she did an amazing job. She is a fairly new coordinator to take on this level of an amendment. I just wanted to acknowledge her. I'm so sorry, Emilie, you couldn't be here today, because this is kind of the culmination of all of your work. But I wanted to make sure that we recognize that, because this is a huge achievement for her, so congratulations! (Applause)

CHAIR GARY: Yes, thank you, Megan. Emilie, I know you're there listening to us. I've been lucky enough with a number of a couple of other Bay partners at the table to have the working experience with you going back several years ago with the Chesapeake Bay Program. I knew what the Commission got when you came aboard.

Nobody was happier than me in the seat that I'm sitting in, but Megan, great work with the accolades. We just wish you were here in person, and we are looking forward to having you with us at the August meeting, everybody will get to see her in person. Again, thanks, Megan, for all your hard work.

#### ADJOURNMENT

CHAIR GARY: All right, all things considered, this meeting of the Striped Bass Board is adjourned.

(Whereupon the meeting adjourned at 6:15 p.m. on Wednesday, May 4, 2022)



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

**TO:** Atlantic Striped Bass Management Board

**FROM:** Atlantic Striped Bass Technical Committee

**DATE:** July 15, 2022

**SUBJECT:** Request for Board Guidance on Potential Reduction Measures following the 2022 Stock Assessment Update

The Striped Bass Technical Committee (TC) and Stock Assessment Subcommittee (SAS) met via webinar on June 29, 2022 to discuss progress on the 2022 stock assessment update (results expected in October 2022) and to review the new provisions of Amendment 7, including the following provision:

*If the 2022 stock assessment results indicate the Amendment 7 measures have less than a 50% probability of rebuilding the stock by 2029 (as calculated using the low recruitment assumption) and if the stock assessment indicates at least a 5% reduction in removals is needed to achieve F rebuild, the Board may adjust measures to achieve F rebuild via Board action (change management measures by voting to pass a motion at a Board meeting).*

In the event that a reduction in removals is indicated to achieve F rebuild, in order for the Board to adjust measures in a timely manner following the assessment, the TC would need to calculate new management options to achieve stock rebuilding by 2029. The TC would conduct the analysis before the Board meets for the Annual ASMFC Meeting in fall 2022 and the management options would be presented concurrently with the assessment results.

**The TC requests Board guidance on what types of reduction measures should be considered, if a reduction were needed:**

- How should the reduction be split between the commercial and recreational sectors? Should both sectors take the same percent reduction, or should one sector take a higher or lower percent reduction?
- What recreational measures should be considered for the ocean? For the Bay? E.g., minimum size limit, different slot limit, seasonal closures?
- If considering seasonal closures, would the Board prefer a consistent coastwide closure or flexibility for states to choose closure dates (e.g., within a particular wave)?

### **Review of Current Measures**

Amendment 7 maintains the same commercial quotas (18% reduction from Add IV) and the same recreational size/bag limits (1 fish at 28-35" for ocean; 1 fish at 18" min. for Bay) as Addendum VI, which were designed to achieve an 18% reduction from 2017 levels. As such, all

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approved Addendum VI conservation equivalency programs are maintained until such measures are changed.

Approved Addendum VI CE programs are summarized in the enclosed table. Current CE programs include seasonal closures in some Chesapeake Bay jurisdictions, and some states took <18% reduction in commercial quotas offset by >18% reduction by the recreational sector.

***Baseline for Potential Reduction***

The TC recognizes that current 2021 measures include a variety of Addendum VI conservation equivalency programs. While it would be possible to calculate the potential reduction under the assumption that all states implemented the Addendum VI FMP standard (instead of their CE programs), that would add additional uncertainty by trying to predict what removals would have been under different regulations.

Therefore, the TC recommends using the current set of management measures and resulting level of 2021 removals as the starting point for calculating the potential reduction. In other words, what new set of management measures would achieve the rebuilding reduction relative to the 2021 commercial quotas and 2021 recreational size limits/bag limits/seasons?

After the Board provides guidance on what types of new measures to consider, and after the assessment is complete, the TC will further discuss how to proceed with reduction calculations, including what assumptions and datasets will be used.

*TC/SAS Members in Attendance:* Mike Celestino (SAS Chair, NJ), Michael Brown (ME), Gary Nelson (MA), Nicole Lengyel Costa (RI), Kurt Gottschall (CT), Caitlin Craig (NY), Brendan Harrison (NJ), Tyler Grabowski (PA), Margaret Conroy (DE), Luke Lyon (DC), Brooke Lowman (VA), Joshua McGilly (VA), Hank Liao (VA), Charlton Godwin (NC), Steve Minkinen (USFWS), John Sweka (USFWS), Tony Wood (NOAA)

*ASMFC Staff:* Katie Drew, Emilie Franke

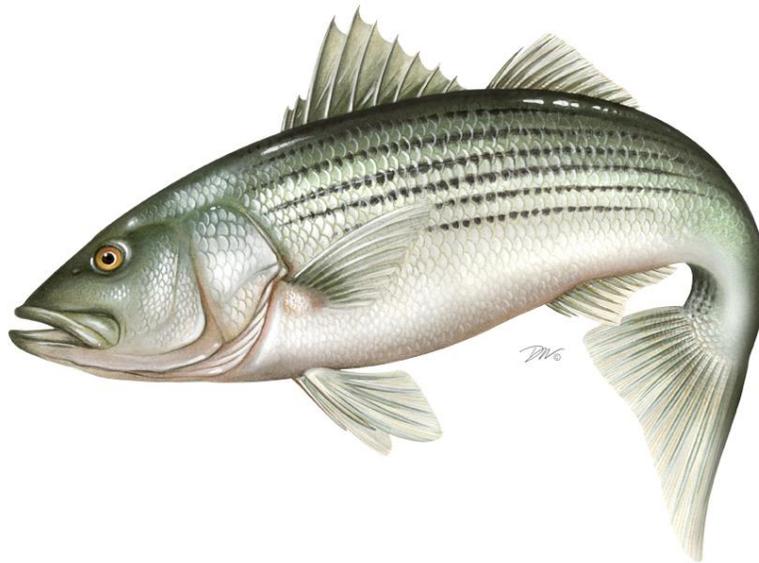
Table. CE programs implemented for Addendum VI

State	Recreational Fisheries	Commercial Fisheries
<b>MA</b>	N/A	Changed size limit (35" minimum) with equivalent quota change
<b>NY</b>	Hudson River: Alternative size limit (18" to 28") to achieve 18% removals reduction in combination with standard Ocean slot	Changed size limit (26" to 38") with equivalent quota reduction
<b>NJ</b>	Alternative size limit (28 to < 38") to achieve 25% removals reduction	Decreased commercial quota reduction (to 0%) with surplus recreational fishery reduction and transferred commercial quota to recreational bonus program fishery (24 to < 28", 1 fish/day)
<b>PA</b>	DE River and Estuary downstream Calhoun St Bridge: Alternative size and bag limit on limited seasonal basis (2 fish/day at 21 to <24" during 4.1–5.31) to achieve 18% removals reduction	N/A
<b>DE</b>	DE River/Bay/tributaries: Alternative slot on limited seasonal basis (20" to <25" during 7.1–8.31) to achieve 20.4% removals reduction in combination with standard Ocean slot	Decreased commercial quota reduction (to -1.8%) with surplus recreational fishery reduction
<b>MD</b>	Chesapeake Bay: Alternative Summer/Fall for-hire bag limit with restrictions (2 fish, only 1 >28", no captain retention) through increased minimum size (19"), April and two-week Wave 4 targeting closures, and shorter spring trophy season (May 1–15) to achieve 20.6% removals reduction; Ocean: FMP standard slot	Decreased Ocean and Chesapeake Bay commercial quota reduction (to -1.8%) with surplus Chesapeake Bay recreational fishery reduction
<b>PRFC</b>	Alternative Summer/Fall minimum size and bag limit (20" min, 2 fish/day) with a no targeting closure (7.7–8.20) and shorter spring trophy season (May 1–15) to achieve a 20.5% removals reduction	Decreased Chesapeake Bay commercial quota (to -1.8%) with surplus recreational fishery reduction
<b>VA</b>	Chesapeake Bay: Alternative slot limits during 5.16–6.15 (20" to 28") and 10.4–12.31 (20" to 36") and no spring trophy season to achieve a 23.4% removals reduction (reduction was the result of lowering prior bag limit from 2 to 1-fish per angler); Ocean: Alternative slot limit (28" to 36")	Decreased Ocean commercial quota (to -7.7%) and Chesapeake Bay commercial quota (to -9.8%) with surplus recreational fishery reduction

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*Atlantic States Marine Fisheries Commission*

**DRAFT ADDENDUM I TO AMENDMENT 7  
~~VII TO AMENDMENT 6~~  
TO THE ATLANTIC STRIPED BASS  
INTERSTATE FISHERY MANAGEMENT PLAN**



This draft document was developed for Management Board review and discussion. This document is not intended to solicit public comment as part of the Commission/State formal public input process. Comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting. If approved, a public comment period will be established to solicit input on the issues contained in the document.

October 2021



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Draft Document for Board Review. Not for Public comment.

**Draft Document for Board Review. Not for Public comment.**

**Public Comment Process and Proposed Timeline**

In August 2021, the Atlantic Striped Bass Management Board (Board) initiated the development of an addendum to Amendment 6 to the Interstate Fishery Management Plan for Atlantic Striped Bass to consider allowing voluntary transfers of ocean commercial quota. This Draft Addendum presents background on the Atlantic States Marine Fisheries Commission's (Commission) management of striped bass; the addendum process and timeline; and a statement of the problem. This document also provides management options for public consideration and comment.

The public is encouraged to submit comments regarding this document at any time during the public comment period. The final date comments will be accepted is **XXXXX at 11:59 p.m. (EST)**. Comments may be submitted at state public hearings or by mail, email, or fax. If you have any questions or would like to submit comment, please use the contact information below. Organizations planning to release an action alert in response to this Draft Addendum should contact Emilie Franke, Fishery Management Plan Coordinator, at [efranke@asmfc.org](mailto:efranke@asmfc.org) or 703.842.0740.

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1050 N. Highland Street, Suite 200 A-N  
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Email: [comments@asmfc.org](mailto:comments@asmfc.org)  
(Subject: XXXX)  
Phone: (703) 842-0740  
Fax: (703) 842-0741

## **Draft Document for Board Review. Not for Public comment.**

### **1.0 Introduction**

Atlantic striped bass (*Morone saxatilis*) are managed through the Commission in state waters (0-3 miles) and through NOAA Fisheries in federal waters (3-200 miles). The management unit includes the coastal migratory stock between Maine and North Carolina. Atlantic striped bass are currently managed under Amendment 6 to the Interstate Fishery Management Plan (FMP) and Addenda I – VI.

The Atlantic Striped Bass Management Board (Board) initiated Draft Addendum VII in August 2021 through the following motion: *Move to initiate an addendum to amendment 6 to allow voluntary transfers of commercial striped bass quota as outlined in the memo of July 26th, 2021 to the Atlantic Striped Bass Management Board regarding these transfers.* To address the Board motion this Addendum considers allowing the voluntary transfer of the commercial coastal quota between states.

### **2.0 Overview**

#### **2.1 Statement of the Problem**

In August 2020, the Board initiated development of Amendment 7 to the FMP. The purpose of the amendment is to update the management program in order to reflect current fishery needs and priorities given the status and understanding of the resource and fishery has changed considerably since implementation of Amendment 6 in 2003. The Board intends for the amendment to build upon the Addendum VI action to end overfishing and initiate rebuilding. In February 2021, the Board approved for public comment the Public Information Document (PID) for Draft Amendment 7. As the first step in the amendment process, the PID was a broad scoping document seeking public input on a number of important issues facing striped bass management, including coastal commercial quota allocation. The PID had proposed considering changes to the coastal commercial quota allocation because the striped bass commercial quota allocation has been based on harvest data from the 1970s which may, or may not be an appropriate baseline. Harvester reporting during that time was not required and there is evidence that harvesters would sell fish in other states resulting in further inaccuracies in state estimates. No other ASMFC-managed species is managed with harvest data as old as that used for striped bass allocation.

In May, after the PID public comment period, the Board approved the following issues for development in Draft Amendment 7: recreational release mortality, conservation equivalency, management triggers, and measures to protect the 2015 year class. The Board did not include the coastal commercial quota allocation issue for further consideration in the Draft Amendment. Many Board members acknowledge the concerns that were raised by states and the public but found it was not the right time to address allocation. The Board noted the Draft Amendment process is not the right time to address this because allocation discussions could make the process significantly longer and more complex. Some Board members suggested addressing quota allocation in a separate management document after Amendment 7 is complete. While waiting until after the Amendment process is complete would allow for the issue to be considered, the unknown timeline for when possible new allocations could be finalized was raised. In order to provide a management option that could provide some immediate relief to states that were seeking a change in commercial quota allocation, the Board initiated this addendum which proposes to allow for the voluntary transfer of commercial allocation of the coastal quota. Many quota-managed fisheries allow for the voluntary transfer of commercial allocations

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between states (e.g., black sea bass, bluefish or horseshoe crab). This is a useful technique that can be utilized to address a variety of problems in the management of a commercial fishery (e.g., quota overages, safe harbor landings, shifting stock distributions).

### **2.2 Background**

#### **2.2.1 Status of the Stock**

On a regular basis, female spawning stock biomass (SSB) and fishing mortality rate ( $F$ ) are estimated and compared to target and threshold levels (i.e., biological reference points) in order to assess the status of the striped bass stock. The 1995 estimate of female SSB is currently used as the SSB threshold because many stock characteristics, such as an expanded age structure, were reached by this year, and this is also the year the stock was declared recovered. The female SSB target is equal to 125% female SSB threshold. The associated  $F$  threshold and target are calculated to achieve the respective SSB reference points in the long term.

In May 2019, the Board accepted the 2018 Benchmark Stock Assessment and Peer Review Report for management use. The accepted model is a forward projecting statistical catch-at-age model, which uses catch-at-age data and fishery-dependent data and fishery-independent survey indices to estimate annual population size, fishing mortality, and recruitment. The assessment indicated the resource is overfished and experiencing overfishing relative to the updated reference points. Female SSB in the terminal year (2017) was estimated at 151 million pounds, which is below the SSB threshold of 202 million pounds.  $F$  in 2017 was estimated at 0.31, which is above the  $F$  threshold of 0.24.

The assessment also indicated a period of strong recruitment (numbers of age-1 fish entering the population) from 1994-2004, following by a period of low recruitment from 2005-2011 which likely contributed to the decline in SSB in recent years. Recruitment was high in 2012, 2015, and 2016. In 2017, recruitment was estimated at 108.8 million age-1 fish which is below the time series average of 140.9 million fish.

#### **2.2.2 History of the Fishery Management Plan**

The first Interstate FMP for Atlantic Striped Bass was approved in 1981 in response to declining juvenile recruitment and landings occurring along the coast from Maine through North Carolina. The FMP and subsequent amendments and addenda focused on addressing the depleted spawning stock and recruitment failure. Despite these management efforts, the Atlantic striped bass stock continued to decline prompting many states (beginning with Maryland in 1985) to impose a complete harvest moratorium for several years. State fisheries reopened in 1990 under Amendment 4 which aimed to rebuild the resource rather than maximize yield. The stock was ultimately declared rebuilt in 1995 and as a result, Amendment 5 to the Atlantic Striped Bass FMP was adopted which relaxed both recreational and commercial regulations along the coast.

The Atlantic striped bass stock is currently managed under Amendment 6 and its subsequent addenda. The most recent, Addendum VI, set measures to end overfishing, and bring  $F$  to the target level in 2020. Specifically, the Addendum reduces all state commercial quotas by 18%, and implements a 1-fish bag limit and a 28" to less than 35" recreational slot limit for ocean fisheries and a 1-fish bag limit and

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an 18" minimum size limit for Chesapeake Bay recreational fisheries. The measures are designed to achieve at least an 18% reduction in total removals at the coastwide level. The Addendum maintains flexibility for states to pursue alternative regulations through conservation equivalency (CE). Since catch and release practices contribute significantly to overall fishing mortality, the Addendum mandates the use of circle hooks when recreationally fishing with bait to reduce release mortality in recreational striped bass fisheries. Outreach and education will be a necessary element to garner support and compliance with this important conservation measure.

The U.S. Exclusive Economic Zone (EEZ; 3-200 miles from shore) has been closed to the harvest, possession, and targeting of striped bass since 1990, with the exception of a defined route to and from Block Island in Rhode Island to allow for the transit of vessels in possession of striped bass legally harvested in adjacent state waters. A recommendation was made in Amendment 6 to re-open federal waters to commercial and recreational fisheries. However, NOAA Fisheries concluded opening the EEZ to striped bass fishing was not warranted at that time. Following the completion of the 2018 benchmark stock assessment, NOAA Fisheries, in consultation with the Commission, is directed to review the federal moratorium on Atlantic striped bass, and to consider lifting the ban on striped bass fishing in the Federal Block Island Transit Zone (Consolidated Appropriations Act, 2018).

The Board previously considered commercial quota transfers in the FMP through Draft Amendment 5 for public comment and Draft Addendum IV to Amendment 6 for public comment. The Board did not approve the use of transfers in Amendment 5 in order to focus efforts on rebuilding the stock. The Technical Committee raised concerns that transfers had the potential to increase harvest at a time when harvest reductions were needed which contributed to the Board not approving transfers under Addendum IV to Amendment 6.

### **2.2.3 Status of the Fishery**

In 2020, total Atlantic striped bass removals (commercial and recreational, including harvest, commercial discards and recreational release mortality) was estimated at 5.1 million fish, which is a 7% decrease relative to 2019 (Table 4). The recreational sector accounted for 87% of total removals by number.

#### Commercial Fishery Status

The commercial fishery is managed via a quota system resulting in relatively stable landings since 2004 (refer to Table 5 for a summary of striped bass regulations by state in 2020). There are two regional quotas: one for Chesapeake Bay and one for the ocean region (Maine through North Carolina, excluding Pennsylvania). The ocean region quota is based on average landings during the 1970s and the Chesapeake Bay quota changed annually under a harvest control rule until implementation of a static quota in 2015 through Addendum IV.

#### Coastal Commercial Quota

In 2020, the ocean commercial quota was 2,411,154 pounds and was not exceeded. Table 1 contains final 2020 quotas per Addendum VI and approved conservation equivalency programs and harvest that occurred in 2020.

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### Chesapeake Bay Commercial Quota

In 2020, the Chesapeake Bay-wide quota was 2,998,374 pounds and was allocated to Maryland, the Potomac River Fisheries Commission (PRFC), and Virginia based on historical harvest. In 2020, the Bay-wide quota was not exceeded. Table 1 contains jurisdiction-specific quotas and harvest that occurred in 2020 for Chesapeake Bay. In 2020, commercial harvest from Chesapeake Bay accounted for 64% of total commercial landings by weight, and averaged 61% annually under Addendum IV (2015-2019).

### Commercial Fishery Landings

From 2004 to 2014, coastwide commercial harvest averaged 6.8 million pounds (942,922 fish) annually (Table 2). From 2015-2019, commercial landings decreased to an average of 4.7 million pounds (619,716 fish) due to implementation of Addendum IV and a reduction in the commercial quota. Commercial landings in 2020 were estimated at 3.6 million pounds (577,363 fish). Commercial discards are estimated to account for <2% of total removals per year since 2003 (Table 4). In 2019, commercial removals (landings plus commercial discards) accounted for 13.5% of total removals (commercial plus recreational) in numbers of fish, and 12.6% of total removals in 2020.

The commercial fishery harvested 3.73 million pounds (577,363 fish) in 2020, which is a 17% decrease by weight relative to 2019 (12% decrease by number; Table 2). This decrease aligns with the 18% reduction in commercial quotas implemented through Addendum VI in 2020, although some states implemented a different level of reduction in their commercial quotas through approved state conservation equivalency plans. The ocean quota utilization was about the same in 2020 (53%) as in 2019 (51%), while the Chesapeake Bay quota utilization decreased to 76% in 2020 from 91% in 2019. Despite the coastwide decrease in commercial harvest, ocean fishery conditions for some states may have improved from 2019 to 2020, which could be attributed to the increased availability of year classes moving through certain areas. The impacts of COVID-19 on the striped bass commercial fishery likely varied among states and varied depending on timing within the season. Some states heard from industry that restaurant closures and low prices had negative impacts on the commercial season, particularly during the early part of the pandemic.

Maryland (38%), Virginia (19%), and NY (13%) accounted for the three highest proportions of the commercial harvest (by weight) in 2020 (Table 3; Figure 1). Additional harvest came from PRFC (11%), Massachusetts (11%), Delaware (4%), and Rhode Island (3%). Commercial harvest from Chesapeake Bay accounted for 64% of the total commercial harvest by weight. The proportion of commercial harvest coming from Chesapeake Bay is much higher in numbers of fish (84% in 2020) than by weight because fish harvested in Chesapeake Bay have a lower average weight than fish harvested in ocean fisheries (Table 6). Coastwide commercial dead discards were estimated at 65,319<sup>1</sup> fish, which accounts for <2% of total removals in 2020 (Table 4).

The ocean region regularly underutilizes its quota allocations due to lack of availability in state waters (particularly off of North Carolina) and because commercial fishing is not allowed in some states (Maine, New Hampshire, Connecticut and New Jersey which collectively share about 10% of the ocean

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<sup>1</sup> Commercial dead discard estimates are derived via a generalized additive model (GAM), and are therefore re-estimated for the entire time series when a new year of data is added.

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commercial quota). Furthermore, the underage has increased in recent years since migratory striped bass have not been available to the ocean fishery in North Carolina resulting in zero harvest since 2012 (North Carolina holds 13% of the ocean quota) and raising questions about altered migratory pathways or preferred foraging areas as a result of climate change.

### ***Recreational Fishery Status***

For details on the most recent recreational fishery status see the [Review for the Fishery Management Plan for Striped Bass: Fishing Year 2020](#).

## **3.0 Proposed Management Program**

### **3.1 State-to-State Commercial Quota Transfers of the Coastal Commercial Quota**

Option A: Status quo, no commercial quota transfers are permitted.

Option B: Commercial quota transfer provision of the coastal commercial quota.

Transfers between states may occur upon agreement of two states at any time during the fishing season up to 45 days after the last day of the calendar year. All transfers require a donor state (state giving quota) and a receiving state (state accepting additional quota). There is no limit on the amount of quota that can be transferred by this mechanism, and the terms and conditions of the transfer are to be identified solely by the parties involved in the transfer. The Administrative Commissioner of the agencies involved (giving and receiving state) must submit a signed letter to the Commission identifying the involved states, species, and pounds of quota to be transferred between the parties. A transfer becomes effective upon receipt of a letter from Commission staff to the donor and receiving states, and does not require the approval by the Board. All transfers are final upon receipt of the signed letters by the Commission. In the event that the donor or receiving state of a transaction subsequently wishes to change the amount or details of the transaction, both parties have to agree to the change, and submit to the Commission signed letters from the Administrative Commissioner of the agencies involved. These transfers do not permanently affect the state-specific shares of the quota (i.e., the state-specific quotas remain fixed).

Once quota has been transferred to a state, the state receiving quota becomes responsible for any overages of transferred quota. That is, the amount over the final quota (that state's quota plus any quota transferred to that state) for a state will be deducted from the corresponding state's quota the following fishing season.

## **4.0 Compliance Schedule**

To be in compliance with Addendum VII to Amendment 6 to the Atlantic Striped Bass Interstate FMP, states must implement Addendum VII:

**Compliance Schedule to be determined by the Board.**

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**5.0 Tables and Figures**

Table 1. Results of 2020 commercial quota accounting in pounds. Source: 2021 state compliance reports. 2020 quota was based on Addendum VI and approved conservation equivalency programs.

State	Add VI (base)	2020 Quota <sup>^</sup>	2020 Harvest	Overage
<b>Ocean</b>				
Maine*	154	154	-	-
New Hampshire*	3,537	3,537	-	-
Massachusetts	713,247	735,240	386,924	0
Rhode Island	148,889	148,889	115,891	0
Connecticut*	14,607	14,607	-	-
New York	652,552	640,718	473,461	0
New Jersey**	197,877	215,912	-	-
Delaware	118,970	142,474	137,986	0
Maryland	74,396	89,094	83,594	0
Virginia	113,685	125,034	77,239	0
North Carolina	295,495	295,495	0	0
<b>Ocean Total</b>	<b>2,333,409</b>	<b>2,411,154</b>	<b>1,275,095</b>	<b>0</b>
<b>Chesapeake Bay</b>				
Maryland	<b>2,588,603</b>	1,442,120	1,273,757	0
Virginia		983,393	611,745	0
PRFC		572,861	400,319	0
<b>Bay Total</b>		<b>2,998,374</b>	<b>2,285,821</b>	<b>0</b>

\* Commercial harvest/sale prohibited, with no re-allocation of quota.

\*\* Commercial harvest/sale prohibited, with re-allocation of quota to the recreational fishery.

<sup>^</sup> 2020 quota changed through conservation equivalency for MA (735,240 lbs), NY (640,718 lbs), NJ (215,912 lbs), DE (142,474 lbs), MD (ocean: 89,094 lbs; bay: 1,445,394 lbs), PRFC (572,861 lbs), VA (ocean: 125,034 lbs; bay: 983,393 lbs).

Note: Maryland's Chesapeake Bay quota for 2020 was adjusted to account for the overage in 2019.

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Table 2. Total harvest of Atlantic striped bass by sector, 1990-2020. Note: Harvest is from state compliance reports/MRIP (Query July 8, 2021). Estimates exclude inshore harvest from North Carolina.

Year	Numbers of Fish			Pounds		
	Commercial	Recreational	Total	Commercial	Recreational	Total
1990	93,888	578,897	672,785	715,902	8,207,515	8,923,417
1991	158,491	798,260	956,751	966,096	10,640,601	11,606,697
1992	256,476	869,779	1,126,255	1,508,064	11,921,967	13,430,031
1993	314,526	789,037	1,103,563	1,800,176	10,163,767	11,963,943
1994	325,401	1,055,523	1,380,924	1,877,197	14,737,911	16,615,108
1995	537,412	2,287,578	2,824,990	3,775,586	27,072,321	30,847,907
1996	854,102	2,487,422	3,341,524	4,822,874	28,625,685	33,448,559
1997	1,076,591	2,774,981	3,851,572	6,078,566	30,616,093	36,694,659
1998	1,215,219	2,915,390	4,130,609	6,552,111	29,603,199	36,155,310
1999	1,223,572	3,123,496	4,347,068	6,474,290	33,564,988	40,039,278
2000	1,216,812	3,802,477	5,019,289	6,719,521	34,050,817	40,770,338
2001	931,412	4,052,474	4,983,886	6,266,769	39,263,154	45,529,923
2002	928,085	4,005,084	4,933,169	6,138,180	41,840,025	47,978,205
2003	854,326	4,781,402	5,635,728	6,750,491	54,091,836	60,842,327
2004	879,768	4,553,027	5,432,795	7,317,897	53,031,074	60,348,971
2005	970,403	4,480,802	5,451,205	7,121,492	57,421,174	64,542,666
2006	1,047,648	4,883,961	5,931,609	6,568,970	50,674,431	57,243,401
2007	1,015,114	3,944,679	4,959,793	7,047,179	42,823,614	49,870,793
2008	1,027,837	4,381,186	5,409,023	7,190,701	56,665,318	63,856,019
2009	1,049,838	4,700,222	5,750,060	7,217,380	54,411,389	61,628,769
2010	1,031,430	5,388,440	6,419,870	6,996,713	61,431,360	68,428,073
2011	944,777	5,006,358	5,951,135	6,789,792	59,592,092	66,381,884
2012	870,684	4,046,299	4,916,983	6,516,761	53,256,619	59,773,380
2013	784,379	5,157,760	5,942,139	5,819,678	65,057,289	70,876,967
2014	750,263	4,033,746	4,784,009	5,937,949	47,948,610	53,886,559
2015	621,952	3,085,725	3,707,677	4,829,997	39,898,799	44,728,796
2016	609,028	3,500,434	4,109,462	4,848,772	43,671,532	48,520,304
2017	592,670	2,937,911	3,530,581	4,816,395	37,952,581	42,768,976
2018	621,123	2,244,765	2,865,888	4,741,342	23,069,028	27,810,370
2019	653,807	2,150,936	2,804,743	4,284,831	23,556,287	27,841,118
2020	577,363	1,709,973	2,287,336	3,560,917	14,858,984	18,419,901

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Table 3. Commercial harvest by region in pounds (x1000), 1995-2020. Source: state compliance reports. ^Estimates exclude inshore harvest.

Year	Ocean								Chesapeake Bay				Grand Total
	MA	RI	NY	DE	MD	VA	NC^	Total	MD	PRFC	VA	Total	
1995	751.5	113.5	500.8	38.5	79.3	46.2	344.6	1,874.3	1,185.0	198.5	517.8	1,901.3	3,775.6
1996	695.9	122.6	504.4	120.5	75.7	165.9	58.2	1,743.2	1,487.7	346.8	1,245.2	3,079.7	4,822.9
1997	784.9	96.5	460.8	166.0	94.0	179.1	463.1	2,244.4	2,119.2	731.9	983.0	3,834.2	6,078.6
1998	810.1	94.7	485.9	163.7	84.6	375.0	273.0	2,287.0	2,426.7	726.2	1,112.2	4,265.1	6,552.1
1999	766.2	119.7	491.8	176.3	62.6	614.8	391.5	2,622.9	2,274.8	653.3	923.4	3,851.4	6,474.3
2000	796.2	111.8	542.7	145.1	149.7	932.7	162.4	2,840.5	2,261.8	666.0	951.2	3,879.0	6,719.5
2001	815.4	129.7	633.1	198.6	113.9	782.4	381.1	3,054.1	1,660.9	658.7	893.1	3,212.6	6,266.8
2002	924.9	129.2	518.6	146.2	93.2	710.2	441.0	2,963.2	1,759.4	521.0	894.4	3,174.9	6,138.2
2003	1,055.5	190.2	753.3	191.2	103.9	166.4	201.2	2,661.7	1,721.8	676.6	1,690.4	4,088.7	6,750.5
2004	1,214.2	215.1	741.7	176.5	134.2	161.3	605.4	3,248.3	1,790.3	772.3	1,507.0	4,069.6	7,317.9
2005	1,102.2	215.6	689.8	174.0	46.9	185.2	604.5	3,018.2	2,008.7	533.6	1,561.0	4,103.3	7,121.5
2006	1,322.3	5.1	688.4	184.2	91.1	195.0	74.2	2,560.2	2,116.3	673.5	1,219.0	4,008.7	6,569.0
2007	1,039.3	240.6	731.5	188.7	96.3	162.3	379.5	2,838.1	2,240.6	599.3	1,369.2	4,209.1	7,047.2
2008	1,160.3	245.9	653.1	188.7	118.0	163.1	288.4	2,817.6	2,208.0	613.8	1,551.3	4,373.1	7,190.7
2009	1,134.3	234.8	789.9	192.3	127.3	140.4	190.0	2,809.0	2,267.3	727.8	1,413.3	4,408.4	7,217.4
2010	1,224.5	248.9	786.8	185.4	44.8	127.8	276.4	2,894.7	2,105.8	683.2	1,313.0	4,102.0	6,996.7
2011	1,163.9	228.2	855.3	188.6	21.4	158.8	246.4	2,862.5	1,955.1	694.2	1,278.1	3,927.3	6,789.8
2012	1,218.5	239.9	683.8	194.3	77.6	170.8	7.3	2,592.0	1,851.4	733.7	1,339.6	3,924.7	6,516.8
2013	1,004.5	231.3	823.8	191.4	93.5	182.4	0.0	2,526.9	1,662.2	623.8	1,006.8	3,292.8	5,819.7
2014	1,138.5	216.9	531.5	167.9	120.9	183.7	0.0	2,359.4	1,805.7	603.4	1,169.4	3,578.5	5,937.9
2015	866.0	188.3	516.3	144.1	34.6	138.1	0.0	1,887.5	1,436.9	538.0	967.6	2,942.5	4,830.0
2016	938.7	174.7	575.0	136.5	19.7	139.2	0.0	1,983.9	1,425.5	537.1	902.3	2,864.9	4,848.8
2017	823.4	175.3	701.2	141.8	80.5	133.9	0.0	2,056.1	1,439.8	492.7	827.8	2,760.3	4,816.4
2018	753.7	176.6	617.2	155.0	79.8	134.2	0.0	1,916.6	1,424.3	449.4	951.0	2,824.7	4,741.3
2019	584.7	144.2	358.9	132.6	82.8	138.0	0.0	1,441.2	1,475.2	417.3	951.1	2,843.6	4,284.8
2020 <sup>+</sup>	386.9	115.9	473.5	138.0	83.6	77.2	0.0	1,275.1	1,273.8	400.3	611.7	2,285.8	3,560.9

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Table 4. Total removals (harvest plus discards/release mortality) of Atlantic striped bass by sector in numbers of fish, 1990-2020. Note: Harvest is from state compliance reports/MRIP (July 8, 2021), discards/release mortality is from ASMFC. Estimates exclude inshore harvest from North Carolina.

Year	Commercial		Recreational		Total Removals
	Harvest	Discards*	Harvest	Release Mortality	
1990	93,888	47,859	578,897	442,811	1,163,455
1991	158,491	92,480	798,260	715,478	1,764,709
1992	256,476	193,281	869,779	937,611	2,257,147
1993	314,526	115,859	789,037	812,404	2,031,826
1994	325,401	166,105	1,055,523	1,360,872	2,907,900
1995	537,412	188,507	2,287,578	2,010,689	5,024,186
1996	854,102	257,749	2,487,422	2,600,526	6,199,800
1997	1,076,591	325,998	2,774,981	2,969,781	7,147,351
1998	1,215,219	347,343	2,915,390	3,259,133	7,737,085
1999	1,223,572	337,036	3,123,496	3,140,905	7,825,008
2000	1,216,812	209,329	3,802,477	3,044,203	8,272,820
2001	931,412	182,606	4,052,474	2,449,599	7,616,091
2002	928,085	199,770	4,005,084	2,792,200	7,925,139
2003	854,326	131,319	4,781,402	2,848,445	8,615,492
2004	879,768	157,724	4,553,027	3,665,234	9,255,753
2005	970,403	146,126	4,480,802	3,441,928	9,039,259
2006	1,047,648	158,808	4,883,961	4,812,332	10,902,750
2007	1,015,114	160,728	3,944,679	2,944,253	8,064,774
2008	1,027,837	106,791	4,381,186	2,391,200	7,907,013
2009	1,049,838	130,200	4,700,222	1,942,061	7,822,321
2010	1,031,430	134,817	5,388,440	1,760,759	8,315,446
2011	944,777	85,503	5,006,358	1,482,029	7,518,667
2012	870,684	198,911	4,046,299	1,847,880	6,963,774
2013	784,379	114,009	5,157,760	2,393,425	8,449,573
2014	750,263	111,753	4,033,746	2,172,342	7,068,103
2015	621,952	84,463	3,085,725	2,307,133	6,099,273
2016	609,028	88,171	3,500,434	2,981,430	7,179,063
2017	592,670	98,343	2,937,911	3,421,110	7,050,035
2018	621,123	100,646	2,244,765	2,826,667	5,793,201
2019	653,807	84,013	2,150,936	2,589,045	5,477,801
2020	577,363	65,319	1,709,973	2,760,231	5,112,886

\* Commercial dead discard estimates are derived via a generalized additive model (GAM), and are therefore re-estimated for the entire time series when a new year of data is added.

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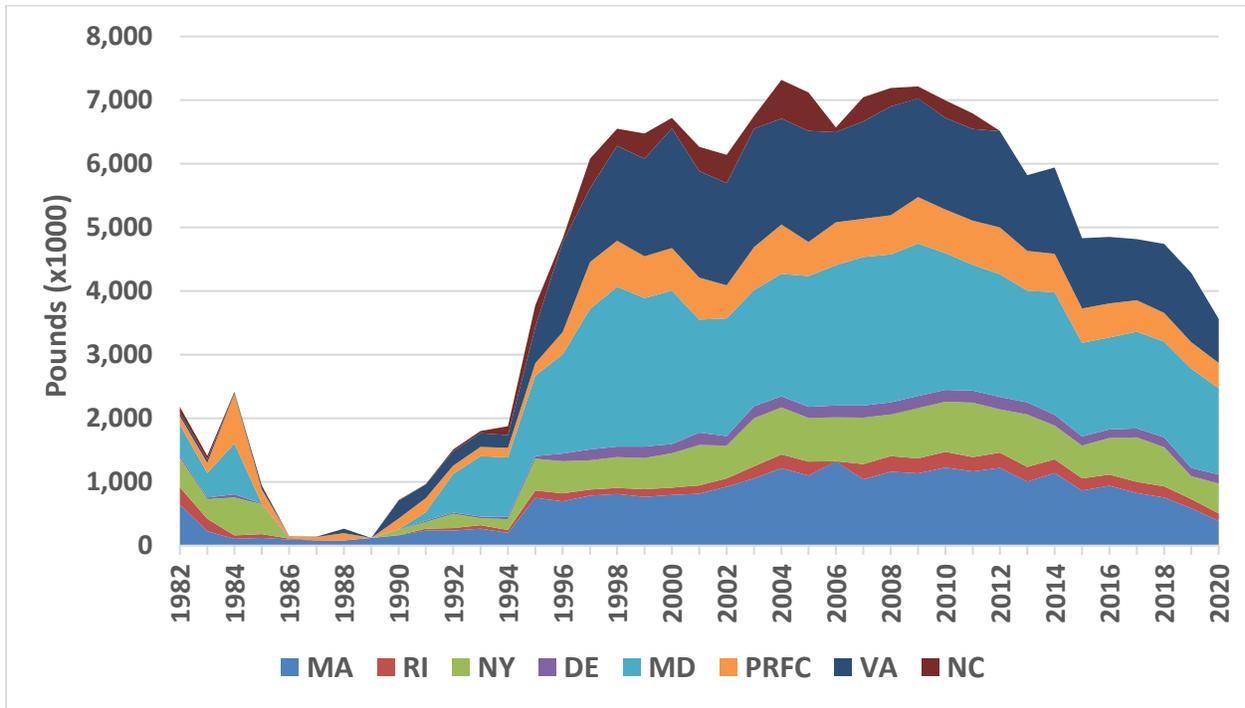
Table 5. Summary of Atlantic striped bass commercial regulations in 2020. Source: 2021 State Compliance Reports. Minimum sizes and slot size limits are in total length (TL). \*Commercial quota reallocated to recreational bonus fish program.

STATE	SIZE LIMITS (TL) and TRIP LIMITS	SEASONAL QUOTA	OPEN SEASON
ME	Commercial fishing prohibited		
NH	Commercial fishing prohibited		
MA	≥35" minimum size; no gaffing undersized fish. 15 fish/day with commercial boat permit; 2 fish/day with rod and reel permit.	735,240 lbs. Hook & Line only.	6.24 until quota reached, Mondays and Wednesdays only. (In-season adjustment added Tuesdays effective Sept 1.) July 3rd, July 4th and Labor Day closed. Cape Cod Canal closed to commercial striped bass fishing.
RI	Floating fish trap: 26" minimum size unlimited possession limit until 70% of quota reached, then 500 lbs. per licensee per day	Total: 148,889 lbs., split 39:61 between the trap and general category. Gill netting prohibited.	4.1 – 12.31
	General category (mostly rod & reel): 34" min. 5 fish/vessel/day limit.		5.20-6.30, 7.1-12.31, or until quota reached. Closed Fridays, Saturdays, and Sundays during both seasons.
CT	Commercial fishing prohibited; bonus program in CT suspended indefinitely in 2020.		
NY	26"-38" size; (Hudson River closed to commercial harvest)	640,718 lbs. Pound Nets, Gill Nets (6-8" stretched mesh), Hook & Line.	6.1 – 12.15, or until quota reached. Limited entry permit only.
NJ*	Commercial fishing prohibited; bonus program: 1 fish at 24" to <28" slot size	215,912 lbs.	5.15 – 12.31 (permit required)
PA	Commercial fishing prohibited		

(Table 5 continued – Summary of commercial regulations in 2020).

STATE	SIZE LIMITS (TL) and TRIP LIMITS	SEASONAL QUOTA	OPEN SEASON
DE	Gill Net: 20" min in DE Bay/River during spring season. 28" in all other waters/seasons.	Gillnet: 135,350 lbs. No fixed nets in DE River.	Gillnet: 2.15-5.31 (2.15-3.30 for Nanticoke River) & 11.15-12.31; drift nets only 2.15-28 & 5.1-31; no trip limit.
	Hook and Line: 28" min	Hook and line: 7,124 lbs.	Hook and Line: 4.1–12.31, 200 lbs./day trip limit
MD	Chesapeake Bay and Rivers: 18–36" Common pool trip limits: Hook and Line - 250 lbs./license/week Gill Net - 300 lbs./license/week	1,445,394 lbs. (part of Bay-wide quota) – Initial quota  1,442,120 lbs. – Adjusted quota due to 2019 overage	Bay Pound Net: 6.1-12.31 Bay Haul Seine: 6.1-12.31 Bay Hook & Line: 6.4-12.31 Bay Drift Gill Net: 1.1-2.28, 12.1-12.31
	Ocean: 24" minimum	Ocean: 89,094 lbs.	1.1-5.31, 10.1-12.31
PRFC	18" min all year; 36" max 2.15–3.25	572,861 lbs. (part of Bay-wide quota)	Hook & Line: 1.1-3.25, 6.1-12.31 Pound Net & Other: 2.15-3.25, 6.1-12.15 Gill Net: 1.1-3.25, 11.9-12.31 Misc. Gear: 2.15-3.25, 6.1-12.15
VA	Bay and Rivers: 18" min; 28" max size limit 3.15–6.15	983,393 lbs. (part of Bay-wide quota)	1.16-12.31
	Ocean: 28" min	125,034 lbs.	
NC	Ocean: 28" min	295,495 lbs. (split between gear types).	Seine fishery was not opened Gill net fishery was not opened Trawl fishery was not opened

Figure 1. Commercial Atlantic striped bass landings by state in pounds, 1990-2020. Source: State compliance reports. Commercial harvest and sale prohibited in ME, NH, CT, and NJ. NC is ocean only.





# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

**TO:** Atlantic Striped Bass Management Board  
**FROM:** Atlantic Striped Bass Plan Development Team  
**DATE:** October 12, 2021  
**SUBJECT:** Draft Addendum VII to Amendment 6

At the direction of the Atlantic Striped Bass Management Board (Board), the Plan Development Team (PDT) drafted an addendum that considers options to allow for the voluntary transfer of the ocean region commercial quota between states that have ocean quota<sup>1</sup>. However, the PDT has significant concerns with adding ocean region commercial transfers to the fishery management program at this time. If the Board moves forward with public comment of Draft Addendum VII, it is recommended the below concerns are added to the Draft Addendum. The PDT notes these concerns were previously raised by the Technical Committee (TC) in 2014 when transfers were considered in Draft Addendum IV.

First, the PDT is concerned quota transfer could undermine the goals and objectives of the reductions taken under Addendum VI. The commercial ocean fishery has consistently underutilized quotas, due to a combination of fish availability and state-specific regulations (e.g. commercial prohibitions). Both Addenda IV and VI were designed to achieve a specific reduction in total removals through more restrictive recreational measures and reduced commercial quotas in order to achieve the fishing mortality target. During the Addendum VI process, the TC noted the reduction in commercial quota would achieve the necessary reduction in commercial removals only if the commercial fisheries perform as they have in the past, i.e., if they continue to underutilize their quotas to the same degree. This assumption would be violated if the transfer of commercial ocean region quota is permitted. If Addendum VI commercial quotas were fully utilized by allowing the transfer of latent quota, commercial harvest would be higher than estimated in the Addendum VI projections and states would not maintain the required commercial reduction, thus potentially undermining the goals and objectives of Addendum VI to end overfishing.

Second, a pound of commercial quota is not equal across all states. Through conservation equivalency (CE), states have been able to adjust their commercial size limits, which result in changes to their respective commercial quotas. For example, when implementing Addendum VI, Massachusetts increased its commercial minimum size limit, which increased its quota, and New York lowered its commercial slot limit minimum, which decreased its quota; both of these CE programs are based on a spawner-per-recruit analysis (SPR). Changes in state quota through CE have been occurring since before Addendum VI. Over time several adjustments have been made to commercial size limits resulting in changes to commercial quotas, making transferring quota between states with different size limits difficult. Since the PDT's focus has been on Draft Amendment 7, it has not had the time to consider all of the changes made to base quota allocations that have resulted from adjusting commercial size limits. Given more time, it might be able to address this concern.

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<sup>1</sup> The Draft Addendum does not address potential transfers of the Chesapeake Bay quota among the Bay jurisdictions as the FMP does not establish the allocations of the Chesapeake Bay quota, rather Maryland, Virginia, and the Potomac River Fisheries Commission do so per the jurisdictions' mutual agreement. Additionally, the Draft Addendum does not consider allowing transfer of Chesapeake Bay quota to an ocean fishery (or vice versa) due to the distinct management programs between the areas (e.g., size limit differences).

## Emilie Franke

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**From:** Michael Grosscup <seagrave20@aol.com>  
**Sent:** Tuesday, May 17, 2022 9:02 PM  
**To:** Comments  
**Subject:** [External] Striped Bass

Dear madam's and sirs for three years now the young of the year index in the Chesapeake bay has been dismal at best. This valuable fish, both ecological and monetary needs a broad brush protection. Right now its piece meal. One state has this rule another state has a different rule. Also I would like to see the striped Bass a.k.a .rockfish held to the same standards as the highly migratory species list like tuna. Example free tags from your local tackle shop would definitely be a more accurate way to keep track of fish caught. You catch a fish tag goes in the gill out the mouth it would be illegal to bring an untagged fish back to the dock. Then you call your state D.N.R. regular business hours to give the tag number or text a message with the tag number. Just a thought.

## Emilie Franke

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**From:** Tom Nixon <thomasnixon88@hotmail.com>  
**Sent:** Wednesday, June 22, 2022 8:35 PM  
**To:** Comments  
**Subject:** [External] Striped bass regulations

I don't understand how thousands of people a day are killing stripers 28 to 35" then commercial guys have a endless quota of 35+ how is that managing striped bass

Sent from my iPhone

# Atlantic States Marine Fisheries Commission

## Executive Committee

Wednesday, August 3, 2022

8:00 – 10:00 am

## Draft Agenda

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

1. Welcome/Introductions (*S. Woodward*) 8:00 a.m.
2. Committee Consent 8:05 a.m.
  - Approval of Agenda
  - Approval of Meeting Summary from May 2022
3. Public Comment 8:10 p.m.
4. CARES Act Update 8:15 a.m.
5. Report of *De Minimis* Work Group 8:30 a.m.
6. Consider Approval of Updated Investment Policy **Action** 9:00 a.m.
7. Review Letter of Support for Resilient Coasts and Estuaries Act 9:15 a.m.
8. Discuss State Support for the Responsible Offshore Science Alliance (ROSA) 9:30 a.m.
9. Other Business Adjourn 10:00 a.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111)  
and via webinar; click [here](#) for details

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

**DRAFT MEETING SUMMARY OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
EXECUTIVE COMMITTEE**

**The Westin  
Arlington, VA  
May 4, 2022**

## INDEX OF MOTIONS

1. Approval of Agenda by Consent. (Page 1)
2. Approval of Meeting Summary from January 26, 2022 by Consent. (Page 1)
3. Motion to Approve FY23 Budget (Motion by Mr. Abbott; seconded by Mr. Keliher; motion passed unanimously) (Page 1)
4. Motion to accept the proposed changes including option 3 to the Commission's appeals process policy to be forwarded to the Policy Board for action. (Motion by Mr. Keliher; second by Mr. Clark. Motion passed unanimously.) (Page 1)
5. Adjourn by Consent (Page 1).

## ATTENDANCE

### Committee Members

Pat Keliher, ME	Roy Miller, DE (GA Chair)
Cheri Patterson, NH	John Clark, DE
Dennis Abbott, NH (LA Chair)	Lynn Fegley MD
Dan McKiernan, MA	Kathy Rawls, NC
Jason McNamee, RI	Mel Bell, SC
Bill Hyatt, (proxy for Justin Davis) CT	Spud Woodward, GA
Jim Gilmore, NY	Hannah Hart (proxy for Jessica McCawley) FL
Joe Cimino, NJ	
Kris Kuhn, PA	

### Other Commissioners/Proxies

Chris Batsavage, NC	Raymond Kane, MA
David Borden, RI	Jerry Mannen, NC
Scott Curatolo-Wagemann (proxy for Emerson Hasbrouck), NY	Chris McDonough, SC
Tom Fote, NJ	Conor McManus, RI
Patrick Geer, VA	Nichola Meserve, MA
Lewis Gillingham, VA	Ritchie White, NH
Doug Haymans, GA	Renee Zobel, NH

### Staff

Bob Beal	Tina Berger
Laura Leach	Geoff White
Toni Kerns	Lindsey Aubart
Pat Campfield	Lisa Carty

### Guests

Karen Abrams, NMFS	Marty Gary, PRFC
Jeff Brust, NJ MFA	Chip Lynch, NOAA

**CALL TO ORDER**

The Executive Committee (EC) of the Atlantic States Marine Fisheries Commission convened May 4, 2022 in the Jefferson Ballroom at The Westin Crystal City. The meeting was called to order at 8:00 a.m. by Chair Spud Woodward.

**APPROVAL OF AGENDA**

The agenda was approved.

**APPROVAL OF PROCEEDINGS**

The summary minutes from the January 26, 2022 meeting were approved as presented.

**PUBLIC COMMENT**

There was no public comment.

**PROPOSED FY23 BUDGET**

Mrs. Leach presented the proposed FY23 Commission budget which was reviewed by the Executive Committee. Mr. Abbott moved approval of the FY23 budget as presented; seconded by Mr. Keliher. This motion passed unanimously.

**APPEALS PROCESS**

Mr. Beal presented the further draft revisions to the appeals process policy. The potential revisions have been discussed by the Executive Committee multiple times. The one remaining issue that needed to be resolved was the definition of the range of options that are available to a species management board when an appeal obligates corrective action. Mr. Keliher moved acceptance of the proposed changes including Option 3 to be forwarded to the Policy Board for action. Mr. Clark seconded the motion and it passed unanimously.

**DE MINIMIS WORKING GROUP**

Ms. Kerns presented an update from the *De Minimis* Working group. After a thorough discussion, the Chair tasked the working group to draft an options paper for review by the EC in August.

**CONSERVATION EQUIVALENCY**

Ms. Kerns provided a brief update on the activities of the Commissioner and Management and Science Committee (MSC) Work Groups relative to the review of the conservation equivalency program. The MSC Work Group will present a draft to the full MSC this summer before presenting a report to the EC in August.

**ADJOURN**

The Executive Committee adjourned at 9:26 a.m. to go into a closed session to conduct the Executive Director's review.

# Atlantic States Marine Fisheries Commission

## Horseshoe Crab Management Board

*August 3, 2022*  
*10:15 - 11:45 a.m.*  
*Hybrid Meeting*

### Draft Agenda

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

1. Welcome/Call to Order (*J. Clark*) 10:15 a.m.
2. Board Consent 10:15 a.m.
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment 10:20 a.m.
4. Consider Draft Addendum VIII on the Implementation of Recommended Changes from 2021 ARM Revision and Peer Review Report for Public Comment (*C. Starks*) **Action** 10:30 a.m.
5. Update on Plan Development Team Review of Biomedical Mortality, Biologically-based Options for Setting the Threshold, and Best Management Practices for Handling Biomedical Collections (*C. Starks*) 11:15 a.m.
  - Consider Technical Committee Recommendations (*N. Ameral*)
  - Consider Advisory Panel Report (*B. Hoffmeister*)
6. Review and Populate Advisory Panel Membership (*T. Berger*) **Action** 11:35 a.m.
7. Elect Vice-Chair (*J. Clark*) **Action** 11:40 a.m.
8. Other Business/Adjourn 11:45 a.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# MEETING OVERVIEW

**Horseshoe Crab Management Board Meeting**  
**August 3, 2022**  
**10:15 - 11:45 a.m.**  
**Hybrid Meeting**

Chair: John Clark (DE) Assumed Chairmanship: 1/22	Horseshoe Crab Technical Committee Chair: Natalie Ameal (RI)	
Vice Chair: VACANT	Horseshoe Crab Advisory Panel Chair: Brett Hoffmeister (MA)	Law Enforcement Committee Representative: Nick Couch (DE)
Delaware Bay Ecosystem Technical Committee Chair: Wendy Walsh (FWS)	Adaptive Resource Management Subcommittee Chair: Dr. John Sweka (FWS)	Previous Board Meeting: May 3, 2022
Voting Members: MA, RI, CT, NY, NJ, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (16 votes)		

## 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 3, 2022

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

## 4. Consider Draft Addendum VIII: Implementation of Recommended Changes from 2021 ARM Revision and Peer Review Report for Public Comment (10:30-11:15 a.m.) Action

### Background

- In October 2019, the Board directed the Adaptive Resource Management (ARM) Subcommittee to begin working on updates to the ARM Framework to revisit several aspects of the ARM model to incorporate horseshoe crab population estimates from the Catch Multiple Survey Analysis (CMSA) model used in the 2019 Benchmark Stock Assessment and the most current scientific information available for horseshoe crabs and red knots.
- In January 2022, the Board accepted the ARM Revision and Peer Review for management use, and initiated a Draft Addendum to consider allowing its use in setting annual specifications for horseshoe crabs of Delaware Bay-origin. The Horseshoe Crab PDT met multiple times throughout the spring to develop a draft addendum document for Board consideration (**Briefing Materials**).

**Presentations**

- Overview of Draft Addendum VIII for Board Consideration by C. Starks

**Board actions for consideration at this meeting**

- Approve Draft Addendum VIII for Public Comment

**5. Update on PDT Review of Biomedical Mortality, Biologically-based Options for Setting the Threshold, and Best Management Practices for Handling Biomedical Collections (11:15-11:35 a.m.)****Background**

- In October 2021, The Board tasked the Plan Development Team to review biomedical mortality, discuss biologically-based options for setting the threshold, and consider updates to best management practices for handling biomedical collections.
- The PDT requested advice from the Technical Committee (TC) on this issue. The TC met multiple times to discuss potential strategies for setting a biologically-based threshold for biomedical collections, and to review the 2011 best management practices. The TC provided recommendations to the PDT regarding the mortality threshold (**Briefing Materials**).
- The AP met in July to consider this Board task and the TC's recommendations, and to provide input on the best management practices for handling biomedical collections (**Supplemental Materials**).

**Presentations**

- Update on Task to Review Biomedical Mortality and Best Management Practices for Biomedical Collections by C. Starks

**6. Review and Populate Advisory Panel Membership (11:35-11:40 a.m.) Action****Background**

- Massachusetts has submitted a nomination to the South Atlantic Advisory Panel: David Meservey, an inshore commercial otter trawler (**Briefing Materials**).

**Presentations**

- Nomination by T. Berger

**Board actions for consideration at this meeting**

- Approve Advisory Panel Nomination

**7. Elect Vice-Chair****8. Other Business/Adjourn**

## Horseshoe Crab

**Activity level: Medium**

**Committee Overlap Score:** Low (SAS overlaps with BERP)

### Committee Task List

- PDT – Development of Draft Addendum VIII to consider use of the ARM Revision in setting Delaware Bay harvest specifications
- PDT – review the threshold for biomedical use to develop biological based options for the threshold and to develop options for action when the threshold is exceeded; review best management practices for handling biomedical catch and suggest options for updating and implementing best management practices (BMPs).
- TC – July 1<sup>st</sup>: Annual compliance reports due
- ARM & DBETC – Fall: Annual ARM model to set Delaware Bay specifications, review red knot and VT trawl survey results

**TC Members:** Natalie Ameral (RI, Chair), Jeff Brunson (SC), Derek Perry (MA), Deb Pacileo (CT), Catherine Ziegler (NY), Samantha Macquesten (NJ), Jordan Zimmerman (DE), Steve Doctor (MD), Ingrid Braun (PRFC), Adam Kenyon (VA), Jeffrey Dobbs (NC), Eddie Leonard (GA), Claire Crowley (FL), Chris Wright (NMFS), Joanna Burger (Rutgers), Mike Millard (USFWS), Kristen Anstead (ASMFC), Caitlin Starks (ASMFC)

**Delaware Bay Ecosystem TC Members:** Wendy Walsh (USFWS, Chair), Amanda Dey (NJ), Samantha Macquesten (NJ), Henrietta Bellman (DE, Vice Chair), Jordan Zimmerman (DE), Steve Doctor (MD), Adam Kenyon (VA), Jim Fraser (VA Tech), Eric Hallerman (VA Tech), Mike Millard (USFWS), Kristen Anstead (ASMFC), Caitlin Starks (ASMFC)

**ARM Subcommittee Members:** John Sweka (USFWS, Chair), Larry Niles (NJ), Linda Barry (NJ), Henrietta Bellman (DE), Jason Boucher (DE), Steve Doctor (MD), Wendy Walsh (USFWS), Conor McGowan (USGS/Auburn), David Smith (USGS), Jim Lyons (USGS, ARM Vice Chair), Jim Nichols (USGS), Kristen Anstead (ASMFC), Caitlin Starks (ASMFC)

Draft Proceedings of the Horseshoe Crab Management Board  
May 2022

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

**The Westin Crystal City  
Arlington, Virginia**

**May 3, 2022**

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

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    Review Recommendations on Options for Implementing the Adaptive Resource Management  
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    Provide Guidance to the PDT ..... 8

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Adjournment ..... 13

**INDEX OF MOTIONS**

1. **Move to approve agenda** by Consent (Page 1).
2. **Move to approve proceedings of January 26, 2022** by Consent (Page 1).
3. **Motion to adjourn** by Consent (Page 12).

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

## ATTENDANCE

### Board Members

Dan McKiernan, MA (AA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Raymond Kane, MA (GA)	Mike Luisi, MD, Administrative proxy
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Russell Dize, MD (GA)
Conor McManus, RI, proxy for J. McNamee (AA)	Pat Geer, VA, Administrative proxy
David Borden, RI (GA)	Shanna Madsen, VA, proxy for Sen. Mason (LA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
Colleen Bouffard, CT, proxy for J. Davis (AA)	Jerry Mannen, NC (GA)
Robert LaFrance, CT, proxy for B. Hyatt (GA)	Mel Bell, SC (AA)
Jim Gilmore, NY (AA)	Malcolm Rhodes, SC (GA)
Scott Curatolo-Wagemann, NY, proxy for E. Hasbrouck (GA)	Chris McDonough, SC, proxy for Sen. Cromer (LA)
John McMurray, NY, proxy for Sen. Kaminsky (LA)	Doug Haymans, GA (AA)
Joe Cimino, NJ (AA)	Spud Woodward, GA (GA)
Tom Fote, NJ (GA)	Hannah Hart, FL, proxy for J. McCawley (AA)
John Clark, DE (AA)	Marty Gary, PRFC
Roy Miller, DE (GA)	Richard Cody, NMFS
	Rick Jacobson, US FWS

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

### Ex-Officio Members

John Sweka, ARM Subcommittee Chair

### Staff

Robert Beal	Kristen Anstead	Jeff Kipp
Toni Kerns	James Boyle	Sarah Murray
Maya Drzewicki	Emilie Franke	Caitlin Starks
Tina Berger	Lisa Havel	Deke Tompkins
Pat Campfield	Chris Jacobs	

### Guests

Pat Augustine, Coram, NY	Deborah Cramer	Helen Takade-Heumacher, EDF
Katherine Becker, FL FWC	Claire Crowley, FL FWC	Greg Hinks, NJ DEP
Alan Bianchi, NC DENR	Maureen Davidson, NYS DEC	Brett Hoffmeister, AP Chair
Nora Blair, Charles River Labs	Lennie Day, USGS	Harry Hornick, MD DNR
Sarah Blick, ACCIUSA	Tim Dillingham, Littoral Society	Jessie Hornstein, NYS DEC
Jason Bucher, NOAA	Steve Doctor, MD DNR	David Hu, USGS
William Brantley, NC DENR	John Duane	Christian Hunt
Jeff Brust, NJ DEP	Sheila Eyler, US FWS	Bill Hyatt, CT (GA)
Allen Burgenson, Lonza	Catherine Fede, NYS DEC	Jeff Kaelin, Lund's Fisheries
Peter Clarke, NJ DEP	Brad Floyd, SC DNR	Carrie Kennedy, MD DMR
Margaret Conroy, DE DFW	Matthew Gates, CT DEEP	Adam Kenyon, VMRC
Heather Corbett, NJ DEP	Berlynn Heres, FL FWC	Lisa Komski, Fuji Film

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

Draft Proceedings of the Horseshoe Crab Management Board  
May 2022

**Guests (continued)**

Christina Lecker, Fuji Film  
Benjamin Levitan, EarthJustice  
Tom Lilly  
Loren Lustig, PA (GA)  
Samantha MacQuesten, NJ DEP  
John Maniscalco, NYS DEC  
Genine McClair, MD DNR  
Kim McKown, NYS DEC  
David Meservey

Steve Meyers  
Mike Millard  
Thomas Newman  
Derek Orner, NOAA  
Willow Patten, NC DENR  
Derek Perry, MA DMF  
Allen Reneau, Fuji Film  
Sam Robinson, DE DFW  
Scott Schaffer, MA DMF

Ross Self, SC DNR  
Ethan Simpson, VMRC  
Jennifer Slovinski, Fuji Film  
Bryan Sparrow, Fuji Film  
Yoshibina Takasuga Fuji Films  
Kristoffer Whitney, RIT  
Meredith Whitten, NC DENR  
Jordan Zimmerman, DE DFW

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

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, a hybrid meeting, in-person and webinar; Tuesday, May 3, 2022, and was called to order at 8:30 a.m. by Chair John Clark.

#### **CALL TO ORDER**

CHAIR JOHN CLARK: Good morning, everybody. Welcome to the Horseshoe Crab Management Board to all the Commissioners and public here in person, and all of those of you that are attending virtually. I'm John Clark; I'm the Administrative Commissioner for the fabulous first state of Delaware. Before we get into the agenda, Bob Beal would like to make an announcement.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Great, thank you, Mr. Chairman, I think. Well, this is not the announcement I wanted to make after we've been apart for two plus years, and trying to get back together. Two Commission staff members have tested positive for COVID since last night, since we were in here yesterday. I just want to let everyone know that there are masks over on the table. You know it's kind of at this point make your own choice on how you want to react to that.

You know CDC guidelines online will kind of describe what should be done when you're around those folks. I think the two individuals that tested positive actually sent e-mails to anyone that they spent any time with in talking to directly yesterday. Just want to let folks know that if you have questions, or want to talk more about it, come over and see me or anyone, and we'll get it figured out. Just wanted to let folks know where we are, unfortunately.

#### **APPROVAL OF AGENDA**

CHAIR CLARK: Thanks, Bob, and on that cheery note we will now move on to Item Agenda 2, which is Board Consent. Everybody has had a chance to look at the agenda. Are there any revisions to the agenda as presented this morning? Seeing none; we will consider that approved by consent.

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

#### **APPROVAL OF PROCEEDINGS**

CHAIR CLARK: Then, the proceedings from the January, 2022 Board meeting. Any revisions to the proceedings? Okay not hearing any we will consider the proceedings approved by consent.

#### **PUBLIC COMMENT**

CHAIR CLARK: Moves us on to Agenda Item 3, which is Public Comment for items that are not on the agenda, and we do have one public comment from Mr. Brett Hoffmeister, so Brett, if you would like to step up to the public microphone, thank you.

MR. BRETT HOFFMEISTER: Good morning, my name is Brett Hoffmeister; I'm the LAL Manufacturing Manager at Associates of Cape Cod based in Falmouth, Massachusetts. I also serve on the Advisory Panel, and I have extensive experience with the oversight of horseshoe crab procurement working with local fishermen, dealers, regulators, to help maintain sustainable practices. I also oversee the horseshoe crab aquaculture program at our company. I really just want to address some recent comments in the media, because we all hear that, concerning horseshoe crabs and the maintenance of our fishery.

I really want to clarify a few points as they relate not only to the biomedical industry, but also specifically to our operation in Massachusetts. These comments often originate from private organizations, sometimes individuals, but they intend to bias public opinion with no experience in the reality of the biomedical industry, and their misdirection's are designed to elicit an emotional response.

They are factually incorrect, and in some cases completely manufactured for dramatic effect. Item Number 1, we've probably all heard about horseshoe crab being worth \$15,000.00 a quart. I want to go on the record to say that this is simply not true. It's not worth \$15,000.00 a quart, \$15,000.00 a liter, it's not worth \$60,000.00 a teaspoon or \$60,000.00 a gallon as has been reported.

Crabs do not contain LAL, it's made by the manufacturers, and the manufacture of LAL is a complex process, which must be done under extremely clean conditions. The product of which is typically a freeze-dried powder in a vial. We sell a freeze-dried powder; we do not sell horseshoe crab blood. A lysate typically costs less than \$20.00.

Item Number 2, there has been a group that has stated in addition to the bait crab harvest in New York, additional mortality is experienced because of biomedical collection that is transported to Massachusetts. This is also not true. There is no biomedical collection in New York that I am aware of, and there is certainly none coming to Massachusetts.

There is only a bait harvest, which is measured against the state quota. There is an organization that has stated that horseshoe crabs in New Jersey are transported to Massachusetts to be bled, and are not released back into New Jersey. This is a lie. Associates of Cape Cod is the only biomedical licensee producing lysate in Massachusetts, and I can assure you that no crabs from New Jersey have every come into Massachusetts.

That same organization is actively misinforming the public by stating, and I quote, "The state of Massachusetts has created a weakness in the control of harvest, because they have combined blood and bait harvest by bleeding crabs to death and then using them for bait." This is also not true. The state of Massachusetts allows for crabs to be harvested for bait, for the manufacture of LAL to be used first.

This is a conservation measure that is recommended and endorsed by the ASMFC, and the best management practices. All crabs that enter our facility are treated equally well, regardless of their source. There is no distinction, and no difference in the treatment when they are in our possession.

None are ever bled dry or bled to death, and all crabs are returned alive to the vendors. This Commission and fishery managers of the members

states are tasked with managing a great number of fisheries, and you do so by utilizing structured, data driven decision making. Utilizing rigorous scientific methodology, and not false, incendiary claims. The misdirection initiated by some of these groups, who willfully spread knowingly incorrect information for the sole purpose of creating public outcry, or creating clickbait, should not distract this Commission nor the fishery managers from their important work.

Science and truth should not be replaced with innuendo, fiction, nor horror stories, and I encourage the Commission to continue to use sound decision making in setting policy and to continue to employ data driven methods, and not be influenced by inflammatory emotional responses to accusations that are baseless and not rooted in fact. That is all, I appreciate you taking the time for my comments today.

CHAIR CLARK: Thank you, Mr. Hoffmeister. Okay, that is the only public comment we have on the agenda.

#### **PROGRESS UPDATE ON DRAFT ADDENDUM VIII**

CHAIR CLARK: So, we will move on to Item Agenda 4, which is a Progress Update on Draft Addendum VIII. Caitlin is going to review the recommendations on the options for implementing the ARM Framework Revision, so Caitlin, if you're ready take it away.

MS. CAITLIN STARKS: I will note that it should say Draft Addendum VIII, not VII, apologies for the Roman Numeral mis-numbering. In my presentation today I'll start off with some brief background information on Draft Addendum VIII. I'll go over the potential management changes to consider based on the ARM revision, walk through the PDTs recommendations, and then put forward some questions for the Board to provide guidance to the PDT, then wrap up with next steps for the Addendum.

First, some background. The current process for establishing the horseshoe crab bait harvest quota

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

for the Delaware Bay was established under Addendum VII in 2012, and this Addendum implemented the current Adaptive Resource Management or ARM Framework, which recommends the annual optimal bait harvest based on the abundance of both horseshoe crabs and red knots.

#### **REVIEW RECOMMENDATIONS ON OPTIONS FOR IMPLEMENTING THE ADAPTIVE RESOURCE MANAGEMENT FRAMEWORK REVISION**

MS. CAITLIN STARKS: As you all know, the Board accepted the recent ARM Revision and Peer Review Report in January of 2022, which updated the ARM to address some of the peer review critiques that were made during the original ARM Framework review, included new data sources to improve the models, and also adopt a new modeling software to replace the previously used program, which is now obsolete.

At the January meeting the Board also initiated Draft Addendum VIII to consider use of this ARM revision in setting the annual specifications for horseshoe crabs of Delaware Bay origin, which is what we're discussing today. Based on the recommended changes to the ARM that came out of the ARM revision, there were several key issues the PDT thought should be considered during the development of Draft Addendum VIII, because they explicitly ran out in Addendum VII.

These include five items. First is the harvest packages or possible horseshoe crab harvest levels that could be recommended by the ARM for Delaware Bay. Second is the management process, which outlines the steps for setting annual harvest limits, as well as updating the ARM Framework itself. Third is the proportion of each state's total harvest that is determined to be of Delaware Bay origin. Fourth is the way that the Delaware Bay quota is allocated amongst the four states of New Jersey, Delaware, Maryland and Virginia, and then fifth is the fallback option, which is a backup plan for, if some reason the ARM is not able to recommend harvest for a year, due to a lack of required datasets.

In the next set of slides, I'm going to walk through each of these items one at a time, and go over what is currently in place under Addendum VII, and then what the PDT is recommending for changes to be considered in Addendum VIII. First off, the PDT recommended keeping the management options in Addendum VIII streamlined to just two overarching options.

Option A would be the status quo option, and Option B would be to use the revised ARM for management to set bait harvest specifications for the Delaware Bay. For Option A, it is important to note that true status quo is not an option, due to the fact that the previous software that we were using is now outdated, and the model cannot be updated in order to have true adaptive management.

Instead, what this would look like is that the original ARM model would be used to make a look up table, where you would essentially go down a row of horseshoe crab abundance and a column of red knot abundance, and it points you to what the optimal bait harvest is out of the five original harvest packages.

This means the model would stay static, and all of the new data that were incorporated into the ARM revision would not be able to be used. Option B would aim to incorporate all of the changes that were recommended in the 2021 ARM revision, in terms of data and model updates. But the general structure of how the ARM optimal harvest recommendation becomes state quotas would essentially be the same.

I'm going to go over exactly what the changes are that the PDT is recommending, including in Option B in the next slide. First, I'll talk about the harvest packages. This is what we currently use under the original ARM, established in Addendum VII. There are only five possible harvest packages that can be recommended, based on the annual inputs of horseshoe crab and red knot abundance that are fed into the ARM.

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The maximum number of males that can be recommended is 500,000 and the max number of females is 210,000. An important thing to note here is that with the way the original ARM was set up, sex-specific harvest recommendations were not made independently of one another. Now this is a comparison of the current ARMs harvest recommendations for 2017 through 2019 on the top, versus the ARM revision harvest recommendations for the same years on the bottom.

For the revised ARM abundance estimates, the CSMA used the coast wide biomedical mortality in the model, rather than the region-specific biomedical mortality. I also want to note that the maximum number of male and female horseshoe crabs that can be recommended is still the same, with 500,000 males and 210,000 females. The main differences though are that first rather than only having five harvest packages to choose from, the ARM revision now makes the harvest recommendations on a continuous scale, and second, the sex-specific recommendations are independent of one another using the new model. As you can see, the current ARM only recommends Harvest Package 3, which is that 500,000 males and 0 females. While the revised ARM recommends harvest on a continuous scale, rather than in discreet packages, and in this example, it's recommending the maximum number of males and the number of females that it recommends slightly varies from year to year.

The recommendation from the PDT with regard to these harvest packages is that first of all the maximum amounts of males and females should stay the same, because they were determined through extensive stakeholder input during the development of the original ARM. The PDT does recommend allowing for independent harvest recommendations for males and females, and it also recommends using the continuous harvest recommendations from the revised ARM.

However, instead of using the exact output, the PDT recommends rounding down the optimal harvest to the nearest 25 or 50,000, and this is because of data

confidentiality issues associated with the Delaware Bay specific biomedical data that are going to be fed into the model on an annual basis.

The PDT suggested this, so that it would not be possible to back calculate what that biomedical mortality data is, based on the recommended harvest output. The PDT thinks the decision between rounding by 25,000 or 50,000 is appropriate as a sub-option to be considered for public comment, and in the table on the left you have the examples of the exact optimal harvest recommended by the ARM.

Again, this is using the coastwise biomedical data. Then on the right this is what the examples would be if they were rounded down to the nearest 25,000, just to give you an idea. I'll note here that the number of males is not rounded down, because it is already capped out at 500,000, so that makes it so you can't back calculate the confidential data.

Moving on to the management process. In Addendum VII, the process for management using the ARM Framework is set up as a double loop learning process with an annual cycle and a long-term cycle. The annual cycle is the process that the Board is familiar with, in which the annual abundance estimates for horseshoe crabs and red knots are put into the ARM model, and the optimal bait harvest recommendation is generated for the following year.

The Board reviews that recommendation and sets the specifications at the annual meeting. The longer-term cycle was described as a process that would occur every three to four years, to update or revise the ARM Framework with technical improvements and stakeholder advice, and this is essentially what we just went through with the ARM revision process, and now considering in this Addendum.

The PDT recommends changing this management process slightly to more clearly describe each step of the short- and long-term management and ARM revision processes, and the language the PDT recommends is on the screen here, which describes

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a three-level process, including an annual management process, and interim update process, and a revision process. The annual management process is basically the same as the annual cycle described in Addendum VII, with the ARM Framework being used to produce harvest recommendations for the upcoming year. The interim update process is recommended that every three years the model parameters, so things like red knot survival and the horseshoe crab stock recruitment relationship, would be updated based on the annual routine data that are collected for the Delaware Bay Region. Then the third level would be a more intensive process, which would occur every nine to ten years, or sooner if desired by the Board, in which the ARM Framework would undergo a revision process similar to what occurred for the 2021 revision.

The PDT thinks this amount of time is appropriate, given it allows for two of those interim updates to occur, and it encompasses one generation for horseshoe crabs. Our third issue is the proportion of state harvest that is of Delaware Bay origin for each state, and this value is called Lambda.

The table shows those Lambda values for each state that were established in the original ARM in Addendum VII. New Jersey and Delaware harvest is considered to be 100 percent Delaware Bay origin, and Maryland and Virginia are 51 percent and 35 percent respectively. These original values came from the genetic data at the time, and this was implemented in 2012.

As was recommended in the 2021 ARM revision and peer review report, the PDT recommends updating these Lambda values for each state based on the recent genetic data. This would result in decreases to the proportions of Maryland and Virginia's harvest that is assumed to be of Delaware Bay origin, where Delaware and New Jersey would remain the same.

This will come up in a few slides, but these Lambda values do impact the state-by-state allocations of the Delaware Bay overall quota. Addendum VII also established this methodology for calculating the

state allocations of the total Delaware Bay harvest. The top table here shows the state allocation percentages under Addendum VII, which are calculated by multiplying the state's addendum for Addendum IV quota by the Lambda value, and then dividing that by the total number of Delaware Bay origin crabs that were allocated under Addendum IV.

To get each state's quota, you multiply the total Delaware Bay optimal harvest by the percentages shown in this table. As a note, Virginia's quota level here is referring to quota and landings occurring east of the COLREGS line, as those crabs are the ones that have been shown to be part of the mixed stock with the Delaware Bay.

In addition to the weighting scheme for the state allocations, Addendum VII also included a harvest cap for Maryland and Virginia that limits the total level of allowed harvest by those two states, in order to protect non-Delaware Bay origin crabs. The caps are shown in the bottom table, and these were based on the Addendum IV quota levels for Maryland and Virginia, which are the same in Addendum VI.

The caps do not apply when the ARM Framework outputs an optimized harvest that prohibits female harvest of horseshoe crabs, as it has in every year since the ARM was implemented. To date these caps have never come into play. Then under 3D, when no female harvest is allowed for the Delaware Bay, then this section of the Addendum comes into play, where it allows a two-to-one offset of males to females when female harvest is prohibited. What this means is that the total male harvest allocation of Maryland and Virginia is increased at a two-to-one ratio, and it's allowed to rise above that cap level. Again, we're only talking about Virginia's quota for crabs harvested east of the COLREGS line. For Addendum VIII, the PDT is recommending that the only change to the allocation scheme that should be included in Option B to implement this revised ARM is the new allocation weights that result when you update the Lambda values with the new genetics.

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With this change the new state allocations of the Delaware Bay harvest limit would be those shown in this table. As you can see the allocations for New Jersey and Delaware slightly increased, and the allocations for Maryland and Virginia slightly decreased. The PDT did not recommend changes to the other two aspects of the state allocations, so the harvest cap provision and the two-to-one male/female offset provision would remain status quo in Option B.

To show you how updating those Lambda values plays out and affects the allocation, this is a comparison of the state allocations of Delaware Bay origin quota under the current Addendum VII Lambda values, and the resulting allocations on the left versus the revised allocations with updated Lambda values on the right.

In this table we're looking at a total recommended harvest of 500,000 males and 100,000 females of Delaware Bay origin. This is just an example. The key differences to note here are the slight increase in quota for New Jersey and Delaware, and slight decrease in Delaware Bay origin quota for Maryland and Virginia.

These are not the total state quotas for Maryland and Virginia, just the Delaware Bay portion of their harvest. This slide is comparing both the Delaware Bay origin and the total quotas for each state under the current allocations versus the revised allocations. When you look at the right half of the tables, the top is using the current allocations and the bottom in orange is using the revised allocations.

What you can see is that while the Delaware Bay portion of Maryland and Virginia's quotas slightly decreases, the overall quotas for those states are the same under both allocation scenarios. That is because of that harvest cap that is in place under Section 3C of Addendum VII. That limits the total level of allowed harvest by those two states to protect the non-Delaware Bay origin crabs. It's coming into play here, because in this example female harvest is allowed.

These are those same tables except showing the total quota, with sexes combined rather than separated. You can see the total quotas, which are on the right for New Jersey and Delaware under the revised allocations would be slightly increased, and the Maryland and Virginia quotas would be the same. The last issue the PDT recommended an update for is Section 3E of Addendum VII, and this outlines the fallback option for if the ARM can't produce an optimal harvest recommendation.

The ARM requires annual datasets to make that recommendation. In the event that one of those required datasets is not available, Addendum VII allows two options for setting the harvest specifications. The first option is that the quotas and management measures for those four states can revert back to what was established in Addendum VI, and the second option is to use a previous year's harvest and state allocations for the Delaware Bay. The PDT recommended keeping these two fallback options status quo. They did note that with the improvements to the Catch Multiple Survey Model it's more likely to be able to handle some more missing data now, and a situation where we need to use these is less likely to occur.

But beyond that the PDT just recommends updating the language in this section to reflect the new datasets that are required for running the revised ARM on an annual basis. That is my overview of the PDT's recommendations, and then on this slide I have a few questions the PDT is asking for some Board guidance on.

First question is whether the Board wants to consider options to further modify the state allocations of the Delaware Bay harvest limits beyond what's already in Addendum VII, and what's recommended for updating the Lambda values. As I noted, they only recommended updating those Lambda values, and that would update the allocations.

If the Board has a desire to consider any additional changes, beyond that the PDT would need some guidance. Second, are there any additional options

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related to management using the ARM that the Board wants the PDT to consider or develop? Third, this came up as a result of previous discussions at the Board. The PDT would need to know if the Board wants to include any management options in this Draft Addendum related to the biomedical mortality threshold that's in the FMP.

I will note this would likely delay our timeline for the Addendum. Then lastly, they want to know if the Board is interested in adding any additional issues outside of what we've already gone over here to this Addendum. For my last slide this is just the tentative timeline for the next steps in developing Draft Addendum VIII.

We're currently in May 2022, and the plan after this meeting is to take guidance from the Board, develop the complete Draft Addendum document, which the Board could then consider for public comment at the August 2022 meeting. Then if that's approved public hearings could be held in August and September, and the Board could consider the Addendum for final approval in October of this year. That is the end of my slides, so I am happy to take any questions.

CHAIR CLARK: Thank you very much for that very clear and thorough presentation, Caitlin. Maybe we should take questions on the actual presentation before we get to the guidance questions. Does anybody have questions for Caitlin about the presentation on the Draft Addendum, or potential Draft Addendum? I see Rob LaFrance. Go ahead, Rob.

MR. ROBERT LaFRANCE: Caitlin, I just wanted to ask. You mentioned that the confidentiality might impact. Could you just explain that a little bit better for me? I'm just trying to understand how that relates to the packages. Is that basically the rounding that you're talking about? If you could just explain that in a little greater detail for me, I would appreciate that. Thank you.

MS. STARKS: Sure thing. Right now, for the ARM revision, what was used as a coast wide biomedical mortality estimate that was assumed to be all from

the Delaware Bay? But what the ARM revision recommended was actually using the Delaware Bay specific biomedical data, and that is confidential. In order to do that we would have to just have staff run those confidential numbers through the ARM model every year, and then the output would be your optimal harvest. In theory, someone could take that optimal harvest, back calculate what the biomedical mortality was for the Delaware Bay, and that is a confidential number, because there are fewer than three biomedical mortality facilities in the Delaware Bay.

MR. LaFRANCE: That last piece was what I was trying to find out, thank you.

MS. STARKS: Got you.

CHAIR CLARK: Thanks, do we have any further questions? Jim.

MR. JAMES J. GILMORE: Caitlin, just so I've got this clear. If we go with the modifications, the actual harvest that would be in Delaware Bay, if you take the number, essentially Jersey is not doing any harvest, but then you've got Delaware at 100 percent and then the Virginia and Maryland at some lower percentage. The actual harvest or the actual quota would be somewhere between 3 and 400,000 crabs, is that correct?

MS. STARKS: I believe so. I did not add it up before this, but I can put back on the screen the total quotas here so that you can see them. Slide 16. Again, this is an overestimate, because of the coast wide biomedical being used.

MR. GILMORE: Yes, thanks, so it is generally in that vicinity. I just wanted to get what they allocate.

CHAIR CLARK: Caitlin, is anybody in the virtual sphere there have a question?

MS. STARKS: I do not see any hands.

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### **PROVIDE GUIDANCE TO THE PDT**

CHAIR CLARK: Are there any further questions here? Not seeing any. In that case, I guess at this point, Caitlin, we will consider the questions, maybe put up the slide that has the questions from the PDT for the Board. Does anybody want to weigh in as to what they would like to see considered in the Draft Addendum? Joe Cimino.

MR. JOE CIMINO: I think I may have a question first. I don't want to put Caitlin on the spot, so this may be to Bob and Toni as well. I would hate to see the ARM revisions get delayed, but it sounded like if we tried to tackle some of these other questions like three, it would delay. I know we're kind of running at capacity as is. What do you think might be a timeframe for starting an addendum behind the Addendum?

MS. STARKS: I'm happy to take a first stab. I think we could complete this one, like I mentioned, by the October meeting. If the Board was willing to wait and wanted to initiate a second addendum to deal with the biomedical mortality threshold on its own, I think that would be a pretty quick addendum. You'll see in my next presentation I don't know that there are a lot of options for us.

CHAIR CLARK: Did that answer it, Joe? Okay. Just to clarify, one of the questions from the PDT, Caitlin, you'll be addressing the one about the biomedical would be the next agenda option. Maybe if we bring up our comments to the questions 1, 2, and 4 there that would be excellent. Any other comments?

Do we have any from the virtual attendees? Okay, not seeing any there yet.

### **RECOMMENDATIONS FROM THE PLAN DEVELOPMENT TEAM**

CHAIR CLARK: Well, at this point we have the recommendations from the Plan Development Team, correct, Caitlin? It looks like we're not getting any specific direction right now from the Board, other than it would seem to go with the

modifications that they've already suggested. Is that the will of the Board here?

MS. STARKS: Mr. Chair, I guess one way you could phrase it is if anyone has any objection to moving forward with the PDTs recommendations.

CHAIR CLARK: Okay, well that's a great way to phrase it. Does anybody have any objections to moving ahead with the way the PDT has phrased it? Go ahead, Rob.

MR. LaFRANCE: I kind of have a question again, I guess. I'm just wondering, the recommendation is going to be a certain harvest level of females, based upon the new modeling. Do we want to consider continuing as an option male only harvest? I recognize that that may not be scientifically sort of where things are headed in terms of new models.

But it is something that has sort of had historically been what people had anticipated. I'm just raising that as a question as to whether or not that is something we should be thinking about when we go to public notice on this to ask that question. Just a thought, and just was wondering how the other Board members might feel about that.

MS. STARKS: That is certainly the prerogative of the Board, if you would like to add an option for male-only harvest, where the ARM only recommends male harvest. I also don't necessarily think you have to do it that way, because the way the process is set up right now, the ARM gives you an annual recommendation for harvest, and then the Board sets specifications. Through that specification setting, the Board could choose to not implement any female harvest.

MR. LaFRANCE: That answers my question, thank you.

CHAIR CLARK: Just a clarification, Caitlin. The status quo, even though the old ARM model can't even be run any more. That has to be kept in the Addendum, right, just because it was what was being used?

MS. STARKS: Yes.

CHAIR CLARK: Okay then, are there any further questions, comments on this section? Joe Cimino.

MR. CIMINO: Yes, sorry, John. I don't really want to belabor this that much, because I support the Lambda decision. It's just I'm curious. Caitlin, is there like a time set on how often they would do the genetic work to decide on that breakout, and if not, maybe we should have one.

MS. STARKS: I do not know the answer to that question. I'm not sure we have knowledge of what genetic work is being done in the future. I'm not sure when we would have the ability to update the genetics. If our science staff is on the webinar and wants to answer, please feel to jump in.

MS. KRISTEN ANSTEAD: Thank you, Caitlin, this is Kristen. Your genetic work is done periodically through work at Virginia Tech, Eric Hallerman has been doing that work. He doesn't have a schedule; it's not done by staff. I think he revisits it; you know every few years. But I don't know if it would be appropriate to set some sort of timeframe on that.

CHAIR CLARK: Does that answer your question, Joe?

MR. CIMINO: Yes, thanks. I'll take Kristen's advice on that.

CHAIR CLARK: Do we have any hands? Okay, not seeing any so, in that case. Oh, I'm sorry, Dr. Rhodes.

DR. MALCOLM RHODES: One quick question. I agree totally with what we're doing, having the PDT go forward with this plan. But are we putting a place marker in for Option 3, since we're getting ready to discuss the biomedical mortality? I mean I just wanted to make sure we had that clearly in. That may be an additional plan that we want PDT to change or alter.

MS. STARKS: Yes, I think after the next presentation if the Board's desire is to add biomedical as an issue

into this Addendum, we can do that after the next agenda item.

CHAIR CLARK: Okay, seeing no other hands here, and giving direction to the PDT to continue going in the direction they were going.

#### **UPDATE ON THE PDT REVIEW OF BIOMEDICAL MORTALITY AND BEST MANAGEMENT PRACTICES FOR BIOMEDICAL COLLECTIONS**

CHAIR CLARK: We can now move on to the next item on the agenda, which is an Update on the Plan Development Team Review of Biomedical Mortality and Best Management Practices for Biomedical Collections. Caitlin, that's you again.

MS. STARKS: Thank you again, Mr. Chair. I'll just be giving this quick update. I'm going to start off with a quick overview. First, I'll go over the Board task that was requested, then I'll go over some background information on the biomedical mortality threshold, as well as biomedical data and the best management practices for biomedical collection. Then I'll summarize the Technical Committee's discussion on this topic in the next steps for moving forward.

At the October, 2021 meeting, after receiving the FMP review, which noted that the biomedical threshold in the FMP has been exceeded for 12 of the last 13 years. The Board tasked the Plan Development Team with reviewing the threshold for biomedical use, to develop a biologically-based option or options for the threshold, and to develop some options for action when that threshold is exceeded.

They also tasked them with reviewing the best management practices for handling biomedical catch, and suggest options for updating and implementing BMPs. The PDT then tasked this over to the Technical Committee, to review the available information and provide some guidance to the PDT, as well as any recommendations on the threshold and the BMPs. The TC has had one meeting so far on this topic, and this is just going to be a general update on what was discussed in the next steps.

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But first I want to provide contacts for this biomedical threshold we're discussing, and I wanted to review the language in the 1998 FMP on biomedical collection. First, I think it's important to note here that the FMP goals include the biomedical industry as one of the stakeholders for which the FMP aims to sustainably manage horseshoe crabs for continued use.

But because the number of crabs taken for biomedical use was really low, relative to bait harvest at the time, and so is the biomedical mortality rates. The FMP does not subject the biomedical harvest of horseshoe crab to the same limitations as bait harvest. It does require states to issue a special permit or authorization for biomedical harvest, and it also requires any horseshoe crab taken for biomedical purposes to be returned to the same state or federal waters from which they were collected.

As for the mortality threshold, the FMP states that if horseshoe crab mortality associated with collecting, shipping, handling or use by the biomedical industry exceeds 57,500 horseshoe crabs per year, the Commission would reevaluate potential restrictions on horseshoe crab harvest by the biomedical industry.

However, there is no language in the FMP requiring the Commission to take any action. Additionally, the FMP is not exactly clear where the 57,500 number came from, but with the information that is in there it seems it was derived from a 15 percent estimate of mortality of the biomedical collections at the time, which came out to 37,500, with an additional 20,000 crab buffer. That is a guess that the TC came up with of how that number was derived.

Some additional provisions of later addenda included prohibiting biomedical collections in the federal closure area under Addendum I, then Addendum II clarifies that bait crabs may be used by the biomedical industry or bled, and then returned to the bait market to reduce overall mortality of horseshoe crab.

It also required monthly and annual harvest reporting for biomedical collections, and then Addendum IV maintained the provision in the FMP where biomedical collections are not subject to the same restrictions as the bait fishery. Among the Atlantic coast states, Massachusetts, Rhode Island and New Jersey, Maryland, Virginia and South Carolina are the states that have had crabs collected for biomedical purposes in the past and present, maybe future, though Virginia does not currently have any biomedical collections.

For New York and Delaware there have not been any crab taken specifically for biomedical purposes only, but some crabs harvested under bait permits have been able to be bled at biomedical facilities and then returned to the bait market. Currently the estimated mortality rate that we're using is 15 percent for crabs that are bled, and this rate has been used since the original FMP.

But in the recent 2019 benchmark assessment there was a comprehensive literature review and meta-analysis conducted, which also confirmed a 15 percent mortality rate with a 95 percent confidence interval of 4 to 30 percent. Now I quickly want to go over the coast wide data that we have for biomedical mortality. On this graph the orange bars represent the annual bait harvest, and the blue portion of the bars represent the estimated biomedical mortality in each year. The purple line is showing the biomedical mortality as a percent of the total mortality, which is the sum of the bait harvest and biomedical mortality in each year.

As you can see, the biomedical mortality as a percentage of the total has increased over time, but it's never been more than 19 percent. At the same time, the total mortality has generally fluctuated around the same mean since 2004. To put this in perspective, in the table I looked at this table I looked at the total mortality as a percentage of the overall coast wide bait harvest quota in the Commission's FMP, as well as the sum of all the voluntarily reduced state bait quotas for the last few years.

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What I found here is that on the bottom two rows is that when you add the biomedical mortality onto the coast wide bait harvest, total mortality has never exceeded the ASMFC bait harvest quota, and it only exceeded the combined state quotas once in 2017. I also wanted to remind the Board that the ARM Framework revision that was completed in 2021, does include biomedical mortality in the Catch Multiple Survey Model that estimates the horseshoe crab abundance.

Coastwise data had to be used for this model because of the confidentiality of the biomedical data at a smaller scale. But if that revision is adopted moving forward, the confidential Delaware Bay specific biomedical data will be used to make harvest recommendations as I just described in the last presentation.

Now I'm going to switch gears over to the best management practices. These best management practices were developed in 2011, or completed in 2011 by a workgroup comprised of Technical Committee representatives and Advisors from the biomedical industry, and the product was a list of recommendations or BMPs for each step of the process, including collection, transport, holding, bleeding, return to sea.

I won't go through all of them, but this document can be found on the Commission's horseshoe crab web page. The document also recommended dual use for bleeding and bait, when possible, as a way to reduce overall mortality. However, all these BMPs that were developed were just recommendations, and there is no requirement to implement them at the Commission level.

Some states do use some of them as requirements for permitting, or allowing collections of biomedical crabs. After reviewing all this information, the TC discussed some potential issues to note for the Board. First the TC noted that in that 2019 stock assessment an analysis was done to gauge the impact of the biomedical mortality on the Delaware Bay population, and it assumed that all of the coast wide biomedical mortalities were losses from the Delaware Bay.

The results of that were that the levels of biomedical mortality through 2017, which was the terminal year of the assessment, did not have a negative impact on the Delaware Bay stock abundance, indicating that those levels are sustainable for the Delaware Bay stock. However, the TC noted that for other regions we don't have population or abundance estimates, and because we don't have those estimates and the Delaware Bay population is considered to be relatively large, compared to the other regions. The results of the Delaware Bay analysis are not necessarily applicable to those other regions. That is to say other regions might be more at risk of impacts from biomedical mortality if the populations are smaller. With regard to the Board task of developing a biologically-based biomedical mortality threshold, the TC agreed that without population estimates at the coast level or for the other regions besides the Delaware Bay, it's not really possible to establish a mortality threshold based on biological reference points for the coast.

Additionally, due to the region-specific biomedical data being confidential under state and federal laws, we can't publicly review biomedical mortality at the regional level. The TC recommended that one additional analysis that could be done is to run population simulations using the Delaware Bay ARM model, with different levels of biomedical mortality and biomedical sex ratios, and this could be used to evaluate the potential for some kind of biological threshold for the coast, using the Delaware Bay population as a proxy.

However, the TC did emphasize the caveat that the impact of biomedical mortality is likely to vary at the regional and state scales, and using that Delaware Bay population as a proxy for the coast might not be appropriate. For next steps the TC is going to meet with the Stock Assessment Subcommittee, to review the analysis that I just described.

Based on that discussion that the TC had, they're not confident in this producing any technically sound methods for developing a coast wide biomedical mortality threshold, because of the

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uncertainty in the impacts at the scale of the coast and other regions. Regarding the best management practices.

The Technical Committee is working on compiling information from all of the states about the permit requirements that they have for biomedical collections and facilities, to see how much of the BMPs are being used as requirements at the state level, and potentially suggest any changes. Then once these two items are wrapped up, the TC will provide their recommendations back to the PDT and the PDT will bring their final recommendations back to the Board at the next meeting. That's all my slides, so I can take any questions.

CHAIR CLARK: Thank you for that excellent summary, Caitlin. Do we have any questions for Caitlin? Okay, not seeing any here, do we have any from the virtual? We're not seeing any questions there. Seeing that Caitlin, at this point we will wait for the further report from the PDT on the biomedical mortality.

Okay, that looks like that is where we are then. That brings us to our final agenda item, which is Other Business. Is there any other business to be brought before the Board? I'm not seeing any. Oh, thank you, Caitlin. I skipped ahead. If you recall there was a question about Draft Addendum VIII, regarding biomedical mortality. Does anybody on the Board want to make a request that something be added to Draft Addendum VIII regarding biomedical mortality? I'm not seeing any hands here.

MR. LaFRANCE: Just a question.

CHAIR CLARK: Oh, I'm sorry, yes, Rob.

MR. LaFRANCE: I think I understood because of timing you don't want to do it in this current draft, but we would be looking at it for a report back to the Board at the next meeting, and then figure out what to do with it at that point in time. Is that correct?

MS. STARKS: That is certainly a way we could do it. I also would say I don't know that it really fits into the Draft Addendum VIII, since this is a coast wide issue, and Draft Addendum VIII is more focused on the Delaware Bay. Happy to wait until the next Board meeting to consider.

MR. LaFRANCE: I guess all I'm saying is, from what I saw in your presentation, the PDT and the Technical Committee are going to be doing some work. They're going to bring that work back to us at the next Committee, and we can then evaluate what we want to do with it at that time. I just wanted to make sure that I understood that clearly.

MS. STARKS: Yes, that is correct.

CHAIR CLARK: That could well be Draft Addendum IX then, right, Caitlin? It would just be focused on biomedical mortality, if the Board decides to go that route. Okay, thank you. Did I Miss anything else? Okay, good. Okay so that was it. We don't have any other business, therefore we.

MS. BERGER: Mr. Chair, I see a couple of hands raised.

CHAIR CLARK: Oh, okay, sorry about that. We have Colleen Bouffard. Go right ahead, Colleen.

MS. COLLEEN BOUFFARD: I wanted to take this opportunity to update the Board on the status of Connecticut's horseshoe crab regulations. We will be implementing recently approved regulations that will further curtail the commercial harvest of horseshoe crabs in Connecticut for bait, improve horseshoe crab spawning success, and establish regulatory consistency with New York. These changes were made to address the depleted state of horseshoe crab in Long Island Sound, and also in response to a request made earlier by the Board.

Specifically, our new regulations will move the opening of the Connecticut horseshoe crab commercial season from May 22, to the calendar date three days after the last full or new moon in May. There will also be a new five-day closure centered on the first moon phase in June. Also, our

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

daily possession limit for the commercial hand harvest will be reduced from 500 to 150 crabs. I appreciate the opportunity to update the Board.

CHAIR CLARK: Thank you, Colleen. We have another question or comment? Okay, I guess the hand went down there.

**ADJOURNMENT**

CHAIR CLARK: All right, in that case the only thing left to do is to adjourn, and we are now adjourned. Thank you.

(Whereupon the meeting adjourned at 9:20 a.m. on  
Tuesday, May 3, 2022)

**From:** [Robert E. Rutkowski](#)  
**To:** [info](#); [Robert Beal](#)  
**Cc:** [Keith Abouchar](#)  
**Subject:** [External] Delaware Bay red knot shorebird numbers remain historically low despite modest increase  
**Date:** Wednesday, July 6, 2022 1:09:19 PM

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Re: Delaware Bay red knot shorebird numbers remain historically low despite modest increase

Dear Director, Board and Commissioners:

The Delaware Bay Shorebird Project, which has assessed shorebird numbers in the region for 26 years, found that the threatened red knot shorebird's numbers remained at historically low levels in 2022. The red knots modestly increased from 6,800 in 2021 to over 12,000 this year, but that number is less than half the 2019 peak count of 30,000 and a fraction of the peak population of over 94,000 in 1989.

The simple fact is that red knots are starving to death. With extinction now a real possibility, the decision to further reduce protections in Delaware Bay is incomprehensible. The ASMFC needs to reverse course before the red knot passes the point of no return.

Delaware Bay is a critical resting point for most red knots as they complete their epic migration from as far south as Tierra del Fuego to their breeding grounds in the Arctic Circle. Red knots rely on horseshoe crab eggs to replenish and renourish before finishing their journeys, but due to the overharvesting of crabs in recent decades both egg availability and red knot numbers have suffered. In 2015, red knots were listed as "threatened" under the Endangered Species Act.

The reason for this eyes wide-open destruction of one of the most important natural features in the U.S. is not complicated. Simply put, the agencies allow the killing of too many crabs leaving only enough to spawn when sea conditions are perfect, and then blame the less than perfect conditions for the collapse of the stopover. If crabs were allowed to recover to historic numbers, birds would have abundance in any conditions.

The Atlantic States Marine Fisheries Commission (ASMFC) advanced a proposal earlier this year that poses a significant threat to both horseshoe crabs and red knots. The proposal, advanced by the body's Horseshoe Crab Management Board in January, would almost certainly result in renewed killing – or "harvesting" – of female crabs for use as fishing bait, reversing a longstanding prohibition. New Jersey Audubon, Defenders of Wildlife, and Earthjustice have warned that the proposal

threatens to cause a violation of the Endangered Species Act by further depleting the horseshoe crab eggs that red knots rely upon. ASMFC could make a final decision on the proposal as soon as October and set new horseshoe crab bait harvest quotas for the 2023 fishing year at that time.

The ASMFC's horseshoe crab management policy over the last two decades has adversely affected the entire near-shore tidal ecosystem of Delaware Bay. Shorebirds arriving from South America to feed as they prepare to continue their journey to the Arctic to breed, forage fish, and the young of several sportfish like weakfish and striped bass all depend on horseshoe crab eggs in abundance, which has been lacking over the last 20 years.

With red knot numbers in Delaware Bay remaining at historically low levels, ASMFC's proposal is a huge risk to the birds' survival and recovery. ASMFC should be restoring horseshoe crabs and red knots in Delaware Bay, not making the situation worse.

Horseshoe crab egg density in Delaware Bay was approximately 7,000 eggs per square meter in May 2022, well below the 10,000 egg per square meter density seen in recent years. In the 1990s, before the overharvesting of horseshoe crabs, eggs reached nearly 50,000 per square meter. Researchers from the Delaware Bay Shorebird Project have concluded that the overharvesting of horseshoe crabs has directly impacted red knot shorebird numbers in the region.

As horseshoe crab numbers languish in Delaware Bay, satellite transmitters have shown birds bypassing the region as a stopover altogether, even though alternatives do not provide a sufficient food supply. With a spottier distribution of horseshoe crabs and shorter spawning periods that last only a few days during lunar tides, rather than weeks, egg resources on the bay are no longer reliable to the birds.

Yours sincerely,  
Robert E. Rutkowski

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***Atlantic States Marine Fisheries Commission***

**DRAFT ADDENDUM VIII TO THE HORSESHOE CRAB FISHERY  
MANAGEMENT PLAN**

*Implementation of the 2021 ARM Revision*



**This draft document was developed for Management Board review and discussion.  
This document is not intended to solicit public comment as part of the  
Commission/State formal public input process. Comments on this draft document may  
be given at the appropriate time on the agenda during the scheduled meeting. If  
approved, a public comment period will be established to solicit input on the issues  
contained in the document.**

**August 2022**



**Sustainable and Cooperative Management of Atlantic Coastal Fisheries**

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## **1.0 Introduction**

The Atlantic States Marine Fisheries Commission's (ASMFC) Horseshoe Crab Management Board (Board) approved the Interstate Fishery Management Plan for Horseshoe Crabs (FMP) in October 1998. The goal of the FMP includes management of horseshoe crab populations for continued use by current and future generations of the fishing and non-fishing public, including the biomedical industry, scientific and educational researchers, migratory shorebirds, and other dependent fish and wildlife, including federally listed sea turtles. ASMFC maintains primary management authority for horseshoe crabs in state and federal waters. The management unit for horseshoe crabs extends from Maine through the east coast of Florida.

Additions and changes to the FMP have been adopted by the Board through seven addenda. The Board approved Addendum I (2000), establishing a coastwide, state-by-state annual quota system to reduce horseshoe crab landings. Addendum I also included a recommendation to the federal government to create the Carl N. Shuster Jr. Horseshoe Crab Reserve. The Board approved Addendum II (2001), establishing criteria for voluntary quota transfers between states. Addenda III (2004) and IV (2006) required additional restrictions on the bait harvest of horseshoe crabs of Delaware Bay-origin and expanded the biomedical monitoring requirements. Addenda V (2008) and VI (2010) extended the restrictions within Addendum IV. The provisions of Addendum VI were set to expire after April 30, 2013. Addendum VII replaced the Addendum VI requirements by establishing a management program for the Delaware Bay Region (i.e., coastal and bay waters of New Jersey and Delaware, and coastal waters only of Maryland and Virginia).

Draft Addendum VIII considers implementing the 2021 Revision to the Adaptive Resource Management (ARM) Framework originally established under Addendum VII.

## **2.0 Overview**

### **2.1 Statement of the Problem**

The Board initiated Draft Addendum VIII in January 2022 to consider use of the recent 2021 Revision of the ARM Framework (ASMFC 2021) in setting annual bait harvest specifications for horseshoe crabs of Delaware Bay-origin. Delaware Bay horseshoe crab management using the ARM Framework was originally established under Addendum VII for use during the 2013 fishing season and beyond. The Framework considers the abundance levels of horseshoe crabs and shorebirds in determining the optimal harvest level for the Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia (east of the COLREGS).

In the past decade, more data has been collected on shorebirds and horseshoe crabs and modeling software and techniques have advanced. Additionally, the original ARM Framework used software that is now antiquated, not supported, does not run on current computer operating systems, and is limited in its capacity to incorporate uncertainty when determining optimum harvest strategies. Thus, the ARM Subcommittee was tasked with revising the ARM

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Framework to address critiques from the previous peer review panel, include newly available data, and transition to new modeling software.

Following the recommendations of the independent peer review panel, which endorsed the ARM Revision as the best and most current scientific information for the management of horseshoe crabs in the Delaware Bay Region, the Board reviewed and accepted the ARM Revision in January 2022. Draft Addendum VIII considers incorporating the recommended changes in the ARM Revision into the management program for bait harvest of Delaware Bay-origin horseshoe crabs.

### **2.2 Background**

The original ARM Framework and Addendum VII were developed in response to public concern regarding the horseshoe crab population and its ecological role in the Delaware Bay. While the stock assessment at that time (ASMFC 2009a) found increases in the Delaware Bay horseshoe crab abundance, the red knot (*rufa* subspecies), one of many shorebird species that feed on horseshoe crab eggs, was at low population levels. To address these concerns, an effort began to develop a multi-species approach to managing horseshoe crabs by employing the tools of structured decision making and adaptive management. In 2007, the Horseshoe Crab and Shorebird Technical Committees met and endorsed the development of a structured decision making (SDM) framework and adaptive management approach. An ARM subcommittee was formed including representatives from state and federal partners, as well as horseshoe crab and shorebird biologists. The subcommittee produced a framework for adaptive management of horseshoe crabs in the Delaware Bay that was constrained by red knots. It was peer-reviewed with a coastwide benchmark stock assessment for horseshoe crab in 2009 (ASMFC 2009a, 2009b).

Addendum VII, approved in February 2012, implemented the Adaptive Resource Management (ARM) Framework for use during the 2013 fishing season and beyond. The Framework considers the abundance levels of horseshoe crabs and shorebirds in determining the optimal harvest level for the Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia (east of the COLREGS). Since 2013, the Board has annually reviewed recommended harvest levels from the ARM Subcommittee, who run the ARM model, and specified harvest levels for the following year in New Jersey, Delaware, Maryland, and Virginia.

### **2.3 Original ARM Framework**

A goal of the ARM Framework is to transparently incorporate the views of stakeholders along with predictive modeling to assess the potential consequences of multiple, alternative management actions in the Delaware Bay Region. The ARM process involved several steps: 1) identify management objectives and potential actions, 2) build alternative predictive models with confidence values that suggest how a system will respond to these management actions, 3) implement management actions based on those predictive models, 4) monitor to evaluate the population response to management actions, validate the model predictions, and provide

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timely feedback to update model confidence values and improve future decision making, 5) as necessary, incorporate new data into the models to generate updated, improved predictions, and 6) revise management actions as necessary to reflect the latest state of knowledge about the ecosystem. The ARM Framework is an iterative process that adapts to new information and success of management actions.

Underlying the original ARM model are population models for both red knots and horseshoe crabs. The optimization routine in the ARM model determines the best choice among five potential harvest packages (numbers of male and females that can be harvested) given the current abundance of each species in order to maximize the long-term value of horseshoe crab harvest. The ARM model values female horseshoe crab harvest only when the abundance of red knots reaches 81,900 birds (a value related to the historic abundance of red knots in the Delaware Bay) or when the abundance of female horseshoe crabs reaches 80% of their predicted carrying capacity (11.2 million assuming a carrying capacity of 14 million; ASMFC 2009b). On an annual basis, the ARM model is used to select the optimal harvest package to implement for the next year given the current year's estimate of horseshoe crab abundance from the swept area estimate from the VA Tech trawl survey and a mark-resight estimate of red knot abundance.

Within this ARM Framework, a set of alternative multispecies models were developed for the Delaware Bay Region to predict the optimal strategy for horseshoe crab bait harvest. These models accounted for the need for red knot stopover feeding during migrations through the region. These models incorporated uncertainty in model predictions and are meant to be updated with new information as monitoring and management progress.

On an annual basis, the ARM model is used to select the optimal harvest package to implement for the next year given the current year's estimate of horseshoe crab abundance from the swept area estimate from the VA Tech trawl survey and a mark-resight estimate of red knot abundance. The current harvest packages for horseshoe crab bait harvest that can be selected by the ARM model are:

- Package 1) Full harvest moratorium on both sexes
- Package 2) Harvest up to 250,000 males and 0 females
- Package 3) Harvest up to 500,000 males and 0 females
- Package 4) Harvest up to 280,000 males and 140,000 females
- Package 5) Harvest up to 420,000 males and 210,000 females

The numbers of horseshoe crabs in the packages listed above are totals for the Delaware Bay Region, and not per state. Since its implementation in 2013, neither the 81,900 red knot threshold nor the 11.2 million female horseshoe crab thresholds have been met and harvest package 3 has been selected every year by the Framework and specified by the Board for the Delaware Bay bait harvest limit.

### **2.4 Allocation of the ARM harvest output**

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The ARM Framework incorporates horseshoe crabs from the Delaware Bay Region as one unit. The modeling and optimization portions of the Framework do not address distribution and allocation of the harvest among the four Delaware Bay states. Allocation of the overall Delaware Bay harvest allowance was established in Addendum VII. Based on tagging and genetic analysis (ASMFC 2019, 2021), there is very little exchange between Chesapeake Bay and Delaware Bay horseshoe crab populations. However, there is movement of horseshoe crabs between coastal embayments (from New Jersey through Virginia) and Delaware Bay.

An allocation model for the four Delaware Bay states was developed to allocate the optimized harvest output by the ARM Framework, which is described in Section 2.4 of Addendum VII, and summarized below.

Each state’s allocation of the total Delaware Bay-origin harvest recommended by the ARM Framework was determined by multiplying the state’s quota under Addendum VI by the proportion of the state’s total harvest that is of Delaware Bay-origin ( $\lambda$ ), then dividing this value by the sum of the values for each of four states (Table 1). The state  $\lambda$  values established in Addendum VII were based on the genetic data available at the time. Virginia’s quota level and landings refer to those quota and landings that occur east of the COLREGS line, as these crabs have been shown to be part of a mixed stock.

**Table 1. Calculation of State Allocations of Delaware Bay Harvest Established in Addendum VII**

State	Lambda	Addendum VI Quota	Delaware Bay-Origin Quota	Add VII Allocation of Delaware Bay-Origin Quota
NJ	1.00	100,000	100,000	32.4%
DE	1.00	100,000	100,000	32.4%
MD	0.51	170,653	87,033	28.2%
VA (east of COLREGS)	0.35	60,998	21,349	7.0%

Along with the state allocation percentages, Addendum VII also established two additional provisions impacting the state quotas for Maryland and Virginia. First, it established a harvest cap for Maryland and Virginia, which set a maximum limit on the total level of allowed harvest by Maryland and Virginia to provide protection to non-Delaware Bay-origin crabs. The cap is based on Addendum VI quota levels for Maryland and Virginia; the Maryland cap is 170,653 crabs, and the Virginia cap is 60,998 crabs. These caps apply except when the ARM Framework recommends a package that prohibits harvest of female horseshoe crabs. When female harvest is prohibited, a second provision allows for a 2:1 offset of males:females for Maryland and Virginia, which allows the total male harvest of Maryland and Virginia to rise above the cap level. Note again that Virginia’s quota only refers to the number of crabs that can be harvested east of the COLREGS line.

**3.0 Management Options**

Draft Addendum VIII considers two management options:

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- Option A: No action
- Option B: Implement the ARM Revision for setting bait harvest specifications for Delaware Bay-origin horseshoe crabs

Option B includes additional sub-options to specify how annual harvest recommendations will be made based on the output of the ARM model.

**Option A: No Action**

Because the ARM Framework adopted under Addendum VII can no longer be updated due to its obsolete software, under this option, the management program would revert back to the provisions implemented under Addendum VI. These include the following harvest quotas and limitations for New Jersey, Delaware, Maryland, and Virginia.

Addendum VI prohibits directed harvest and landing of all horseshoe crabs in New Jersey and Delaware from January 1 through June 7, and female horseshoe crabs in New Jersey and Delaware from June 8 through December 31. It also limits New Jersey and Delaware’s harvest to 100,000 horseshoe crabs per state per year.

Addendum VI prohibits directed harvest and landing of horseshoe crabs in Maryland from January 1 through June 7 for two years, from October 1, 2006 to September 30, 2008. It also prohibits the landing of horseshoe crabs in Virginia from federal waters from January 1 through June 7.

Addendum VI mandates that no more than 40% of Virginia’s annual quota may be harvested east of the COLREGS line in ocean waters. It also requires that horseshoe crabs harvested east of the COLREGS line and landed in Virginia must be comprised of a minimum male to female ratio of 2:1.

**Table 2. Commercial horseshoe crab bait harvest quotas for the Delaware Bay states under Addendum VI.**

<b>Jurisdiction</b>	<b>Addendum VI ASMFC Quota</b>
<b>NJ*</b>	100,000
<b>DE*</b>	100,000
<b>MD</b>	170,653
<b>VA**</b>	152,495
<b>DELAWARE BAY TOTAL</b>	<b>523,148</b>

\*Male-only harvest

\*\*No more than 40% of Virginia’s annual quota may be harvested east of the COLREGS line in ocean waters. Horseshoe crabs harvested east of the COLREGS line and landed in Virginia must be comprised of a minimum male to female ratio of 2:1.

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### Option B: Implement the ARM Revision for setting bait harvest specifications for Delaware Bay-origin horseshoe crabs

This option would adopt the updates to the ARM Framework recommended in the 2021 Revision and incorporate them into the process for setting specifications for bait harvest of Delaware Bay-origin horseshoe crabs. Changes to the ARM Framework are described in detail in the 2021 Revision to the Adaptive Resource Management Framework and Peer Review Report, and include:

- Catch multiple survey analysis (CMSA) to estimate male and female horseshoe crab population estimates using all quantifiable sources of mortality (i.e., natural mortality, bait harvest, coastwide biomedical mortality, and commercial dead discards) and several abundance indices from the Delaware Bay Region
- Integrated population model (IPM) to quantify the effects of horseshoe crab abundance on red knot survival and recruitment based on data collected in the Delaware Bay
- Transition to new modeling approach which can be implemented through readily available R software and incorporates uncertainty on all life history parameters for both horseshoe crabs and red knots
- Harvest recommendations based on a continuous scale rather than discrete harvest packages as in the previous Framework
- Female harvest decoupled from the harvest of males

#### *Harvest Recommendations*

Harvest recommendations under the ARM Revision are based on a continuous scale rather than the discrete harvest packages in the previous Framework. Therefore, any harvest number between zero and the maximum allowable harvest could be recommended, not just the fixed harvest packages. Harvest of females is decoupled from the harvest of males so that each are determined separately. The maximum possible harvest for both females and males are maintained as in Addendum VII at 210,000 and 500,000, respectively.

Although harvest is treated as continuous in the new ARM Framework, if the continuous harvest recommendations were made public, it would be possible to back-calculate the biomedical mortality input, which is confidential. Therefore, it is necessary to round the continuous sex-specific harvest outputs to obscure the confidential biomedical data, unless the maximum sex-specific harvest is recommended. There are two sub-options for rounding the harvest output from the ARM Framework:

- **Sub-option B1:** Round down continuous optimal harvest recommendation to nearest 25,000 horseshoe crabs. For example, if the continuous optimal harvest recommendation is 135,000 males and 96,000 females, these values would be rounded down to 125,000 males and 75,000 females.

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- **Sub-option B2:** Round down continuous optimal harvest recommendation to nearest 50,000 horseshoe crabs. For example, if the continuous optimal harvest recommendation is 135,000 males and 96,000 females, these values would be rounded down to 100,000 males and 50,000 females.

The Board is seeking public input on the level of rounding of the optimal harvest recommendation. Sub-option B2 would be more conservative, but sub-option B1 would yield harvest levels closer to the optimal harvest.

### *Adaptive management cycle*

Under this option the adaptive management cycle would include three tiers of short and longer term management, update, and revision processes for the ARM Framework, as follows:

1. **Annual management process:** The annual specification of harvest will occur at the ASMFC annual meeting in calendar year  $t$  for the harvest to be implemented the following season (year  $t+1$ ). The CMSA requires multiple indices of abundance and removals from multiple sources. Because the necessary data take time to be finalized, and final data for a given year would not be available by the time of the annual meeting, the results of a run of the CMSA in year  $t$  will be based on data obtained from the previous two years. Inputs to the CMSA will include the Virginia Tech trawl survey that is conducted in the fall of year  $t-2$ ; Delaware and New Jersey trawl surveys from year  $t-1$ ; and removals from year  $t-1$ . To match the abundance estimates of horseshoe crabs with red knot mark-resight population estimates, horseshoe crab abundance estimates from year  $t-1$  and red knot population estimates from year  $t-1$  will be used as input to the ARM Revision harvest policy functions in year  $t$ . Optimal harvest recommendations can then be implemented in year  $t+1$ . The two year time lag between data availability and implementation of optimal harvest was incorporated in the ARM Revision modeling when determining what the optimal harvest would be based on horseshoe crab and red knot abundance.

Each annual step is identified in the timeline below:

- April - July (year  $t$ ) – The ARM workgroup compiles monitoring data to run the CMSA (Virginia Tech trawl survey data from year  $t-2$ , New Jersey and Delaware survey data from year  $t-1$ , removal data from year  $t-1$ ). The ARM workgroup estimates red knot stopover population size from the mark-resight analysis in year  $t-1$ .
- August (year  $t$ ) – The ARM workgroup inputs horseshoe crab and red knot population estimates to the ARM Revision harvest policy functions and calculates the optimal harvest.
- September (year  $t$ ) – The Delaware Bay Ecosystem Technical Committee reviews the ARM Revision results and optimal harvest recommendations.
- ASMFC Annual Meeting (year  $t$ ) – The Management Board reviews the optimal harvest recommendations from the ARM workgroup and decides on the harvest to be implemented in year  $t+1$ .

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- 2. **Interim update process:** Every three years, an update process would occur in which the model parameters (e.g., red knot survival and recruitment, horseshoe crab stock-recruitment relationship) are updated based on the annual routine data collected in the region.
- 3. **Revision process:** every 9 or 10 years (or sooner if desired by the Board), the ARM Framework should undergo a revision process similar to what occurred for the 2021 ARM Revision. This amount of time is appropriate given it allows for two updates to occur, and encompasses one generation for horseshoe crabs. This should incorporate the following components:
  - Solicit formal stakeholder input on ARM Framework to be provided to the relevant technical committees
  - Technical committees review stakeholder input and technical components of ARM models and provide recommendations to the Board
  - At the ASMFC Spring Meeting, Board selects final components of the ARM Framework, and tasks technical committees to work with ARM Working Group to run models /optimization
  - Merge with the annual management process
    - In August, ARM Subcommittee runs models/optimization
    - At the ASMFC Annual Meeting, the Board revisits harvest decision

If Option B is selected, implementation of the ARM Framework Revision would likely occur for the 2023 fishing season, with Board review and decision-making likely to occur at the Board’s 2022 annual meeting.

*Allocation of the Delaware Bay-origin harvest recommendation*

Under this option, the allocation methodology established in Addendum VII would be modified to update state lambda values as recommended in the 2021 Revision based on more recent genetic data analysis. Lambda indicates how much of a state’s harvest is of Delaware Bay-origin (i.e., has spawned at least once in Delaware Bay). Lambda shall be assumed to be 1.00 for New Jersey and Delaware and based upon the recent genetics data and analysis (ASMFC 2021), 0.45 for Maryland, and 0.20 for Virginia.

State	Lambda, $\lambda$
NJ	1.00
DE	1.00
MD	0.45
VA	0.20

Allocation values will be calculated using the same formula as Addendum VII. Lambda will be multiplied by the state’s Addendum VI quota. The resulting value will be divided by the sum of values for all four states to provide the percent of the Delaware Bay harvest recommendation that will be allocated to each state. Virginia’s quota level and landings refer to those quota and

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landings that occur east of the COLREGS line, as these crabs have been shown to be part of a mixed stock (Shuster 1985).

<b>State</b>	<b>Allocation of Delaware Bay Harvest (%)</b>
<b>NJ</b>	34.6%
<b>DE</b>	34.6%
<b>MD</b>	26.6%
<b>VA</b>	4.2%

*Harvest cap for Maryland and Virginia*

Under this option the harvest cap for Maryland and Virginia established under Addendum VII will be maintained. The harvest cap places a maximum limit on the total level of allowed harvest by Maryland and Virginia, providing protection to non-Delaware Bay-origin crabs. The cap is based on Addendum VI quota levels for Maryland and Virginia. Note again that Virginia’s quota only refers to the amount able to be harvested east of the COLREGS line.

<b>MD Cap</b>	<b>VA Cap</b>
170,653	60,998

These caps shall apply except when the ARM Framework outputs an optimized harvest that prohibits harvest of female horseshoe crabs. In this situation, female horseshoe crab harvest in Maryland and Virginia will be prohibited but a 2:1 offset of males:females shall apply and allow the total male harvest of Maryland and Virginia to rise above the cap level.

*2:1 Male:female offset for female crabs below the Addendum VI levels*

When a female harvest moratorium output by the ARM Framework restricts female crab harvest in Maryland and Virginia below the Addendum VI quota levels, male harvest would be increased at a 2:1 ratio. These increases are the only allowable increases above the designated harvest cap above. The offsets assume an allowed harvest under Addendum VI in Virginia of 20,333 female crabs and in Maryland of 85,327 female crabs.

*Fallback option if ARM Framework cannot be used*

As part of the 2021 ARM Framework Revision, the models are dependent on annual data sets for the yearly harvest setting, and include the following:

- Horseshoe crab abundance estimates from the Virginia Tech Horseshoe Crab Trawl Survey
- Horseshoe crab relative abundance indices from Delaware and New Jersey fishery-independent surveys
- Total horseshoe crab removals (bait harvest, biomedical mortality, and estimated commercial discards)

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- Horseshoe crab spawning beach sex ratio from the Delaware Bay Horseshoe Crab Spawning Survey
- Red knot abundance estimates, including stopover counts and re-sightings

The absence of these annually-collected data sets could inhibit the use of the ARM Framework depending on which data sets were missing. If model results were not available for the fall harvest decision, the Board, via Board action and after consultation of the relevant Technical Committees and Advisory Panels, may set the next season's harvest by one of the following methods:

- Based upon Addendum VI quotas and management measures for New Jersey, Delaware, and Maryland, and Virginia coastal waters; or,
- Based upon the previous year's ARM Framework harvest level and allocation for New Jersey, Delaware, and Maryland, and Virginia coastal waters. Harvest could be more conservative than the previous year's ARM Framework harvest level and allocation for New Jersey, Delaware, and Maryland, and Virginia coastal waters.

### **4.0 Compliance**

TBD

### **5.0 Literature Cited**

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- Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2007. Adaptive management: the US Department of the Interior technical guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.

**Draft Document for Board Review. Not for Public comment.**

**Appendix A. Example Allocation of Delaware Bay Horseshoe Crab Harvest**

**Table 1. Horseshoe crab and red knot population estimates and resulting harvest recommendation for 2017-2019 based on the 2021 ARM Revision.** Coastwide biomedical mortality was used for model development, so actual Delaware-Bay specific values will result in slightly lower population estimates. Source: Supplemental Report for ARM Revision, Table 11.

Year	CMSA Estimates		Red knots	Optimal HSC Harvest (revised ARM)	
	Female HSC	Male HSC		Female	Male
2017	10,967,100	31,664,430	49,405	154,483	500,000
2018	9,735,690	24,715,290	45,221	146,792	500,000
2019	9,357,400	21,897,920	45,133	144,803	500,000

**Table 2. Example allocation of the Delaware Bay optimal horseshoe crab harvest using the 2019 Optimal HSC Harvest (see Table 1).** Top: Example allocation under Option B, sub-option B1. Bottom: Example allocation under sub-option B2. Total quota includes crabs of non-Delaware Bay Origin.

State	DE Bay Origin Quota			Total Quota		
	Sexes Combined	Male	Female	Sexes Combined	Male	Female
DE	207,617	173,014	34,603	207,617	173,014	34,603
NJ	207,617	173,014	34,603	207,617	173,014	34,603
MD	159,437	132,864	26,573	170,653	142,211	28,442
VA	25,328	21,107	4,221	60,998	50,832	10,166
<b>Total</b>	<b>600,000</b>	<b>500,000</b>	<b>100,000</b>	<b>646,885</b>	<b>539,071</b>	<b>107,814</b>

State	DE Bay Origin Quota			Total Quota		
	Sexes Combined	Male	Female	Sexes Combined	Male	Female
DE	216,268	173,014	43,254	216,268	173,014	43,254
NJ	216,268	173,014	43,254	216,268	173,014	43,254
MD	166,080	132,864	33,216	170,653	136,522	34,131
VA	26,384	21,107	5,277	60,998	48,798	12,200
<b>Total</b>	<b>625,000</b>	<b>500,000</b>	<b>125,000</b>	<b>664,187</b>	<b>531,349</b>	<b>132,837</b>



# Atlantic States Marine Fisheries Commission

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

## MEMORANDUM

**TO:** Horseshoe Crab Plan Development Team  
**FROM:** Horseshoe Crab Technical Committee  
**DATE:** June 29, 2022  
**SUBJECT:** Technical guidance to PDT on biomedical mortality threshold

### Background

In October 2021, the Board assigned the following task to the Plan Development Team (PDT): review the threshold for biomedical mortality to develop biological based options for the threshold and to develop options for action when the threshold is exceeded; also, review the best management practices (BMPs) for handling biomedical catch and suggest options for updating and implementing BMPs. The PDT tasked the Technical Committee with reviewing available information to address this task and recommending potential methods for developing biologically based options for the biomedical mortality threshold. They also requested the TC review the BMPs and recommend any updates.

The TC met in April and June to discuss this task and provide guidance to the PDT. The TC's discussion and recommendations are summarized below.

### Technical Committee Recommendations on Biomedical Mortality Threshold

The TC's direct response to the PDT's task to develop biologically based options for the biomedical mortality threshold is that given the available data, it is not possible to recommend a scientifically based threshold for biomedical mortality. The TC evaluated all available information on horseshoe crab populations and biomedical collections. The key issue that prevents the TC from recommending a biologically based threshold is the lack of population estimates for the coast and all regions except for the Delaware Bay. It should be underscored that without such population estimates, it is not possible to recommend coastwide mortality limits from any source, not just biomedical mortality.

To examine the effects of biomedical mortality for the Delaware Bay only, a sensitivity analysis was conducted using varying levels of biomedical mortality in the existing catch multiple survey analysis (CMSA) and projection models for the region. The results of this analysis are included in the attached memo to the TC and Stock Assessment Subcommittee dated April 21, 2022. The analysis indicates that, on average, the Delaware Bay population estimate was not very sensitive to increasing the biomedical harvest in the region by assuming all biomedical mortality was on female crabs in the Delaware Bay. The projection model showed that increasing biomedical removals to larger quantities (e.g., 200-300 thousand female crabs) over time can lower the equilibrium values of the population in the future. While these analyses can inform the TC and SAS discussions about the influence of removals on population estimates, it should be noted that levels of biomedical mortality vary at a regional level along the coast and the Delaware Bay region may not be an appropriate proxy for the Atlantic coast. Biomedical mortality can have different impacts regionally, depending on the size and condition of a particular stock as well as the level of biomedical mortality.

M22-73

As there is no technical basis for the coastwide biomedical mortality threshold, the TC recommends focusing on the best management practices for handling of horseshoe crabs for biomedical use. Improving upon the existing BMPs and/or developing some standard requirements states could implement for biomedical operations may provide an avenue for reducing lethal and sublethal effects on horseshoe crabs. The TC will convene again to discuss this issue in more detail and develop recommendations for the PDT to consider related to the BMPs.



# Atlantic States Marine Fisheries Commission

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

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## MEMORANDUM

June 8, 2022

**To: Horseshoe Crab Management Board**  
**From: Tina Berger, Director of Communications**  
**RE: Advisory Panel Nomination**

Please find attached a nomination to the Horseshoe Crab Advisory Panel – David Meservey, an inshore commercial otter trawler from Massachusetts. David replaces Jay Harrington, who served on the Panel since 1998. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or [tberger@asmfc.org](mailto:tberger@asmfc.org).

Enc.

cc: Caitlin Starks

M22-67

## HORSESHOE CRAB ADVISORY PANEL

Bolded names await approval by the Horseshoe Crab Management Board

June 8, 2022

### Massachusetts

**David Meservey (comm/inshore otter trawl)**

**P.O. Box 128**

**South Chatham, MA 02659**

**Phone: 508.237.4366**

**[dmese@yahoo.com](mailto:dmese@yahoo.com)**

Chair, Brett Hoffmeister (biomedical)

Associates of Cape Cod

331 Barlows Landing Row

Pocasset, MA 02559

Phone (day): 508.444.1426

[BHoffmeister@acciusa.com](mailto:BHoffmeister@acciusa.com)

Appt Confirmed 2/3/16

Appt. Reconfirmed 8/18

### Rhode Island

**Vacancy (comm/otter trawl)**

### New York

John L. Turner (conservation)

10 Clark Boulevard

Massapequa, NY 11762

Phone (day): 631.451.6455

Phone (eve): 516.797.9786

[redknot@optonline.net](mailto:redknot@optonline.net)

Appt. Confirmed 2/10/05

Appt Reconfirmed 5/10

Peter Wenczel (pot/conch)

675 West Shore Drive

Southold, NY 11971

Phone: 631.765.5669

[pwenczel@optonline.net](mailto:pwenczel@optonline.net)

Appt. Confirmed 4/7/98

Appt. Reconfirmed 10/02

Appt. Reconfirmed 10/06

Appt Reconfirmed 5/10

**Participation: Inactive; attended last meeting in 2010**

### New Jersey

Benjie Swan (biomedical)

Limuli Laboratories

Dias Creek, 5 Bay Avenue

Cape May Courthouse, NJ 08210-2556

Phone: 609.465.6552

[Swan24@verizon.net](mailto:Swan24@verizon.net)

Appt. Confirmed 8/5/10

### Delaware

Lawrence Voss (comm./pot)

3215 Big Oak Road

Smyrna, DE 19977

Phone: (302)359-0951

[shrlyvss@aol.com](mailto:shrlyvss@aol.com)

Appt. Confirmed 10/24/18

**2 vacancies - dealer/processor & conservation/environmental**

### Maryland

George Topping (comm/trawl)

32182 Bowhill Road

Salisbury, MD 21804

Phone: 443.497.2141

[george@zztopping.com](mailto:george@zztopping.com)

Appt. Confirmed 5/16

Jeffrey Eutsler (comm/trawl)

11933 Gray's Corner Road

Berlin, MD 21811

Phone: 443.497.3078

[jeffeutsler@me.com](mailto:jeffeutsler@me.com)

Appt. Confirmed 2/4/98

Appt. Reconfirmed 10/02; 10/06; 5/10

William R. Legg (comm/pot/eel)

110 Rebel Road

Grasonville, MD 21638

Phone: 410.820.5841

Appt. Confirmed 4/7/98

Appt. Reconfirmed 10/02; 10/06; 5/10

**Participation: Inactive; attended last meeting in 1998**

Allen L. Burgenson (biomedical)

8875 Hawbottom Road

Middletown, MD 21769

Phone: 301.378.1263

[allen.burgenson@lonza.com](mailto:allen.burgenson@lonza.com)

Appt. Confirmed 8/21/08

## HORSESHOE CRAB ADVISORY PANEL

Bolded names await approval by the Horseshoe Crab Management Board

June 8, 2022

past chair

### **Virginia**

Richard B. Robins, Jr. (processor/dealer)  
3969 Shady Oaks Drive  
Virginia Beach, VA 23455  
Phone (day): 757.244.8400  
Phone (eve): 757.363.9506  
[richardbrobins@gmail.com](mailto:richardbrobins@gmail.com)  
Appt. Confirmed: 2/9/00  
Appt. Reconfirmed 1/2/06; 5/10

Christina M. Lecker  
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LAL Division  
Plant Manager - Cape Charles Facility  
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FAX: 757-331-2046  
[christina.lecker@fujifilm.com](mailto:christina.lecker@fujifilm.com)  
Appt. Confirmed 10/21/2020

### **1 vacancy - comm/pot/conch**

### **South Carolina**

Nora Blair (biomedical)  
Charles River Laboratories Microbial Solutions  
1852 Cheshire Drive  
Charleston, SC 29412  
843.276.7819  
[Nora.Blair@crl.com](mailto:Nora.Blair@crl.com)  
Appt. Confirmed 5/1/19

Cindy Sires (comm/pot/trawl)  
7609 White Point Road  
Yonges Island, SC 29449  
Phone: 843.607.3287  
[troubleyi@aol.com](mailto:troubleyi@aol.com)  
Appt. Confirmed 8/5/10

**Participation: Inactive; never attended  
meeting since appt in 2010**

### **Nontraditional Stakeholders**

Jeff Shenot  
7900 McClure Road

Upper Marlboro, MD 20772  
Phone: 301.580.4524  
[JUGBAY@msn.com](mailto:JUGBAY@msn.com)  
Appt. Confirmed 8/2018

Walker Golder  
Executive Director, Coastal Land Trust  
3 Pine Valley Dr.  
Wilmington, NC 28412  
Office: 910.790.4524 x2060  
Cell: 910.619.6244  
[walker@coastallandtrust.org](mailto:walker@coastallandtrust.org)  
Appt. Confirmed 8/2018



**ATLANTIC STATES MARINE FISHERIES COMMISSION**

**Advisory Panel Nomination Form**

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

Form submitted by: Daniel McKiernan State: MA  
(your name)

Name of Nominee: David S. Meservey

Address: Box 128

City, State, Zip: South Chatham, MA 02659

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

Phone (day): 508-237-4366 Phone (evening): \_\_\_\_\_

FAX: \_\_\_\_\_ Email: dmese@yahoo.com

**FOR ALL NOMINEES:**

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
    1. Horseshoe Crab 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 NO
  
  3. Is the nominee a member of any fishermen's organizations or clubs?  
 yes \_\_\_\_\_ no NO
- 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?

Horseshoe Crabs  
Fluke  
Conch

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

<u>Horseshoe Crabs</u>	<u>Fluke/Sea Bass</u>
<u>Striped Bass</u>	<u>Sea Scallops</u>
<u>Dogfish</u>	<u>Quahogs/Soft Shelled Clams</u>

**FOR COMMERCIAL FISHERMEN:**

1. How many years has the nominee been the commercial fishing business? 30 (12 P&D) years
2. Is the nominee employed only in commercial fishing?    yes \_\_\_\_\_    no No
3. What is the predominant gear type used by the nominee? Otter Trawl
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? Inshore Nantucket Sound, Massachusetts

**FOR CHARTER/HEADBOAT CAPTAINS:**

1. How long has the nominee been employed in the charter/headboat business? 30 (12 P&D) years
2. Is the nominee employed only in the charter/headboat industry?    yes \_\_\_\_\_    no \_\_\_\_\_  
If "no," please list other type(s)of business(es) and/occupation(s): \_\_\_\_\_  
\_\_\_\_\_
3. How many years has the nominee lived in the home port community? \_\_\_\_\_ years  
If less than five years, please indicate the nominee's previous home port community.  
\_\_\_\_\_

**FOR RECREATIONAL FISHERMEN:**

1. How long has the nominee engaged in recreational fishing? \_\_\_\_\_ years
2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes 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?  
30 (12 P&D) years
2. Is the nominee employed only in the business of seafood processing/dealing?

yes \_\_\_\_\_ no NO 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? 43 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? 14 years
2. Is the nominee employed in the fishing business or the field of fisheries management?  
yes yes no \_\_\_\_\_

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

Commercial Fisherman

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.

I frequently traveled on gulf coast and fish farm boats. In 2000 as the shellfish  
boats dried up I switched focus to horseshoe crabs and oysters. Over  
the next few years I developed a passion for the horseshoe crab fishery.

My interest was peaked I discovered there were many aspects to  
consider: science, commercial fishing, and politics. As a result I  
developed a horseshoe crab business I catch and purchase crabs  
throughout the year using various harvest methods. In addition, I  
supply a biomedical industry as well as conduct field research on crabs as  
needed. Working closely with the industry has offered me a unique  
perspective on the resource.

See Attached

Nominee Signature: David Meservey

Date: 5/6/22

Name: David Meservey  
(please print)

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

David J. Herrera

State Director

Garth W. Redke

State Legislator

Raymond N. King

Governor's Appointee

ATLANTIC STATES MARINE FISHERIES COMMISSION

Growing up on Nantucket Sound, I realized at a young age that I wanted to work on the water. For 15 years I worked as a shell fisherman and frequently crewed on gillnet and fish weir boats. In 2007 as the shellfish beds dried up I switched focus to horseshoe crabs and dogfish. Over the next few years I developed a passion for the horseshoe crab fishery.

My interest was peaked. I discovered there were many aspects to consider; science, commercial fishing, and politics. As a result I developed a horseshoe crab business. I catch and purchase crabs throughout the year using various harvest methods. In addition, I supply a biomedical industry as well as conch fishermen with crabs as needed. Working closely with the industry has offered me a unique perspective on the resource.

603-737-4368

Phone Number

amose@yam.com

Email Address

Please list in order: 1. Name of the vessel, 2. Name of the owner, 3. Name of the captain, 4. Name of the crew member.

Horseshoe Crab Activity Form

Has the permittee ever found or captured any horseshoe crabs, dogfish, or other marine resources?

NO

Has the permittee ever found or captured any horseshoe crabs, dogfish, or other marine resources?

NO

If yes, please list the date and location of capture.

# Action Plan to Reduce Atlantic Sturgeon Bycatch in Federal Large Mesh Gillnet Fisheries

Produced by the Atlantic Sturgeon Bycatch Working Group  
Compiled by Spencer Talmage

NOAA National Marine Fisheries Service  
Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930-2276

## Executive Summary

Bycatch of Atlantic sturgeon, an endangered species, in large mesh gillnet gear deployed in federal fisheries is a major concern for the recovery of the species. NOAA'S National Marine Fisheries Service convened the Atlantic Sturgeon Bycatch Working Group in response to the requirements of the May 27, 2021, Biological Opinion that considered the effects of the authorization of ten fishery management plans and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment 2, on species listed under the Endangered Species Act, including all five distinct population segments of Atlantic Sturgeon, and designated critical habitat. The Working Group conducted a review of available information regarding Atlantic sturgeon distribution, bycatch in gillnet gear, bycatch mitigation, and post-release mortality. From this review, the working group produced this Action Plan, which recommends that the New England and Mid-Atlantic Fishery Management Councils, in coordination with the National Marine Fisheries Service and the Atlantic States Marine Fisheries Commission, consider a range of potential measures to reduce Atlantic sturgeon bycatch in federal large mesh gillnet fisheries. This Action Plan does not prescribe the measures that must be used, but provides recommendations based on the information considered on Atlantic sturgeon bycatch. These recommendations are: 1) Requirements to use bycatch mitigating low-profile gillnet gear; 2) implementation of closure or gear restricted areas in regions where Atlantic sturgeon bycatch is more common; and 3) limitations on soak time for gillnet gear. In addition, the Working Group recommends that the National Marine Fisheries Service lead work to identify and carry out steps needed to acquire more information regarding post-release mortality of Atlantic sturgeon captured by gillnet gear.

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## Introduction: Biological Opinion, RPMs, and T&C

All five Atlantic sturgeon distinct population segments (DPS) in the United States are listed as endangered or threatened under the Endangered Species Act (ESA). The primary threats to these DPSs are entanglement in fishing gears, habitat degradation, habitat impediments, and vessel strikes.

On May 27, 2021, NOAA's National Marine Fisheries Service (NMFS) issued a Biological Opinion (Opinion) on the authorization of eight federal fishery management plans (FMPs), two Interstate Fishery Management Plans (ISFMPs) and the New England Fishery Management Council's Omnibus Essential Fish Habitat Amendment 2. The eight FMPs considered are the: Atlantic Bluefish; Atlantic Deep-sea Red Crab; Mackerel, Squid, and Butterfish; Monkfish; Northeast Multispecies; Northeast Skate Complex; Spiny Dogfish; and Summer Flounder, Scup, and Black Sea Bass FMPs. The two ISFMPs which were considered were the American Lobster and Jonah Crab ISFMPs. The North Atlantic Right Whale Conservation Framework for Federal Fisheries in the Greater Atlantic Region was considered in the proposed action. The Opinion evaluated the effects of the action on ESA-listed species, including all five DPS of Atlantic sturgeon, and designated critical habitat.

Section 9 of the Endangered Species Act of the ESA prohibits the take, including the incidental take, of endangered species. Pursuant to section 4(d) of the ESA, NMFS has issued regulations extending the prohibition of take, with exceptions, to certain threatened species. NMFS may grant exceptions to the take prohibitions with an incidental take statement or an incidental take permit issued pursuant to ESA section 7 and 10, respectively. Take is defined as "to harass, harm, pursue, hunt, shoot, capture, or collect, or to attempt to engage in any such conduct."

The ESA defines incidental take as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of sections 7(b)(4) and 7(o)(2), incidental take is not considered to be prohibited under the ESA provided that it is in compliance with the terms and conditions of an Incidental Take Statement (ITS). The 2021 Opinion includes an ITS which specifies the level of incidental take of Atlantic sturgeon anticipated in the federal fisheries and defines reasonable and prudent measures (RPMs) and implementing terms and conditions (T&C), which are necessary or appropriate to minimize impacts of the incidental take. The RPMs and T&Cs are non-discretionary and must be undertaken in order for the exemption to the take prohibitions to apply.

The RPMs/T&Cs of the Opinion include that NMFS convene a working group to review all the available information on Atlantic sturgeon bycatch in the federal large mesh gillnet (defined here as  $\geq 7$  inches stretched) fisheries and to develop an action plan by May 27, 2022, to reduce Atlantic sturgeon bycatch in these fisheries by 2024. Additionally, the Opinion requires that the action plan include an evaluation of information available on post-release mortality, identification of data needed to better assess impacts, and a plan, including timeframes, for obtaining and using this information to evaluate impacts.

On July 30, 2021, NMFS initiated work to establish the Atlantic Sturgeon Bycatch Working Group (ASBWG) to meet the requirements of the Opinion. Originally convened with NMFS staff in November

2021, the working group was expanded in January 2022 to include representatives from state fisheries agencies with expertise in Atlantic sturgeon and/or large mesh gillnet fisheries.

## Atlantic Sturgeon Bycatch Working Group Members

- Spencer Talmage, Greater Atlantic Regional Fisheries Office
- Cynthia Ferrio, Greater Atlantic Regional Fisheries Office
- Lynn Lankshear, Greater Atlantic Regional Fisheries Office
- Henry Milliken, Northeast Fisheries Science Center
- Jason Boucher, Northeast Fisheries Science Center
- Kim McKown, New York State Department of Environmental Conservation, Bureau of Marine Resources
- Heather Corbett, New Jersey Department of Environmental Protection, Marine Fisheries
- Ian Park, Delaware Division of Fish and Wildlife
- Rebecca Peters, Maine Department of Marine Resources
- Eric Schneider, Rhode Island Department of Environmental Management, Division of Marine Fisheries
- Jacque Benway, Connecticut Department of Energy and Environmental Protection, Marine Fisheries Program

## Purpose of Document

This Action Plan: (1) Communicates the results of the review of all available information regarding Atlantic sturgeon bycatch and highlight gaps in the available information; (2) describes regulatory measures that the New England and Mid-Atlantic Fishery Management Councils and NMFS should consider to reduce bycatch of Atlantic sturgeon by 2024; and (3) establishes a timeline for scoping and development of regulatory measures and completing or initiating work necessary to close information gaps.

## Description of Fishery Management Plans Considered in the May 27, 2021, Biological Opinion

The following is a summary of the Fishery Management Plans which were considered in the May 27, 2021, Biological Opinion for their impact on ESA-listed species and habitat (NMFS 2021).

Comprehensive descriptions of each fishery, including those which do not have gillnet components, can be found in the Biological Opinion.

### American Lobster Interstate Fishery Management Plan

The American lobster fishery is cooperatively managed by the states and NMFS under the framework of the Atlantic States Marine Fisheries Commission. Vessels fishing for American lobster in the American lobster fishery primarily use trap gear. Though the American Lobster Interstate Fishery Management Plan includes a limited access non-trap permit that allows landing of lobster caught in other gear types, including gillnet, this is incidental to effort in other fisheries. There are no components of the targeted

American lobster fishery which use gillnet gear that would be directly affected by the eventual outcomes of this Action Plan.

## Atlantic Bluefish Fishery Management Plan

The Atlantic bluefish fishery is managed jointly by the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council in state and federal waters. Management measures for the fishery include annual catch limits, catch targets, and total allowable landings for both the recreational and commercial sectors. The Atlantic bluefish fishery is primarily a recreational fishery, with 86 percent of the overall annual total allowable landings allocated to the recreational fishery quota and 14 percent allocated to the commercial fishery.

Gillnets are the primary gear type used in the commercial bluefish fishery. Hook and line gear (i.e. longline, handline, rod and reel, etc.), pound nets, seines, pots/traps, and trawls are also authorized gears. In the past five years, gillnets have accounted for around 65 percent of the commercial directed bluefish catch, with the next most common gear used various types of trawls (bottom, beam, midwater, etc.) (23 percent), and handline (8 percent). The combination of all other gear types, including traps, seines, and cast nets, comprised the remaining 4 percent.

There are no gear-specific requirements or area closures identified in the Bluefish FMP. Other federal FMPs have implemented these types of regulations which apply to vessels fishing with gillnet for bluefish and other species.

## Atlantic Deep-Sea Red Crab Fishery Management Plan

The Atlantic deep-sea red crab fishery is managed by the New England Fishery Management Council. Vessels fishing for Atlantic deep-sea red crab in the Atlantic deep-sea red crab fishery primarily use trap gear. Vessels which have been issued a limited access red crab permit may not harvest red crab from any fishing gear other than red crab traps or pots which comply with marking requirements. An open-access incidental permit exists that allows landing of red crab caught in other gear types, including gillnet, but this is incidental to effort in other fisheries. There are no components of the targeted red crab fishery which use gillnet gear that would be directly affected by the eventual outcomes of this Action Plan.

## Mackerel, Squid, and Butterfish Fishery Management Plan

The Mid-Atlantic Council manages Atlantic mackerel, chub mackerel, longfin squid, Illex squid, and butterfish through a single FMP called the Mackerel, Squid, and Butterfish (MSB) FMP. The FMP uses quotas and accountability measures for all species. Various permitting systems, mesh requirements, time-area closures, and trip limits are used in these fisheries to help achieve optimum yield. Species managed by the MSB FMP are typically harvested with bottom-tending otter trawl gear, jigging gear, single midwater trawls, and paired midwater trawls. There are no components of the mackerel, squid, or butterfish fisheries that use gillnet gear that would be directly affected by the outcomes of this Action Plan.

## Monkfish Fishery Management Plan

The New England and Mid-Atlantic Fishery Management Councils jointly manage the monkfish fishery, which occurs year-round from Maine to North Carolina. A days-at-sea (DAS) system with trip limits per DAS is used to manage the fishery, along with a total allowable landings limit within an annual catch limit and accountability measures framework. There are two separate management areas: the Northern (NFMA) and Southern (SFMA). Landings in the SFMA peak in the late spring/early summer months when fish are migrating from deeper water, while landings in the NFMA peak in January through March.

In the commercial fishery, bottom trawl, gillnet, longline, dredge, and trap/pot gear are authorized, though bottom trawl and gillnet are the primary gear types used in the fishery. In 2018, bottom trawl accounted for 46 percent of landings, gillnet accounted for 45 percent of landings, and dredge and other gear types accounted for the remaining 9 percent.

The gear types and style of fishing used in the monkfish fishery differ between the NFMA and SFMA. In the NFMA, the monkfish fishery overlaps significantly with the Northeast multispecies fishery and landings are primarily made by vessels using bottom trawl gear. Landings from gillnet gear in the NFMA make up a small proportion of total landings during winter months and a larger proportion in the summer months. In the SFMA, the monkfish fishery is prosecuted more independently of other fisheries, and gillnet gear accounts for the majority of landings.

Vessels issued limited access monkfish permits are issued 45.2 DAS per fishing year, of which 37 may be used in the SFMA. An additional four DAS may be carried over if unused in the previous year, and can be applied in either area.

A substantial proportion of monkfish-permitted vessels additionally possess Northeast multispecies or scallop permits. Vessels with both a Northeast multispecies permit and a monkfish permit are subject to additional DAS measures which affect where and how they may fish, including gear configurations which may be used. Among these measures is a requirement for such a vessel to use a Northeast multispecies DAS whenever using a monkfish DAS. If a vessel's initial allocation of Northeast multispecies DAS is less than its monkfish DAS allocation, it receives an allocation of monkfish-only DAS equal to the difference. Monkfish-only DAS must be used in an exempted fishery program (Table 1), which are defined by the regulations of the Northeast Multispecies FMP.

Gear requirements in the Monkfish FMP establish a 10-inch minimum mesh size for gillnets, unless the vessel is fishing subject to gear requirements under a Northeast multispecies DAS or other exemption areas (Table 1).

## Northeast Multispecies Fishery Management Plan

The New England Fishery Management Council manages the Northeast multispecies fishery through the Northeast Multispecies FMP. Sixteen species of groundfish are managed under the Northeast Multispecies FMP. Groundfish are found throughout New England waters, from the Gulf of Maine to

southern New England. The Northeast multispecies fishery operates year-round. For management purposes, the fishing year runs from May 1 through April 30.

Thirteen species (20 stocks) are managed as part of the large-mesh complex, based on fish size and the type of gear used to harvest the fish, both as target species (Atlantic cod, haddock, pollock, yellowtail flounder, witch flounder, winter flounder, American plaice, Atlantic halibut, redfish, and white hake) and as non-target species (windowpane flounder, ocean pout, and Atlantic wolffish).

The commercial Northeast multispecies fishery is divided between the sector program and the common pool. Vessels voluntarily choose to enter into the sector program as part of a groundfish sector, each of which are allocated a quota of Northeast Multispecies stocks based on the collective fishing history of the sector's members. Each sector may determine how participating vessels fish that quota, also known as an Annual Catch Entitlement. Vessels that do not choose to participate in the sector program are placed in the common pool fishery. Common pool vessels are subject to possession limits and DAS requirements, as well as quotas managed in 4-month trimesters. Annual catch limits are in place for all participants in the fishery.

A variety of gears are used in the large mesh multispecies fishery. Groundfish vessels fish for target species with trawl, gillnet, and hook and line gear (including jigs, handline, and non-automated demersal longlines). For gillnet, minimum mesh sizes are 6.5 inches in all areas, except for vessels with the Large Mesh Individual DAS permit, which have a minimum mesh size of 7.5 inches diamond and 8.0 inches square in the Mid-Atlantic Regulated Mesh Area and 8.5 inches diamond and square in the Gulf of Maine, Georges Bank, and Southern New England Regulated Mesh Areas. Limits are in place regarding the number and type of nets which can be deployed, based on the area being fished.

Three species (silver hake/whiting, red hake, and offshore hake) are included in the FMP as the small-mesh complex, but are managed under a separate program through a series of exemptions to the Northeast Multispecies FMP. The small-mesh fishery operates under exemptions that allow vessels to fish for these species in designated areas, called exemption areas (Table 1), using mesh sizes smaller than the minimum mesh sizes otherwise allowed under the Northeast multispecies regulations.

## Northeast Skate Complex Fishery Management Plan

The New England Fishery Management Council manages the skate fishery under the Northeast Skate Complex FMP. The fishery operates from Maine to Cape Hatteras, North Carolina. Skates are mostly harvested incidentally in trawl and gillnet fisheries targeting groundfish, monkfish, and sometimes scallops. The FMP manages a complex of seven different skate species: Barndoor; clearnose; little; rosette; smooth; thorny; and winter skates. Skates are harvested for two different market: skate wings for human consumption and whole skates for use as bait in other fisheries, such as lobster and Jonah crab. The skate wing fishery is allocated 66.5 percent of the federal total allowable landings (TAL) for skates, and the skate bait fishery is allocated 33.5 percent of the federal TAL. There are no closed areas identified with the Northeast Skate Complex FMP. However, area management within the Northeast Multispecies, Scallop, and Monkfish FMPs would impact the harvest of skates.

Otter trawl is the primary gear used in the bait fishery (99 percent of bait-only landings), while more skates in the wing fishery are landed with gillnet gear (81 percent of wing-only landings). Overall, gillnets are responsible for approximately 66 percent of skate catch, and trawls comprise about 32 percent. Skates are also consistently caught with traps, hook gear, and scallop dredges, although landings from these gears are relatively insignificant (about 2 percent of all catch combined). Vessels participating in the skate fishery must abide by the minimum mesh sizes and gear limits for gillnet and trawl gear required by the Northeast multispecies regulations. All vessels fishing for skates using a DAS are subject to the gear regulations of whichever limited access fishery it has declared into for that DAS. Otherwise, vessels fishing for skates must abide by the gear requirements of the Northeast Multispecies FMP.

An open access permit is required to land skates. Both a permit and a skate bait letter of authorization (LOA) is required to land whole skate for the bait fishery. Vessels fishing for skate wings must be on a Northeast multispecies, scallop, or monkfish DAS to land more than the incidental limit of 500 lb of skate wings. In general, vessels fishing for skate bait under a bait Letter of Authorization must also be on a DAS, unless the vessel is fishing in a DAS exemption area (Table 1).

## Spiny Dogfish Fishery Management Plan

The New England and Mid-Atlantic Fishery Management Councils jointly manage the Atlantic spiny dogfish fishery under the federal Spiny Dogfish FMP. The Atlantic States Marine Fisheries Commission also manages the spiny dogfish fishery in state waters from Maine to North Carolina through its Interstate Fishery Management Plan for Spiny Dogfish. The spiny dogfish fishery is managed using a coastwide annual quota and possession limits. There is very limited directed recreational fishing for spiny dogfish, and no Federal recreational management. The commercial fishery is active year-round, although there is some seasonality in the distribution of landings due to the migratory nature of the species. In general, fishing effort follows the north-south seasonal migratory pattern. Spiny dogfish fishing is concentrated in the North Atlantic around Georges Bank, the Gulf of Maine, and Massachusetts state waters from May through October. Effort shifts further south (e.g., to Virginia and North Carolina) in late fall and early winter. Overall, the highest landings of spiny dogfish typically occur between June and October in Massachusetts. There are no closed areas specifically under the Spiny Dogfish FMP. However, permit holders are subject to the regulations and restrictions of the other permits they may be fishing under in conjunction with spiny dogfish (e.g., multispecies, monkfish, etc.).

Gillnets are the primary gear in the commercial fishery, responsible for approximately 66 percent of landings annually. The other most prevalent gears in the spiny dogfish fishery are bottom longline (25 percent of catch), and bottom trawl (4 percent). There are no specific gear requirements in the Spiny Dogfish FMP, but vessels targeting spiny dogfish must abide by the regulated mesh area requirements for gillnet and trawl gear specified in the Northeast multispecies regulations.

## Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan

The Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission jointly manage the summer flounder, scup, and black sea bass fisheries. These species are managed under a single FMP because these species occupy similar habitat and are often caught at the same time. The vast majority of these fisheries are harvested with bottom otter trawl gear (96 percent for summer

flounder, 97 percent for scup, and 72 percent for black sea bass), and 18 percent of black sea bass are caught with pot/trap gear. As gillnets are not a significant gear in this FMP, participants are not likely to be directly affected by the eventual outcomes of this Action Plan.

### Jonah Crab Interstate Fishery Management Plan

The Jonah crab fishery is cooperatively managed by the states and NMFS under the framework of the Atlantic States Marine Fisheries Commission. The Jonah Crab Interstate Fishery Management Plan limits participation in the Jonah crab fishery to vessels that possess an American lobster permit. As with the American lobster fishery, Jonah crab is primarily caught and landed using trap gear. A limited access non-trap permit exists that provides for incidental harvest of Jonah crab caught during the prosecution of other fisheries. There are no components of the targeted Jonah crab fishery which use gillnet gear that would be directly affected by the eventual outcomes of this Action Plan.

### Exempted Fishery Areas

Exempted fisheries allow vessels to fish for specific species without being subject to certain Northeast multispecies regulations, including DAS, provided that bycatch of regulated Northeast multispecies stocks is minimal. Many gillnet fisheries in the region are conducted at least in part by vessels participating in exempted fishery areas, including the monkfish, spiny dogfish, and skate fisheries. As such, the exempted fishery areas define some of the gear requirements for vessels participating in these fisheries.

Table 1. Exempted fishery areas for vessels fishing with gillnet gear

Exemption Area	Regulated Mesh Area	Gear Requirements	Target Species	Other allowable catch	Season	Other Restrictions
Gulf of Maine (GOM)/Georges Bank (GB) Monkfish Gillnet Exemption	GOM, GB	10 inch minimum diamond mesh size	Monkfish	American Lobster	July 1 - September 14	
Eastern Cape Cod Spiny Dogfish Exemption Area	GOM, GB	6.5 inch minimum diamond mesh size	Dogfish	None specified	June 1 - December 31	
Nantucket Shoals Dogfish Fishery Exemption Area	GOM, GB	6.5 inch minimum diamond mesh size	Dogfish	Longhorn sculpin, silver hake, monkfish, lobster, skate	June 1 - October 15	
GOM/GB Dogfish Gillnet Exemption	GOM, GB	6.5 inch minimum diamond mesh size	Dogfish	American Lobster	July 1 - August 31	
Southern New England (SNE) Monkfish and Skate Gillnet Exemption	SNE	10 inch minimum diamond mesh size	Monkfish, Dogfish, Skate	Incidental species allowed in SNE Regulated Mesh Area*	Year-Round	
SNE Dogfish Gillnet Exemption	SNE	6 inch minimum diamond mesh size	Dogfish	Incidental species allowed in SNE Regulated Mesh Area*	May 1 - October 31	
Mid-Atlantic (MA) Monkfish/Spiny Dogfish Gillnet Exemption	MA	5 inch minimum mesh size, limited to 50 stand-up gillnets	Monkfish, Dogfish, Skate	incidental species allowed in SNE Regulated Mesh Area*	Year-Round	Participating Vessels must be on a Monkfish Day-At-Sea

## Existing Closure Areas and Gear Restricted Areas in Regions Used by Atlantic Sturgeon

Seasonal and year-round closures for the use of gillnet gear with  $\geq 7$  inches stretched mesh exist for the protection of other species (e.g., harbor porpoise, sea turtles) as well as for fisheries management (e.g., Gulf of Maine Cod Protection Closures). Such closures may afford some protection to the Atlantic sturgeon DPSs if they reduce large-mesh gillnet fishing effort at times and in areas where sturgeon also occur. For example, the Harbor Porpoise Take Reduction Plan and the Large-Mesh Gillnet regulations include seasonal closure areas for the use of  $\geq 7$  inches stretched mesh gillnet gear in mid-Atlantic waters (see <https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-mammal-protection/harbor-porpoise-take-reduction-plan> and <https://www.fisheries.noaa.gov/resource/map/large-mesh-gillnet->

[restricted-area-map-gis-data](#) for additional information). The prohibitions on the use of  $\geq 7$  inches stretched mesh gillnet gear in these areas may benefit Atlantic sturgeon, particularly those belonging to the Chesapeake Bay and New York Bight DPSs, when the sturgeon are moving through marine waters to and from coastal estuaries. Similarly, measures such as the Gulf of Maine Cod Protection Closures (see <https://www.fisheries.noaa.gov/new-england-mid-atlantic/rules-and-regulations/northeast-multispecies-closed-area-regulations> for additional information) may also benefit Atlantic sturgeon, particularly the Gulf of Maine DPS, when sturgeon are moving through marine waters to and from coastal estuaries.

## Review of Available Information on Atlantic Sturgeon Bycatch

### Metadata

What information was reviewed?

The ASBWG reviewed a mixture of peer-reviewed scientific papers, available data from the Northeast Fisheries Observer Program database, grant program reports, workshop reports, Northeast Fisheries Science Center model-derived estimates of Atlantic sturgeon bycatch, and the 2017 Atlantic States Marine Fisheries Commission stock assessment, which is the most recent benchmark stock assessment available.

Table 1. Information Reviewed by ASBWG

Topic	Type of Information	Number Reviewed
Distribution and occurrence	Peer-reviewed literature	12
Bycatch analyses	Peer-reviewed literature	2
	NMFS NEFSC document	2
	ASMFC document	2
Bycatch mitigation	Peer-reviewed literature	3
	NOAA-NMFS Grant Report	4

These sources represent the known information available to the ASBWG.

In the literature that was reviewed, what types of data/methods were used?

Studies and other sources of information used data derived from fishery observer programs, tagging and telemetry, DNA sampling, fisheries independent surveys, and remote sensing and modeling.

What was the temporal range of the information which was reviewed?

The publication dates for peer reviewed articles considered by the Working Group ranged from 2004 to 2021, and available observer program data ranges from 1989 to 2020.

Was the information reviewed site-specific or region-wide?

NEFOP data are fishery dependent and was derived wherever vessels that were assigned observers fished. Seven peer-reviewed articles or workshop reports studied the entire region (Gulf of Maine to Cape Hatteras in most cases, some the entire Atlantic Coast), and seven peer-reviewed articles or workshop

reports focused on smaller study areas. These included New York state waters, along the coast of Long Island and the mouth of New York Harbor, the New York Wind Energy Area, Delaware Bay, and the Mid-Atlantic Bight.

## Characteristics of the Atlantic sturgeon bycatch in the study region

What fisheries and gear types most commonly interact with Atlantic sturgeon?

Fisheries which use gillnet and trawl gear most commonly interact with Atlantic sturgeon (Stein et al. 2004, ASMFC 2007, Dunton et al. 2015, ASMFC 2017). The ASBWG was formed to address bycatch of Atlantic sturgeon in the federal large-mesh ( $\geq 7$  inches) gillnet fisheries. In particular, the Biological Opinion notes that the highest levels of bycatch occurred in the dogfish, monkfish, and Northeast multispecies sink gillnet fisheries. Gillnet gear configurations used in these fisheries are dependent on the species that vessels are targeting.

The minimum mesh size for most vessels fishing with gillnets in the Northeast multispecies fishery is 6.5 inches, though Large-mesh Individual DAS permitted vessels, which have a minimum mesh size of 8.5 inches in the Gulf of Maine, Georges Bank, and Southern New England Regulated Mesh Areas and a minimum mesh size of 8.0 inches square, 7.5 inches diamond in the Mid-Atlantic Regulated Mesh Area, also operate in the fishery. The minimum mesh size for gillnets used by vessels fishing under a monkfish DAS is 10-inch diamond mesh, unless the vessel is also fishing on a Northeast multispecies DAS or participating in certain exemption programs. There are no specific gear requirements in the Spiny Dogfish FMP, but vessels targeting spiny dogfish must abide by the requirements of the Northeast Multispecies Fishery Management Plan.

Two types of sink gillnets are used in these fisheries. Stand-up gillnets are constructed with floats on the float line and have no tie-down twine between the float line and the lead line. Stand-up gillnets extend vertically from top to bottom generally as a flat plane in the water column. Tie-down gillnets are either constructed with no floats on the float line or are constructed with floats on the float line and tie-down twine between the float line and the lead line. The float line on tie-down gillnets drop or is pulled towards the lead line such that the net forms a curved surface in the water column.

Vessels targeting Northeast multispecies typically use a mix of stand-up gillnets for targeting flatfish (i.e. flounder species and tie-down gillnets for targeting roundfish (i.e. cod) species. Vessels targeting monkfish typically use a 12-inch mesh size with large twine sizes, 12 meshes deep, with 48-inch tie-down line 24 feet apart. A string of monkfish gillnets is made up of 10 to 20 nets (He and Jones, 2013).

The ASMFC special report (2007) estimated Atlantic sturgeon bycatch in coastal Atlantic commercial fisheries and discussed factors associated with Atlantic sturgeon bycatch mortality in sink gillnets. Among these, ASMFC found a significant positive association between soak time to Atlantic sturgeon mortality when monkfish were targeted with tie-down nets, and when groundfish and striped bass were targeted with standup gillnets. The report stated “a clear relationship was apparent between increasing mortality and soak times, with soak times greater than 24 hours resulting in a 40-percent incidence of death and those less than 24 hours resulting in a 14-percent incidence of death.” Additionally, the report

notes that longer soak times may increase Atlantic sturgeon bycatch and related deaths simply by increasing the likelihood of an interaction and, perhaps, through a baiting effect.

What gear modifications have been explored to reduce sturgeon bycatch?

A number of studies were reviewed which considered modifications to gillnet gear that could be used to reduce bycatch of Atlantic sturgeon. These studies have largely focused on comparisons between stand-up and tie-down gillnets, as well as modifications to net height and tie-down length. Generally, catch rate of sturgeon did not differ between stand-up gillnets and standard 12-mesh deep tie-down gillnets; stand-up nets tend to reduce monkfish catch (He, 2006).

Fox et al. completed a series of studies (2011, 2012, 2013) which progressively tested different configurations of gillnet, including comparisons between stand-up and tie-down gillnets, and comparisons of “low-profile” tie-down nets with commercial fishery standard nets. In these trials, the low-profile nets ranged between 6 and 8 meshes in height with 24-inch tie-downs, while commercial fishery standard nets were 12 meshes in height with 48-inch tie-downs.

Fox et al. found that the stand-up gillnet configuration reduced monkfish catch, made no difference in catch of Atlantic sturgeon, and greatly increased marine mammal catch. Levesque et al. (2016) conducted a comparison between the stand-up gillnet design typically used in the inshore southern flounder fishery in North Carolina and a heavily modified version with a 75-percent reduction in net profile from the standard design. This work demonstrated a reduction in incidental encounters of Atlantic sturgeon only relative to the gear used in the inshore southern flounder fishery in North Carolina.

Of the low-profile nets, Fox et al. found that the 6-mesh net reduced catch rates of both sturgeon and monkfish significantly. The 8-mesh net caught less sturgeon than the standard nets, but this difference was not significant. Sturgeon that were caught, however, were present in the upper half of nets, and so Fox et al. concluded that low profile nets were still potentially effective at reducing sturgeon bycatch.

He and Jones (2013) conducted their own comparison of the standard tie-down net to the low-profile 8-mesh net with 24-inch tie-downs. This study supported the concept that the low-profile experimental net reduced bycatch of Atlantic sturgeon. However, in sets where monkfish catch rates were high (i.e., a large amount of monkfish were potentially available), there was a reduction in overall monkfish catch for the low-profile net when compared to industry standard nets. There were no reductions in winter skate catch.

Fox et al. (2019) ran comparative trials of a low-profile sink-gillnet with 13-inch mesh size, 8-foot high net with 24-inch tie-downs spaced every 12 feet against an industry standard net with 12-inch mesh, 12-foot net height, with 48-inch tie-downs spaced at 24 foot intervals. The low-profile gillnet reduced Atlantic sturgeon bycatch by a ratio of 4.2:1, which the authors noted as promising for overall bycatch reduction in the future. Results regarding monkfish catch were somewhat mixed; catch rates by the vessel out of New York caught significantly fewer monkfish, while there was no significant difference between monkfish catch by the vessel fishing out of New Jersey. Winter skate and dogfish catch was similar across fishing locations and did not differ by gear.

Lastly, in 2006, Gessner and Arndt demonstrated in experimental conditions in freshwater ponds that the use of spacers to lift stand-up gillnets off the bottom by 0.3 meters (11.81 inches) “substantially” reduced catch of Siberian sturgeon. This concept was discussed at a NMFS and ASMFC gear workshop in 2013 as potentially applicable to Atlantic sturgeon, but it was noted that this type of modification would likely also reduce monkfish catch, an undesirable outcome for any gear measure intended to reduce sturgeon bycatch.

When and where does this interaction occur?

The Atlantic sturgeon’s distribution in the marine environment has been described in a number of documents including the ASMFC’s 1998 and 2017 Atlantic Sturgeon Stock Assessments, NMFS background information for the 2012 ESA-listing rules and the 2017 critical habitat designations, and in comprehensive literature reviews (e.g., Hilton et al. 2016). Based on incidental capture of Atlantic sturgeon in fishery-dependent and fishery-independent surveys as well as directed captures for research, and a variety of scientific methods (e.g., tagging and recapture, telemetry, genetic analyses), we know that, generally, Atlantic sturgeon in the marine environment:

- Are adult sturgeon as well as sexually immature sturgeon that have reached a certain stage of development to emigrate from the natal estuary;
- Typically occur within the 50-meter depth contour but may primarily occur within the 25-meter depth contour in some areas and at certain times of the year;
- Have the same overall marine range from Hamilton Inlet, Labrador, Canada, to Cape Canaveral, Florida regardless of DPS; and,
- Make seasonal coastal movements from marine waters to river estuaries in the spring and from river estuaries to marine waters in the fall.

Erickson et al. (2011) provided some of the most detailed information for Atlantic sturgeon in the marine environment based on data from pop-up satellite archival tags of 15 adult Atlantic sturgeon that were captured in the freshwater reach of the Hudson River. Upon leaving the Hudson River, all of the fish used a similar depth range in summer and fall, and 13 of the 15 continued to have a similar depth pattern in the winter through spring. Mean-daily depths typically ranged from 5 to 35 m and never exceeded 40 m. The sturgeons occupied the deepest waters during winter and early spring (December–March) and shallowest waters during late spring to early fall (May– September). Mean-monthly water temperatures ranged from 8.3°C in February to 21.6°C in August for the 13 fish that exhibited similar depth distributions. Of the remaining two fish, during December and January, one sturgeon occurred at shallower depths (5-15 m) and in warmer waters, while the second fish occurred at deeper depths (35-70 m) and in colder waters. Nearly all of the sturgeon stayed within the Mid-Atlantic Bight before their tags were released. However, the sturgeon did not appear to move to a specific marine area where the fish reside throughout the winter. Instead, the sturgeon occurred within different areas of the Mid-Atlantic Bight and at different depths, occupying deeper and more southern waters in the winter months and more northern and shallow waters in the summer months with spring and fall being transition periods. Three subsequent studies, Breece et al. (2018), Ingram et al. (2019), and Rothermel et al. (2020), using thousands of detections of acoustically-tagged Atlantic sturgeon within receiver arrays off of Long Island and New Jersey, Delaware, and Maryland demonstrated that depth and water temperature are key variables associated with sturgeon presence and distribution in Mid-Atlantic marine waters. All three

studies provided further evidence of seasonal inshore and offshore movements with sturgeon occupying shallower waters closer to the coast in the spring and more offshore waters in the late fall-winter. Finally, similar to Erickson et al., both the Ingram et al. study and the Rothermel et al. study found very low residency time for individual Atlantic sturgeon within the receiver arrays for the respective studies. This suggests that sturgeon aggregation areas in the marine environment are not areas where individual sturgeon reside for extended periods of time but are used by many sturgeon for what they provide in terms of the most suitable environmental conditions as the sturgeon move through the marine environment.

Available information suggests a similar pattern for Atlantic sturgeon distribution and occurrence within the Gulf of Maine. Altenritter et al. (2017), Novak et al. (2017), and Wippelhauser et al. (2017) provide the most recent, published literature describing Atlantic sturgeon movements within and beyond the Gulf of Maine. Each of the studies used telemetry detections of acoustically-tagged Atlantic sturgeon, many of which were initially captured in a Gulf of Maine river, suggesting that they were more likely to belong to the Gulf of Maine DPS. Collectively, the studies encompassed the time period of 2006-2014. Their results demonstrate that the sturgeon primarily occurred in the Gulf of Maine, use more offshore waters in the fall and winter, and make seasonal coastal movements between estuaries. Some of the estuaries are known aggregation areas where sturgeon forage, and one (i.e., the Kennebec River Estuary) is the only known spawning river for the Gulf of Maine DPS.

In addition to the studies cited above, a new, comprehensive analysis of Atlantic sturgeon stock composition coast wide provides further evidence that the sturgeon's natal origin influences the distribution of Atlantic sturgeon in the marine environment. While Atlantic sturgeon that originate from each of the five DPSs and from the Canadian rivers were represented in the 1,704 samples analyzed for the study, there were statistically significant differences in the spatial distribution of each DPS, and individuals were most likely to be assigned to a DPS in the same general region where they were collected (Kazyak et al. 2021). The results support the findings of previous genetic analyses that Atlantic sturgeon of a particular DPS can occur throughout its marine range but are most prevalent in the broad region of marine waters closest to the DPSs natal river(s). In comparison to its total marine range, Atlantic sturgeon belonging to: the Gulf of Maine DPS are most prevalent in the Gulf of Maine; the New York Bight DPS are most prevalent in the Mid-Atlantic Bight and are the most prevalent of all of the DPSs in the Mid-Atlantic Bight; and, the Chesapeake Bay DPS are most prevalent in the Mid-Atlantic Bight, particularly from around Delaware to Cape Hatteras.

#### What are the characteristics of bycaught Atlantic sturgeon?

Available information related to characteristics of Atlantic sturgeon which are caught as bycatch is primarily derived from fisheries dependent sources, particularly the observer database. Observers collect catch, gear, fishing effort, and biological data in fisheries in the Greater Atlantic Region. The observer dataset includes information on weight, length, and status of bycaught sturgeon. External sex determination by fisheries observers is not possible, and so it cannot be inferred whether sturgeon of one sex are more likely to be caught than another.

Status data recorded by observers is categorical and not detailed; bycaught sturgeon are recorded as "alive", "dead", "dead, damaged", "dead, head only" or "unknown". Out of a total 2,991 individual sturgeon recorded by observers in the past 10 years, 52.6 percent of Atlantic sturgeon were considered

alive, while 45.2 percent were dead; dead, damaged; or dead, head only. In both the Gulf of Maine and Mid-Atlantic, from waters south of Cape May to the Virginia-North Carolina state line, numbers of sturgeon released alive during this time period are greater than those released dead. In the Gulf of Maine, 61.7 percent of 480 individuals were considered alive, while 36.7 percent were considered dead or dead, damaged. In the Mid-Atlantic, 67.2 percent of 519 individuals were considered alive, with 32.2 percent recorded as dead or dead, damaged. In the waters off of New Jersey, New York, and south of Martha's Vineyard, however, this dynamic is flipped; 53.8 percent of sturgeon were considered dead, dead, damaged, or dead, head only, while only 43.2 percent were considered alive.

It is important to note that the number and proportion of sturgeon considered to have been released alive on observed trips is not the same as the number of sturgeon that ultimately survive interaction with fishing gear on observer trips. Not all sturgeon that are entangled in gillnet gear will remain in nets when they are hauled, and so the number of sturgeon of any status that actually interacted with gillnet gear on observed trips may be larger than what has been recorded. In addition, observers are recording status at time of capture; the data thus do not provide information regarding post-release mortality.

There is limited information available to characterize post-release mortality for sturgeon caught in gillnet gear. Fox et al. (2019) conducted field trials of an experimental low-profile gillnet design in conjunction with an examination of Atlantic sturgeon behavior in the presence of sink gillnets and an examination of post release mortality of incidentally landed Atlantic sturgeon. A total of 20 fishing trips were taken under the project by participating vessels, during which paired gillnets were deployed. Two to three strings each of a control industry standard gillnet and experimental low profile gillnet were deployed at each location. A total of 31 Atlantic sturgeon were incidentally caught over the course of this project, 18 of which were dead upon the net being hauled. The 13 remaining sturgeon were fitted with a p-sat transmitter and released alive. Of these, only four transmitters were recovered, and Fox et al. speculated that one (25 percent) of these individuals suffered a mortality post-release. A greater sample size is needed to make any strong conclusions about post-release mortality experienced by Atlantic sturgeon caught in gillnet gear.

Have any recently produced studies established new tools for management?

A few studies reviewed by the working group utilized remote sensing, biotelemetry, and other techniques to produce dynamic spatial models which may be used by managers and stakeholders as decision making tools to reduce overlap of fishing activity and sturgeon presence.

Breece et al. in 2016 translated the concept of landscapes, environmental partitions that index complex biogeochemical processes that drive terrestrial species distributions, into a seascape approach to understanding Atlantic sturgeon occurrence during their spring migration in the mid-Atlantic region, along the coast of New Jersey and in and around Delaware Bay. They used a global, publicly available seascape product which utilizes satellite derived measurements of remote sensing reflectance and daytime sea surface temperatures (SST) in conjunction with acoustic telemetry data for Atlantic sturgeon locations to determine whether Atlantic sturgeon were selecting for certain seascapes. Of six seascapes that dominated the study area (labeled A - F), Seascape class E was the most preferred by sturgeon and the only seascape to be significantly preferred. Seascape E was defined by an association with the coastline of Delaware Bay and Atlantic Ocean, with a mean SST of 19.8 °C and the second highest reflectance at

443 nm and 555 nm. This work confirms previous findings that mouths of estuaries and inlets concentrate Atlantic sturgeon in the coastal ocean, and that Atlantic sturgeon migrate along these locations using relatively narrow corridors along the coast. Additionally, the established preference of Atlantic sturgeon for Seascape E during the spring migration could be used to estimate spatial occurrence without direct observation of individuals, and thus a seascape product could be applied to inform reduction of Atlantic sturgeon bycatch in coastal fisheries.

In addition to this work, Breece et al. (2018) utilized biotelemetry observations of Atlantic sturgeon in concert with daily satellite observations to construct a spatial distribution model for the species which could determine the relationship between Atlantic sturgeon occurrence and environmental predictors on a daily basis throughout the year. Model estimations showed Atlantic sturgeon association with shallower waters in the spring, deeper waters relative to those used for model development in the fall, and containment to isolated patches at the mouths of estuaries in the summer. This supports previously established patterns of Atlantic sturgeon migration. The model also showed higher abundance of Atlantic sturgeon within water temperatures between 12°C and 25°C, day-of-year patterns consistent with known migratory patterns, and dimorphic migratory patterns in which male sturgeon arrive upon spawning grounds days to weeks prior to the arrival of females. Breece et al. contend that a projection of their base model onto dynamic SST and ocean color data could create a daily map of Atlantic sturgeon abundance over the coastal mid-Atlantic, which could be used as a dynamic management tool.

## Actionable Conclusions

The ASBWG makes the following conclusions based on its review of the data and information available about Atlantic sturgeon bycatch in the federal large-mesh gillnet fisheries.

- Federal gillnet fisheries targeting monkfish, spiny dogfish, and Northeast multispecies with sink gillnet gear ranging from 5.5 to 10 inches in minimum mesh size requirements are primary contributors to Atlantic sturgeon bycatch. These fisheries use a mix of stand-up and tie-down gear depending on primary target species.
- Recent gillnet gear research has shown that low-profile gillnet designs with reduced net height, shorter tie-down length, and shorter tie-down spacing reduce Atlantic sturgeon bycatch, potentially without reduction in catch of target species. In particular, a gillnet configuration tested by Fox et al. (2019) with 13-inch mesh size, height of 8 meshes, and 24-inch tie-downs spaced every 12 feet was shown to reduce Atlantic sturgeon bycatch in New Jersey without significant reductions in monkfish catch.
- Soak time is a likely driver of Atlantic sturgeon bycatch rates and mortality, based on available research and the simple concept that time spent by fishing gear in the water strongly correlates with the chances that the gear interacts with sturgeon.
- Available research indicates that temperature and depth are primary drivers of Atlantic sturgeon movement and abundance. In particular, sturgeon tend to occur in waters shallower than 50 m in depth and shallower than 25 m during seasonal coastal movements from marine waters to river

estuaries in the spring and from river estuaries to marine waters in the fall. Migratory pathways along the coast used by many sturgeon represent key areas of high abundance.

- Post-release mortality for Atlantic sturgeon is not well understood; only a small amount of information on the topic is currently available, and research that does exist is hampered by small sample sizes.

## Actions to Reduce Atlantic Sturgeon Bycatch in Federal Large Mesh Gillnet Fisheries

Given the ASBWG's conclusions and review of available information, the ASBWG recommends that fisheries managers consider three primary approaches to achieve bycatch reductions by 2024. These are:

1. Modifications to gear,
2. Modifications to fishing practices, and
3. Consideration of areas of focus in regions of Atlantic sturgeon bycatch.

These approaches are not mutually exclusive; some combination of these could be implemented to achieve desired bycatch reduction while balancing the needs of affected fisheries.

For example, a restricted gear area which allows fishing in areas where Atlantic sturgeon bycatch is a possibility but requires the use of low-profile gillnet gear may be preferred over a time/area closure which completely prohibits fishing from that same area or a blanket requirement for all vessels to use a low-profile gillnet in the entire region.

Additionally, the lack of available information regarding post-release mortality severely inhibits the ability of managers and scientists to understand and respond to the degree of mortality occurring as a result of bycatch. The Councils, Atlantic States Marine Fisheries Commission, and NMFS should collaborate to establish a greater understanding of post-release mortality of Atlantic sturgeon entangled in gillnet gear.

### Modifications to Gear

The ASBWG recommends that the Councils consider requiring the use of a low-profile gillnet by federally-permitted commercial fishing vessels using gillnet gear while on monkfish DAS, participating in a large-mesh exemption area with a 10-inch minimum mesh size requirement, or fishing under a Northeast Multispecies DAS in the Large-Mesh DAS Program.

A low-profile net design, as defined by successful gear studies from Fox et al. 2011, 2012, 2013, 2019 and He and Jones (2013), possesses the following characteristics:

- Mesh size ranging from 12 to 13 inches;
- Net height ranging from 6 to 8 meshes tall;
- Tie-down length of 24 inches;
- Tie-down spacing of 12 feet; and

- Primary hanging ratio of 0.50.

The low-profile net which showed the greatest success in reducing Atlantic sturgeon bycatch while not significantly reducing monkfish catch was the one used off New Jersey by Fox et al. 2019. This net had a 13-inch mesh size, an 8-mesh net height, tie-down length of 24 inches, tie-down spacing of 12 feet, and had 12 panels for a total length of 1,200 ft. This study, however, included two participants, one fishing in New York state waters, and another fishing in New Jersey waters. Though the results for the New Jersey trials were that monkfish landings in the low-profile net were not significantly different from those from the control net, the New York trials did show a statistically significant reduction in monkfish landings in the low-profile net. Landings of skate and spiny dogfish in both trials in the low-profile net were not significantly different from those in the control nets.

Continued collaborative experimentation by scientific experts and the fishing industry to identify net designs which optimize catchability of target species while retaining reduced bycatch of Atlantic sturgeon is encouraged. However, the ASBWG notes that this must be balanced by the need to implement meaningful bycatch reductions as soon as possible.

## Modifications to Fishing Practices

The Councils should consider restricting the amount of soak time that nets can be deployed by federally permitted commercial fishing vessels using gillnet gear while on monkfish DAS, participating in a large-mesh exemption area with a 10-inch minimum mesh size requirement, or fishing under a Northeast Multispecies DAS in the Large-Mesh DAS Program.

Soak time is strongly related to the likelihood of bycatch and bycatch mortality. Reductions in the amount of time in which a given piece of gear is in the water will reduce both the likelihood that that gear will interact with an Atlantic sturgeon and that any interaction will result in mortality.

Soak time in the federal large-mesh gillnet fishery varies greatly across the relevant fisheries due to regional differences in fishing practices and conditions. Additional work is necessary to fully characterize current practices related to soak time in order to identify opportunities to reduce soak time in areas and at times during which doing so would provide the most conservation benefit. Reductions in soak time in areas known to likely hold aggregations of Atlantic sturgeon, or areas that are migratory corridors at certain times, might be most effective.

Implementation and enforcement of regulations which restrict soak time have been particularly challenging in the past, given a lack of mechanism to do so. NMFS in recent years has explored the development of data loggers which could be used to enforce soak time regulations, and has acquired funding to procure and test data loggers to ensure new technology and systems can record data effectively, indicate when an exceedance has occurred, withstand fishing conditions, and be reviewed and utilized by the Office of Law Enforcement to enforce any tow/soak duration limitations. These data loggers build on work described in Matzen et. Al., (2015) and utilize Bluetooth communications to easily transfer data from the systems. Additional regulatory changes which might be considered also include restricting gillnet vessels from leaving gear in the water between trips, as is currently allowed, for example, in portions of the Northeast multispecies fishery.

## Areas of Focus

Available observer data suggests high incidence of Atlantic sturgeon bycatch in gillnet fisheries in several distinct regions along the Atlantic coast, which roughly correspond to available examples from the literature review.

The ASBWG used observer data to identify areas that might be important for reducing bycatch, and considered whether it would be possible to make recommendations for large closure areas which would effectively address Atlantic sturgeon bycatch. However, it did not evaluate the socio-economic impacts of these potential areas, or the relative importance of these areas to gillnet vessels. Because Atlantic sturgeon bycatch in the observer data is strongly related to fishing effort, it is likely that broad closure areas for this purpose would encompass the majority of fishing activity in the region and result in extensive closure and disruption to the fishing industry. This idea was discarded, as it was presumed to have a high negative impact on the fisheries involved.

The ASBWG recommends work to evaluate the trade-offs and potential impacts of smaller, more focused, and potentially seasonal closure or restricted areas. These might, for example, apply the recommended gear modifications, or soak time restrictions in locations and times which they might be most impactful.

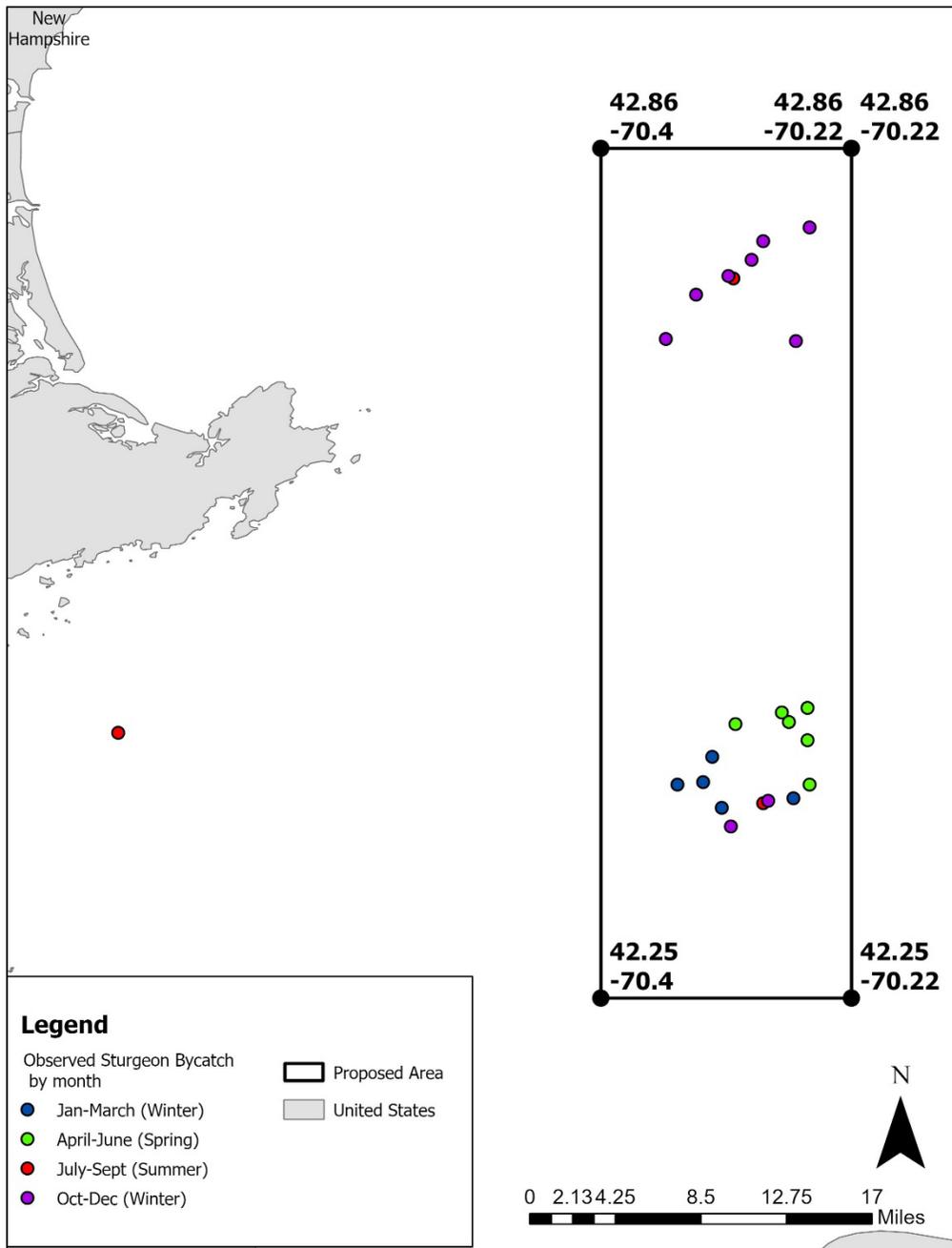
The areas of high incidence of Atlantic sturgeon bycatch, along with the observer data used to identify them, are shown in maps below. The Councils should prioritize these areas when developing measures to reduce Atlantic sturgeon bycatch in federal gillnet fisheries.

Particular areas which should be considered include:

### Gulf of Maine

Available observer data shows a cluster of interaction between the large-mesh gillnet fishery and Atlantic sturgeon on Stellwagen Bank within the Gulf of Maine, with no discernible seasonal pattern. Notably, several instances of observed sturgeon interaction occurred along the border of the Western Gulf of Maine Closure Area on the 70° 15' W. longitude line.

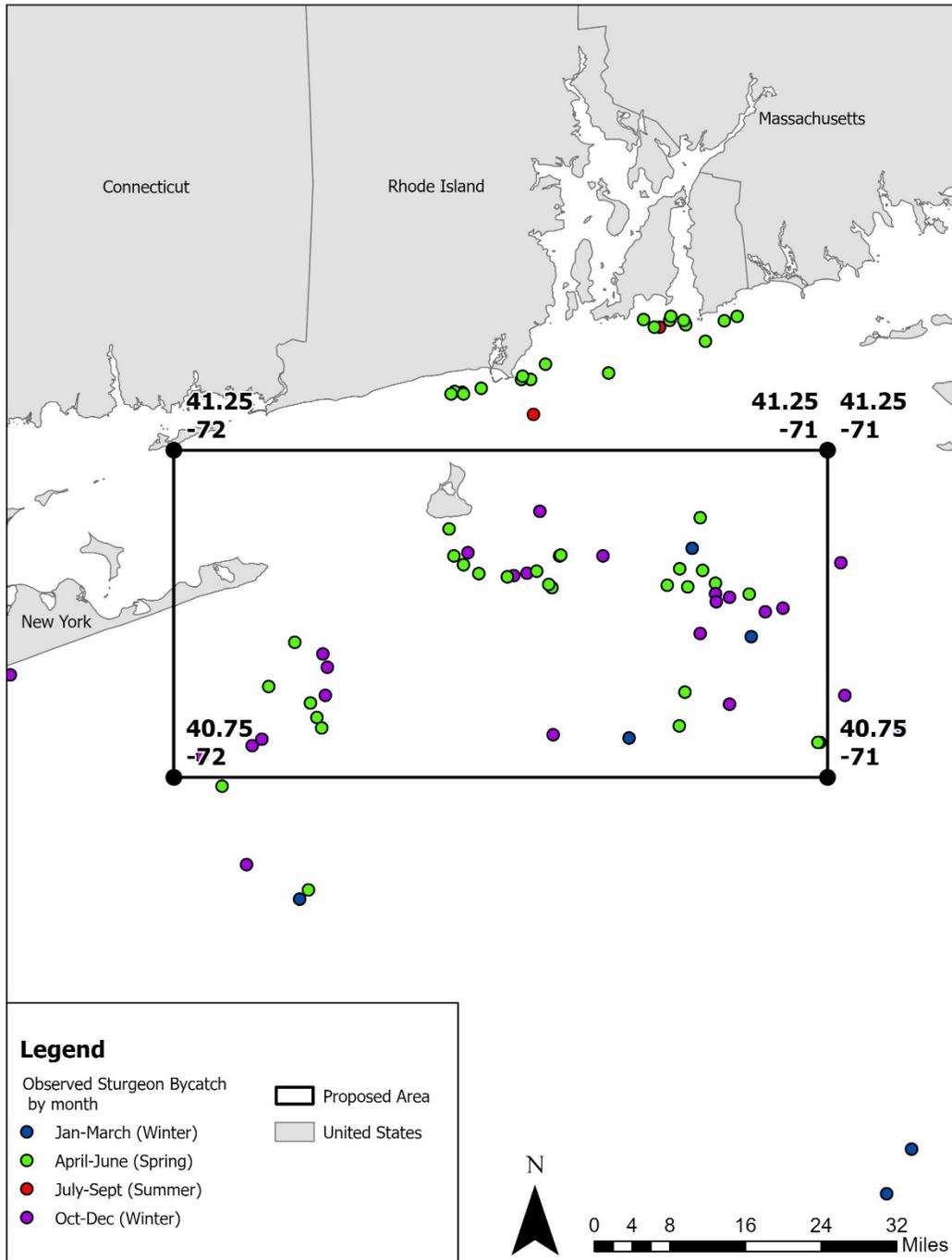
Figure 1. Area of Focus for the Gulf of Maine



## Southern New England/Rhode Island/Cox's Ledge

Available observer data shows scattered interactions between Atlantic sturgeon and the gillnet fishery southwest of Martha's Vineyard, with no discernible seasonal pattern, except for interactions which occur within state waters directly off the coast of Rhode Island, which all occurred in the month of May.

Figure 2. Area of Focus for Southern New England/Rhode Island/Cox's Ledge

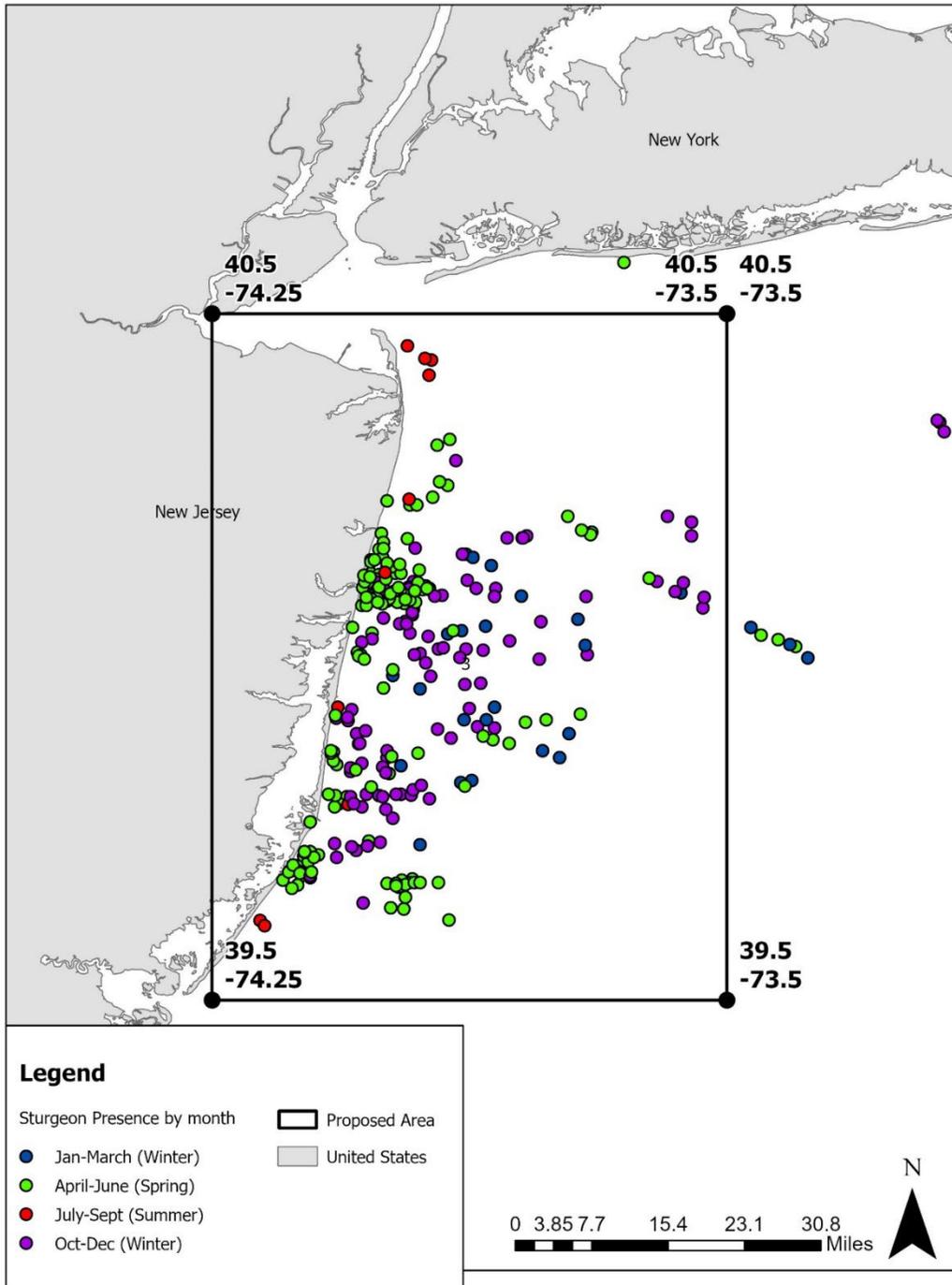


## New Jersey Bight

When mapped, NEFOP data indicates that interaction with Atlantic sturgeon by gillnet gear in the last 10 years is concentrated off of the coast of New Jersey in two groups split temporally. The first is a spring concentration largely within and close to state waters in the months of April, May, and June, which coincides with coastal migratory patterns. The second grouping is less concentrated and occurs farther offshore in the New Jersey Bight during the late fall and early winter months of November and December.

This area also includes a small (85.47 km<sup>2</sup>) area just off of Sandy Hook, which was recommended, among others, by Dunton et al. (2010) to protect habitat and juvenile sturgeon from fishing mortality. Additionally, Erickson et al. (2011) tagged 15 Atlantic sturgeon in the Hudson River, of which 13 remained in, and traveled throughout the Mid-Atlantic Bight. Erickson et al. also conducted a Kernel density analysis to identify oceanic aggregation areas and migratory corridors for adult Atlantic sturgeon tagged in the Hudson River. The areas of greatest aggregation identified by this analysis actually occurred on the northern side of Hudson Bay, the southern end of New Jersey, and southeast of the mouth of Chesapeake Bay. This information suggests that the area included in this recommendation likely acts as a migratory corridor for the aggregation areas to the south.

Figure 3. Area of Focus for New Jersey Bight

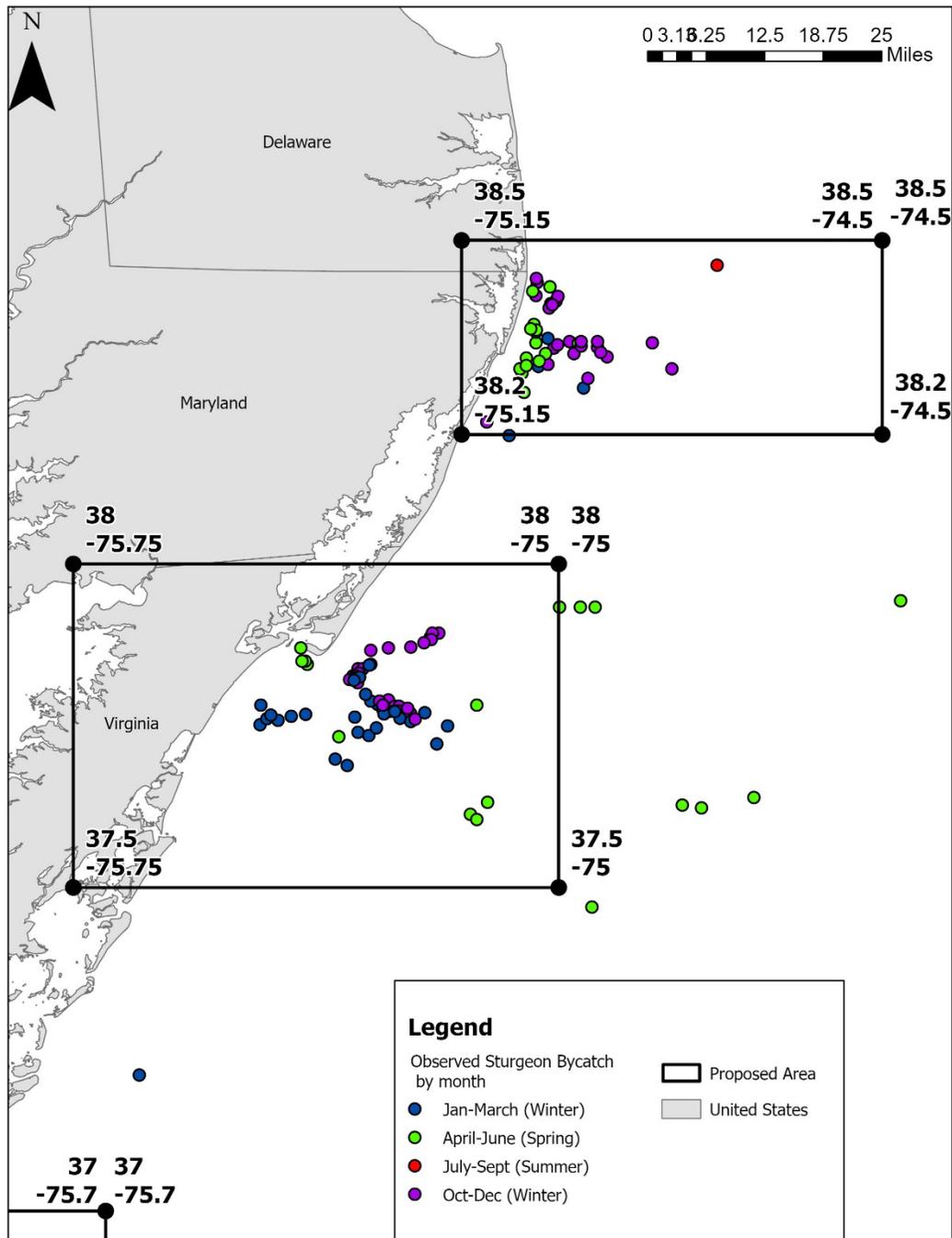


### Maryland and Virginia Areas

Observer data indicates three general areas of interaction between Atlantic sturgeon and gillnet gear in the Mid-Atlantic Bight off Maryland and Virginia. The northernmost area, off of Ocean City, MD, is split seasonally and spatially, with some interactions within state waters during of April and May and an area of interactions in farther offshore in federal waters primarily in December and January.

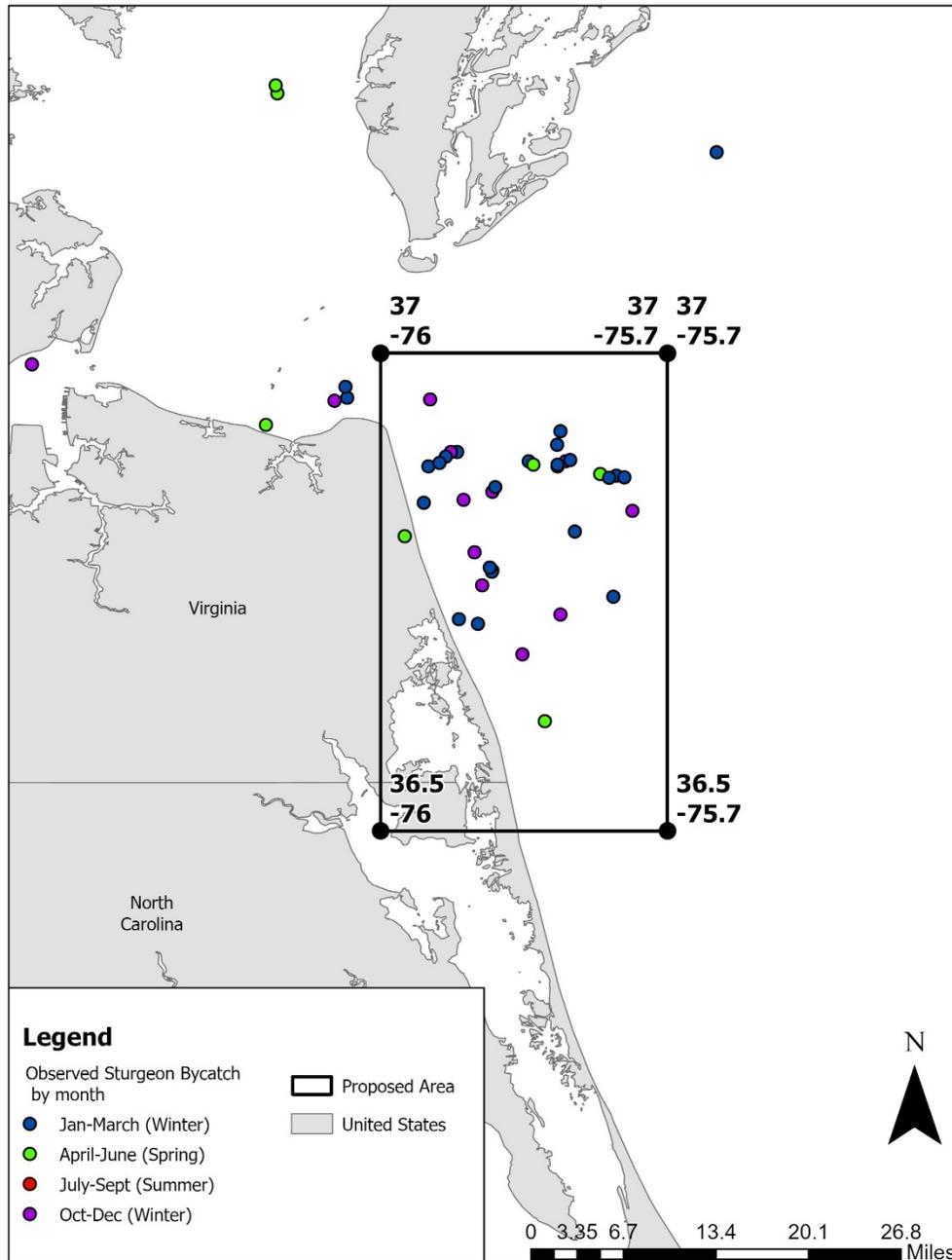
Farther south, there is a concentration of interactions east and southeast of Chincoteague, VA. The seasonal patterns in this area are less clear than those in the northernmost hotspot in this area. Though bycatch occurs most frequently in the months of April, May, January, and December, instances of observed bycatch of Atlantic sturgeon are spatially dispersed.

Figure 4. Areas of Focus for Maryland and Virginia



Finally, the area in and just south of the mouth of Chesapeake Bay, interactions between Atlantic sturgeon and gillnet gear are heavily concentrated along the boundary between state and federal waters, with no seasonal patterns evident.

Figure 5 Area of Focus South of Chesapeake Bay



Evidence from both Brece et al. (2016) and Erickson et al. (2011) support measures from the mouth of Delaware Bay to Chesapeake Bay. From Brece et al. 2016, the seascape feature in which Atlantic

sturgeon most commonly associated was most prevalent along the coast of Delaware, Maryland, and Virginia in the months of April and May from 2009 - 2012. The kernel analysis from Erickson et al. (2011) resulted in a heavy concentration of Atlantic sturgeon just outside the mouth of the Chesapeake and surrounding coastline. It should be noted that both of these sources may indicate that closures just off Cape May might be appropriate; observed interactions between the gillnet fishery and Atlantic sturgeon, however, were not prevalent in this area.

## Post-Release Mortality and Assessment of Bycaught Sturgeon

In order to improve our understanding of post-release mortality of Atlantic sturgeon caught in gillnet gear, the Councils, Atlantic States Marine Fisheries Commission, and NMFS should explore ways to prioritize focused research.

There are two subordinate research topics that should be explored:

- Quantitative estimates of post-release mortality rates for sturgeon entangled in gillnet gear, and
- Injury assessment for sturgeon entangled in gillnet gear.

Available research by Fox et al. (2019) has shown that tagging and telemetry is a feasible approach to developing post-release mortality estimates for sturgeon. Traditional methods by which the Councils, ASMFC, and NMFS support research development, such as grant issuance, is a recommended approach to encouraging research into post-release mortality estimation.

For injury assessment, the ASBWG studied the workshop-style approach which was used to develop technical guidelines for assessing injury of sea turtles from 2003 to 2011 would be feasible for assessing post-release mortality of Atlantic sturgeon. NMFS conducted an initial assessment of the magnitude of injuries from sea turtle interactions with Atlantic sea scallop dredge gear via the issuance of a detailed questionnaire sent to various experts in sea turtle veterinary medicine and rehabilitation. The results of this assessment were used to generate working guidance for serious injury determinations for hard-shelled sea turtles taken in the scallop dredge fishery and further used to help determine during Section 7 consultations to differentiate between non-lethal and lethal interactions. These determinations were specific to the scallop dredge fishery; to extend injury assessment guidance to other relevant fisheries, NMFS in 2009 held a Sea Turtle injury workshop. This workshop gathered various experts in sea turtle veterinary medicine, health, assessment, anatomy, and/or rehabilitation to (1) discuss case studies of sea turtles caught in fishing gear with varying levels of injuries; (2) critique NMFS' working guidance and approach for evaluating post-release survival, and (3) comment on the level of information collected by observers. The results of this workshop were used to revise working guidance and produce a 2011 document titled *Technical Working Guidelines for Assessing Injuries of Sea Turtles Observed in Northeast Fishing Gear* (Upite 2011). This work was extended and updated following a workshop held in 2015 to provide national consistency to assessment of post-interaction mortality of sea turtles captured in trawl, net, and pot/trap gear (Stacy et al. 2016).

The approach used in the sea turtle example cannot necessarily be used as a 1:1 template to develop a means to assess injury to Atlantic sturgeon entangled in gillnet gear. The network of experts in topics such as veterinary medicine and rescue/rehabilitation for sea turtles is fairly well developed. It is unlikely that such a network for Atlantic sturgeon exists to the same extent, which would make, for example, an

initial assessment for Atlantic sturgeon similar to the one conducted for sea turtles in 2003 difficult, if not impossible.

As such, the timeline recommended by the ASBWG to improve understanding of post-release mortality of Atlantic sturgeon captured by gillnet gear places will occur in two phases and seek to achieve three objectives:

1. Develop protocols and criteria for the rapid visual assessment of live Atlantic sturgeon captured in gillnet gear and, based on the best available information, identify the risk (e.g., expressed as a percentage likelihood) of post-release mortality given the results of the visual assessments;
2. Facilitate the acquisition of new data suitable for scientific publication that quantifies the post-release mortality of Atlantic sturgeon captured in gillnet gear; and
3. Explore options for a citizen science program for gillnet fishermen to increase voluntary reporting of Atlantic sturgeon captures in gillnet gear and to increase data collection for long-term assessments of Atlantic sturgeon post-release mortality (e.g., training gillnet fishermen how to implant and/or check each captured sturgeon for a Passive Integrated Transponder (PIT) tag).

There is an immediate need for information on post-release mortality of Atlantic sturgeon in gillnet gear. However, acquiring new data will take some time. Objective 1 will provide information in the short-term and will be based on the currently available scientific information, the expertise and knowledge of sturgeon researchers, and the coordination of managers with other essential parties (e.g., the NEFSC, Northeast Fisheries Observer Program). Objective 2 will provide scientific data which, after being properly vetted and peer-reviewed, can be used to modify and improve upon the results of Objective 1 or to replace the product of Objective 1. Objective 3 would provide the necessary long-term data to better inform post-release mortality of Atlantic sturgeon captured in gillnet gear, including trends and any changes over time, and which cannot reasonably be replicated by any other method.

The ASBWG recommends NMFS lead the first phase to work with the Councils, the Atlantic States Marine Fisheries Commission, and others, as needed, to identify steps needed to acquire additional information to inform post-release mortality and to fulfill the above objectives. These steps should include:

- Outreach to develop a network of researchers and other subject matter experts regarding Atlantic sturgeon biology and related fields;
- Scoping within that network to identify research needs pertaining to injury assessment;
- Identification of funding sources which might provide opportunity for research, such as tagging and telemetry studies, regarding post-release mortality rates of Atlantic sturgeon; and
- Identification of necessary permitting.

Once steps have been identified, NMFS, the Councils, and the ASMFC should work collaboratively to carry them out to achieve the three objectives listed above. These steps could include a workshop, but other steps are likely required to achieve the three objectives. Once these steps are complete, NMFS should produce technical guidelines for NEFOP observers to make and record visual assessments of each Atlantic sturgeon captured in gillnet gear and released alive, and which will provide NMFS approach for assigning the likelihood of post-release mortality to each sturgeon based on the NEFOP observers visual assessment.

## Timelines

### Timeline for Action Plan and Development of Measures to Reduce Atlantic Sturgeon Bycatch in Gillnet Gear

May 26, 2022	Draft Action Plan is published online		
June 7 – 9, 2022	Presentation at MAFMC Meeting		
June 28 – 30, 2022	Presentation at NEFMC		
August 1 – 4, 2022	Presentation at ASMFC Summer Meeting		
September 2022	Finalized Action Plan is published online		
September 27 – 29, 2022	NEFMC 2023 Priorities Setting Process Begins		
October 4 – 6, 2022	Initial MAFMC Discussion of 2023 Implementation Plan		
December 6 – 8, 2022	NEFMC 2023 Priorities Set		
December 12 – 15, 2022	MAFMC 2023 Implementation Plan Finalized		
<b>If Councils develop action under MSA</b>		<b>If NMFS develops action under ESA</b>	
January – April 2023	Council Action Development - Background Work	January – November 2023	NMFS Develops Proposed Rule
April – September 2023	Council Action Development and Final Action	November 2023	Proposed Rule Published; 30-day public comment period
December 2023	Council Submission of Action	January – May 2024	NMFS Develops Final Rule
January – February 2024	NMFS Review and Publication of Proposed Rule	May 2024	NMFS publishes Final Rule and Implementation
March – May 2024	NMFS publishes Final Rule and Implementation		

### Actions to Address Post Release Mortality from Gillnet Gear

December 31, 2023	<p>NMFS-led identification of the specific steps needed to acquire additional information to inform post-release mortality.</p> <p>Identify the steps and the participants needed to achieve each objective as well as the organization lead for each step (e.g., NMFS, NEFMC, MAFMC, ASMFC).</p>
January 1, 2024 – December 31, 2025	<p>Councils, ASMFC, and NMFS carry out steps to meet the three objectives using all opportunities within their authorities with regard to funding, permitting, and information gathering. NMFS will produce technical guidelines for NEFOP observers to make and record visual assessments of each Atlantic sturgeon captured in gillnet gear and released alive, and which will provide NMFS approach for assigning the likelihood of post-release mortality to each sturgeon based on the NEFOP observers’ visual assessment.</p> <p>Other: NMFS will provide an update on the progress made for each objective to the public as appropriate via normally scheduled meetings of the Councils and the ASMFC and other available means.</p>
December 31, 2026	<p>Other steps deemed necessary to meet Objective 2 and Objective 3 are completed by this time even if the research conducted for Objective 2 to better inform post-release mortality is on-going and/or the final results have not yet been published.</p>

## Conclusion

In this Action Plan, the ASBWG presents a review of available information on Atlantic sturgeon bycatch in the federal large-mesh gillnet fisheries and several conclusions drawn from that review. Using these conclusions, we recommend consideration of the following measures which could be implemented in the Greater Atlantic Region to comply with the requirements of the Opinion. These include:

- Requirements for vessels fishing with gillnet to used low-profile gear shown to reduce catch of Atlantic sturgeon;
- Consideration of small time/area closures in areas where observer data has shown greater bycatch of Atlantic sturgeon; and
- Restrictions on soak time for gillnet gear.

In addition, the Action Plan identifies research needs and a process to develop technical guidelines for assessing post-release mortality of Atlantic sturgeon captured in gillnet gear.

NMFS and the ASBWG intends that this Action Plan provides the foundation for collaborative work between NMFS, the Councils, and the Commission to reduce the impact of gillnet fisheries on Atlantic sturgeon, an endangered species. The Action Plan does not prescribe the measures that must be used, but provides recommendations based on the information considered by the ASBWG on Atlantic sturgeon bycatch. The New England and/or Mid-Atlantic Fishery Management Councils can use the recommendations in this Action Plan as a base to begin further development and specification of

measures which address Atlantic sturgeon bycatch by 2024 while accommodating the needs of the federal gillnet fisheries.

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# Atlantic States Marine Fisheries Commission

## Atlantic Menhaden Management Board

*August 3, 2022*

*1:30 – 5:00 p.m.*

*Hybrid Meeting*

### 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.

This meeting will include a 10 minute break.

- |  |           |
|--|-----------|
| 1. Welcome/Call to Order ( <i>M. Bell</i> )  | 1:30 p.m. |
| 2. Board Consent   | 1:30 p.m. |
| • Approval of Agenda   |           |
| • Approval of Proceedings from May 2022  |           |
| 3. Public Comment  | 1:35 p.m. |
| 4. Consider Fishery Management Plan Review and State Compliance for 2021 Fishing Year ( <i>J. Boyle</i> ) <b>Action</b>  | 1:45 p.m. |
| 5. Consider Draft Addendum I to Amendment 3 on Commercial Allocations, Episodic Event Set Aside Program, and Incidental Catch/Small-scale Fisheries for Public Comment ( <i>J. Boyle</i> ) <b>Action</b> | 2:00 p.m. |
| 6. Review 2022 Atlantic Menhaden Single-Species Stock Assessment Update ( <i>A. Schueller</i> )  | 4:15 p.m. |
| 7. Review and Populate Advisory Panel Membership ( <i>T. Berger</i> ) <b>Action</b>  | 4:55 p.m. |
| 8. Other Business/Adjourn  | 5:00 p.m. |

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# Atlantic States Marine Fisheries Commission

## MEETING OVERVIEW

Atlantic Menhaden Management Board

Wednesday, August 3, 2022

1:30 p.m. – 5:00 p.m.

Webinar

Chair: Mel Bell (SC) Assumed Chairmanship: 10/21	Technical Committee Chair: Josh Newhard (USFWS)	Law Enforcement Committee Representative: Robert Kersey (MD)
Vice Chair: Conor McManus (RI)	Advisory Panel Chair: Meghan Lapp (RI)	Previous Board Meeting: May 3, 2022
Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (18 votes)		

### 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 3, 2022

**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 should use the webinar raise your hand function and the Board Chair will let you know when to speak. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance, the Board Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

### 4. Consider Fishery Management Plan Review and State Compliance for 2021 Fishing Year (1:50-2:05 p.m.) Action

#### Background

- State compliance reports were due April 1, 2022
- The Plan Review Team reviewed each state reports and compiled the annual FMP Review.
- Pennsylvania, South Carolina, Georgia, and Florida have requested and meet the requirements for *de minimis*.

#### Presentations

- Overview of Atlantic menhaden FMP Review by J. Boyle (**Briefing Materials**)

#### Board Actions for Consideration

- Accept 2021 FMP Review and State Compliance Reports
- Approve *de minimis* requests for Pennsylvania, South Carolina, Georgia, and Florida

## ***Atlantic States Marine Fisheries Commission***

### **5. Consider Draft Addendum I to Amendment 3: *Commercial Allocations, Episodic Event Set Aside Program, and Incidental Catch/Small-scale Fisheries for Public Comment (2:05-4:15 p.m.)* Action**

#### **Background**

- In August 2021, the Board initiated a draft addendum to consider changes to commercial allocations, the episodic event set aside (EESA) program, and the incidental catch and small-scale fisheries provision (IC/SSF) based on the Board work group report.
- The Plan Development Team (PDT) incorporated the Boards feedback from May into the Draft Addendum (**Briefing Materials**). Additionally, the PDT revised their recommendations for the Board’s consideration in approving the document for public comment (**Briefing Materials**).

#### **Presentations**

- Overview of Draft Addendum I to Amendment 3 by J. Boyle

#### **Board Actions for Consideration**

- Approve Draft Addendum I to Amendment 3 for public comment

### **6. Review 2022 Atlantic Menhaden Single-Species Stock Assessment Update (4:15-4:55 p.m.)**

#### **Background**

- The 2022 Stock Assessment Update was completed in July (**Briefing Materials**).
- The TC met via webinar on July 11<sup>th</sup> to review a draft of the Stock Assessment Update and provide recommendations to the Stock Assessment Subcommittee.

#### **Presentations**

- Stock Assessment Update overview by A. Schueller

### **7. Review and Populate Advisory Panel Membership (4:55-5:00 p.m.)**

#### **Background**

- There is one new nomination to the Atlantic Menhaden Advisory Panel—Dr. Barbara Garrity-Blake, an Adjunct Associate Professor at Duke University (**Briefing Materials**).

#### **Presentations**

- Nomination by T. Berger

#### **Board Actions for Consideration**

- Approve Atlantic Menhaden Advisory Panel Nomination

### **8. Other Business/Adjourn**

## Atlantic Menhaden

**Activity level: High**

**Committee Overlap Score:** High (SAS, ERP WG overlaps with American eel, striped bass, northern shrimp, Atlantic herring, horseshoe crab, weakfish)

### Committee Task List

- TC – April 1<sup>st</sup>: Annual compliance reports due

**TC Members:** Josh Newhard (USFWS, Chair), Corrin Flora (NC), Joey Ballenger (SC), Jason McNamee (RI), Eddie Leonard (GA), Jeff Brust (NJ), Matt Cieri (ME), Ingrid Braun (PRFC), Micah Dean (MA), Kurt Gottschall (CT), Caitlin Craig (NY, Vice-Chair), Shanna Madsen (VMRC), Chris Swanson (FL), Ray Mroch (NMFS), Amy Schueller (NMFS), Alexei Sharov (MD), Jeff Tinsman (DE), Kristen Anstead (ASMFC), James Boyle (ASMFC)

**SAS Members:** Amy Schueller (NMFS, SAS Chair), Matt Cieri (ME), Micah Dean (MA), Robert Latour (VIMS), Chris Swanson (FL), Ray Mroch (NMFS), Jason McNamee (RI), Alexei Sharov (MD), Jeff Brust (NJ) Kristen Anstead (ASMFC), James Boyle (ASMFC), Joey Ballenger (SC)

**ERP WG Members:** Jason Boucher (NOAA), Matt Cieri (ME,ERP Chair), Michael Celestino (NJ), David Chagaris (FL), Micah Dean (MA), Rob Latour (VIMS), Jason McNamee (RI), Amy Schueller (NFMS), Alexei Sharov (MD), Howard Townsend (NFMS), Jim Uphoff (MD), Kristen Anstead (ASMFC), Katie Drew (ASMFC), Sarah Murray (ASMFC)

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

**The Westin Crystal City  
Arlington, Virginia**

**May 3, 2022**

Draft Proceedings of the Atlantic Menhaden Management Board Meeting  
May 2022

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Consider Draft Addendum 1 to Amendment 3 for Public Comment ..... 5  
    Review 2020 Landings Proposal..... 6

Adjournment ..... 38

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

**INDEX OF MOTIONS**

1. **Move to approve agenda** by Consent (Page 1).
2. **Move to approve proceedings of January 27, 2022** by Consent (Page 1).
3. **Move to approve Option 4: Remove 2020 data and add 2021 data into the Draft Addendum** (Page 9). Motion by John Clark; second by Dennis Abbott. Motion carried 15 in favor, 1 opposed, 1 null) (Page 11).
4. **Move to remove Option B: Two-tiered fixed minimum approach from Section 3.1.1. in Draft Addendum I** (Page 14). Motion by Megan Ware; second by John Clark. Motion carried by consent (Page 15).
5. **Move to remove Option 4c: Limiting landings used in calculation of moving average from Section 3.1.2 Draft Addendum I.** Motion by Nichola Meserve; second by Steve Train. Motion carried (16 in favor, 1 opposed) (Page 20).
6. **Move to remove Sub-Option 1: Catch Cap equal to 1% of the annual TAC and 10% exceedance management trigger and Sub-Option2: 1% set aside of the annual TAC exceedance management trigger from Section 2A: IC/SSF Management Triggers** (Page 28). Motion by Megan Ware; second by Robert LaFrance. Motion carried by consent (Page 30).
7. **Main Motion**  
**Move to remove Sub-Option 2: Pound-for-pound payback from Section 2B: IC/SSF Management Trigger Response** (Page 30). Motion by Nichola Meserve; second by Cheri Patterson.  
  
**Motion to substitute**  
**Move to substitute to add Sub-Option 3 if the IC/SSF trigger is tripped the Board must take action to reduce IC/SSF landings and the overage will be deducted on a pound per pound basis in the subsequent year (2 years)** (Page 31). Motion by Allison Colden; second by Robert LaFrance. Motion failed (2 in favor, 14 opposed, 1 null) (Page 34).  
  
**Main Motion**  
**Move to remove Sub-Option 2: Pound-for-pound payback from Section 2B: IC/SSF Management Trigger Response.** Motion by Nichola Meserve; second by Cheri Patterson. Motion carried (10 in favor, 6 opposed, 1 null) (Page 35).
8. **Move to remove option 4 under 3.3.1 Timing of IC/SSF provision: Full closure when allocation met, no IC/SSF provision** (Page 37). Motion by Lynn Fegley; second by Joe Cimino. Motion carried by consent (Page 38).
9. **Move to remove Section 3.3.5: Allow access to EESA at <100% state allocation** (Page 38). Motion by Eric Reid; second by Matthew Gates. Motion carried by consent (Page 38).
10. **Motion to adjourn** by Consent (Page 38).

Draft Proceedings of the Atlantic Menhaden Management Board Meeting  
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**ATTENDANCE**

**Board Members**

Megan Ware, ME, proxy for Pat Keliher (AA)	G. Warren Elliott, PA (LA)
Steve Train, ME (GA)	John Clark, DE (AA)
Sen. David Miramant, ME (LA)	Roy Miller, DE (GA)
Cheri Patterson, NH (AA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Ritchie White, NH (GA)	Lynn Fegley, MD, Administrative proxy
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Russell Dize, MD (GA)
Nichola Meserve, MA, proxy for Dan McKiernan (AA)	Allison Colden, MD, proxy for Del. Stein (LA)
Raymond Kane, MA (GA)	Pat Geer, VA, Administrative proxy
Sarah Ferrara, MA, proxy for Rep. Peake (LA)	Bryan Plumlee, VA (GA)
Conor McManus, RI, proxy for Jason McNamee (AA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
David Borden, RI (GA)	Jerry Mannen, NC (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Bill Gorham, NC, proxy for Sen. Steinburg (LA)
Matt Gates, CT, proxy for J. Davis (AA)	Mel Bell, SC (AA)
Rob LaFrance, CT, proxy for B. Hyatt (GA)	Malcolm Rhodes, SC (GA)
Jim Gilmore, NY (AA)	Chris McDonough, SC, proxy for Sen. Cromer (LA)
Scott Curatolo-Wagemann, NY, proxy for E. Hasbrouck (GA)	Doug Haymans, GA (AA)
Joe Cimino, NJ (AA)	Spud Woodward, GA (GA)
Tom Fote, NJ (GA)	Hannah Hart, FL, proxy for J. McCawley (AA)
Kris Kuhn, PA, proxy for T. Schaeffer (AA)	Marty Gary, PRFC
Loren Lustig, PA (GA)	Karen Abrams, NMFS
	Rick Jacobson, USFWS

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

**Ex-Officio Members**

Joshua Newhard, Technical Committee Chair

Amy Schueller, Stock Assessment Subcommittee Chair

**Staff**

Bob Beal	James Boyle	Chris Jacobs
Toni Kerns	Katie Drew	Jeff Kipp
Lisa Carty	Maya Drzewicki	Sarah Murray
Tina Berger	Emilie Franke	Mike Rinaldi
Pat Campfield	Lisa Havel	Deke Tompkins
Kristen Anstead		

**Guests**

Mike Armstrong, MA DMR	Karen Bradbury,	Benson Chiles, Chiles Consulting
Pat Augustine, Coram, NY	Ofc. of Sen. Whitehouse	Heather Corbett, NJ DEP
Russell Babb, NJ DEP	Bill Brantley, NC DENR	Nichole Lengyel Costa, RI DEM
Rachel Barales, CCCFA	Delayne Brown, NH F&G	Caitlin Craig, NYS DEC
Robert Beal, ME DMR	Michael Brown, ME DMR	Maureen Davidson, NYS DEC
Alan Bianchi, NC DENR	Jeff Brust, NJ DEP	Monty Deihl, Ocean Fleet Svcs.
Colleen Bouffard, CT DEEP	Andrew Button, VMRC	Chris Dollar

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The Board will review the minutes during its next meeting

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**Guests (continued)**

John Duane  
Dawn Franco, GA DNR  
Tony Friedrich, SGA  
David Frulla, KDW, LLC  
Alexa Galvan, VMRC  
Shaun Gehan, Gehan Law  
Lewis Gillingham, VMRC  
Angela Giuliano, MD DNR  
Pam Lyons Gromen, Wild Oceans  
Marin Hawk, MSC  
Helen Takade-Heumacher, EDF  
Jocelyn Higgins, TRCP  
Peter Himchak, Omega Protein  
Carol Hoffman, NYS DEC  
Harry Hornick, MD DNR  
Jesse Hornstein, NYS DEC  
Jeff Kaelin, Lund's Fisheries  
Julia Kaplan, MA DMF  
Pat Keliher, ME (AA)  
Ben Landry, Omega Protein  
Tom Lilly  
Carl LoBue, TNC

Brooke Lowman, VMRC  
Mike Luisi, MD DNR  
Shanna Madsen, VMRC  
Jason McNamee, RI DEM  
John Maniscalco, NYS DEC  
Genine McClair, MD DNR  
Dan McKiernan, MA (AA)  
Steve Meyers, Williamsburg, VA  
Mike Millard  
Drew Minkiewicz, Kelley Drye  
Chris Moore, CBF  
Clinton Morgeson, VA DWR  
Kathy Rawls, NC (AA)  
Kirby Rootes-Murdy, USGS  
Thomas Newman  
Jeff Nichols, ME DMR  
Derek Orner, NOAA  
Willow Patten, NC DENR  
Michael Pierdinock  
Will Poston, SGA  
Jill Ramsey, VMRC  
Harry Rickabaugh, MD DNR

Mike Ruccio, NOAA  
Brendan Runde, TNC  
Chris Scott, NYS DEC  
Tara Scott, NOAA  
David Sikorski, CCA MD  
Ethan Simpson, VMRC  
Melissa Smith, ME DMR  
Somers Smott, VMRC  
Chris Uraneck, ME DMR  
Kate Wilke, TNC  
Angel Willey, MD DNR  
John Page Williams  
Dan Zapf, NC DENR  
Erik Zlokovitz, MD DNR  
Jordan Wisecup,  
*Congressional Sportsmen*  
Chris Wright, NOAA  
Phil Zalesak, Tall Timbers, MD  
Erik Zlokovitz, MD DNR  
Renee Zobel, NH F&G

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Draft Proceedings of the Atlantic Menhaden Management Board Meeting  
May 2022

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, via hybrid meeting, in-person and webinar; Tuesday, May 3, 2022, and was called to order at 12:45 p.m. by Chair Robert E. Beal.

**CALL TO ORDER**

CHAIR ROBERT E. BEAL: Well, good afternoon, everyone. It's 12:45 by my clock. My name is Bob Beal; and I would like to call the Atlantic Menhaden Management Board meeting to order. As the agenda notes, Mel Bell is the actual Chair of this Board, but Mel was unable to make it today, but he's online and may chime in with some comments as we go along.

The Vice-Chair of this Board is Conor McManus, and Conor wanted to sit as part of his state's delegation, and participate in the discussion today, so that leaves me. I'm going to Chair the meeting this afternoon. Before we get too far into the meeting, I want to give one quick presentation. As everyone knows, we're about two plus years behind on awards and recognitions and all sorts of other things at the Commission.

**RECOGNITION OF PAT KELIHER AS  
COMMISSION'S PAST CHAIR**

CHAIR BEAL: I want to try to dig out of that hole a little bit with one fairly quick but very important presentation and recognition of someone. Pat Keliher, can you come up from the very back of the room up here, if you don't mind. He's reluctantly and slowly getting up, let the record show. As Pat wanders up here. I just want to thank Pat for the previous two years as the Commission's Chair.

You know as Spud likes to note, Pat only actually presided over one in-person meeting, so we still got him a full-sized recognition, even though he only did one of the meetings. But actually, the fact that Pat wasn't here, we weren't here for a number of those meetings, actually made his job a lot harder to Chair.

He helped a whole lot shepherd all of us through COVID, which was a bit of an experience for all of us. We made it up as we went along, but I called Pat a lot and frequently at odd hours, and all kinds of different times to ask for advice and guidance, and he was always there to help out. I just want to thank him for that and really appreciate everything he did for the Commission, to keep us moving along.

We weren't able to get together in person, but with Pat's guidance and working with Spud as Vice-Chair at the time, he was able to get us through a lot of confusing times, and keep the Commission working and get everybody together virtually. A lot of the sort of protocols and practices for our virtual meetings all went through Pat, and we really appreciate his guidance and his thoughtfulness in making sure that we all stayed productive during our two years apart from each other. With that help me in thanking Pat for his time as Chair. (Applause)

MR. PATRICK C. KELIHER: Thank you very much, Bob. I appreciate it. It certainly was a different time being Chair. I really did enjoy every moment of it. It's a privilege to be voted in by your peers to sit in the chair up front. Bob is right, we did talk at a lot of very odd hours, every time he was on vacation or I was on vacation, or early in the morning or late at night.

There was a lot of juggling to do, but I was pleased to do it, and very pleased that Spud stepped up into the role that he's in now. The best part about COVID is, I told Bob and Laura right from the beginning, I didn't want a hospitality suite in my room, and then COVID hit. Worked out great, worked out great. Thank you very much.

CHAIR BEAL: Pat, before you run off, I want to present this commemorative clock recognizing your time as Commission Chair, and something you can keep to remember the COVID years, apparently. Here you go. Congratulations. All right, while he figures out the box to put his clock in, we'll go ahead and get started with the Menhaden meeting.

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

With that we'll go ahead. Again, before we get into the agenda, just a reminder we've got a hard stop at about six o'clock tonight. I know that seems like a long way off, but this is the Menhaden Board meeting so you never know. We'll take some breaks as needed during this meeting. At a minimum we're going to have a break at 2:30, because the desert from lunch is being brought out, and we can get a little sugar to energize us, and carry us through the rest of the meeting.

Plan on a break at 2:30, but if we all feel that we need one before then, or it seems appropriate we might do one, or after that. We'll just sort of play that by ear.

#### **APPROVAL OF AGENDA**

CHAIR BEAL: With that let's jump into the agenda. Are there any changes or additions to the agenda that was provided in supplemental or in the briefing materials? All right, seeing no hands we'll approve the agenda by consent.

#### **APPROVAL OF PROCEEDINGS**

CHAIR BEAL: Same question for the proceedings from January of 2022. Any changes or additions or modifications to the proceedings that were provided in the briefing material? Yes, Nichola.

MS. NICHOLA MESERVE: A point of clarification, potentially for the minutes. At one point Mr. Geer had noted that the menhaden fleet had lost a certain number of days, and I believe the minutes say 39. I've since heard 59, and I just was hoping that I wanted to make sure I knew the minutes properly reflected the number.

MR. PAT GEER: Thanks for bringing that, it was 59.

CHAIR BEAL: Thanks for that catch, Nichola, and clarification. Pat, we will make that change in the minutes going forward. Any other changes? Seeing none; the minutes will stand approved by consent.

#### **PUBLIC COMMENT**

CHAIR BEAL: Now we get into the Public Comment portion of the meeting, and again this is for items that are not on today's agenda.

I know of two individuals, Phil Zalesak and Tom Lilly both would like to make a comment. Are there any other individuals in the audience here or online that would like to make a comment to the Board during this public comment period? I don't see any other hands in the room or online, is that correct, Toni? Okay, so no other hands. We'll give Phil and Tom each three minutes, and take it away, Phil.

MR. PHIL ZALESAK: Thank you very much. I'm going to talk about the striped bass dependency on Atlantic menhaden, and all you have to do is follow the science. This Board and the Striped Bass Board can actually solve this problem. Why worry about striped bass? Well, it's a 7.7-billion-dollar GDP for the Atlantic coast. That's a lot of coin, plus there is 104,000 jobs associated with it.

In the state of Maryland, it's 10,000 jobs and 800 million dollars. That's for one fishery. All right, so you may say well, I don't live in Maryland, and I don't really like striped bass, you know, I don't really care, I live in Maine, or something like that. Well, according to Dr. David Secor, 60 percent of the ocean stock of striped bass comes from the Chesapeake Bay.

We might want to be concerned with that. From Amendment 7, for the striped bass, here is some data. We've gone from 2010 up to about 5.5 million fish down to about 1.7 fish. That is over 60 percent drop in recreational harvest across the Atlantic coast. Well, how about Maryland? Maryland had gone from about 2.3 million fish down to 787,000 fish. That is about a 62 percent drop in recreational harvest.

Well, that's all right, Phil, there are plenty of fish in the Chesapeake Bay, let's not worry about it, a lot of little guys out there. Not so. Here is the October graph, showing the long-term index for the Maryland portion of the Chesapeake Bay at 11.4.

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What do you think it was last year? It was 3.2, and it's been three straight years of very low juvenile productivity, if you will. It kind of looks like the early eighties.

We've been talking about overharvesting Atlantic menhaden in the Chesapeake Bay since 2004. To the credit of this Board, you funded a study by Dr. Matt Cieri in January of 2020. He reported out and said, you know the higher mortality rate for Atlantic menhaden, the higher the mortality rate for striped bass. Here's a nice little graph that shows it.

You go below the mortality rate, you go past the threshold, and you go all the way up to the target, and you can get there. You have the data. Well, that's all right, Phil, we'll just move on. What did this Board do? To the Board's credit, you cut the total allowable harvest for the entire Atlantic coast from 216,000 metric tons down to 194,400 metric tons. You said, we've got to cut it by 10 percent. But you really did nothing about the Chesapeake Bay.

CHAIR BEAL: Phil, let's go ahead and wrap it up.

MR. ZALESK: I'm almost done. The press release says the Board will be accounting for the species role as an important forage fish. I haven't seen it, and this is the key Board right here. Almost done. The ERP Committee reported out last year, it said, you know it will take five to seven years to determine what the biomass of Atlantic Menhaden in the Chesapeake Bay. We don't have time. We've got to make a decision now, so here is a recommendation. Prohibit the commercial reduction fishery of Atlantic menhaden in the Chesapeake Bay, specifically push out that reduction three nautical miles off the Atlantic coast.  
CHAIR BEAL: Great, thanks, Phil, appreciate the comment.

MR. ZALESK: Well, I have one other recommendation, sir, and that is to put this on the agenda for August, and I want to hear a discussion on it, and I want to see a vote on it, because we're out of time and there is no more science to be reviewed. Thank you for your time.

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The Board will review the minutes during its next meeting

CHAIR BEAL: Thanks, Phil, and Tom Lilly go ahead, you have three minutes, please.

MR. THOMAS LILLY: A lot of Marylanders supported the Maryland State Resolution that asked this Board to decide whether factory fishing should continue in Chesapeake Bay. That was in the Maryland Senate this year. These concerned Marylanders include 70,000 Sierra Club members, 3,000 Shore Rivers members, the leaders of 10 state-wide fishing clubs, the charter captains, scientists, and importantly the Maryland senators and delegates who make up what they call the Maryland Legislative Sportsmen's Caucus.

These are the senators and delegates in Maryland concerned with protecting our conservation and fishing interests. I guess the question for the Board is, will you do what over a million Marylanders are requesting? Maryland, keep in mind, is the state most affected by what you allow in Virginia.

The amount of menhaden in the Bay has a direct impact, as you know, on our striped bass and nesting ospreys, and it directly affects the quality of life and experience 8 million days that Maryland friends, family and children spend out of doors fishing and enjoying Chesapeake Bay. Eight million days a year. Every one of those days is affected by your decisions.

Just moving the factory fishing into the U.S. Atlantic zone would get 50,000 tons of menhaden forage to our fish and wildlife when they need it the most. Increasing days fishing, and enjoying the wonders of Chesapeake Bay, as Sierra Club put it, by just 15 percent. Fifteen percent would add over a 1,200,000, more days for Marylander's fishing and enjoying the Chesapeake Bay.

Repeat, 1,200,000 additional days a year, and the physical and mental health benefits, which have been scientifically proven, and given to you in the things that we have submitted, which follow. Those million plus days as a generator, would be a generator of hundreds of millions of dollars of economic impact. The question again, will this Board place these essential issues on the agenda for

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the August meeting. Thank you all very much, have a great meeting.

CHAIR BEAL: Thanks, Mr. Lilly, appreciate the comment. All right, any other public comment either online or in the room? Seeing none; we'll go ahead and jump into the agenda.

**REVIEW OF THE 2021 LANDINGS DATA**

CHAIR BEAL: The next agenda item is a Review of the 2021 Landings Data, and James Boyle is going to give that presentation.

I don't think many of you guys have met James, he's a new FMP coordinator. He's unable to be here today, but hopefully in August you'll get to meet him actually in person. But he'll be giving that update and available for questions at the end of it. With that go ahead, James, if you are ready to go.

MR. JAMES BOYLE IV: Thank you very much, and yes, nice to virtually meet everybody. I hope to see you all in person in August. As he has mentioned, I'm going to be giving an update on the 2021 landings data ahead of the full FMP review process plan for the next Board meeting in August. This way you'll have the most up to date information going into the discussion of the Draft Addendum today.

Just a quick overview of the presentation. Essentially, it's a pared down version of the FMP Review to focus just on landings, with a quick reminder at the beginning of what are the current status of the FMP. I have that quick reminder, Amendment 3, which was approved in 2017 and implemented in 2018, is the most current management document that the fishery operates under.

For notable changes, as most of you I'm sure are still aware. The Chesapeake Bay cap was exceeded in 2019, and to account for that overage, the cap was adjusted for the 2020 fishing season down to 36,000 metric tons. But after 2020, where the reduction fishery finished below that cap, it was returned to 51,000 metric tons, as outlined in Amendment 3. For 2021 it is back at the normal

level. Just another reminder that the new TAC for the 2021/2022 fishing season is 194,400 metric tons, based on the Board approved ecological reference points or ERPs.

Moving on to 2021 landings. The total commercial Atlantic menhaden landings, including directed - incidental catch/small scale fisheries and episodic event set-aside or ESA landings, are estimated at 195,092 metric tons, or about 430 million pounds, which is an approximate 6 percent increase relative to 2020, and 0.36 percent over that new TAC, which as mentioned is 194,400 metric tons, or about 428.6 million pounds.

However, the non-incidental catch fishery landings, so that would be directed landings plus ESA landings. Total is estimated at 189,343 metric tons, or 417 million pounds, which is also a 6 percent increase from 2020, and represents about 97 percent of the coastwide commercial TAC. Landings from the incidental catch fishery are estimated at 5,750 metric tons or 12.7 million pounds, which is a 9 percent decrease from 2020, and do not count towards the coastwide TAC.

Next to look at the reduction fishery, the 2021 harvest for reduction purposes is estimated at 136,690 metric tons, or 301.3 million pounds, which is a 10 percent increase from 2020, and 0.06 percent or less than 200,000 pounds above the previous 5-year average of 136,614 metric tons. Omega Protein's plant in Reedville, Virginia is still the only active menhaden reduction factory on the Atlantic coast.

In the Chesapeake Bay, Amendment 3 implemented a 51,000 metric ton harvest cap, as I mentioned. The reported reduction landings from Chesapeake Bay in 2021 was about 50,000 metric tons, or under the cap by approximately 1,000 metric tons. This figure shows landings from the reduction bait sectors through time.

Reduction landings are using the left-hand access, and bait landings on the right-hand access, so please know that they are different scales. Reduction landings are an order of magnitude larger

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than bait landings. But generally, reduction landings have been declining over time, and relative to last year bait landings had a slight drop, and reduction landings had a slight uptick. But the overall trend remains fairly consistent. Next is a breakdown of the incidental catch or small-scale fisheries landings. As I mentioned previously, incidental catch landings in 2021 are estimated at 5,750 metric tons, or 12.7 million pounds, which is a 9 percent decrease relative to 2020. Maine, Massachusetts, Rhode Island, Connecticut, New York and New Jersey all reported incidental catch landings, about 88 percent of which were for purse seines, and 9 percent from gillnets.

Maine counted for 96 percent of the total incidental catch fishery landings in 2021, and incidental catch trips were lower than trips in 2020, but still higher than from 2016 through 2019. For the EESA, landings were 2,213 metric tons, or 4.9 million pounds. Maine, Massachusetts and Rhode Island were the only participating states.

Their combined landings were over the total set-aside by about 592,250 pounds. But transfers or donations to the EESA in November and December of last year and April of this year were enough to cover the overage, so there will be no overage going into 2022 fishing season. This last slide is just to demonstrate the quota performance, in terms of number of transfers.

Quota transfers remain high for the 2021 fishing season. There were 17 instances of quota transfers, sometimes involving multiple states, which was one more than last year at 16. That is all I have. Are there any questions before we move on to discussion of the Addendum?

CHAIR BEAL: Great, any questions here in the room or online? I've got one question. Allison Colden, go ahead.

DR. ALLISON COLDEN: I just want to clarify; I have a clarifying question. James, you said the total landings were over the TAC by 0.36 percent, and that the incidental catch does not count towards the TAC. However, the directed harvest was below

the TAC. Can you tell me where exactly the overage is coming from?

MR. BOYLE: Yes, so the overage, because it doesn't count toward the TAC maybe it's not quite right to use the word overage, because it is the incidental catch that puts it over the TAC. Technically, the directed landings plus the EESA are under the TAC.

DR. COLDEN: Okay, so it's the addition of the incidental catch that puts the total landings above the TAC for this year.

MR. BOYLE: Yes, that's correct.

DR. COLDEN: Thank you, for the clarifying question.

**CONSIDER DRAFT ADDENDUM 1 TO  
AMENDMENT 3 FOR PUBLIC COMMENT**

CHAIR BEAL: Great, other hands either online or here in the room. All right, seeing none, we will jump into Draft Addendum I to Amendment 3. Good news, we only have one more agenda item, so we're in good shape. With that, Toni is going to give the majority of the presentations on the status of things. Essentially a report out from the PDT. With that, if you're ready to go, Toni, it's all yours.

MS. TONI KERNS: Thank you, Mr. Chairman, and I thought I would give James one meeting reprieve before I put him into the thick of things for Draft Addendum I. Please bear with me as I go through the document. What we're going to do is go through it piecemeal today for our discussions.

In your meeting materials you have a memo from the PDT with some recommendations, and I'm going to include those in my recommendations. We'll start with an overview and a timeline. The first piece we'll get to is considering what years of data to include in the Draft Addendum. We'll review the draft options themselves, and then consider action today on what years of data we're going to include.

We'll talk about hopefully removing some options from the Draft Addendum, and then determine

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whether or not we're going to consider it for approval for public comment, and the deciding factor of that will actually be the first decision that we make today, on whether or not we include 2020 or 2021 data in the document.

The current timeline for the draft document right now is we have provided some feedback from the PDT from the January, 2022 meeting. The PDT made additional edits based on the Board's feedback over the winter/early spring, and we are considering that feedback and approval for public comment today.

If we do that, then we would have hearings this summer, and consider the document for final approval in August of 2022, which would put us in time for an implementation in 2023, if that is the pleasure of the Board. The first thing that we want to discuss is the landings, and what years of landings that we're going to use in the document.

#### **REVIEW 2020 LANDINGS PROPOSAL**

MS. KERNS: In March, additional information was brought forward to the PDT regarding whether 2020 landings were representative, due to the impacts of COVID-19. Specifically, the PDT had heard a proposal from the state of Virginia to allow for adjusted 2020 landings, to account for lost fishing days due to the pandemic.

The PDT was concerned that all states fisheries may not have been impacted by COVID-19, to the extent of which is unknown and possibly variable across the states. Therefore, if the Board was going to allow for adjusted data, then all states should have that opportunity to bring forward proposals. The PDT did not specifically discuss Virginia's proposals, but instead crafted some options for the Board to consider.

But Virginia's proposal had presented the PDT with evidence that their 2020 landings were atypical of the recent time series. Not all states experienced impacts to their fisheries in 2020, and the impacts were disproportional across the states. The PDT noted that addressing this issue could set a

precedent for 2020 data for allocation, as well as set a precedent for not using it.

The Menhaden Board may want to consider recommending to the Policy Board considering the utility of 2020 data in management decisions across all species. The Policy Board can consider an overarching policy, although such a policy may be difficult, due to the differing degrees of data collected for each species harvest. The first option would be just to remain status quo, keep the data as is, and use the data through 2020. It would not have any impacts to the timeline, and we could have possible implementation in 2023. Based on discussions with PDT members who have reviewed their state's 2020 data, the PDT has determined that it is an abnormal year for more than one state.

Option 2 is to allow for the adjustment of 2020 data. All states would have the opportunity to present proposals for adjustments to their 2020 landings. This would delay the addendum process, and could impact the Board's ability to implement in 2023. The PDT is concerned about the precedent that this would set for other species, as well as the process to develop standards to review the proposals, and the time to draft and review proposals would be very complicated and a very time-consuming process.

The PDT did not recommend this option. Then the Option 3 is to remove the 2020 data from the time series, because there are concerns with 2020 data it could be dropped, and not be used for any menhaden allocation decisions. This could delay the Draft Addendum by one meeting cycle, but the PDT doesn't anticipate it would delay implementation for 2023. Final action could be taken on the document at the annual meeting, and by removing the 2020 data the PDT is concerned that the data time series would not reflect recent fishing activity.

The most recent year in the document would then be 2019, and that would not be representative of the goals and objectives of the Draft Addendum as currently written. The PDT did not recommend this option. The final option is Option 4, it would be,

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remove the 2020 data and add 2021 to the time series. This could delay the Draft Addendum as well by one meeting cycle, while the 2021 data is validated.

But the PDT doesn't believe that this would delay implementation for 2023. By adding 2021 in the time series, it would alleviate the concerns that the PDT has with dropping 2020 data, and adding an additional year in the time series would help reflect the current fishing activity, and this is the preferred option of the PDT. I'm going to pause here to see if there are any questions, and then see if we can have a motion on this to help us move forward with the document.

CHAIR BEAL: Great, thanks. Yes, let's dispense with this decision on how to handle the 2020 data, because it will affect kind of everything else carrying forward in this meeting. We'll tackle this one first. I saw Pat Geer's hand up.

MR. GEER: Yes, I just want to thank the Commission leadership and the PDT for considering this. It was never our intent to delay the implementation of this, but as Toni pointed out, there is more than one state that 2020 was an abnormal year. My personal feeling is that we have to look at those 2020 data for allocations very carefully.

I mean because different states and different sectors within states got impacted differently, it was highly variable. I would hope that we can support Option 4, which seems to be the most straightforward. I am not supportive of delaying this implementation at all, and Option 4 would also give us the most up-to-date data. Again, I would like to just thank the PDT for all the work they did on this.

CHAIR BEAL: Great, thanks, Pat. Other questions on Toni's presentation or the options and sort of process moving forward. Yes, Jim Gilmore.

MR. JAMES J. GILMORE: I understand that logic, Pat, and really the question comes down to, you know we can make arguments about what the best dataset is based upon our personal circumstance.

We're once again going down this road that have gone many years before, and we're going to pick some numbers. How are we going to fix it later on if it turns out it disadvantages one state? That is my concern.

I mean what's in here right now will really need to go out to the public. But we're going to get into some sort of allocations that are based upon really, I mean we're talking about data during COVID, and we're making some pretty significant decisions. Let me go back to a statement that was made by my predecessor a year ago. While we'll agree to it now, as long as we can get out of it later, and we never were able to get out of it later. There is my concern.

I'm not that concerned about which one we pick, but when we get new data, we've got to be able to change this, and I don't know if that's how we would do that other than trying to do another addendum. But I don't want to get us into a situation where we make decisions now, and then we have the haves and the have nots and back into that same fight we get into all the time. Anyway, thank you.

CHAIR BEAL: Great, thanks, Jim. Other comments or questions about the options on the board now. Seeing none online and none here. Oh, sorry, Lynn, I didn't see that.

MS. LYNN FEGLEY: That's okay, just really quick. I just feel compelled to put on the record that I think, and certainly COVID is extraordinary, but if next year we have an issue where we have a large hurricane that runs up the coast and it blows closed inlets across the south, because they can't get their fishing fleets out.

You know that is also an extraordinary circumstance. I would just suggest that maybe whatever we decide today, maybe the Policy Board would want to take up some sort of conversation on guardrails going forward, so we're not always in this sort of wondering what is extraordinary and what is not for data impacts.

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CHAIR BEAL: Other comments, or are we ready for a motion? Megan.

MS. MEGAN WARE: Yes, I wasn't sure if we were questions or comments right now, because we don't have a motion yet. But I can predict maybe what the motion is going to be, so I'll try and work off of that. I understand why Virginia is putting this forward. I'm not at all disagreeing with the statement that COVID probably had some impacts on that state.

I guess maybe to piggyback off of Lynn's point here, I think COVID may have been atypical, but I don't think it's atypical for a state to not be able to harvest its full quota for one reason or another, whether that's as Lynn mentioned a hurricane, or market conditions, or whatever. I think there is a lot of situations where states can point to an allocation where they said that year in the allocation isn't representative for a reason X, Y, or Z. That is why we use averages. I think if we are going to change the data, I think it's really important for the Board to be clear how this is different than Hurricane Sandy or name some other situation the state has had that's impacted their ability to harvest quota. I'll also say, and maybe this is a question for Virginia. But I guess I'm a little confused about the timing of the proposal. We've been working on the document for, I don't know a year and a half at this point.

I would be curious maybe why it's coming forward now. I think the challenge is states now have both 2020 and 2021 landings. I think it provides an opportunity for states to compare their landings against those two years, and make a decision based for that. I think if we had had the proposal earlier, we wouldn't have had 2021 landings, and it would be a very different context for the discussion. I'm curious to hear more about that, if Pat can answer that.

CHAIR BEAL: Mr. Geer, go ahead, please.

MR. GEER: If you go back to the minutes from any Board meeting or any PDT meeting, we have brought this up at every single meeting. We've

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talked about our concerns with the 2020 data. It wasn't until I went on a tirade at the last Board meeting in January that leadership, Bob and Spud, approached me and said what is this, what is going on? That's why we put forward the proposal then. We have been bringing this up time and time again, so it wasn't the first time it got brought up.

CHAIR BEAL: Ms. Meserve.

MS. MESERVE: If we're on to comments, I guess I would say that I agree completely with Option 2 and Option 3 not being the path forward for us here. I struggle a little bit with changing the data, because we haven't, the Board at least, didn't see a proposal from Virginia and any of the specifics to justify the reduction in landings.

I guess my question, other than yes, it was COVID, and many states had impacts. They were disproportionate. But I guess my question would be to Toni, perhaps, if the PDT had any discussion about other elements that play in 2020 that could have impacted Virginia's 2020 landings, weather or the reduction of the Bay cap for example, and whether they looked for correlation between those lost days and the landings that resulted.

MS. KERNS: The PDT did not dig too deep into the Virginia proposal, because they one, didn't have a directive from the Board to review the proposal, and two, they were thinking about it more on okay, so if Virginia brings a proposal forward then do we expect proposals from other states.

How do we think about it in the context of the full coast versus the actual proposal itself? I don't recall us asking specifically any of those questions, because again, we didn't even start to dig into the proposal. I don't think that any of that information, I'm trying to remember, was in the proposal that would have sparked those questions right away anyway.

CHAIR BEAL: Tom Fote, please go ahead.

MR. THOMAS P. FOTE: I can understand the problem. When we had Sandy and basically the following spring, when we opened up the fishery

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and none of the marinas were open, our numbers were crazy. We were told live with it. I mean we go through the years. But the other problem is you open up that can of worms, where do you start?

We have hurricane events every year, we close ports down, we close inlets down. I mean it's like bluefin tuna has gone through this. We caught the biggest catch of bluefin tuna during a hurricane one year. The numbers are the numbers. The bad numbers, we always know they're bad numbers and we deal with them. But I don't want to start changing in the middle of a thing. I think we should stay where we are.

CHAIR BEAL: Ms. Patterson.

MS. CHERI PATTERSON: I don't like to see any delay of this decision-making process. I understand Virginia's concerns. However, as stated already, there has been other concerns due to natural events that have caused various states issues in the past, in regards to their data or their statistics. I agree.

I think that this needs to go back to the Policy Board, and have a discussion if we do move forward with Option 4, have a discussion how 2020 data can be used in the future, and have the PDT take a closer look at some of these issues that Nichola came up with, to see if there could be some moderation to 2020 data. I don't like the thought of it disappearing.

CHAIR BEAL: Other comments. Yes, Conor.

DR. CONOR McMANUS: There has been a lot of discussion on the removal of 2020 as it pertains to Option 4. I just didn't want to lose sight of the other element of adding 2021 data for the Board's consideration, given that in many ways this aligns with, in my mind, the mission of the Addendum to try and be contemporary of where fish abundance is, and the current fisheries activities. I just would like to have the Board be thinking about both elements, to think about them independently or not may be a different discussion.

But within Option 4, I think adding 2021 data really furthers the Addendum in trying to be consistent with what we're looking at now as a 2023 implementation date. I think adding the data further connects us between the data we're using and reality of when the Addendum could be in effect. I just wanted to bring that to light again in the midst of the holistic Option 4.

CHAIR BEAL: Great, thank you. Other comments, questions. Seeing none; is anyone ready to make a motion? Mr. Clark, go ahead please.

**MR. JOHN CLARK: Toni, I submitted the motion up there, and very simple, just want to approve Option 4 for inclusion in the Draft Addendum.** Based on the PDT recommendation, I'm assuming, is that the only option that would be in the Addendum, or just in addition to status quo?

MS. KERNS: John, it's not inclusion in the Addendum, **it's how we would actually change the Addendum. I would say just move to approve Option 4: Remove 2020 data and add 2021 data into the Draft Addendum.**

MR. CLARK: Sounds like a plan, that works.

CHAIR BEAL: Is there a second to this motion? Mr. Abbott, thank you. Mr. Clark, do you want to provide any additional background on your motion?

MR. CLARK: Sure, I think the document itself from the Plan Development Team says it all. I think 2020 was extraordinary, and obviously there are problems every year, but this was a first time in 100 years we've had a pandemic like this that has so affected every part of the country, every part of the economy. In particular for a fishery like this, which is not a sport fishery, it's entirely an industrial and bait fishery.

That much more dependent on supply chains and other things happening in the economy. I just think that it just makes a lot of sense for menhaden to go with the 2021 data, and just remove 2020. I understand the precedent it's setting, and that is certainly something that I agree should be discussed

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at the Policy Board. But I just think for menhaden in particular that this is the way to go.

CHAIR BEAL: Mr. Abbott, you're all set? All right, David Borden had his hand up online and it's gone down. Mr. Borden, would you like to make a comment now? Your hand is back up, David, so go ahead if you're ready. We'll try to get the microphone sorted out.

MR. DAVID V. BORDEN: I would just like to support the motion. I think John Clark, I won't repeat his points, but I think he made a good point. We're dealing with a one-off event that happens once every hundred years. I also agreed with the point that was made by others about the variable impacts on the states.

The final point I would make is that I have not objections to approving this motion, but then also having the Policy Board take up the general discussion, because I think there is going to be a lot of discussion on some of the other Policy Board matters and species management matters that are going to relate to this. It might be a useful exercise to have a more inclusive discussion of that.

CHAIR BEAL: Just so everyone knows. If this motion were to pass, functionally the way it would operate is, any of the options that are in the draft document 2020 data is pulled out, and 2021 data is plugged in. It doesn't change the range of options, other than just swapping out those two years' worth of data as it functionally will be applied. Senator Miramant, did you have your hand up?

SENATOR DAVID MIRAMANT: Yes, thank you, Mr. Chair and folks. The problem I see with starting that is that with the climate change we're seeing in the Gulf of Maine affecting so many things. Places like Maine or other states could start to say, well we had this affect us. Those incidents seem to be more frequent and more severe. Unless we think that we should start adjusting to every storm that comes along or other issues societally that affects the fisheries, we better just stick with a path that is pretty even handed. If we find real problems with

it, we can adjust, but this isn't a real problem to start adjusting for, so thank you.

CHAIR BEAL: Mr. Train, do you have your hand up?

MR. STEPHEN TRAIN: I guess I have a question, and most of you know I spend most of my time on the water, 59 days is a lot of days. Is this, 59 boat days? Was the whole fleet in? Did the factory shut down? I mean there was six months and you were shut down two of them.

MR. GEER: The factory did not shut down. Mr. Diehl is here, if you want to hear from him directly.

MR. TRAIN: I'm just trying to figure out the 59 days is huge.

MR. GEER: It was 59 vessel days.

MR. TRAIN: Vessel days, so one boat 59 days out of the eight, well not all eight boats.

MR. GEER: Out of a 200-day season.

MR. TRAIN: Thank you.

CHAIR BEAL: I'll kind of move down the line. Mr. Pugh, go ahead, please.

MR. CRAIG D. PUGH: The discussion is not necessarily about weather events. They do come and go often. This is a one-off, because we were instructed not only federally, but by our states also to shut our businesses down. That is what the COVID start was in 2020, was to shut things down. The proof of that is in the pudding, the amount of days that Virginia states. It was a one-off, it is 100-year anomaly. I support the motion.

CHAIR BEAL: Lynn Fegley, go ahead, please.

MS. FEGLEY: I would support the motion. But I do want to make sure that we have had sufficient conversation on the record that this will go forward to the Policy Board to review the concept of how we're going to use 2020 data going forward across

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the board, and also how we're potentially setting guardrails on this idea of just removing years.

CHAIR BEAL: I don't want to relate it to this motion, necessarily, but based on the comments around this room, it sounds like bringing something to the Policy Board and having a conversation later this week, or at least starting a conversation, is appropriate. I think that should happen regardless of what happens with this motion.

I don't want to link those two together, but Toni and I will bring that forward to the Policy Board. With that, other comments on the motion? Seeing none; are we ready to caucus? All right, we'll do a two-minute caucus, because I realize some folks aren't necessarily in the room. Does anyone need more time to caucus, is everybody all set? Massachusetts, are you guys, okay? You're all set. Okay, I just wanted to make sure. Since we are in this kind of hybrid format here, voting is going to be a little bit different than standard in-person voting. What we're going to do is I'll call on hands in favor. Keep those hands up.

Toni is going to read off the state and names associated with each hand, just so the people that aren't here know who is voting in what direction, and then we'll lower those hands and go through the rest of the voting. All those in favor please raise your hand, and keep them up until Toni calls your state name, please.

MS. KERNS: Rhode Island, Commonwealth of Massachusetts, Connecticut, New York, Pennsylvania, Florida, Georgia, South Carolina, North Carolina, Virginia, Potomac River Fisheries Commission, Maryland, Delaware, New Hampshire.

CHAIR BEAL: I counted 14 in favor. Hands down.

MR. CHRISTOPHER WRIGHT: And National Marine Fisheries Service, Bob.

CHAIR BEAL: Okay, I'm sorry, Chris, which way is National Marine Fisheries Service voting, Chris, in favor?

MR. WRIGHT: Yes, please.

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CHAIR BEAL: Great, thank you. All right, with that vote I counted 15 in favor. Any states or jurisdictions in opposition, please raise your right hand.

MS. KERNS: Maine.

CHAIR BEAL: Any others, seeing no other, any null votes, n-u-l-l?

MS. KERNS: New Jersey.

**CHAIR BEAL: Any abstentions? Seeing none; that motion carries 15 in favor with 1 vote in opposition and 1 null vote.** Thank you, and Toni, are you ready to carry on to the next elements of the Addendum?

MS. KERNS: Yes. As it stands the document has 48 options in the Addendum, 27 of those options are allocation options, 5 of them are episodic events options, and 16 are incidental catch, small scale fishery options. Several of you have been on webinars that we've had recently for striped bass and summer flounder, scup, and black sea bass, where the public has noted that the length of the document or the notions that are being contained in the document have been difficult for the public to follow along, and comment on our documents.

With 48 options, 27 of those being allocation, I fear that we will continue the pattern of making it difficult for the public to follow along. The PDT is very concerned with the number of options that we have in the document, and is hopeful that the Board will remove some of the options, in particular some of the allocation options, so it makes it easier for the public to follow and understand and make comments on the Addendum. Staff also pleads for that from the Board. Thank you for my indulgence of my double-duty of staff and PDT member. Moving forward.

As a reminder of the objectives of the allocation section of the document, it's to align with recent availability of the resource, to enable states to maintain current directed fisheries with minimal

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interruptions during the season, and to reduce the need for quota transfers and to fully use the annual TAC without overage.

The PDT used the same two-step approach as outlined in Amendment 3. We first consider the fixed minimum allocation, and then second allocate the remaining TAC based on timeframes. Just as a reminder to the Board that when we do the allocation, the episodic event allocation comes off the top, and then we set the individual state allocations, just as a quick reminder. That got a little confusing last time.

Thinking about the fixed minimum approaches. The PDT developed the options to reduce the amount of TAC that was reserved for the minimum allocation, while still allowing states to acquire the necessary allocation when combined with the second step allocation. At the last meeting the Board moved Florida and Delaware from Tier 1 into Tier 2 of Option 3, but they left those states in Tier 1 in Option 2.

These states were placed in the lowest Tier by the PDT, because the 0.1 percent minimum, when combined with Step 2 and the incidental catch/small scale fishery options would provide sufficient coverage to the minimal amount of landings these states have landed over the last 12 years. In addition, by altering these options it results in no significant difference in the minimum allocation between the two options.

The PDT is recommending either restoring the original options or removing one of the two. The other thing that the Board moved was New York went from the second tier into the third tier of Option 3. The PDT is concerned that the Board misunderstood the overall outcome of the fixed minimum approach.

Under the original options there were very few instances of lower tiered states exceeding their allocations at the end of the allocation process. However, those states that did come up short, which is very minimally short, would be made

whole under the additional provisions of the Plan, so thing like the incidental catch/small scale fishery.

The states that do come up short do not have high volume landings, thus would be able to land using incidental catch and small-scale fisheries, even if they were restricted by this document. Then for the second step of the allocation, we have the first option is status quo, and Option 2 are pretty straightforward.

It's just the average landings from the timeframes listed, status quo is using 2009 to 2011, and Option 2 is just using the most recent three years. It will be 2018, 2019, and 2021, based on the action just taken by the Board. It reflects recent landings stock distributions, but obviously does not take into account historical. For the weighted timeframe allocations, the PDT is recommending removal of Timeframe Number 2. The Board had previously requested two versions of the weighted allocation timeframe be developed. While the state allocations vary slightly between the two options, they are conceptually the same. By having two options it increases the number of options in the document, and so the PDT reiterates its recommendation that Timeframe 2 be removed, because it achieves the same objective, and Timeframe 1 utilizes the original time series from Amendment 3, plus the most recent three years.

The bright yellow circle is the one the PDT is recommending removal, 3B. Then the other option for the second step of allocating is the moving average. In response to the Board's concern about the types of landings that can affect the moving average, the PDT split Option 4 into three sub-options, 4A through C. The PDT drafted two new options based on the Board feedback.

Option 4A represents the original moving average method that includes all catch types, including the episodic events and the incidental catch/small scale fishery landings to most accurately reflect the distribution of the stock and effort. The PDT continues to support the retention of this option, as it is the most responsive to the current fishery.

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But if the TAC is exceeded it could impact the states that utilize their full quota. Option 4B, which is a new option for the Board, only uses landings under or equal to the TAC in the moving average calculation. It recognizes the importance of incidental catch/small scale fishery and episodic landings, and a state's total landing where there is extra fish available, such as when a state does not achieve its allocation due to low availability or low market demands.

However, it doesn't reward states for activities that could lead to overfishing, meaning exceeding the TAC and/or damage, existing markets and other states, by shifting quota from states that fully utilize their allocation. Proportional allocations of those two types of landings, the incidental catch, small scale fishery and episodic, among participating states eliminates concerns about differences in timing and availability of the extra fish when it might be available.

The PDT supports retention of this option, as it adds protection for states that fully utilize their fishery. But it doesn't represent the current fishery as well as Option 4A does. Option 4C is an option that the Board asked the PDT to put together. It eliminates incidental catch, small scale fishery landings and episodic landings from the calculation of the moving average.

This limits the average to landings acquired under state's annual allocation or quota transfers only. As written the option no longer achieves the purpose of the moving average by inaccurately representing a state's landings. Using such a limited amount of data in the calculations would not allow for movement of quota in any meaningful way, and would not meet the goal and objectives of the Addendum.

In addition, the PDT sees the three-year timeframe of the average as sufficient in eliminating the outside influence of a single year, and presenting a race to fish. That was one of the concerns that the Board had raised for putting this option together at the last meeting. The PDT recommends removal of Option 4C. I can go through, if the Board would like,

all the tables that go along with this document. But I recognize they are pretty hard to see. They are in the document, and so I think I'm going to skip it and just see if we have any questions for me on the allocation part of the Addendum.

CHAIR BEAL: I guess first question is, given how hard these numbers are to see, you know is there value in going through step by step through all these different options? They really are unchanged from the January meeting. They are in your document probably a lot easier to read in your document, and if we don't have to go through them it would save us a lot of time. But if there is a need, we can do it.

MS. KERNS: In addition, they will change now the 2020 data is out and '21 data will be in.

CHAIR BEAL: Yes, exactly. In the slides that Toni just presented, anywhere it said 2020, view that now as 2021. Not seeing any hands or any interest in going through slide by slide, we'll go ahead and Toni, can you go back to your slide with the tiers on it? Are there questions on how this works, and what the Plan Development Team has recommended, as far as changes and/or removals? All right great, so this is a starting point. Mr. LaFrance, go ahead, please.

MR. ROBERT LaFRANCE: I just have a question. If you could go back to the slide where you had the objectives. Could you just go back to that slide for a second? You had the objectives of what we were trying to do with this Addendum. I just want to get clarification on Number 4, fully utilize the annual TAC without overage.

I think it kind of comes into what this question is going to be about. The way we have it currently is incidental catch and the incidental catch numbers are not included in the TAC. I guess I'm trying to understand how that relates to some of the other things you're taking out. In other words, given that the TAC. When we talk about fully using the annual TAC, are we also including in that bullet there the TAC that is associated with the incidental catch?

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It's kind of an in the weeds question, but I'm just trying to make certain when we're talking about the TAC, we're talking about all landings being underneath the TAC. Right now, incidental catch is out, and it may impact some of the other questions is my point. I just raise that as a question, to make certain. I believe when that was put forward as an objective, it was to make certain that all landings were considered under the TAC. That is my point of view, sitting on the Working Group that was our understanding of the TAC.

MS. KERNS: Rob, I think that that could be in the eye of the beholder of the Board member. I will say that the PDTs objective of making changes to the fixed minimum was to turn a lot of the incidental catch/small scale fishery landings into TAC landings, into directed fishery landings. Previously, roughly 8 percent of the quota was allocated under those fixed minimums.

Under the new options I think it's closer to like 5.2 percent would be under the fixed minimum. It does shift some of those landings into directed landings. It is the pleasure of the Board to determine whether or not incidental catch/small scale fisheries are counted in that TAC or not.

MR. LaFRANCE: That's why I raised the question.

CHAIR BEAL: Before I go to the next questions or comment, I had a request to make sure everybody gets pretty close to the microphone when they're speaking, just so everybody in the back of the room and online can hear you. We are broadcasting out, and we want to make sure everybody can hear, so pull the microphones pretty close and speak directly into them if you can.

Other comments or questions, starting with the Tiers probably is a reasonable place, as well as the placement of the states within those Tiers. Any other comments, please? All right, seeing none. There was a PDT recommendation to restore or remove Option 2 or 3. Any takers on that one? Yes, Megan.

MS. WARE: I had sent a motion to staff if they are able to get that up. Awesome, thank you, Maya. **Move to remove Option B, which is the two-tiered fixed minimum approach from Section 3.1.1 in Draft Addendum I**, and if I get a second, I'll provide some rationale.

CHAIR BEAL: Okay, John Clark is that a second? John Clark seconds that, and I'm back to you, Ms. Ware, please.

MS. WARE: I didn't really agree with the PDT that the two-tiered approaches that are left are basically equal in their objective. I don't think we need both, and I'm leaning towards keeping the three-tiered option, because in my mind I think there is a difference between states which have had no commercial fishery to date, and states which have had small commercial fisheries to date.

I think the three-tier option better distinguishes between those two different categories of states. Then I also think at their last Board meeting the Board spent a lot of time working on that three-tier option, so I would rather preserve that work of the Board moving forward.

CHAIR BEAL: John, do you have any follow up comments on the motion?

MR. CLARK: No, Mr. Chair, Megan covered everything well, thank you.

CHAIR BEAL: Super, thank you. Roy Miller, you had your hand up a moment ago online. Do you still want to make a comment, or it was on a different subject?

MR. ROY W. MILLER: No, I had my hand up to second Megan's motion.

CHAIR BEAL: All right, excellent, thank you, Roy. Other comments on the motion that is on the board to remove Option B. All right, seeing none in here or online, is everyone ready to caucus? Maybe a one-minute caucus. We'll see if that's enough time, and then we'll vote on this. All right, any additional time needed to complete your caucuses?

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**Seeing no hands here or online, let me try this. Is there any opposition to the motion that is on the board? All right, seeing no hands online or here in the room, there seems to be no opposition. Are there any abstentions to the motion that's on the board? All right, seeing no opposition or abstentions, the motion carries by consent.** We're making progress. We'll get up the slide with the next issue here in a second. The next two slides kind of relate to each other. The Plan Development Team is recommending removal of Option 3B and 4C, and then there is some consideration for Option 4B as well. It's probably easier to work through these individually, is that right? Let's go back to Option 3B. Is there any appetite for following the recommendation by the Plan Development Team, and considering removal of the Option 3B with the slightly different timeframe from Option 3A is the only difference? The only difference is 2011 and 2012 is included or excluded. Any thoughts or motions relative to Option 3B. Yes, Mr. Cimino.

MR. JOE CIMINO: You could call me Joe, Bob. I have to respectfully disagree with the PDT on this. I think having a longer historical period in a time before we had quotas is important. There is some interannual variability in this fishery. Now with our recent decision, where we're going to have options to include 2021.

Albeit dropping a year, we are bridging a four-year period for the more recent years as well. I still would prefer to see Option 3B, and I do agree that they are very close, so I would be willing to drop 3A. I wanted to put that out there for discussion before a motion comes up.

CHAIR BEAL: Thank you, Joe. Any other comments relative to 3A versus 3B, removing one or keeping both. Ms. Meserve, please.

MS. MESERVE: My preference would be to follow the PDTs recommendation here. I think that the first weighted option clearly builds upon Option 1 and Option 2. Going back to 2012 feels to me like we're re-litigating the decision made in Amendment 2 with those years, and I think that the objective to

incorporate more recent history, and that 3A better achieves that.

CHAIR BEAL: Other comments on the difference between these two options? One of the things that is going to complicate the discussion throughout the rest of this meeting is, okay, you don't necessarily know what these options look like, because we don't have the 2021 data included in these two options. Between this meeting and the August meeting, the plan seems to be staff and PDT will put the 2021 data in here.

That is going to change some of the percentages in the associated tables and associated Option 3A and 3B. Not that I want to defer anything until August. But if the Board is not ready to decide between 3A and 3B at this point until they see exactly what the 2021 data does to those different options. One approach would be to wait until the August meeting, see what that looks like and then the Board can go from there. It's up to the group, but just wanted to get that on the record. Ms. Fegley.

MS. FEGLEY: I really appreciate that, and I'm just going to be perfectly honest. Maryland does a little better if we leave 3A and it does a little better if we do the reverse than what we're trying to do. But it's not substantial, but I think it might be helpful to see. It's nice to make a decision based on the facts, and not necessarily on the numbers. But I think in this case some numbers might just be helpful to keep us all in good faith negotiations.

CHAIR BEAL: Is there another hand? Dennis Abbott, go ahead, please.

MR. DENNIS ABBOTT: Option 2 is an example will read 2018, '19, and 2021 when we revise?

CHAIR BEAL: Yes, that is what it will be, 2018, 2019 and 2021 will be what Option 2 is.

MS. KERNS: I'll, as staff from my original request is just because the PDT did not ask you all to remove something, it doesn't mean that you cannot remove something, because again, even with the few options that the PDT does recommend taking out of

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the document. There still are a ton of allocation options in this Addendum.

As you ponder the '21 data when we get it over the summer, I would just suggest thinking really hard about whether or not all of the options are viable options in your minds, and really think about what we're going to take to the public for comment. Even with removing some of the ones that we will, we'll still have, I think at least 15 options in the document, which is still a lot of allocation options.

CHAIR BEAL: Great, Toni, thanks for that reminder. Mr. LaFrance, go ahead, please.

MR. LaFRANCE: Just a question on process. If in fact the staff were to run these both 3A and 3B, at our next meeting we could decide after the numbers were in front of us whether or we would include these to go to the public. I just wanted to get that clarification.

CHAIR BEAL: Yes, that is correct. The Board still has that latitude in August. I guess to follow up Toni's point about paring this down anywhere and any way the Board feels is appropriate. Anything we could take out today will save the PDT some work between now and August. Anything you take out after August will save some confusion and complication at the public hearings.

That's kind of a two-step process here to follow up on Mr. LaFrance's comment. Kind of reset when we get to August, and once you see the final document things can be changed at that point. With that understanding, is there any appetite for a motion on 3A, 3B or Option 1 and 2 at this point, or do you want to see what the final numbers look like when we get back in August?

MR. BOYLE: Sorry to jump in here. I just want to make a quick comment that for Option 3B the later, more recent time series is 2017 to now 2021, was 2020. The length of time series for the old and recent data is the same. It's four years.

CHAIR BEAL: Great, thanks for doing that reminder, Jim, a typo on the slide. I appreciate that. With

that, that probably even means more that you want to see what those numbers look like coming forward. I didn't see any hands when I asked for motions. I'm going to assume we'll get the PDT to crunch the new numbers, come up with different tables, and come back in August and do that. Seeing no opposition to that. Toni, do you want to give a quick summary of where we are with Option 4 again, just so everybody is fresh in their mind?

MS. KERNS: Will do. Again, this is just thinking about the moving average. At the last meeting the Board requested an option that took out incidental catch, small scale fishery and episodic landings from the moving average in total. The PDT felt by doing that it no longer achieved the objective of the moving average, so they created a middle ground option, which becomes 4B, which allows for the episodic, incidental catch and small-scale fishery landings to be used up until the TAC, and then anything over the TAC would not count.

States that had incidental catch/small scale fishery landings and episodic landings would be proportional that's below the TAC to be included in their three-year moving average. I recognize that we don't have '21 data, but conceptually if you wanted to remove an option here we could, or not. The PDT has one option for removal, but it doesn't mean that you can't remove more than one option.

CHAIR BEAL: With that; Ms. Fegley, please.

MS. FEGLEY: I have a question about how this might work, 4B. It says that it's only going to consider landings up until the TAC. Maryland, this is a year that is stationary. It doesn't move. We have no ability in our state to go where the fish are. If we get a slug of fish through the Bay, and into our pound nets in October, and the TAC has already been met. Does that mean that we don't get, there is no acknowledgement that we had an appearance of fish in our stationary gear?

MS. KERNS: No, the reviewers, I'll call it the Plan Review Team, would look at all landings that occurred under episodic, incidental catch and small-scale fisheries. Then we would look at each state's

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catch proportionately, and then reduce those landings down to whatever the TAC was, and you would get your proportion up to the TAC to count towards your three-year moving average.

MS. FEGLEY: It's poundage, not anything to do with timing.

MS. KERNS: Say the last part of your question.

MS. FEGLEY: It doesn't have anything to do with timing when the fish are.

MS. KERNS: Correct, yes.

MS. FEGLEY: Okay, thank you.

CHAIR BEAL: Other questions or comments on Option 4 or the sub-options, or motions to adjust these.

MR. LaFRANCE: I would just like to be heard in favor of keeping 4C. I recognize that it may be something we want to take out when we go to public. But I do think it's going to be helpful for us to understand the analysis, in terms of the information, to basically take a look at the moving average, just as it relates to the allocations without including the EESA and the IC/SSF. My sense is that that data would be helpful to us in better understanding what we go to the public with.

MS. KERNS: Rob, just so that the PDT understands. I'm trying to see maybe if the PDT can provide you with additional information, because the moving average is trying to reflect the availability of the fish and what states are actually harvesting. That is the goal and objective of the moving average itself. The 4C Option does not meet that goal and objective at all. I'm trying to understand what you are trying to get out of it by keeping it in the document, so the PDT can make sure that they bring that information to you.

MR. LaFRANCE: What I see happening is the information that you have for each state's individual allocations will be what's moving. What I guess I'm trying to make certain is that we

understand what the EESA is, it's a percentage. But we don't know what the IC/SSF is in terms of actual poundage.

By taking them out and then comparing those to the actual allocations, we can get a sense as to how that's playing out, and how the moving average would be impacted. What I guess I'm trying to say is the moving average is going to calculate how people catch up with everything, as well as transfers.

The point here is you're capturing, I believe in 4C, any of the transfers that are happening between states, because they are now from one state to another, in terms of how they look. I think it also gives me some sense as to how large, for example we have some data in the report showing how big the incidental catch is in a state like Maine. I want to make certain that we're capturing that as we understand that before we go to public.

MS. KERNS: We won't be able to show you individual incidental catch small scale landings by state, because some states are confidential. I'm not sure we'll be able to achieve the objective that you're looking for. But I guess we'll do our best. I just want to make sure that the Board recognizes that 4C does not achieve the objective of the moving average.

CHAIR BEAL: I've got one comment online, Allison Colden, then I'll come back to the table.

DR. COLDEN: Toni, I'm trying to understand for Option 4B, you know you ran through these options and brought up some of the concerns with the moving average that the Board brought up and the PDT brought up, particularly with respect to incentivizing a race to fish, to possibly bump up a moving average for landings that are included that are above and beyond the directed allocation for a state.

States that remain within their directed allocation and quota transfers losing out over time. I'm looking at 4B and relating back to Lynn's question. Even if it's based on a proportion of landings, it's

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still the proportion of landings above and beyond an individual state's directed allocation. I guess my question is, I'm not quite understanding how 4B addresses the Board's concerns about "race to fish" and equity concerns between the states. Could you elaborate on that a little bit more?

MS. KERNS: The PDT felt that by being a three-year moving average, a "race to fish" doesn't come into play. If Nichole is online when I'm done answering the second part of your question, if you want to add to that I would be happy to have you do so as my PDT member backup. Then in terms of the equity for the incidental catch/small scale fishery landings, every state would still have the opportunity to catch fish under the incidental catch/small scale fishery through the end of the year, and then it's just proportionately counting the poundage to the total of incidental catch/small scale fishery that would be included in your three-year moving average that is under the TAC. Equity wise, every state would still have the opportunity to catch those fish, and then your landings are just reduced proportional to how much you caught. Well, relative to everybody else.

DR. COLDEN: Just a quick follow up, Mr. Chair.

CHAIR BEAL: Yes, please go ahead.

DR. COLDEN: Thanks for that, Toni. I guess I don't want to beat a dead horse here. I'm trying to imagine this playing out. Say for example you have a state that consistently fully exploits its directed allocation, but has little to no incidental catch or small-scale fisheries landings. At the end of the day the TAC is the TAC, and I guess this again gets to the question of whether or not we're going to land on the incidental catch becoming counted towards the TAC or not.

It's all one pie, and it all has to come out of somewhere. Does that mean that states that are consistently landing under the incidental catch and small-scale fisheries above and beyond their directed allocation would be taking quota away from states that stay within their directed allocation over time?

MS. KERNS: If a state does not fully utilize their TAC, then one may argue that they don't have availability of fish to utilize them. Therefore, a state that now has fish available to them would be getting those fish, which is reflecting the moving average then as the PDT put most accurately reflects the current availability of the fish. Obviously, it would change over time, as each state either does or does not fully utilize their TAC. I don't know if I said that straightforward.

CHAIR BEAL: That's good. All right, other follow up questions. I had Jim Gilmore, Joe Cimino and then Steve Train.

MR. GILMORE: Toni, your response back to Rob before, so I understand that it essentially said that well, the incidental catch in the small-scale fishery, really, we can't get that information. It goes back to the initial objectives of the Addendum was we were supposed to try to really characterize what the actual landings are.

But if we can't get that, so if we can't get it 4C makes no sense, because essentially, we're not going to put data in that. I don't know, that just concerns me, because there has always been that discussion about, well really, what are the landings from that? Are we going to at some point be able to figure that out?

MS. KERNS: We can tell you the overall. It depends on the year. Some years states have confidential data and some years they don't. It depends on the year. We can give you the total coastwide amount. Maybe we might be able to break it out by regions, it depends. But specific to, I can't give you poundage for each state currently.

CHAIR BEAL: Joe Cimino.

MR. CIMINO: I hope James appreciates you sitting on the hot seat all day, Toni. I was first looking at 4C as really being dependent on quota transfers, but then your comment about if a state wasn't able to utilize their entire quota that would suggest something about the moving averages. Then that put 4C kind of back into play for me, unfortunately.

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I think overall I could support its removal. But I guess what you were trying to explain in 4B is the importance of a state's percentage of the coastwide landings. Is that really what's going to be the overall formula? It will go beyond TAC; it will be back to sort of how we see these tables with a state's percentage of the coastwide landings.

MS. KERNS: If you're looking at what is the heart of the moving average, and you want it to be at its most optimal use, let's call it. Then you would choose 4A, because that takes all landings from the states and moves quota around on an annual basis, based on where the availability of the fish is.

That takes the TAC, transfers, episodic, and incidental catch/small scale fisheries into play, and it really tells you what a state's quota is based on availability and the current fisheries, 4 B is going to do that kind of, but it keeps it in check to the TAC, and it's going to proportionally adjust the incidental catch/small scale fishery landings and episodic landings for each of the states. It's almost there but not quite totally there.

CHAIR BEAL: Follow up, Joe, or are you all set? All right, great, thanks. I had Steve Train and then Lynn Fegley.

MR. TRAIN: I have to simplify these things in my mind to make them work. To me this all goes back to the Baltimore meeting, when we started trying to figure out where the fish were going to be and who was going to get it, what it was going to be. No state every wanted to give up quota in any fishery that it had, any more than any fisherman ever wants to give up quota he had, even if he's not catching a fish. What I see is 4A and 4B are the same thing, as far as redistribution of quota, except 4A does it more aggressively, 4C is stay where we are.

We'll have to keep trading stuff, as was just said. I think it's very important to understand that these incidental catch fisheries and episodic event fisheries allow us to show the reflection of the shift in the fishery, and allow us to shift that quota. To lose that option and stick with something like 4C

totally doesn't reflect everything we talked about back at the Baltimore meeting when we started. I think it's important that 4C is eliminated and we look at 4A and 4B. Unless I've totally got confused in this discussion.

CHAIR BEAL: How could anyone get confused in this discussion, Steve? Lynn, go ahead please.

MS. FEGLEY: I think Steve and I were going to the same place. First of all, with 4C, I think the issue there is that particularly for these gears that are fishing that don't move, which are incidental. They should be considered almost a sampling gear in this case. They are, you know when the fish are showing up in those gears the fish are there. When the fish are not showing up in those gears they are not there. If you remove those gears from this calculation, you're removing your signal, and what's telling you that the stock is shifting. I just want to be sure that when we're thinking about this that everybody understands, and that is something Mr. LaFrance said that under the incidental, those fish are counted and there is a full accounting of what is being caught. We just might not have the exact information because of confidentiality issues.

But we do know if we're catching fish under the incidental catch provision in Maryland, there is a very clear accounting of every fish that goes into that net. I want to follow that through with, if we're in a situation where we're closing something like a pound net fishery, what we're not going to be starting to count is all of the dead fish that are released from those nets, because we have to shut down.

I just kind of want to make that clear that 4C, and I really do like this idea, because I think it's creative. It's something we haven't done, and it could actually get us into a new place with allocation. I mean these are sort of brutal arguments that we have to have over and over again. If we can figure out a way to get this in here and help the public understand it, I think it would be worth our time.

CHAIR BEAL: Good, thanks, Lynn. Nichola, go ahead please.

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MS. MESERVE: I really agree with Lynn's comments. I also see Option 4C as making the fight for transfers a real food fight among the states. There is already a lot of states in the last year who have been trying to negotiate and do things collectively. But if we're relying on solely transfers to document and show moving the distribution, I think 4C may have some unintended consequences for cooperation among the states. **Based on this discussion thus far, I would be willing to make a motion to remove Option 4C. Let's see, it's Option 4C from Section 3.1.2.**

CHAIR BEAL: Great, thank you, Nichola. Is there a second? Steve Train seconded the motion. Any additional support or comments, Nichola?

MS. MESERVE: I don't believe so, thanks, Bob.

CHAIR BEAL: Steve, you're all set as well. Great, comments on the motion. Allison, do you have your hand up on this one or is that left from previous comment?

DR. COLDEN: No, I had my hand up, but it was up before this motion, so I can save it until after you dispense with this motion if you would like.

CHAIR BEAL: You were going to make a comment on a different topic, not relative to this motion?

DR. COLDEN: Yes, a comment on Option 4, but not specific to this motion.

CHAIR BEAL: Okay, let's tackle this motion. Then we'll come back to you. Mr. LaFrance, go ahead.

MR. LaFRANCE: I appreciate everyone's comments, but I would say that I believe that the Option C brackets this question in a way that is worthwhile for further discussion, so I'll probably be a vote no.

CHAIR BEAL: Other comments in favor or in opposition? Ms. Ware.

MS. WARE: Yes, I'm going to support this motion. I agree with Nichola that specifically for Maine, 4C is just a barometer of how successful I am at calling

you all to get transfers. It is really not a metric of our landing in any way, and unfortunately those calls tend to happen on July 4th weekend, so depending how patriotic people are feeling sometimes, I'm less successful.

I just don't see how this is really solving our issue. To Lynn's point about small scale landings and incidental being kind of a barometer of changes in the distribution of fish. I think if the menhaden leave New England, the first place we're going to see that is in our small-scale landings. I actually think it's really important to include those in the moving average, because that is going to give us the first tip off that something is really changing in New England.

CHAIR BEAL: Other comments in favor or in opposition. Seeing none in the room and none from the virtual participants, are we ready to caucus? It looks that way. One minute caucus please. All right, any additional time needed for a caucus? Seeing no hands; let's go ahead and vote. Since there were a couple comments that may not necessarily all vote in favor, we'll go ahead and same plan, raise your hands and keep them up until Toni calls your state. All those in favor, please raise your hand.

MS. KERNS: I'll start at the other side to give their arms less time up. New Hampshire, Maine, Delaware, Maryland, Potomac River Fisheries Commission, Virginia, North Carolina, South Carolina, Georgia, Florida, Pennsylvania, New Jersey, New York, Commonwealth of Massachusetts, Rhode Island and Fish and Wildlife Service, I'm sorry and NOAA Fisheries, wrong agency.

CHAIR BEAL: That's 16 votes in favor, like sign votes in opposition.

MS. KERNS: Connecticut.

**CHAIR BEAL: Any null votes, n-u-I-I? Seeing none, any abstentions? Seeing none; the motion carries 16 in favor and 1 vote in opposition.** Before I go

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back to Allison, Toni has a comment to make, and then Allison I'll come right back to you.

MS. KERNS: As my backup, Nichole just reminded me. It's just that for the moving average is that the Board is thinking about how they're reallocating all of the landings. Right now, you're thinking about reallocating all the landings, and the moving average allows you to continue to do so through time, without doing another addendum. That is what one might say the beauty of the moving average, if that is something that you're interested in doing throughout time, without coming back to the table.

CHAIR BEAL: Great, thanks. Allison, go ahead now, please.

DR. COLDEN: I think Toni's comments, just to put another point on this before we move on. Obviously, a lot of these options in this document are intimately connected and dependent upon one another, and this one in particular I think how well it works and what kinds of incentives it creates, and how it will work in reality is based a lot on the options that we will consider later on in the document for incidental catch in small scale fisheries.

There has been a lot of discussion on this option about how this better reflects the distribution of the fish. But I do think there is a distinction to be made between directed fisheries and non-directed fisheries, with respect to reflecting solely the distribution of the fish versus the capitalization of the fisheries.

I do think this is a creative option. I do think it provides an interesting amount of flexibility, which is kind of rare in the allocation context. But I just wanted to flag for the Board that how this will work in reality is going to depend upon a lot of the decisions that we make further along in the document.

CHAIR BEAL: This is kind of a natural break point. I think there are some snacks in the back of the room. It's a couple minutes before 2:30. Let's take

about a ten-minute break or so, grab some snacks and get up and stretch, and we'll come back at 2:40.

(Whereupon a recess was taken.)

CHAIR BEAL: All right, we'll go ahead and bring the Atlantic Menhaden Board back together, and Toni is going to jump into the episodic event set aside section of the Draft Addendum. Go ahead, Toni, when you're ready.

MS. KERNS: Thank you, Mr. Chairman. As a reminder to the Board, the objective of the episodic even set aside program, or the options in the Addendum for episodic, is to ensure sufficient access to the episodic changes in regional availability, in order to minimize in-season disruptions, and reduce the need for quota transfers and incidental catch/small scale fishery landings.

For clarity, the options related to the timing of establishing the episodic set aside have become sub-options in this management section. The sub-options would allow the Board to decide how the set aside could be adjusted, either as a static value during final action of this Addendum, or dynamically during specification proceedings.

There are only two main options here, one status quo, the set-aside would be 1 percent. The other option is that the Board could increase the set-aside up to 5 percent. You would either set a value through final action, it could be anywhere between 1 and 5 percent or the Board would dynamically set them during specifications.

That could range between 1 and 5 percent each time specifications came up. It can be set either on an annual basis for specifications or on a multiyear basis. Before I noted that this note only applies if a tiered minimum approach, as I had said previously, the minimum allocation under Amendment 3 allocated 8 percent of the TAC to the timeframe, based on the allocation of state quotas. I said before the new three-tiered approach allocates 5.53 percent of the TAC to the minimum allocation. The amount of quota left by selecting this Tier as

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2.47 percent and that would be reallocated to the states.

But if we increase the episodic to 2.47 or less that would result in a similar value in pounds being removed from the TAC, prior to the timeframe-based allocations. In Amendment 3, 9 percent of the TAC either went to the episodic or the fixed-minimum approach, if that makes sense. These are the new options. The PDT did not make any recommendations for changes.

CHAIR BEAL: All right, any questions or comments for Toni on these two options under episodic event set aside and/or the comments she made at the end, sort of the interrelationship between the tiers and the episodic event set aside, and how the minimums may change depending on how much is set aside for episodic events.

Any questions on these options, or is everyone comfortable with these two options and two sub-options going forward in the document. Seeing no comments or no hand either real or virtual. I will assume everybody is comfortable with these two options going forward, and the two sub-options for Option 2. With that Toni, carry on to the next topic.

MS. KERNS: Then moving on to the incidental catch and small-scale fisheries. As a reminder, the objective for the options in this document are to sufficiently constrain landings to achieve an overall management goal of meeting the needs of existing fisheries, reducing discards, and indicating when landings can occur and if those landings are part of the directed fishery.

The first part is looking at the timing of the incidental catch and small-scale fishery provisions. This looks at when a state begins fishing under the provision, since it impacts the duration of landings that occur. Right now, Option 1 is status quo, no change, no specific direction on when they occur, except for after the state fishery closes.

As we have noted, in some states they will divvy up their quota to certain gear types, and when that gear type catches its full quota, that gear type can

then move into the incidental catch, so they call that a closure under their state regulations, which we do allow for in the plan. Option 2 sort of looks at that and addresses it, so it's clearer and more specific in the FMP.

It looks at allowing states to further divide their state allocations into sector and gear type specific allocations, and then the provision would confirm that once that sector, fishery or gear type specific allocation is reached that sector, fishery or gear type can begin landing under the incidental catch small-scale fishery provision. Option 3 looks at the entire state's allocation has to be met before you can start landings incidental catch small-scale fisheries, regardless if a state allocates their quota out in any way.

Then there is also Option 4 looks at full closure when allocation is met, and no incidental catch small-scale fisheries can occur. Then moving on is the permitted gear types of the incidental catch small-scale fishery. For this we are trying to address the volume of landings under the provisions by removing some gear types that are allowed to catch incidental catch and small-scale fisheries. Option 1 would be no change, continue to allow all the current gear types that are catching IC/SSF landings. Option 2 is to not allow purse seines. All other small-scale and non-directed gears could be maintained. The provision would apply to both small-scale directed gears and non-directed gears, but exclude purse seines. This option is included due to the growth of directed landings from small scale purse seine gears in recent years. Landings from purse seine gears would count against a state's directed fishery quota.

Option 3 would be to only allow non-directed gears in the incidental catch/small scale fishery landings. This provision applies to non-directed gears only. Under Amendment 3 this includes pound nets, anchored bait gill nets, drift gillnets, trawls, fishing weirs, fyke nets and floating fish traps. Then moving on looking at the trip limits for the directed small-scale fisheries and incidental catch.

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The goal of these options is to limit the annual volume of incidental catch small-scale fishery landings by reducing the trip limit. Option 1 is status quo. We would maintain the 6,000 pounds for all gear types. It still includes the 12,000-pound provision when you have two people on the vessel. For both options 2 and 3, the proposed change in the trip limit would only apply to small scale directed gears.

Those gear types are listed in the document, but as a reminder they are cast nets, traps, excluding the floating fish traps, pot, haul seines, fyke nets, hook and line, bag nets, hoop nets, handlines, trammel nets, bait nets, and purse seines, which are smaller than 150 fathoms long and 8 fathoms deep. Non-directed gears and stationary multi-gears would still be able to land up to 6,000 pounds of menhaden per trip per day, with two individuals working from that same stationary multispecies gear, and together they can land up to 12,000 pounds.

That could still apply for Options 2 and 3, but the total pounds would just be double what the trip limit is listed. Option 2 being 4,500, double that you get 9,000 pounds. For Option 3, 3,000 pounds. Double that you get 6,000 pounds. I'm going to pause here and see if we have any questions, before we get into the PDT recommendations for the next set.

CHAIR BEAL: Questions on incidental catch/small scale fishery provisions up to what Toni has presented. Jim Gilmore, go ahead please.

MR. GILMORE: Can you go back to the first slide under this?

MS. KERNS: The objective one?

MR. GILMORE: I'm sorry, the next one.

MS. KERNS: Timing.

MR. GILMORE: Yes. Okay that one's fine, go to the next one. Option 3, and I won't put up a motion to take it out yet. For New York we don't have a purse seine. Purse seines are prohibited by law now, so

we can't even use them. Our entire fishery is by seine, and now if seine is a non-directed gear, I don't have a fishery anymore. My preference clearly would be to move to take that out, but I would like to have some discussion, to see if there are other states that have a strong opinion about leaving that in.

CHAIR BEAL: Other comments or questions, or response to Jim's comment? I've got Roy Miller online, go ahead, Roy.

MR. MILLER: I have a relatively small point to make concerning the definition of trammel net where they are characterized. I used trammel nets many years ago we used them interchangeably with gillnets. I don't understand why trammel nets aren't listed as SSF type gears along with gillnets.

MS. KERNS: Roy, it was a little difficult to understand. Are you asking why trammel nets were not included in the directed or non-directed fishery?

MR. MILLER: I would classify them the same as anchored or staked gillnets, fixed or floating gillnets.

CHAIR BEAL: Roy, we're having trouble understanding you. Your comments earlier in the meeting were really clear, this one is kind of, it sounds like you're under water a little bit.

MR. MILLER: Let me try again. It's a minor suggestion, but I just wondered why trammel nets weren't classified the same as gillnets, because I used them interchangeably many years ago.

CHAIR BEAL: Roy, you're saying trammel net and what other net?

MR. MILLER: Trammel nets and gillnets are pretty much used for the same purposes.

CHAIR BEAL: Okay, great. No, we were just having trouble hearing you. We will take that question back to the PDT and bring back a response in

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August. Is that right, Toni? Thanks, Roy, for that. I've got Lynn Fegley and then Allison Colden.

MS. FEGLEY: Just in response to Jim's query about Option 3. You know that really goes back to the original spirit in 2012 of this provision, which was to figure out a way to handle these gears that are not specifically directed on menhaden, but they are encountering menhaden, and it might be hard to get the menhaden out of those gears if you catch them.

Then you're just going to wind up with a bunch of floating fish, which doesn't do anybody any good at all. I think the reason to leave it in, is because it is sort of the original spirit. But I'm curious about what you said. You said your fishery is now just seine, and if this is chosen then you won't have a fishery. Could you help me understand what you mean by that, how that would play out?

MR. GILMORE: The entire fishery has turned into a shore-based beach seine fishery, and it is completely a beach seine. In fact, we had some out of state permits that would come in, but again, the legislature banned any kind of purse seining. The entire, at least the targeted fishery comes down to being a beach seine. Because of the definition under non-targeted gear, the majority, there is some extra landings, but the vast majority of the landings come from the purse seine. If that option went through, it would close New York's fishery.

MS. FEGLEY: Because you don't have enough quota to cover that fishery, because they would be fishing under your quota, right? I'm just trying to understand how.

MR. GILMORE: Yes, they are fishing under our initial quota or whatever, and then they can go to, yes, it's essentially, they are fishing under our base quota or whatever, and it's the only gear we have, well primary gear. Like we do get some catch I think in gill nets, whatever, but the bait fishing industry in New York that is targeting it is all doing it by beach seine.

CHAIR BEAL: Are you all set, Lynn? All right, great. Allison Colden, go ahead please.

DR. COLDEN: Lynn covered some of this. I have the same question for Jim, because I originally had written down that seine was non-directed gear. I got that clarified, thank you, Jim. You know I think to reiterate Lynn's point, the non-directed gears only is sort of a direct mirroring of Amendment 2, and where this provision initiated or originated.

I think that with respect to the objectives of this Addendum, the whole goal that we talked about previously in today's conversation is to get more of those landings included under the TAC through reallocation to the states in their directed landings. If that is the case then we should be minimizing the amount of landings that are occurring under incidental catch and small scale fisheries, by moving those landings into directed allocations to the states.

Personally, I think there is precedent for Option 3 in Amendment 2 for this fishery, and I think that by keeping it in we can achieve our goals of reducing any regulatory discards, while also achieving the other objectives of the Addendum by working on the directed allocations in other parts of the document.

CHAIR BEAL: Tom Fote.

MR. FOTE: Jim, I'm just curious what the bycatch is. Any observers looking at the bycatch of when they haul seine from the beach? Historically there are a lot of fish sitting underneath it. Usually, they get a chance to escape when you're basically doing it out in the boat and you're purse seining, but when you're just pulling everything on the beach. Because I used to go out to Montauk years ago when I live in New York, and watched when they haul seined for striped bass. There was a lot of bycatches in that. Any idea what the bycatch is in the purse seine fishery?

MR. GILMORE: Again, we don't have a purse seine fishery.

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MR. FOTE: I mean a seine fishery.

MR. GILMORE: The seine fishery again, they are targeting. The problem with this is that they are the only gear we have targeting, and so we go through our quota. Then they get to incidental catch, the only gear they have left is beach seine. Maybe a suggestion, instead of eliminating it is to essentially non-directed gears, and beach seines, you know add that in, because we went through this a while ago with our official definitions of gear being targeted versus non-targeted, and we had some kind of squirrely things we did. But if we added that in, then I think that would solve the problem.

CHAIR BEAL: Great, thanks, Jim. See if there are other questions then, you can see if you want to try a motion to do that. Other questions or comments on incidental catch/small scale fisheries. Toni has some additional slides that will summarize the Plan Development Team's recommendations relative to this issue. Any other comments? I don't see any. Jim, I don't know if you want to do it now or you want to hear what else Toni has to say, and then come back to your idea of Section 3.3.2, Option 3.

MR. GILMORE: Why don't we finish Toni's, and then maybe we can do, if we've got another piece, we can do it in one motion.

CHAIR BEAL: All right with that I don't see any other hands here or there, so Toni, you're up.

MS. KERNS: I'm going to start with the PDT recommendations on this one, and it's relative to the section that I'll go over on catch accounting for the incidental catch/small scale fisheries. As a whole the PDT believes that catch accounting options for these fisheries are not effective or efficient, and the goal of the catch accounting approach can be achieved through a combination of the reallocation alternatives and the incidental catch small-scale fishery subtopics, such as gear restrictions and trip limits.

Even after editing the options in this topic, based on the Board direction from the February meeting, the PDTs concerns still remain, and they urge the Board

to remove this section in its entirety. Options 2 through 4 would need to operate under considerable time lag, as the landings are not finalized until the fall of the following year.

Under Option 2, the Board would be unable to make timely decisions and take action until two years after the management trigger is tripped. For example, if landings have exceeded the cap, more than 10 percent in 2022, the Board would take action in 2023, and implementation would occur in 2024. Under Options 3 and 4, the proposed adjustments to the TAC or set-aside would similarly not be addressed until two years after an overage occurred.

Additionally, Option 3 could result in more latent quota if the set-aside is not fully used. The Board has indicated that latent quota is an issue that should be addressed through this Addendum, and this option may exasperate that issue. Finally, both Options 3 and 4 could result in overages caused by a minority of states that impact many.

If there is an overage by one or a few states in one year, it would reduce the available set-aside, Option 3, that all states could access, or potentially reduce all state's quotas in Option 4. Additionally, these options could therefore potentially result in constant overage payback cycle, creating a new management problem for the Board. As a reminder, here are the options themselves. The goal of these management options was to create a system where annual incidental catch and small-scale fishery landings are limited, and there is accountability for overages. Under Option 2, landings under this provision shall have a catch cap equal to 1 percent of the TAC. The cap is not a set aside, and landings would still not count against the TAC. Landings are reported by states as a part of the annual compliance reports, and if reported, landings exceeded the cap by more than 10 percent in a single year, or exceeds the cap two years in a row, which would be the trigger.

Regardless of the percent overage, the management trigger is reached, and the Board must take action to reduce the incidental catch/small

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scale fishery landings. Option 3, landings under the provision shall count against a 1 percent set aside of the overall TAC set annually at the beginning of the fishing season.

If the set aside is exceeded in a given year, the overage will be deducted on a pound for pound basis from the next subsequent year set aside. For Option 4, the total landings under the provision would be evaluated against the annual TAC. If the total landings exceeded the TAC, the overage would be deducted on a pound for pound basis from the next subsequent year's TAC.

Just to reiterate. If the Board takes additional action through the gear provisions, the trip limit provisions, the PDT is not concerned about the TAC being exceeded through the incidental catch, and they are not concerned about the stock status for menhaden. That is why they are recommending removal of these options, because of the administrative burden and the inefficiencies of the lag that would be caused through these options.

Then the last piece for the incidental catch/small scale fishery management options is to allow access to the episodic at less than 100 percent of a state's allocation. Currently under the Addendum, a state has to achieve 100 percent of its state's allocation before it can declare into episodic events set aside, and under Option 2 a state can begin fishing under the episodic event set-aside once they've landed or projected to have landed 95 percent of their quota.

Under the option a state can participate without having fully utilized their allocation. The 5 percent reserve of the state's allocated quota could then be used, after the episodic set-aside has closed, and allow a state to remain open under the directed landings, rather than proceed directly into incidental catch/small scale fisheries. The process for declaring participation into episodic event set aside would slightly change, but the provisions would be similar.

The topic is included in the Addendum, incidental catch/small scale fishery section, due to the decision-making process for addressing small scale

purse seines. This option can only be pursued in the current version of the document if either Option 2, no purse seines, or Option 3, non-directed gears are chosen under the permitted gear types for incidental catch/small scale fisheries.

The PDT notes that allowing states to participate in episodic events when they have 5 percent of their allocation remaining, could lead to fairness and equity concerns, as 5 percent of one state's allocation may be significantly different than another states. Timing and availability of fish among the northern states could exasperate this issue, with one state having access to episodic, while other states still have a large volume of quota remaining, and fish may not have migrated into their state waters yet, and thus not have an opportunity to harvest their quota to opt into episodic. Additionally, several other options in the document, including revising the commercial allocations, and increasing the percentage that can be allocated to the episodic event could alleviate the need for this option, and the PDT recommends removal of this option from the document. That's all I have for this.

CHAIR BEAL: Questions or comments or any reaction to the two recommended removals by the PDT. Let me go to Allison Colden, she had her hand up, and then I'll go to you, Lynn.

DR. COLDEN: I really appreciate all of the work that the PDT has done in considering this section. I know particularly when it comes to the catch accounting section, a couple of the PDT calls I was on there was a lot of deep thought on this. I do appreciate all the thought that went into it.

But I do have to push back a little bit on the recommendation that we remove all of those options. Specifically, Toni brought up a point that I think is included in the memo that there is no concern about the stock status of menhaden, but really ever since, you know two years ago it's not about only the stock status of menhaden.

We're operating under ecological reference points, and our management framework with menhaden

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now takes into account its role in rebuilding the ecosystem, in particular our focal species in the ERP model striped bass, which we know is in a rebuilding timeframe right now. To say that we have a TAC that is based on a level that is supposed to support the rebuilding of striped bass.

To say that exceeding that TAC is not an issue, or that there should be no Board action when that occurs is something that I personally can't get behind. I think it's important that we are accountable to that TAC. I mean just earlier today the landings are preliminary obviously, and we'll hear them again in August.

But our 2021 landings are over the TAC. We heard that as we moved on. Granted we have an agenda to get through today, but there was no immediate jump to action going on there. I believe some of the options that are included in this section that account for overages or require a payback. I know the PDT recommended that they are too complicated.

But to be completely honest, to me it sounds like some of the accounting that would be required would be similar or exactly the same as the moving average option that we just approved or discussed earlier this afternoon. I think if we achieve our goals of moving landings into the state allocations, as we're trying to do with other parts of this document, then this shouldn't be an issue. But that doesn't mean that we shouldn't be accountable to the TAC, and we shouldn't keep our eye on the prize, with respect to menhaden's role in the ecosystem.

CHAIR BEAL: Ms. Fegley.

MS. FEGLEY: My question is on these accountability measures. They often default to 2B, which is what the response is. My question is, if there would be a way under Sub-Option 1 to bolster what is happening. Right now, if you default to Sub-Option 1, it says the IC/SSF management trigger is tripped. The Board must take action to reduce those landings. I'm just wondering if we were to have a more general response to a TAC overage. But if we

could bolster the language in Sub-Option 1 that would prescribe what the Board will do.

For example, if we have a TAC overage then we would have to consider what gears are allowed in the provision. Consider trip limits permitted under the provision. Consider shortened seasons. I just wonder if that would help alleviate some of the concerns, and that it would really give the Board the latitude to move right away with an action if we see an overage.

MS. KERNS: Lynn, the PDT can add some additional provisions, but moving right away would be difficult, because you wouldn't have that final overage until the fall. I don't believe that would be fast enough for a change in the trip limit overall for all the states administratively. I guess that would be a question to the states.

Just how fast could you move come February? Because I don't think we would be able to give you final overages until February, depending on the timing of the annual meeting. Then would you be able to make a move in your regulations for that current year in February?

CHAIR BEAL: Lynn, are you all set? Great, thanks. The next hand I have up online is Chris Wright. Go ahead, Chris.

MR. WRIGHT: I guess we have at NOAA Fisheries some concerns about eliminating accountability measures of any kind, because we have TACs for a reason. We don't want to go over its total. I think there is an optics issue here too, because we just heard public comment about concerns about having forage fish available for striped bass and what not. But we need to at least have accountability and count things.

This just leaves a bad taste in my mouth, in regards to not having accountability for this fishery. If it's complicated then you need to consider the sector and allocate to that sector. We do it for other fisheries. But I think we have a little bit of concern about eliminating these options from at least public comment at this point. They should at least go out

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to the public and the public should have their input on this, so that we can make better decisions.

CHAIR BEAL: Great, thanks, Chris, Toni, do you have a comment?

MS. KERNS: I just want to clarify. It's not that the PDT doesn't think that there should be accountability, it's that the PDT is not concerned that we would be exceeding the TAC, if the Board takes action through other provisions of the plan, thus having a more simplified accountability.

You know right now we have almost unrestricted incidental catch/small scale fisheries landings. This was the first year we exceeded the TAC, and we exceeded it by 0.36 percent. We've been doing this for a lot of years where the TAC has not been exceeded. The PDT is thinking about the ecological reference points when they say they're not concerned at this time, because of what has happened, and because of the potential provisions the Board has the opportunity to put in place through the other sections of this plan. I just want to make sure that it's clear that they are not saying that they don't think accountability is needed. It's that they think it can be achieved in a more effective and straightforward manner in other sections of the plan.

CHAIR BEAL: Mr. LaFrance, go ahead please.

MR. LaFRANCE: I just want to associate my remarks with Allison Colden. I do believe that there are for a lot of reasons that she described, are valuable reasons to keep this catch accounting provisions in. However, listening to what some of the debate has been, I wonder whether some of the options could maybe be restricted.

I understand that perhaps the more complicated of the two options that are up there, Option 2 and Option 3, we are actually looking at a percentage of the annual TAC. It seems to me that Option 4 up there, which I think is now in this one, is actually Sub-Option 3. It does make sense and may simplify the analysis for the public.

But to actually put in there for public comment the notion that this is an issue related to both how much is actually captured and caught under the incidental catch, but also to sort of indicate how that relates to the ecological reference points, I think is a very valuable and transparent for our constituents to understand what's happening here. I understand the desire to try and reduce some of the options, but I do think we need to keep something in, and at a minimum I would like to see up on that screen the status quo option in Option 4 maintained.

CHAIR BEAL: Ms. Ware, go ahead, Megan.

MS. WARE: I'm prepared to make a motion if that is helpful at this time, to kind of get the discussion going.

CHAIR BEAL: Please do.

MS. WARE: I'm not prepared to take out this full section at this time. I think the question of what happens if we exceed the TAC is a fair management question to be asking. But like Rob just mentioned, I am happy to pare down some of these options, because I do get that this section is complicated. I sent a motion to staff to remove Options 2 and 3 on the screen here.

I apologize, I referenced them as Sub-Option 1 and Sub-Option 2, since that is how it's written in the document. When we have that up, I'll read it into the record. **Move to remove Sub-Option 1, catch cap equal to 1 percent of the annual TAC and 10 percent exceedance management trigger, and Sub-Option 2, 1 percent set-aside of the annual TAC exceedance management trigger from Section 2A IC/SSF management triggers**, and if I get a second, I can speak to why I think these options are less optimal than the fourth one.

CHAIR BEAL: Great, is there a second? Rob LaFrance seconds the motion. Go ahead, Megan.

MS. WARE: Again, I'm not prepared to remove the whole accounting section. But I have some concerns with these specific issues, and that's why

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I'm willing to take them out. Specifically on the 1 percent set aside of the TAC, I actually agree with the PDT that this could result in some latency, and I think that's counter to what we're trying to do in this document. I'm not a big fan of that option. For both of these, they were looking at 1 percent of the TAC. I think a 1 percent, in my opinion, is somewhat arbitrary, and I think if we exceed 1 percent that doesn't tell me a lot. We could exceed 1 percent and still be well below the TAC, and I would not have biological or management concerns.

But Option 4, which was previously on the screen is focused on exceeding the TAC, and I think that is a better assessment of how our management and our biological reference points are performing. I think one other thing I'll say about the 1 percent set asides or catch caps. I think the idea is that we would kind of set these and evaluate them at the next FMP review, so there wouldn't be active accounting against the 1 percent in season.

I think the reality of the situation is states are going to want to have a sense of what other states may be landing, if they're participating in the small-scale incidental catch provision. I know how complicated it is to administer the 1 percent set aside for the episodic between three states, so I get nervous about the level of communication that may be needed under these options for 15 jurisdictions potentially harvesting here.

CHAIR BEAL: Rob, do you have anything else to add in support of the motion?

MR. LaFRANCE: I can't beat what Megan just said, so thank you.

CHAIR BEAL: All set. Just so everyone knows, for consistency of verbiage here, the slide that Toni had up with the big yellow circle. This is the equivalent of taking out Option 2 and 3 in the slide that Toni had up, so it is very similar to what I think Rob's comments from earlier in the meeting. With that any other comments on this motion, either in favor or in opposition? Joe Cimino.

MR. CIMINO: I have a question before we vote. I guess to Toni. Moving past this Addendum, if we felt like things weren't working or needed to be adjusted, would it take another addendum to get back into the process of fixing this?

MS. KERNS: At this time, yes, unless you want to put a provision into the plan that you could use Board action to adjust some aspect of the incidental catch/small scale fishery. But it would be good to be specific about what aspects you might want to adjust, so that the public understands what provisions could be taken through Board action.

MR. CIMINO: Follow up, Mr. Chair, sorry. If I'm not mistaken, we did something like that when we changed small scale and incidental, right that there is sort of a clause that the Board can take action. Sorry to put you on the spot there, but pretty sure through the Working Group and PDT that we noticed that.

CHAIR BEAL: All right, I think Toni is looking at that but Megan is recalling her previous days at the Commission, and she's saying yes. Megan, can you comment on that?

MS. WARE: Yes, I can look at the exact language, sure, but I think it says something to the effect of if there is a significant increase in that provision the Board can take action to adjust it. But I think that action would still be an addendum, it's not a Board vote.

MS. KERNS: I did look that language up today, and it is through adaptive management, but it is adaptive management in the form of an addendum or amendment. If it's something that the Board is interested in having the PDT explore, then you know the PDT can do that. But again, I would just think it's important that we specify which aspects would be done, and if it were to be changed when it would be changed. I assume it would be during specification process, but that would be to the Board's pleasure.

CHAIR BEAL: You know just editorializing, there is a lot of latitude the Board can set for themselves

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through actions that can be done through the specification setting process on an annual basis. But they have to be spelled out really well. There is kind of this threshold, you know it when you see it kind of thing, where if you put too many things in there, we are short circuiting potentially a public comment process, and that sort of thing.

It's a balance in there on what the Board can and can't do, but there is a real need to do things quickly at times, but there is also the need to get public comment when we have the ability and timing to do that. With that I think I see Allison Colden's hand is up, and then we'll go back to the table.

DR. COLDEN: Yes, I just wanted to follow up on Joe's comments and to yours as well, Bob, that the two provisions or the two things that can be changed per Amendment 3 are the trip limits and the gear types included. If we did want to add that in, I would be supportive of that as to things that could be addressed through the spec setting process.

CHAIR BEAL: Great, thanks. Any other?

MS. KERNS: Allison, that would be just for the incidental catch/small scale fishery, just to be very, very clear.

DR. COLDEN: Yes.

CHAIR BEAL: Ms. Meserve.

MS. MESERVE: I do support this motion for the reasons that Megan laid out so well. I do have a question about the remaining sub-option though, which on the previous screen was presented as Option 4, which is if the landings exceed the annual TAC, then there is going to be a management trigger response. Option 4 here has it as the payback provision. However, there is actually two sub-options in the document. One is that the Board must take action to reduce the landings, and the other is that there is a payback provision.

As part of this motion, I kind of want to address what's left, Option 4, and that I don't support the payback provision as one of those sub-options under the next tier of options. I find that a payback provision that doesn't address the root cause of the overage is going to be problematic year over year, potentially. Maybe after we dispense with this motion, I would want to make another motion to eliminate Sub-option 2 from 2B, if I'm interpreting what's left after this option is voted on correctly.

CHAIR BEAL: All set. Other comments on the motion. All right seeing none; one minute for a caucus. I'm going to give this a shot. **Any objections to this motion? All right, seeing none; any abstentions from voting on the motion? Seeing none; this motion carries by consent,** and Nichola, do you want to go back to your thought from a moment ago?

MS. MESERVE: Yes, thank you. With the passage of this option what we're left with is that if the landings exceed the TAC, the management trigger is prompted and there are two options in the document. Again, I don't think the overage payback, Sub-Option 2 addresses the root cause of those landings exceeding the TAC, **and so I would make a motion to remove Sub-Option 2, thank you, staff, pound-for-pound payback from Section 2B, the incidental catch and small-scale fishery management trigger response.**

CHAIR BEAL: Thank you, is there a second to Ms. Meserve's motion? Cheri Patterson, thank you. Any additional comment from what you've already made? All right. Cheri, no. All right, seeing no additional comments from the maker and seconder, are there other comments around the table? I've got Allison Colden online followed by Chris Wright, so Allison, go ahead please.

DR. COLDEN: Maybe this question is for Toni. These two seem like relatively distinct sub-options that don't necessarily have to be mutually exclusive to get to Nichola's concern. I'm just wondering, does the selection of the first sub-option under this option necessarily preclude that overage payback? Could we at the conclusion of this Addendum

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process, keep both of these as our management framework moving forward?

MS. KERNS: Meaning?

DR. COLDEN: Instead of choosing between the two, you could do both. You address the root of the issue as well as seeing the year that it happens requiring the overage payback.

MS. KERNS: The Board could, if that was the pleasure of the Board. But if that is the intention of the Board today, then it's best to make that the intention of the Board and make it clear in the document.

CHAIR BEAL: Allison, I think if this motion carries and you take out the pound-for-pound payback concept, then it's no longer available to the Board. The Board fully considered it and removed it. If you wanted that concept to be left in, in combination with Sub-Option 1, I think the Board should tackle that question now, and include this sort of combination of the two sub-options.

DR. COLDEN: Okay. Well, I'm prepared to often a motion to substitute to that regard, if that is the appropriate action.

CHAIR BEAL: Yes. Let me go to Chris Wright, and then I'll come back to you, Allison for that motion if that's okay. Chris Wright, go ahead please.

MR. WRIGHT: I had a similar concern, and if what I think she's going to do is propose to leave that in there in some way, then I would support that, because I think the public should have some option like this that they can comment on.

CHAIR BEAL: All right, Allison, do you have your motion ready to go?

**DR. COLDEN: Kind of winging it here. I would move to substitute to add Sub-Option 3 if the IC/SSF management trigger is tripped the Board must take action to reduce IC/SSF landings and the overage will be deducted on a pound for pound basis in the subsequent year.**

CHAIR BEAL: All right, Allison, we're perfecting that here. One thing is that the pound for pound basis is really a one-year lag, so it wouldn't be the subsequent year it would be sort of year plus two, just because the data takes a little while to get caught up.

DR. COLDEN: Sure, I was just reading that directly off of the language that is currently in the Addendum.

CHAIR BEAL: Yes, that's a verification we needed regardless. Allison, can you see the motion on your screen? Are you comfortable with that wording?

DR. COLDEN: Yes, it looks good to me, thank you.

CHAIR BEAL: Great, is there a second to Ms. Colden's motion? Rob LaFrance, thank you. All right, Allison. You made some comment, rationale for why you want to make that motion. Do you have anything else to add to that?

DR. COLDEN: No, I think I covered it, thank you.

MR. LaFRANCE: I just want to add that I think this is a tough issue for everybody to deal with, and I think both sides have some value. I think this motion does allow us a little bit more time to think through this question, and clearly when we come back to address this at our next meeting. We can decide which of these two options come in. I hear what Ms. Meserve is saying, I think there is some value in what she's saying. But I also think that this option should be looked at, and we should be thinking about what we're going to do in the event we're over here. That's why I'm supporting it.

CHAIR BEAL: Nichola, do you have a comment?

MS. MESERVE: I think one of the additional problems with the pound for pound payback, now that we have scaled back the options, is that there is no cap or set-aside for the incidental catch/small scale fishery landings. If there is a pound for pound payback, that is going to affect all of the states, as opposed to just those that contributed to that overage. That would be another reason not to

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move forward with a pound for pound payback, and why I won't support the substitute.

CHAIR BEAL: Any other comments, we can mix the comments together on Main Motion or the Motion to Substitute. Ms. Fegley.

MS. FEGLEY: Yes, I think like Nichola said, the issue is that we don't really know the way that this is now crafted, where that payback is going to, it doesn't really address that root problem. It doesn't tell us where the pound for pound payback is going to go. I still think what we need to do. I don't know that I can support this motion, which we may be divided as a state and that's okay.

But I think we need to just figure out a way to be more specific on the original motion as to what the Board is going to do if there is an overage. I don't think it's satisfactory to the public to say, hey we're over and we're going to all see that we're over and we're going to nod and move on. I think we need to be able to say, these are the things that we're going to proceed to do. If the public needs reassurance, we're going to actually do something. There is a happy median here somewhere.

CHAIR BEAL: Sorry for the little sidebar between Toni and I. I'll go to Eric Reid; he's going to get us out of this mess.

MR. ERIC REID: No, I'm not going to get you out of anything, Bob. I appreciate the thought though. I'm reading the motion to substitute. My question is about the motion to substitute. It says if the IC/SSF is tripped. What are we tripping? Maybe we are tripping, maybe that's how I'm going to get us out of it. But I don't see the mechanism there, to me that's confusing, and I can't support it because I just don't see what it even actually is going to do. Maybe somebody could clarify that for me.

CHAIR BEAL: I think the intention was if the TAC was exceeded, but I'll let Allison or Rob comment on that, since they made the motion. Rob, go ahead please.

MR. LaFRANCE: I believe it's covered in Sub-Option 3, where it basically says, if you read it. It says exceeded after IC landings to total landings that occurred in state quotas. You could say the trigger is tripped. That's the trigger I believe that we're referring to.

CHAIR BEAL: We probably need to add that wording, if the trigger is tripped, if that is okay with everyone to make it more clear what we're saying here. With that Joe Cimino, you have your hand up.

MR. CIMINO: I want to speak against this, because I think it creates a dangerous and negative feedback loop, because the corrective action we're taking is to get back to a TAC that's a safe harvest level. But with the penalty we have a moving target that is now lower, and our management action isn't for necessarily that, but to get back to the TAC. If year after year we keep taking these penalties, granted with a two-year delay, I think this has some potential unintended consequences that make me nervous.

CHAIR BEAL: What's the will of the Board here? We've got a substitute motion, a main motion, and then there are a number of suggestions. Joe made some earlier about potentially removing gears and doing some other things that sort of get at this idea of the root problem of why there is an overage in the IC/SSF and those sorts of thing.

I guess the question before the Board is, is everyone comfortable with voting on these motions now, or do we want to sort of pause on these and provide some feedback and guidance to the PDT, since we do have the option of tackling this again in August, and ask them to sort of review his conversation and comment on exactly how some of these things would work, and sort of hybridize some of these ideas that are around the table.

Because I think there are a lot of good ideas, but trying to craft them on the fly when there is some uncertainty. I think that may be what is hanging us up. I don't want to slow down the Board. If the Board is ready to vote let's vote. Making decisions

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is always better than not, but if you guys don't think you have enough information to make a decision.

I suggest we may want to consider other paths forward. If you're not ready to vote, we'll just need a motion to postpone these two options. With that, what do folks want to do? Are folks ready to vote, or do you want to do something different? Any hands or any thoughts? Jim Gilmore.

MR. GILMORE: If we sent it back to the PDT what does that do to the schedule, Bob, in terms of finalizing this?

CHAIR BEAL: I don't think it should do anything to the schedule, necessarily. You know the PDT has time between now and the August meeting to work on this, and we could bring it back in August, and theoretically bring it out for public hearing in August, final approval in October, and implement in 2023.

Sending it back to the PDT shouldn't do anything, but it's really up to the group. If you want to vote on just the motion to substitute. All these options are in play, but I think there is some confusion or some reluctance to go too far too fast right now, without full suite of information from the PDT. Mr. Gilmore.

MR. GILMORE: I'm in favor of that option, Bob, to send it back, just because after this motion and we get done with this, then I'm going to have to go back to start modifying the gear, because that really wasn't considered. I think this discussion may help the PDT to refine this a lot more, because I was of the opinion.

I was getting to the point my thought was, maybe we should take the whole thing out, because it was just getting very confusing. We're having trouble understanding it, and you know when we go to hearings, the public is going to go, could you explain it to us, and we're not going to be able to. I think your suggestion is a good one and I support it.

CHAIR BEAL: Toni's got a comment sort of that may help clarify the direction to the PDT, or at least get

an understanding where the Board wants the PDT to go.

MS. KERNS: I think it would be helpful if the Board voted on at least the substitute motion, and then maybe we could have a conversation about Lynn's comment about making, well even if you voted on Nichola's as well, about making the actions more toothy, as I think Lynn said. What types of management responses the Board would want the PDT to explore in order to do that?

Then give us an idea of the timeline of when you would want to take those actions, and then the PDT could bring something back? But if we don't vote on these things then the PDT has a lot of range, and that could leave us in a danger zone of not approving the document in August, which that would put us in trouble for timelines. Not to counter what Bob just said.

CHAIR BEAL: Why would you think that? Any other comments or thoughts on a path forward? Ms. Ware.

MS. WARE: I'm comfortable voting on these, because I think the PDT needs some guidance, and I don't want to jeopardize not being able to approve this document by the end of the year. But I'm happy to have more discussion on Sub-Option 1, which I don't think either of these motions are about, as well as Jim's comment about the gears in the other section. I don't think either of these motions are specific to that. I'm comfortable voting on these, and then maybe moving to discussion on those two topics.

CHAIR BEAL: Well, I don't see anyone jumping with their hands up, or anyone online with hands up. I guess in order to not vote on these today we need a motion to postpone until the August meeting. But we can go ahead and vote. Seeing no hands; let's vote. We'll give a two-minute caucus, because this is a little complex, on the motion to substitute.

Is everyone ready to vote? Does anyone need more caucus time? Are they okay? Steve and Megan. All right, good. Seeing no need for an additional

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caucus time, I think we'll go ahead and actually vote on this one. I'm not sure I can get a consensus out of the group. With that same voting procedure, hands up until Toni calls your state, please. All those in favor of the motion please raise your hand, motion to substitute, I'm sorry.

MS. KERNS: I have Connecticut and NOAA Fisheries.

CHAIR BEAL: All right, those in opposition like sign please.

MS. KERNS: I'm going to start on this side of the room. Rhode Island, Massachusetts, New York, New Jersey, Pennsylvania, Florida, Georgia, South Carolina, North Carolina, Virginia, Potomac River Fisheries Commission, Delaware, Maine and New Hampshire.

**CHAIR BEAL: Any null votes n-u-l-l, 1 null vote from Maryland. Any abstentions? Seeing none; the motion fails, 2 votes in favor, 14 votes in opposition, and 1 null vote.**

That brings us to the main motion. Potentially considering removing Sub-Option 2 from Section 2B. Are you ready to vote on that one as well? Do we need to caucus again? All right, one-minute caucus. Mr. Haymans, yes, sir.

MR. DOUG HAYMANS: Mr. Chair, would a motion to table until the next meeting be appropriate for this one, so that the IPT could inform this one?

MS. KERNS: Doug asked if motion to table is appropriate here on not.

CHAIR BEAL: Doug, obviously it's the pleasure of the Board to decide if that would be helpful or not. But if this is tabled, I think some more guidance to the PDT on what exactly they are being asked to work on will be really helpful, regardless of what happens to this motion. If someone wants to table this until the next meeting that's fine. But even with that we need to give the PDT something to work on. Is that helpful, Doug?

MR. HAYMANS: Yes, I was actually asking, because I thought your previous conversation was that you felt like the PDT needed to provide us a little more before we made a decision here. I was sort of asking you that direct question.

CHAIR BEAL: Doug, trying to answer your direct question, which is always good to have direct questions. You know if this motion were to pass, pound for pound payback would be taken out of the document, and the PDT couldn't work on that any more that's out, not to come back in August.

It's really a decision of the Board. Does the Board want more work on some options that may consider pound for pound payback, or do you want to vote this up or down, and pound for pound payback is in or out? But if you want some more clarity on what pound for pound payback means, and when you payback and those sorts of thing, the PDT would need some more time to work. With that, Lynn, go ahead please.

MS. FEGLEY: You know I just want to be clear. I'm not particularly opposed to the concept of a pound for pound payback, but the way this is written right now is, you know the Sub-Option 2 as it is written states that the pound for pound payback, the overage would be deducted from either the set-aside or the overall TAC. We don't have a set-aside anymore, because we removed those options.

I think what we need to ask, is in the event that the incidental catch/small scale fishery causes this quota to go over, what is the most equitable mechanism for a pound for pound payback? Because if it's coming off the overall TAC, then the consequence is you're going to be penalizing states who didn't have anything to do with it. I think we just need to be really clear, and ask the PDT to think through what that pound for pound payback might look like.

CHAIR BEAL: Thanks, Lynn, that is getting towards good guidance for the PDT. Hold that thought and we'll see where we end up here. Allison has her hand up, and then we'll see. It's a little awkward we were kind of mid-caucus apparently, but we're

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going to make a comment. But Allison, go ahead please.

DR. COLDEN: Sorry, appreciate another bite at this. I think with respect to the option at it currently exists in the document. You know I think the PDT has made their opinion on this specific option very clear twice. If we're going to send it back to the PDT, I think we need to provide some additional options or additional guidance. I think that's what you've been saying, Bob, and Lynn, maybe you brought up a good point, like we need to provide some additional guidance on alternate tweaks to this that we want them to explore, in terms of feasibility. I just want to go back to a previous comment that I made with respect to how reminiscent this option as written is to our moving average option earlier in the document.

In that option that was put forward by the PDT, you know they had developed a mechanism by which the overage would be proportionally attributed to the states once the TAC is exceeded. Maybe some guidance to the PDT as how they could apply that framework in this regard, which would hopefully alleviate some of the equity concerns that Lynn and others may have, but I'm hoping if this goes back to the PDT, they can explore some ways to make this a workable solution.

CHAIR BEAL: I'll look around the table. If anyone wants to make a motion to postpone or substitute or do anything else, let's do that now, and seeing no hands we'll go back to the caucus that we're sort of in the middle of, and we'll finish that caucus, and we'll go ahead and vote on this. Are there any hands to make a motion to postpone or do anything else?

I don't see any hands, so let's finish the caucus and go ahead and vote on the main motion. All right, is Maryland all set, Lynn? Maryland is all set. It doesn't look like we need any time to extend the caucus, so let's go ahead and vote. We'll do a vote, because again, I don't think those would necessarily be a consensus. Those in favor of the motion to remove Sub-Option 2 from Section 2B, please raise your hand and keep them up.

MS. KERNS: We'll start on the right side this time. New Hampshire, Maine, Delaware, Virginia, Potomac River Fisheries Commission, North Carolina, New Jersey, New York, Massachusetts and Rhode Island.

CHAIR BEAL: Those in opposition like sign.

MS. KERNS: Maryland, South Carolina, Georgia, Florida, Pennsylvania and NOAA Fisheries.

**CHAIR BEAL: Any null votes? One null vote from Connecticut. Any abstentions? Shouldn't be any, I think we're out of votes. All right, the motion carries 10 votes in favor, 6 in opposition and 1 null vote.**

MS. KERNS: What I heard from the Board, in terms of actions that the Board can take to address the root of the problem is, there is some interest in the Board being able to take action. I am assuming through specifications, but in your discussion please correct me if there is another time that you would want to do this, to look at gear types as well as trip limits. If there are other areas that you would want to consider for changes through Board action during specification, please let me know, so the PDT can explore that.

CHAIR BEAL: Ms. Ware.

MS. WARE: I think for Sub-Option 1, I think that is what Lynn was talking about, in terms of providing more guidance. I think maybe an option is to just reference whatever section it is in the document that has the different tools like the trip limits and the gear types, and say something to the effect of, the Board could consider these tools in Section (fill in the blank) as a potential management response.

I don't want to be too prescriptive, but I'm happy to point to some tools that the Board could consider. In terms of whether it is through Board action, like a specification process or an addendum. I guess I'm a little concerned about the Board action, given how important those incidental small-scale landings have been for some states, and we'll see what happens after this action.

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But I can see it being tough for a state to not have a public hearing process on something that maybe is critical to their fishery. I'll put that out there for a concern, and maybe that is something that the PDT can talk about, is the best way to handle public comment on something that could be quite critical to a state.

CHAIR BEAL: Any other thoughts or comments on where to go with this and PDT guidance? Oh, Joe Cimino, sorry.

MR. CIMINIO: No, that was a half-hearted hand. I don't blame you. Just to Megan's point. This is a similar discussion that is going to be had with striped bass. I think a lot of the states have to go back and do have a public hearing process. You know we have Councils or Commissions at the state level that these types of management changes come up again. I don't know if the PDT could do that type of research, how many states would need to do that anyway. But I think a lot of time that process happens just at the state level.

MS. KERNS: I guess, Megan, I know you said you didn't want to limit the Board, but in Board action it tends to be helpful if the public knows what we're talking about. The only two opportunities to change things are the trip limits and the gear types in the document right now.

If those are the only two things that the Board is interested in, then the PDT can just focus on those. But I can ask the PDT if they have any other ideas, and if we do have any, we'll bring them back to the Board for their consideration, unless Lynn, you have an additional end, which is fine for the PDT to think about.

CHAIR BEAL: Lynn, go ahead please.

MS. FEGLEY: I'm back to the payback under specification if there is an opportunity for the PDT to think about. I mean did we just remove all options to discuss that? We did.

CHAIR BEAL: Other thoughts, Mr. Gilmore.

MR. GILMORE: Yes, and just in terms, back to the gear question. If the PDT can look at just, we're using traditional nameplates for things, small-scale fisheries, you know the different categories we used, and they may have to be a little creative. We may have some new categories that are more inclusive. Instead of calling a non-directed fishery, maybe there is a non-directed fishery plus or something, I don't know. Just so we can get around that.

CHAIR BEAL: Jim, that goes back to your beach seine comment earlier. Ms. Meserve.

MS. KERNS: Bob, before we go to Nichola, I'm sorry. Just so it's very clear to the PDT. For these non-directed gears. Jim, I understand that you're looking for the beach seine, but I guess it would be good for the PDT to understand what category of gears are you trying to focus on in these non-directed gear types?

Because if we add the beach seine, I'm assuming the PDT took those as a directed gear type. If the Board is interested in us changing that category, the PDT needs to know what that change is, so that they can think about what other gears need to be included in there or not. I just don't want to focus just on that one gear type if we should be considering others.

CHAIR BEAL: Yes, Jim, follow up.

MR. GILMORE: Yes, that is kind of the complication, because we were talking about, it's called a small-scale fishery, and that's what that beach seine is, but now we're calling it non-directed gear. Then we throw in purse seines, which are massive gear, and a beach seine is being kind of synonymous with a purse seine and it's really more synonymous with a smaller gear. Essentially, I don't know what the answer is. It's complicated. Again, using the terminology we use we've gotten into this problem a couple of times.

MS. KERNS: Jim, if I understand the document correctly, and Shanna will correct me if I'm wrong in the back of the room, as a PDT member. But your

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beach seines would be allowed under Option 2 of the document. There is an option that would go out for public comment that will allow for those beach seines.

It's only in the non-directed gear type that the beach seines would not be allowed. I don't know if that covers you totally, or if you want your beach seines to be covered under that non-directed gear type as well. Then I think we should change the category names then, perhaps.

MR. GILMORE: I would be concerned, because the motion I was going to put up was that it would be non-directed fishery and beach seines, because that option staying in there eliminates my fishery. If that stays in and we get back here and someone suggested, well, we're going to have a really longer meeting, because we will fight tooth and nail for it. I'm trying to get a simple way to fix it, so it doesn't get to that point.

CHAIR BEAL: Ritchie White, you had your hand up, did you take it down intentionally?

MR. G. RITCHIE WHITE: Yes, I did. That last discussion answered my question, thanks.

CHAIR BEAL: I have Megan and then Lynn, please.

MS. WARE: Just a food for thought, Jim, on your comments there. I think, and Toni can correct me. I think your idea of non-directed gears plus beach seines, I'll call it, would already be in the range of options that is in this document. I think at final action you could make a motion for that, because that is within the range of options. I don't know if that helps or not, but Toni can correct me if I'm wrong about that.

MS. KERNS: If it is the pleasure of the Board at the meeting, it is within the range of the things that we're taking out, so if at the meeting the Board agrees that that is within the range, then the Board can take action on that.

CHAIR BEAL: Lynn, please go ahead.

MS. FEGLEY: I admit, I might have passed out. I blacked out for a minute, but I was really hoping to make a motion back on the directed gear, the timing of the IC and the SSF provisions. We seem to have just gotten through that to accountability, and I hope I didn't miss my chance, but I had a motion to remove an option under there, if I may.

CHAIR BEAL: I don't think you passed out, Lynn, you're still here. We're doing good. We're going to bring that slide back up, and then just so everyone can get a refresher on what that issue is. Is this the one, Lynn? Go ahead.

MS. FEGLEY: I think it's the next one. No, okay go back one. I'm back, I'm back in the timing. We're still in catch accounting. I'm back in timing. There it is, we got distracted by the gear types, I think. If I may. **I did have a motion to remove Option 4, which is the full closure when the allocation is met, and having no IC/SSF provision at all**, and if I get a second, I would be happy to speak to that.

CHAIR BEAL: Great, thanks Lynn, is there a second to that motion? Mr. Cimino, thank you. Back to you, Lynn.

MS. FEGLEY: Again, I appreciate the forbearance of the Board in going back here. But I just for one, I think that this provision, although it may need some adjustment here and there. I think it's so important to many of us around the table, in terms of how we go forward in negotiating this allocation. I would hate to see it go away.

I also just want to, because I'm a broken record, you know this is really essential for us to take, because we don't have the mobile gears, we don't allow any gears to move, so if we don't have this at all and we have to close our fisheries, we're just going to have a lot of dead discards. For that reason, it's very important to us.

CHAIR BEAL: Another reminder, Lynn, some people are saying they couldn't hear you well, so just next time get close to the microphone please. Joe, do you have any comments as the seconder?

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

Draft Proceedings of the Atlantic Menhaden Management Board Meeting  
May 2022

MR. CIMINO: Yes, I mean I think it's an important provision for many of the states, and we're talking about a potential option where there is a three-year moving average that decides allocation based on where these fish are moving. I think this provision is going to be more important than ever if that comes into play.

CHAIR BEAL: Are there other thoughts or comments on this motion? Seeing none; do we need a caucus? **I don't see any hands that look like they need to caucus. With that, is there any opposition to the motion to remove Option 4 under Section 3.3.1? Seeing no opposition are there any abstentions? All right, the motion carries by consent.** Thank you, Lynn for bringing that back and not letting us forget that one.

MS. KERNS: Coming back now, Maya to Slide 30. The only other one the PDT had recommended and you know, pleasure of the Board is when you can declare into the episodic event set-aside, whether you have to have achieved 100 percent of your quota, or if you can come in at 95 percent of your state's quota.

The PDT recommended removal based on sort of a fairness and equity when 5 percent of one state quota is left, may be very different than 5 percent of another state, and timing and availability of when fish are available to different states can be quite different.

CHAIR BEAL: Great, any thoughts on following the PDT recommendation to remove Section 3.3.5 about when the episodic event can be harvested? Eric Reid.

**MR. REID: I would move to remove Section 3.3.5: Allow access to EESA at less than 100 percent of the state's allocation from the document.**

CHAIR BEAL: Is there a second to the motion from Mr. Reid. Mr. Gates, thank you. Any follow up Eric, or new rationale?

MR. REID: I think the PDTs rationale is fine with me, no need to add to that, thank you.

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

CHAIR BEAL: Matt, you're all set? All right, great. Any need for a caucus or anything else on this motion? All right, seeing none; let's try this as well. **Is there any opposition to the motion that is on the board? Seeing none; any abstentions from commenting on the motion on the board. Seeing none, this motion carries by consent.** Thank you.

MS. KERNS: I just want to say thank you to the PDT members for really helping myself and James out on this. I think I had all of their names listed at the end. Maya had it up before, but thank you to those states that have given us some really wonderful folks. They have done a lot of hard work on this document, in particular to keep me straight, so much appreciated.

CHAIR BEAL: I think that is everything for Draft Addendum I to Amendment 3. The Plan Development Team will do some more work between this meeting and the August meeting. We'll bring the document back, and the Board can consider approval for public comment at that time, and hopefully Mel Bell is able to be here and Chair that meeting that would be great.

#### ADJOURNMENT

CHAIR BEAL: Is there any additional business to come before the Atlantic Menhaden Management Board today? Seeing no hands the Board stands adjourn. Thank you all for your time.

(Whereupon the meeting adjourned at 4:00 p.m. on  
Tuesday, May 3, 2022)

**From:** Pam <[jetmember@gmail.com](mailto:jetmember@gmail.com)>  
**Sent:** Thursday, July 7, 2022 12:13 PM  
**To:** info <[info@asmfc.org](mailto:info@asmfc.org)>  
**Subject:** [External] Menhaden Fishing

Something has to be done to reduce the amount of menhaden being taken from the Chesapeake Bay....

We live in Vaucluse Shores overlooking the bay, when the Ospreys return in the Spring we see 5 to 8 of them fishing everyday all day, this year has been the worst, the Omega boats have fished in our bay every day for over a week, even spilling one net that caused dead fish to wash ashore! We now only see one Osprey with small fish, and hardly any pelicans....

This is a disgrace and the company is getting away with it, probably because they are contributing and constantly lobbying Senator's.

I want to know why there is no independent oversight on this Company. Why they are allowed to fish in one area for over a week, emptying the area of fish....why is there no research conducted on the effects on wildlife and other fish that depend on the menhaden...

Something has to be done to reduce the amount of fish being taken by this Company in the Bay..

Respectfully,

Pamela Townsend

**ATLANTIC STATES MARINE FISHERIES COMMISSION**

**REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN**

**FOR ATLANTIC MENHADEN**  
***(Brevoortia tyrannus)***

**2021 FISHING YEAR**



Prepared by the Plan Review Team

Prepared July 15, 2022



*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

**REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR  
ATLANTIC MENHADEN (*Brevoortia tyrannus*) FOR THE 2021 FISHERY**

**Management Summary**

<u>Date of FMP:</u>	Original FMP: August 1981
<u>Amendments:</u>	Plan Revision: September 1992 Amendment 1: July 2001 Amendment 2: December 2012 Amendment 3: November 2017
<u>Management Unit:</u>	The range of Atlantic menhaden within U.S. waters of the Northwest Atlantic Ocean, from the estuaries eastward to the offshore boundary of the Exclusive Economic Zone (EEZ).
<u>States With Declared Interest:</u>	Maine – Florida, including Pennsylvania
<u>Additional Jurisdictions:</u>	Potomac River Fisheries Commission, National Marine Fisheries Service, United States Fish and Wildlife Service
<u>Active Boards/Committees:</u>	Atlantic Menhaden Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team, Plan Development Team, Ecological Reference Point Workgroup
<u>Stock Status:</u>	Not overfished, and overfishing is not occurring relative to the current single-species reference points (2019 Single-Species Benchmark Stock Assessment)

**I. Status of the Fishery Management Plan**

Atlantic menhaden management authority is vested in the states because the vast majority of landings come from state waters. All Atlantic coast states and jurisdictions, with the exception of the District of Columbia, have declared interest in the Atlantic menhaden management program.

The first coastwide fishery management plan (FMP) for Atlantic menhaden was passed in 1981. The FMP did not recommend or require specific management actions, but provided a suite of options should they be needed. In 1992, the plan was revised to include a suite of objectives intended to improve data collection and promote awareness of the fishery and its research needs.

[Amendment 1](#), implemented in 2001, provided specific biological, ecological and socioeconomic management objectives. Addenda I and V revised the biological reference points for menhaden and specified that stock assessments are to occur every three years. Although Amendment 1 did not implement any recreational or commercial management measures, Addenda II through IV instituted a harvest cap on the reduction fishery in Chesapeake Bay. Specifically, Addendum II implemented a harvest cap for 2006-2010 fishing seasons; before its first year of implementation, Addendum III revised the cap amount to be the average landings from 2001 to 2005 (or 109,020 mt); and Addendum IV extended the provisions of Addendum III through 2013.

[Amendment 2](#), implemented in 2012, established a 170,800 metric ton (mt) total allowable catch (TAC) for the commercial fishery beginning in 2013. This TAC represented a 20% reduction from average landings between 2009 and 2011. This Amendment also used the 2009-2011 period to allocate the TAC among jurisdictions. Additionally, the Amendment established timely reporting requirements for commercial landings and required states to be accountable for their respective quotas by paying back any overages the following year. Amendment 2 also included provisions that allowed for the transfer of quota between jurisdictions and a bycatch allowance of 6,000 pounds per day for non-directed fisheries that operate after a jurisdiction's quota has been landed. Addendum 1 to Amendment 2 allows two licensed individuals to harvest up to 12,000 pounds of menhaden bycatch when working from the same vessel using stationary multi-species gear; the intent of this provision is to accommodate cooperative fishing practices that traditionally take place in Chesapeake Bay. The Amendment also reduced the Chesapeake Bay reduction fishery harvest cap by 20% to 87,216 mt.

Amendment 2 also enabled the Board to set aside 1% of the coastwide TAC for episodic events. Episodic events are times and areas where Atlantic menhaden are available in more abundance than they normally occur. Technical Addendum I to Amendment 2 established a mechanism for New England states from Maine to Connecticut<sup>1</sup> to use the set aside, which includes a qualifying definition of episodic events, required effort controls to scale a state's fishery to the set aside amount, and a timely reporting system to monitor the set aside. Any unused set aside quota as of October 31 is redistributed to jurisdictions on November 1 based on the Amendment 2 allocation percentages.

In 2015, the TAC was increased by 10% to 187,880 mt for the 2015 and 2016 fishing years. In 2016, the Board again increased the TAC by 6.45% to 200,000 mt for the 2017 fishing year.

Atlantic menhaden are managed under [Amendment 3](#). Approved in November 2017, the Amendment maintained the management program's single-species biological reference points until the review and adoption of menhaden-specific ecological reference points (ERPs) as part of the 2019 benchmark stock assessment process. In doing so, the Board placed development of menhaden-specific ERPs as its highest priority and supports the efforts of the ERP Workgroup to reach that goal.

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<sup>1</sup> At its May 2016 meeting, the Board added New York as an eligible state to harvest under the set aside.

Amendment 3 also changed commercial quota allocations in order to strike an improved balance between gear types and jurisdictions. The Amendment allocated a baseline quota of 0.5% to each jurisdiction, and allocated the rest of the TAC based on average landings between 2009 and 2011. This measure provides fishing opportunities to states that had little quota under Amendment 2, while still recognizing historic landings in the fishery. States also have the option to relinquish all or part of its quota which is then redistributed to the other jurisdictions based on the 2009-2011 landings period. The Amendment also prohibits the rollover of unused quota; maintains the quota transfer process; maintains the bycatch provision (which was rebranded as the ‘incidental catch’ provision and applicable gear types were defined) and the episodic event set aside program for the states of Maine – New York. Finally, the Amendment reduced the Chesapeake Bay cap to 51,000 mt, recognizing the importance of the Chesapeake Bay as nursery grounds for many species by capping recent reduction landings from the Bay at current levels.

State	Allocations
Maine	0.52%
New Hampshire	0.50%
Massachusetts	1.27%
Rhode Island	0.52%
Connecticut	0.52%
New York	0.69%
New Jersey	10.87%
Pennsylvania	0.50%
Delaware	0.51%
Maryland	1.89%
PRFC	1.07%
Virginia	78.66%
North Carolina	0.96%
South Carolina	0.50%
Georgia	0.50%
Florida	0.52%
<b>Total</b>	<b>100%</b>

In addition to its Amendment 3 deliberations, the Board increased the TAC by 8% to 216,000 mt for the 2018 and 2019 fishing seasons with the expectation that setting of the TAC for subsequent years would be guided by menhaden-specific ERPs. However, the 2019 benchmark stock assessments and peer-review reports would not be available for Board review until February 2020. As a result, in August 2019, the Board maintained the 216,000 mt TAC for 2020.

In October 2019, the Commission found the Commonwealth of Virginia out of compliance with the Interstate FMP for failing to implement and enforce Section 4.3.7 of Amendment 3: Chesapeake Bay Reduction Fishery Cap (cap). Implementation of this measure is necessary to achieve the goals and objectives of Amendment 3 and maintain the Chesapeake Bay marine environment to assure the availability of the ecosystem’s resources on a long-term basis. The noncompliance finding was sent to the Secretary of Commerce who concurred with the Commission’s finding and declared a moratorium on Atlantic menhaden fisheries in Virginia waters, effective June 17, 2020 if the correct cap was not implemented. In May 2020, ASMFC withdrew the noncompliance finding as the Commonwealth promulgated regulations to implement the 51,000 mt cap. To account for the 2019 overage, the cap for the 2020 fishing year was set at 36,000 mt.

In August 2020, the Board formally approved the use of ERPs to manage Atlantic menhaden, with Atlantic striped bass as the focal species in maintaining their population. Atlantic striped bass was chosen for the ERP definitions because it was the most sensitive predator fish species to Atlantic menhaden harvest, so an ERP target and threshold sustaining striped bass would likely provide sufficient forage for other predators under current ecosystem conditions. For the development of the ERPs, all other focal species in the model (bluefish, weakfish, spiny dogfish, and Atlantic herring) were assumed to be fished at 2017 levels.

In October 2020, the Board approved a TAC for 2021 and 2022 of 194,000 mt, based on the ERPs approved in August. The new TAC represents a 10% reduction from the 2018-2022 TAC level. Based on projections, the TAC is estimated to have a 58.5% and 52.5% probability of exceeding the ERP fishing mortality target in the first and second year, respectively. The Board is currently in the process of considering Addendum I to Amendment 3, which could modify the state allocation process, as well as the Episodic Events Set Aside (EESA) and Incidental Catch and Small-Scale Fisheries Provision (IC/SSF).

## **II. Status of the Stock**

Atlantic menhaden are now managed by menhaden-specific ERPs as indicated above. The ERP target is the maximum fishing mortality rate ( $F$ ) on Atlantic menhaden that sustains Atlantic striped bass at their biomass target when striped bass are fished at their  $F$  target, a measure of the intensity with which the population is being fished, is used to evaluate whether the stock is experiencing overfishing. The ERP threshold is the maximum  $F$  on Atlantic menhaden that keeps Atlantic striped bass at their biomass threshold when striped bass are fished at their  $F$  target. Population fecundity, a measure of reproductive capacity, is used to evaluate whether the stock is overfished. According to the latest assessment results, the 2017 estimate of fecundity, was above both the ERP FEC target and threshold, indicating the stock was not overfished. The next single-species stock assessment update is underway and scheduled to be presented to the Board in August, 2022.

In February 2020, the Board accepted the results of the [Single-Species](#) and [Ecological Reference Point \(ERP\)](#) Benchmark Stock Assessments and Peer Review Reports for management use. These assessments were peer-reviewed and approved by an independent panel of scientific experts through the 69<sup>th</sup> SouthEast, Data, Assessment and Review (SEDAR) workshop. The single-species assessment acts as a traditional stock assessment using the Beaufort Assessment Model (BAM), a statistical catch-at-age model that estimates population size-at-age and recruitment. According to the model, the stock is not overfished or experiencing overfishing relative to the current single-species reference points. Population fecundity in 2017 is above the single-species threshold and  $F$  has remained below the single-species overfishing threshold (0.6) since the mid-1970s, and below the single-species overfishing target (0.22) since the mid-1990s. The model also found juvenile abundance was low in 2017, while biomass was relatively high.

The ERP assessment evaluates the health of the stock in an ecosystem context, and indicates the  $F$  reference points for menhaden should be lower to account for the species' role as a

forage fish<sup>2</sup>. The ERP assessment uses the Northwest Atlantic Coastal Shelf Model of Intermediate Complexity for Ecosystems (NWACS-MICE) to develop Atlantic menhaden ERPs. NWACS-MICE is an ecosystem model that focuses on four key predator species (striped bass, bluefish, weakfish, and spiny dogfish) and three key prey species (Atlantic menhaden, Atlantic herring, and bay anchovy). These species were chosen because diet data indicate they are top predators of Atlantic menhaden or are key alternate prey species for those predators.

The ERP assessment indicates the *F* reference points for menhaden should be lower than the single-species reference points, but it also concluded that the final ERP definitions, including the appropriate harvest level for menhaden, depend on the management objectives for the ecosystem (i.e., management objectives for both Atlantic menhaden and its predators). Accordingly, instead of proposing a specific ERP definition, the assessment recommends a combination of the BAM and the NWACS-MICE models as a tool for managers to evaluate trade-offs between menhaden harvest and predator biomass.

### **III. Status of the Fishery**

#### *Commercial*

Total commercial Atlantic menhaden landings in 2021, including directed, incidental catch, and EESA landings, are estimated at 195,092 mt (430.1 million pounds), an approximate 6% increase relative to 2020 (Table 1). The non-incidental catch fishery landings (directed landings plus landings under the EESA) total for 2021 is estimated at 189,497 mt (417.8 million pounds) and represents approximately 97% of the coastwide commercial TAC of 194,400 mt (428.6 million pounds). Landings from the incidental catch fishery are estimated at 5,596 mt (12.3 million pounds) and do not count towards the coastwide TAC.

#### *Reduction Fishery*

The 2021 harvest for reduction purposes is estimated at 136,690 mt (301.3 million pounds), a 10% increase from 2020 and 0.06% above the previous 5-year average of 136,614 mt (301.2 million pounds) (Table 3; Figure 3). Omega Protein's plant in Reedville, Virginia, is the only active Atlantic menhaden reduction factory on the Atlantic coast. In 2020, the reduction plant was shut down for 3 weeks due to the COVID-19 pandemic. Anecdotal reports indicate that in addition to the pandemic, bad weather may have also contributed to lower harvest.

#### *Bait Fishery*

The coastwide bait harvest estimate for 2021 from state compliance reports, including directed, incidental catch, and EESA landings, is 58,403 mt (128.8 million pounds). This represents a 2% decrease relative to 2020 and a 13% increase compared to the previous 5-year average (Table 3; Figure 3). New Jersey (36%), Virginia (26%), Maine (17%), and Massachusetts (8%) landed the four largest shares in 2021. For some states, landings validated by ACCSP differed to some

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<sup>2</sup> it should be noted, however, that the conservative TAC the Board has set for recent years is consistent with the ERP *F* target provided in the ERP Assessment

degree from the state compliance report values, resulting in a total coastwide bait harvest of 58,993 mt (130.1 million pounds; Table 2).

#### *Incidental Catch and Small Scale Fisheries Landings*

Incidental catch landings in 2021 are estimated at 5,596 mt (12.3 million pounds), which is a 9% decrease relative to 2020 (Table 4). Maine, Massachusetts, Rhode Island, Connecticut, New York, and New Jersey reported incidental catch landings (88% from purse seines and 8% from gill nets) in 2021 (Table 5). Maine accounted for 96% of total incidental fishery landings. The number of incidental catch trips (3,099) was lower than in 2019 (3,113) and 2020 (3,565) but higher than trips from 2016 through 2018 (Table 5).

#### *Episodic Events Set Aside Program*

The 2021 EESA quota was 1,944 mt (4.29 million pounds). Maine began harvesting under the EESA program on June 25<sup>th</sup> and continued until their EESA fishery closed on July 1<sup>st</sup>. Although, the directed fishery was able to reopen from July 2<sup>nd</sup> through 16<sup>th</sup> with the state's acquisition of 4.2 million pounds of quota through six state-to-state transfers. Massachusetts began harvesting under the EESA program on June 18<sup>th</sup> and closed the fishery on July 16<sup>th</sup>. Another six quota transfers allowed Massachusetts to continue the directed fishery from July 19<sup>th</sup> until August 10<sup>th</sup>. Rhode Island participated in the EESA program from June 8<sup>th</sup> until July 7<sup>th</sup> and closed the directed fishery on October 19<sup>th</sup>, before reopening it from October 22<sup>nd</sup> until October 25<sup>th</sup> to utilize a small amount of remaining quota. An estimated 2,213 mt (4.9 million pounds) of menhaden were landed under the EESA fishery (Table 6), which is 592,250 pounds over the set aside quota. In November and December 2021, and April 2022, a number of quota transfers were made to cover the overage (see Table 8).

#### *Chesapeake Bay Reduction Fishery Cap (cap)*

Amendment 3 implemented a 51,000 mt harvest cap for the reduction fishery in the Chesapeake Bay. Due to the cap being exceeded in 2019, the cap was reduced to 36,000 mt for 2020 to account for the overage. Reported reduction landings from Chesapeake Bay in 2020 were about 27,700 mt, under the adjusted cap by approximately 9,000 mt. As a result, the cap for 2021 is set once again at 51,000 mt. Reported reduction landings from Chesapeake Bay in 2021 were about 50,000 mt, under the cap by approximately 1,000 mt.

#### *Recreational*

Menhaden are important bait in many recreational fisheries; some recreational fishermen use cast nets to capture menhaden or snag them with hook and line for use as bait, both dead and alive. The Marine Recreational Information Program (MRIP) estimate for Atlantic menhaden harvest (A + B1) in 2021 is 3.1 million pounds (PSE of 31.1) which is a 21% increase from 2020 (2.55 million pounds). Please note due to COVID-19 pandemic disruptions to the Access Point Angler Intercept Survey and subsequent gaps in catch records, 2020 catch estimates are based in part on imputed data (i.e. proxy or replacement data from 2018 and 2019). For Menhaden in 2020, the contribution of imputed data to total harvest was 26% for harvest in number of fish and 19% for harvest in weight (pounds).

Additionally, it is important to note recreational harvest is not well captured by MRIP because there is not a known, identified direct harvest for menhaden, other than for bait. MRIP intercepts typically capture the landed fish from recreational trips as fishermen come to the dock or beach. However, since menhaden caught by recreational fishermen are often used as bait during their trip, they are typically not part of the catch that is seen by the surveyor completing the intercept.

#### **IV. Status of Research and Monitoring**

##### **Commercial fisheries monitoring**

Reduction fishery - The NMFS Southeast Fisheries Science Center Beaufort Laboratory in Beaufort, North Carolina, continues to monitor landings and collect biological samples from the Atlantic menhaden purse-seine reduction fishery. The Beaufort Laboratory processes and ages all reduction samples collected on the East Coast. In addition, the purse-seine reduction fishery continues to provide Captains Daily Fishing Reports (CDFRs) to the Beaufort Laboratory where NMFS personnel enter data into a database for storage and analysis.

Bait fishery - Per Amendment 3, states are required to implement a timely quota monitoring system to maintain menhaden harvest within the TAC and minimize the potential for quota overages. The Standard Atlantic Fisheries Information System (SAFIS) daily electronic dealer reporting system allows near real time data acquisition for federally permitted bait dealers in the Mid-Atlantic and Northeast. Landings by Virginia's purse-seine for-bait vessels (snapper rigs) in Chesapeake Bay are tabulated at season's end using CDFRs maintained on each vessel during the fishing season. A bait-fishery sampling program for size and age composition has also been conducted since 1994. The Beaufort Laboratory, and some states, age the bait samples collected. See *Section VII* for more information on quota monitoring and biological sampling requirements.

##### **Atlantic menhaden research**

The following studies relevant to menhaden assessment and management have been published within the last few years:

- Anstead, K. A., K. Drew, D. Chagaris, A. M. Schueller, J. E. McNamee, A. Buchheister, G. Nesslage, J. H. Uphoff Jr., M. J. Wilberg, A. Sharov, M. J. Dean, J. Brust, M. Celestino, S. Madsen, S. Murray, M. Appelman, J. C. Ballenger, J. Brito, E. Cosby, C. Craig, C. Flora, K. Gottschall, R. J. Latour, E. Leonard, R. Mroch, J. Newhard, D. Orner, C. Swanson, J. Tinsman, E. D. Houde, T. J. Miller, and H. Townsend. 2021. The path to an ecosystem approach for forage fish management: A case study of Atlantic menhaden. *Front. Mar. Sci.* 8: 607657.
- Chagaris D., K. Drew, A. M. Schueller, M. Cieri, J. Brito, and A. Buchheister. 2020. Ecological Reference Points for Atlantic Menhaden Established Using an Ecosystem Model of Intermediate Complexity. *Front. Mar. Sci.* 7:606417.
- Deyle, E., A. M. Schueller, H. Ye, G. M. Pao, and G. Sugihara. 2018. Ecosystem-based forecasts of recruitment in two menhaden species. *Fish and Fisheries* 19(5): 769-781.
- Drew, K., M. Cieri, A. M. Schueller, A. Buchheister, D. Chagaris, G. Nesslage, J. E. McNamee, and J. H. Uphoff. 2021. Balancing Model Complexity, Data Requirements,

and Management Objectives in Developing Ecological Reference Points for Atlantic Menhaden. *Front. Mar. Sci.* 8: 608059.

- Liljestrand, E.M., M.J. Wilberg, and A.M. Schueller. 2019. Estimation of movement and mortality of Atlantic menhaden during 1966-1969 using a Bayesian multi-state mark recapture model. *Fisheries Research* 210: 204-213.
- Liljestrand, E.M., M. J. Wilberg, and A. M. Schueller. 2019. Multi-state dead recovery mark-recovery model performance for estimating movement and mortality rates. *Fisheries Research* 210: 214-233.
- Lucca, B. M., and J. D. Warren. 2019. Fishery-independent observations of Atlantic menhaden abundance in the coastal waters south of New York. *Fisheries Research* 218: 229-236.
- Nesslage, G. M., and M. J. Wilberg. 2019. A performance evaluation of surplus production models with time-varying intrinsic growth in dynamic ecosystems. *Canadian Journal of Fisheries and Aquatic Sciences* 76(12): 2245-2255.
- Schueller, A.M., A. Rezek, R. M. Mroch, E. Fitzpatrick, and A. Cheripka. 2021. Comparison of ages determined by using an Eberbach projector and a microscope to read scales from Atlantic menhaden (*Brevoortia tyrannus*) and Gulf menhaden (*B. patronus*). *Fishery Bulletin* 119(1): 21-32.

Theses and Dissertations of Potential Interest:

- McNamee, J. E. 2018. A multispecies statistical catch-at-age (MSSCAA) model for a Mid-Atlantic species complex. University of Rhode Island.

## **V. Implementation of FMP Compliance Requirements for 2022**

All states are required to submit annual compliance reports by April 1.

### *Quota Results*

Table 8 contains 2021 state-specific quotas and directed harvest. The final quotas for 2021 account for 1.7 million pounds of quota relinquished by Delaware and the result of 25 state-to-state transfers (Table 9), as well as transfers to the EESA. Quota transfers were generally pursued to ameliorate overages. Based on preliminary 2021 landings and quota transfers through April 2022, no jurisdiction's quota has been adjusted due to quota overage.

The Board set the TAC at 194,400 mt (428.5 million pounds) for 2021 and 2022 based on the adopted ERPs. 1% is set aside for episodic events. States may relinquish all or part of its annual quota by December 1<sup>st</sup> of the previous year. Delaware relinquished 1.2 million pounds of quota which was redistributed to the states according to procedures outlined in Amendment 3 and is reflected in the 2022 Preliminary Quota (Table 8).

### *Quota Monitoring*

The Board approved timely quota monitoring programs for each state through implementation of Amendment 3. Monitoring programs are intended to minimize the potential for quota overages. Table 7 contains a summary of each state's approved quota monitoring system.

Menhaden purse seine and bait seine vessels (or snapper rigs) are required to submit CDFRs. Maine, New York, and Virginia fulfilled this requirement in 2021. New Jersey did not require purse seine vessels to fill out the specific CDFR but did require monthly trip level reporting on state forms that include complementary data elements to the CDFR. Rhode Island purse seine vessels must call in daily reports to RI DMF and fill out daily trip level logbooks. New Hampshire also does not require the specific CDFR, but does require daily, trip-level reporting from dealers and monthly trip-level reporting from harvesters. Massachusetts requires trip level reporting for all commercial fishermen. Menhaden purse seine fisheries do not currently operate in all other jurisdictions in the management unit.

### *Biological Monitoring Requirements*

Amendment 3 maintains biological sampling requirements for non *de minimis* states as follows:

- One 10-fish sample (age and length) per 300 mt landed for bait purposes for Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Delaware; and
- One 10-fish sample (age and length) per 200 mt landed for bait purposes for Maryland, Potomac River Fisheries Commission, Virginia, and North Carolina

Table 10 provides the number of 10-fish samples required and collected for 2021. These are based on the best available 2021 total bait landings data (including directed, incidental, and EESA landings) provided to the Commission by the states. In 2021, Massachusetts, Rhode Island, and Connecticut fell short of the required samples. Massachusetts received a number of quota transfers to extend the fishery on August 5<sup>th</sup>, but staff were unable to complete the additional monitoring before the fishery closed on August 10<sup>th</sup>. Due to late reported landings, Rhode Island missed one of the required 5 10-fish sampling events but noted that over the four completed events, 55 fish were sampled from the fishery, as well as an additional 49 from the coastal trawl survey. Connecticut has faced difficulties collecting bait samples and relies primarily on the Long Island Sound Trawl Survey for sampling, which produced 103 age samples and 302 length samples over 139 tows. All other jurisdictions met the biological monitoring requirements in 2021.

The PRT continued to discuss whether a sufficient number of age and length samples are being collected from different commercial gear types as well as regions, and whether substituting samples from fishery-independent sources is appropriate for meeting the requirement. The PRT recommends this requirement be evaluated as part of the next management action or during the next benchmark stock assessment.

### *Adult CPUE Index Requirement*

Amendment 3 requires that, at a minimum, each state with a pound net fishery must collect catch and effort data elements for Atlantic menhaden as follows; total pounds landed per day, number of pound nets fished per day. These are harvester trip level ACCSP data requirements. In May of 2013, the Board approved North Carolina's request to omit this information on the basis that it did not have the current reporting structure to require a quantity of gear field by

harvesters or dealers. In recent years, NC DMF staff have worked to develop a proxy method to estimate effort but this approach likely would not work for developing an adult CPUE index.

#### *De Minimis* Status

To be eligible for *de minimis* status, a state's bait landings must be less than 1% of the total coastwide bait landings for the most recent two years. State(s) with a reduction fishery are not eligible for *de minimis* consideration. If granted *de minimis* status by the Board, states are exempt from implementing biological sampling as well as pound net catch and effort data reporting. The Board also previously approved a *de minimis* exemption for New Hampshire, South Carolina and Georgia from implementation of timely reporting. The states of Pennsylvania, South Carolina, Georgia, and Florida requested and qualify for *de minimis* status for the 2021 fishing season.

## **VI. Plan Review Team Recommendations and Notable Comments**

### Management Recommendations

- The PRT recommends that the *de minimis* requests from Pennsylvania, South Carolina, Georgia, and Florida, be approved.
- The PRT recommends that the Technical Committee be tasked with evaluating the biological sampling requirement to be readdressed in a future management document or stock assessment.

## VII. Literature Cited

Atlantic States Marine Fisheries Commission (ASMFC). 2017. Atlantic Menhaden Stock Assessment Update. Prepared by the ASMFC Atlantic Menhaden Stock Assessment Subcommittee. 180 pp.

Southeast Data, Assessment, and Review (SEDAR). 2015. SEDAR 40 – Atlantic Menhaden Stock Assessment Report. SEDAR, North Charleston SC. 643 pp.

SEDAR. 2020. SEDAR 69 – Atlantic Menhaden Benchmark Stock Assessment Report. SEDAR, North Charleston SC. 691 pp. available online at: <http://sedarweb.org/sedar-69>

SEDAR. 2020. SEDAR 69 - Atlantic Menhaden Ecological Reference Points Stock Assessment Report. SEDAR, North Charleston SC. 560 pp. available online at: <http://sedarweb.org/sedar-69>

Table 1. Directed, bycatch, and episodic events set aside landings in 1000s of pounds for 2021 by jurisdiction. Source: 2022 ASMFC state compliance reports for Atlantic menhaden. NA = not applicable; C = confidential (Some states are listed as confidential to protect the confidentiality of other states)

State	Directed	Incidental Catch	EESA
ME	7,501	11,771	C
NH	C	-	NA
MA	7,782	174	C
RI	3,393	C	C
CT	163	C	NA
NY	2,912	310	NA
NJ	45,640	C	NA
DE	C	-	NA
MD	2,801	-	NA
PRFC	2,534	-	NA
VA	334,790	-	NA
NC	419	-	NA
SC	C	-	NA
GA	C	-	NA
FL	111	-	NA

Table 2. 2021 validated bait landings by jurisdiction in 1000s of pounds. C = confidential (Some states are listed as confidential to protect the confidentiality of other states)

State	Bait Landings
ME	22,769
NH	C
MA	9,916
RI	3,575
CT	C
NY	3,570
NJ	45,694
DE	C
MD	2,802
PRFC	2,536
VA	33,441
NC	424
SC	C
GA	C
FL	111

Table 3. Atlantic menhaden reduction and bait landings in thousand metric tons, 1987-2021

	<b>Reduction Landings (1000 mt)</b>	<b>Bait Landings (1000 mt)</b>
<b>1987</b>	310	25.5
<b>1988</b>	278	43.8
<b>1989</b>	284	31.5
<b>1990</b>	343	28.1
<b>1991</b>	330	29.7
<b>1992</b>	270	33.8
<b>1993</b>	310	23.4
<b>1994</b>	260	25.6
<b>1995</b>	340	28.4
<b>1996</b>	293	21.7
<b>1997</b>	259	24.2
<b>1998</b>	246	38.4
<b>1999</b>	171	34.8
<b>2000</b>	167	33.5
<b>2001</b>	234	35.3
<b>2002</b>	174	36.2
<b>2003</b>	166	33.2
<b>2004</b>	183	34.0
<b>2005</b>	147	38.4
<b>2006</b>	157	27.2
<b>2007</b>	174	42.1
<b>2008</b>	141	47.6
<b>2009</b>	144	39.2
<b>2010</b>	183	42.7
<b>2011</b>	174	52.6
<b>2012</b>	161	63.7
<b>2013</b>	131	37.0
<b>2014</b>	131	41.6
<b>2015</b>	143	45.8
<b>2016</b>	137	43.1
<b>2017</b>	129	43.8
<b>2018</b>	141	50.2
<b>2019</b>	151	58.1
<b>2020</b>	125	59.6
<b>2021</b>	137	58.4
<b>Avg 2016-2020</b>	137	50.9

Table 4. Incidental fishery landings by state in 1000s of pounds, 2013-2021. Only states that have reported incidental catch landings are listed. Average total incidental catch landings for the time series is 7.5 million pounds.

State	2013	2014	2015	2016	2017	2018	2019	2020	2021
ME		-	-	506	5,374	2,995	10,751	13,605	11,771
MA								49	174
RI	16	99	70	40	136	-	-	-	C
CT	0	-	10	-	124	-	-	-	C
NY	0	325	769	281	807	-	-	282	310
NJ	0	626	241	196	-	204,240	-	20	C
DE	76	112	92	21	29	-	-	-	-
MD	2,864	2,201	1,950	996	-	-	-	-	-
PRFC	1,087	1,112	455	106	670	-	-	-	-
VA	268	2,232	2,103	326	-	110,281	-	-	-
FL	65	126	302	111	264	-	-	-	-
<b>Total</b>	<b>4,377</b>	<b>6,831</b>	<b>5,992</b>	<b>2,581</b>	<b>7,404</b>	<b>3,215</b>	<b>10,751</b>	<b>13,957</b>	<b>12,336</b>

Table 5. Total incidental landings (1000s of pounds), number of trips, and number of states reporting landings in the incidental catch fishery, 2013-2021.

Year	Landings (1000s of pounds)	Number of Trips	Number of states landing
<b>2013</b>	4,377	2,783	4
<b>2014</b>	6,831	5,275	8
<b>2015</b>	5,992	4,498	9
<b>2016</b>	2,581	2,222	9
<b>2017</b>	7,407	2,108	7
<b>2018</b>	3,310	1,224	3
<b>2019</b>	10,751	3,113	1
<b>2020</b>	13,957	3,565	4
<b>2021</b>	12,336	3,099	6
<b>Total</b>	<b>67,037</b>	<b>27,887</b>	

Table 6. Episodic Events Set-Aside (EESA) fishery quota, landings, and participating states by year. \*The 2018 EESA quota was reduced due to an overage in 2017. The 2018 EESA overage was paid back in full by the state of Maine. \*\*The 2021 overage was covered by quota transfers in 2021 and 2022, and there will be no deduction for the 2022 fishing year.

<b>Year</b>	<b>States Declared Participation</b>	<b>EESA Quota (MT)</b>	<b>Landed (MT)</b>	<b>% EESA Quota Used</b>
2013		1,708	-	-
2014	RI	1,708	134	7.8%
2015	RI	1,879	854	45.5%
2016	ME, RI, NY	1,879	1,728	92.0%
2017	ME, RI, NY	2,000	2,129	106.5%
2018*	ME	2,031	2,103	103.6%
2019	ME	2,160	1,995	92.4%
2020	ME & MA	2,160	2,080	96.3%
2021**	ME, MA, RI	1,944	2,213	113.8%

Table 7. State quota reporting timeframes in 2021. The **bold** text indicates which reporting program (dealer or harvesters) the states use to monitor its quotas. **Blue text** indicates changes from 2020.

State+A2:D14	Dealer Reporting	Harvester Reporting	Notes
ME	monthly	<b>daily/weekly</b>	Harvesters must report same day during directed and episodic event trips; harvesters report daily trips weekly for trips <6,000 lbs. Harvest reports are used for quota monitoring.
NH	<b>weekly</b>	monthly	Exempt from timely reporting. Implemented weekly, trip level reporting for state dealers.
MA	<b>weekly</b>	monthly/daily	Harvesters landing greater than 6,000 lbs must report daily
RI	<b>twice weekly</b>	quarterly/daily	Harvesters using purse seines must report daily
CT	<b>weekly/monthly</b>	monthly/daily	CT operates as directed fisheries until 90% of the quota is harvested. Then operates at the 6,000 pound bycatch trip limit.
NY	<b>Weekly</b>	monthly	Capability to require weekly harvester reporting if needed
NJ	<b>weekly</b>	monthly	All menhaden sold or bartered must be done through a licensed dealer
DE	—	<b>monthly/daily</b>	Harvesters landing menhaden report daily using IVR
MD	monthly	<b>monthly/daily</b>	PN harvest is reported daily, while other harvest is reported monthly.
PRFC	—	<b>weekly</b>	Trip level harvester reports submitted weekly. When 70% of quota is estimated to be reached, then pound netters must call in weekly report of daily catch.
VA	—	<b>monthly/weekly/daily</b>	Purse seines submit weekly reports until 97% of quota, then daily reports. Monthly for all other gears until 90% of quota, then reporting every 10 days.
NC	<b>monthly (combined reports)</b>		Single trip ticket with dealer and harvester information submitted monthly. Larger dealers (>50,000 lbs of landings annually) can report electronically, updated daily.
SC	<b>monthly (combined reports)</b>		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
GA	<b>monthly (combined reports)</b>		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
FL	<b>monthly/weekly (combined reports)</b>		Monthly through the FWC Marine Fisheries Trip Ticket system until 75% of quota is projected to have been met, then weekly phone calls to dealers who have been reporting menhaden landings until the directed fishery is closed.

Table 8. Results of 2021 quota accounting in pounds. The 2021 landings do not include landings from the incidental catch fishery because they do not count towards the TAC. A majority of the 2021 episodic events set aside (EESA) quota was used by Maine with the remainder used by Massachusetts and Rhode Island. There was an EESA overage of about 592,000 pounds that was covered by quota transfers. The 2022 base quotas account for the redistribution of relinquished quota by Delaware (1.2 million pounds).

\*Includes redistributed relinquished quota for that year and any overages from the previous season.

^Includes inter-state transfers and transfers to the EESA quota.

State	2021 Base Quota*	Returned Set Aside	Transfers^	Final 2021 Quota	Overages	2022 Base Quota*
ME	2,194,396		5,317,590	7,511,986		2,194,303
NH	2,121,582		2,686,318	4,807,900		2,121,582
MA	5,422,022		2,362,791	7,784,813		5,417,812
RI	2,196,815		1,228,533	3,425,348		2,196,719
CT	2,188,634		-2,000,000	188,634		2,188,548
NY	2,934,618		0	2,934,618		2,933,580
NJ	46,323,661		275,000	46,598,661		46,267,280
PA	2,121,464		-1,086,318	1,035,146		2,121,464
DE	474,821		0	474,821		974,821
MD	8,037,057		-1,000,000	7,037,057		8,029,511
PRFC	4,564,863		-900,000	3,664,863		4,561,747
VA	335,206,390		0	335,206,390		334,781,533
NC	4,065,016		-2,000,000	2,065,016		4,062,537
SC	2,121,464		-1,775,000	346,464		2,121,464
GA	2,121,464		-1,971,164	150,300		2,121,464
FL	2,198,584		-1,400,000	798,584		2,198,486
<b>Total</b>	<b>424,292,851</b>			<b>424,030,601</b>		<b>424,292,851</b>

Table 9. State-to-state transfers of menhaden commercial quota for the 2021 Fishing year.

Transfer Date	ME	NH	MA	RI	CT	NY	NJ	PA	DE	MD	PRFC	VA	NC	SC	GA	FL
1-Jul-21	300,000				-300,000											
1-Jul-21		750,000			-750,000											
6-Jul-21	675,000													-675,000		
6-Jul-21	800,000												-800,000			
13-Jul-21	972,698														-972,698	
14-Jul-21	840,000															-840,000
16-Jul-21				500,000									-500,000			
17-Jul-21			262,500		-262,500											
17-Jul-21			700,000										-700,000			
17-Jul-21				187,500	-187,500											
19-Jul-21				210,000												-210,000
27-Jul-21				300,000										-300,000		
27-Jul-21			525,000											-525,000		
27-Jul-21				243,175											-243,175	
27-Jul-21			405,291												-405,291	
28-Jul-21		1,000,000								-1,000,000						
5-Aug-21				150,000				-150,000								
5-Aug-21	600,000							-600,000								
5-Aug-21			250,000					-250,000								
5-Aug-21			350,000													-350,000
13-Oct-21		500,000			-500,000											
22-Oct-21		350,000													-350,000	
27-Oct-21							275,000							-275,000		
28-Oct-21	900,000										-900,000					
8-Dec-21	350,000			-350,000												
11-Jul-22		86,318						-86,318								
<b>Total</b>	<b>5,437,698</b>	<b>2,686,318</b>	<b>2,492,791</b>	<b>1,240,675</b>	<b>-2,000,000</b>	<b>0</b>	<b>275,000</b>	<b>-1,086,318</b>	<b>0</b>	<b>-1,000,000</b>	<b>-900,000</b>	<b>0</b>	<b>-2,000,000</b>	<b>-1,775,000</b>	<b>-1,971,164</b>	<b>-1,400,000</b>

Table 10. Biological monitoring results for the 2021 Atlantic menhaden bait fishery.

\*Age samples are still being processed

State	#10-fish samples required	#10-fish samples collected	Age samples collected	Length samples collected	Gear/Comments
ME	33	38	380	380	36 from PS; 2 from gillnets
NH	7	7	70	70	Purse Seine
MA	15	13	130	130	all purse seine
RI	5	4	55	55	Otter Trawl, Floating Fish Trap
CT	1	0	103	302	Long Island Sound Trawl Survey - 139 tows in 2021
NY	5	14	127	147	cast net, seine net
NJ	67	109	*	1090	Purse Seine
	3	0	*	0	Other Gears
DE	1	1	10	10	Gill net
MD	6	30	417	1323	Pound net
PRFC	6	13	130	130	pound net
VA	7	55	55	55	Pound Net
	5	200	200	200	Gill Net
	0	20	20	20	Haul Seine
NC	1	6	55	92	gillnet
<b>Total</b>	<b>163</b>	<b>510</b>	<b>1752</b>	<b>4004</b>	

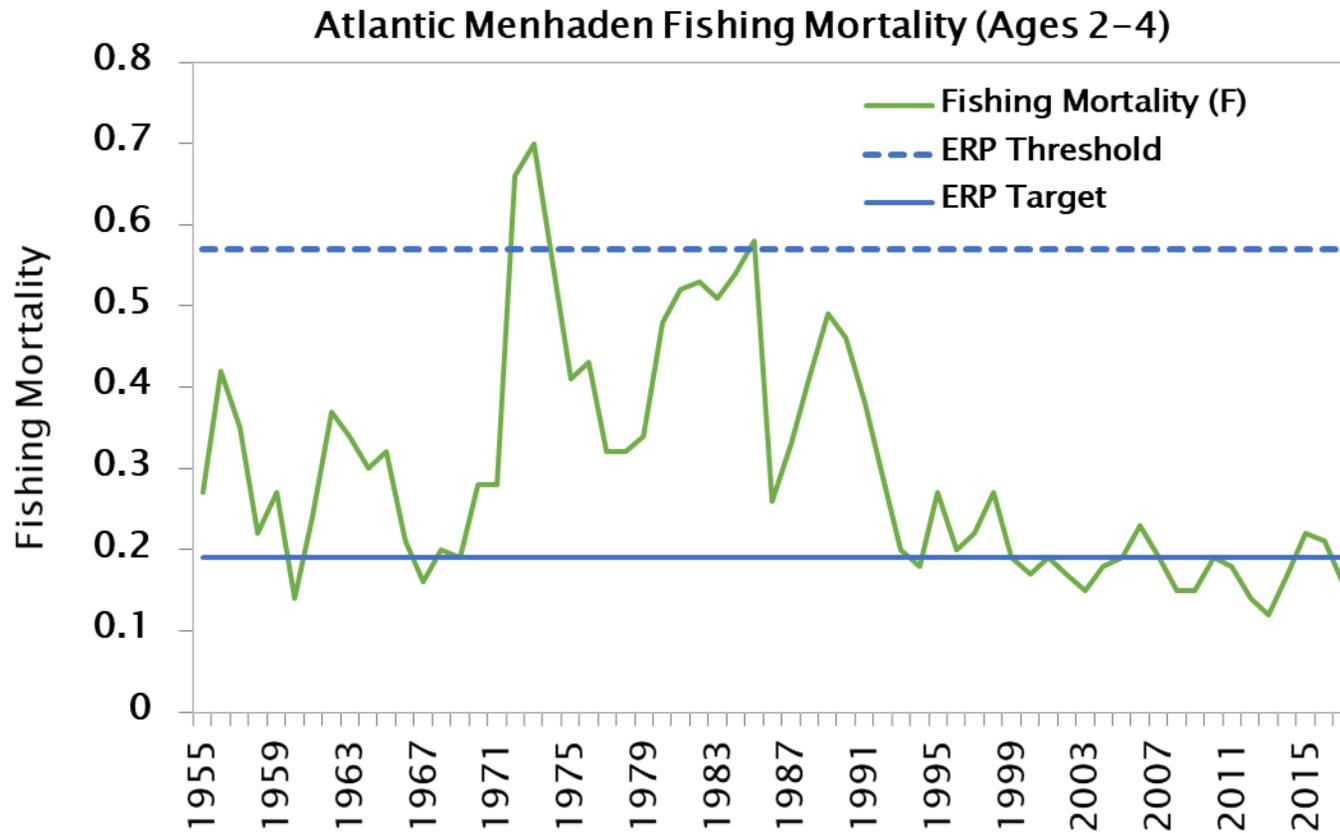


Figure 1. Fishing mortality, 1955-2017. The ERP fishing mortality reference points are  $F_{\text{target}} = 0.19$  and  $F_{\text{threshold}} = 0.57$ .  $F_{2017} = 0.16$ . Source: ASMFC 2020.

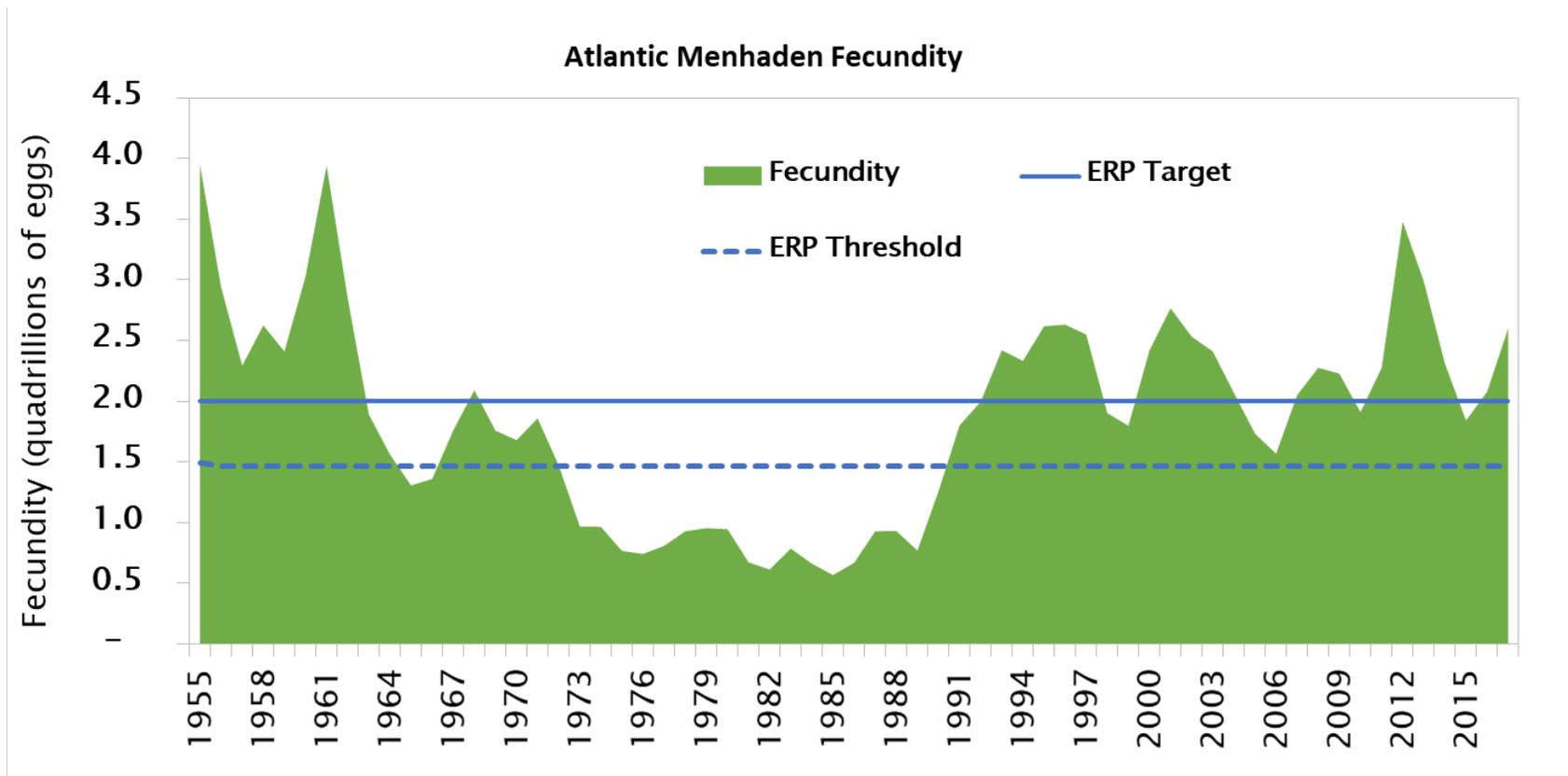


Figure 2. Atlantic menhaden fecundity, 1955-2017. The ERPs for population fecundity are  $FEC_{target} = 2,003,986$  (billions of eggs), and  $FEC_{threshold} = 1,492,854$  (billions of eggs).  $FEC_{2017} = 2,601,550$  billion eggs.

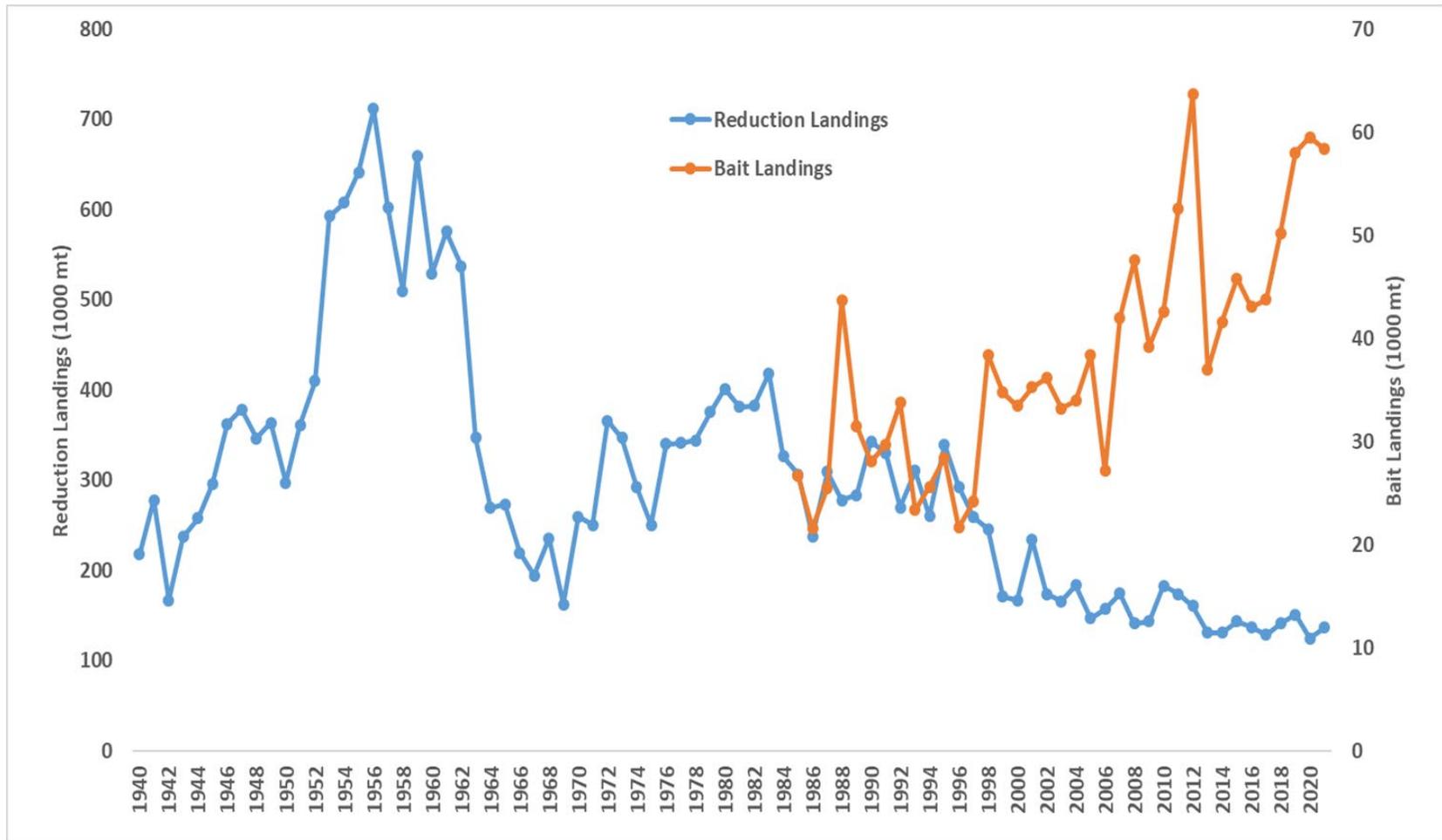


Figure 3. Landings from the reduction purse seine fishery (1940–2021) and bait fishery (1985–2021) for Atlantic menhaden. Note: there are two different scales on the y-axes.

# ***Atlantic States Marine Fisheries Commission***

## **DRAFT ADDENDUM I TO AMENDMENT 3 OF THE ATLANTIC MENHADEN INTERSTATE FISHERY MANAGEMENT PLAN FOR BOARD REVIEW**

### ***Commercial Allocations, Episodic Event Set Aside Program, and Incidental Catch/Small-Scale Fisheries***



*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

*This draft document was developed for Board review and discussion at the August 2022 meeting week. 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.*

**August 2022**

**Atlantic States Marine Fisheries Commission Seeks Your Input on  
Atlantic Menhaden Management**

The public is encouraged to submit comments regarding this document during the public comment period. Comments will be accepted until 5:00 p.m. EST on **DAY, MONTH 2022**. Regardless of when they were sent, comments received after that time will not be included in the official record.

You may submit public comment in one or more of the following ways:

1. Attend public hearings pertinent to your state or jurisdiction; given COVID-19, it is likely most hearings will occur via webinar.
2. Refer comments to your state’s members on the [Atlantic Menhaden Board](#) or [Atlantic Menhaden Advisory Panel](#), if applicable.
3. Mail, fax, or email written comments to the following address:

James Boyle  
Senior Fishery Management Plan Coordinator  
Atlantic States Marine Fisheries Commission  
1050 North Highland St., Suite 200 A-N  
Arlington, VA 22201  
Fax: (703) 842-0741  
[comments@asmfc.org](mailto:comments@asmfc.org) (subject line: Atlantic Menhaden Draft Addendum I to Amendment 3)

If you have any questions please call James Boyle at 703.842.0740.

**Commission’s Process and Timeline**

August 2021	Atlantic Menhaden Board Tasks Staff to Develop Draft Addendum I
August 2021 – July 2022	Staff Develops Draft Addendum I for Board Review
<b>August 2022</b>	<b>Atlantic Menhaden Board Reviews Draft Addendum I and Considers Its Approval for Public Comment</b>
August – October 2022	Board Solicits Public Comment and States Conduct Public Hearings
October 2022	Board Reviews Public Comment, Selects Management Options and Considers Final Approval of Addendum I
TBD	Provisions of Addendum I are Implemented

## Draft Addendum I to Amendment 3 for Board Review. Not for Public Comment

### 1. INTRODUCTION

The Atlantic States Marine Fisheries Commission (ASMFC) is responsible for managing Atlantic menhaden (*Brevoortia tyrannus*) in state waters (0–3 miles from shore) under the authority of the Atlantic Coastal Fisheries Cooperative Management Act, and has done so through an interstate fishery management plan (FMP) since 1981. The states of Maine through Florida have a declared interest in the fishery and are responsible for implementing management measures consistent with the interstate FMP. Management authority in the Exclusive Economic Zone (3–200 miles from shore) lies with NOAA Fisheries. For the purposes of this Addendum, the term “state” or “states” also includes the Potomac River Fisheries Commission.

At its August 2021 meeting, the ASMFC’s Atlantic Menhaden Management Board (Board) approved the following motion:

*Move to initiate an addendum to consider changes to commercial allocation, the episodic events set aside, and the small-scale/incidental catch provision. The purpose of this action is to address the issues outlined in the Atlantic Menhaden work group memo and the PDT should use the strategies provided in the work group memo as a starting point.*

The Addendum proposes options to adjust states’ commercial allocation to better align with availability; adjust the percentage of the episodic event set aside (EESA) program; and reduce incidental catch and small-scale fisheries (IC/SSF) landings from recent levels.

### 2. OVERVIEW

#### 2.1 Statement of the Problem

Since the implementation of Amendment 3 (2017), dynamics in the commercial menhaden fishery have changed, most notably the rise of landings in the Gulf of Maine and an increase in quota transfers to the New England region; an increase in landings under the IC/SSF provision; and an annual reliance by some states on the EESA program. To sufficiently address the issues posed by these changes, the addendum addresses three separate but related components of the management program: 1) commercial allocation, 2) the IC/SSF provision, and 3) EESA program.

##### 2.1.1 Commercial Allocations

The current allocations have resulted in the Total Allowable Catch (TAC) not being fully used coastwide, while some states do not have enough quota to maintain current fisheries. Quota transfers alone are not enough to ameliorate this issue. Some states have become reliant on the EESA and IC/SSF provision to maintain their fishery while other states regularly do not land their allocation.

## **Draft Addendum I to Amendment 3 for Board Review. Not for Public Comment**

### **2.1.2 Episodic Event Set Aside (EESA) Program**

Over 90% of the EESA has been used in all years since 2016. With the increase in Atlantic menhaden availability to the Northeast, the program has become a secondary regional quota for several states to continue fishery operations in state waters. The dependency on the EESA highlights the mismatch of Atlantic menhaden distribution and availability to current commercial allocations.

### **2.1.3 Incidental Catch and Small-Scale Fisheries (IC/SSF)**

The IC/SSF provision was intended to provide continued access for low-volume landings of menhaden once a state's directed fisheries quota was met and reduce regulatory discards. In recent years, menhaden availability at the northern part of its range has resulted in directed fishery quotas being met earlier in the year. Additionally, the coastwide landings under this category have exceeded a number of states directed fishery quotas and ranged from 1-4% of the annual TAC. Landings under this provision have only caused the overall TAC to be exceeded in a single year, 2021 (by 0.36%), but without changes, landings could remain at high levels or increase, potentially leading to more frequent exceedance of the TAC. Finally, the language in Amendment 3 has led to different interpretations of when landings fall under this provision (*i.e.* once a state's sector allocation is met or only once the full state allocation is met) and should be clarified.

## **2.2 Background**

### **2.2.1 Allocation**

Under Amendment 3, each state is allocated a 0.5% minimum quota and the remainder of the TAC is allocated based on a three-year average of landings from 2009-2011. On an annual basis, states have the option to relinquish part of or all of their fixed minimum quota by December 1st of the preceding fishing year. Any quota relinquished by a state is redistributed to other states that have not relinquished their quota, based on landings data from 2009-2011. Any overage of quota allocation is determined based on final allocations (inclusive of transfers), and the overage amount is subtracted from that state's quota allocation in the subsequent year on a pound-for-pound basis.

Amendment 2 (2012) also based state allocations on the three-year average of landings from 2009-2011; however, there was no fixed minimum. Table 1 shows a comparison of state quotas under Amendments 2 and 3, and highlights the influence of the 0.5% fixed minimum on states' allocations.

**Draft Addendum I to Amendment 3 for Board Review. Not for Public Comment**

**Table 1.** A comparison of state allocations under menhaden Amendment 2 and Amendment 3. Both Amendments used a 2009-2011 allocation timeframe; Amendment 3 included a 0.5% fixed minimum. While under Amendment 2, Pennsylvania was not a part of the Board and did not have an allocation, therefore is noted with a “-”.

State	Amendment 2 Allocation (%)	Amendment 3 Allocation (%)
Maine	0.04%	0.52%
New Hampshire	0%	0.50%
Massachusetts	0.84%	1.27%
Rhode Island	0.02%	0.52%
Connecticut	0.02%	0.52%
New York	0.06%	0.69%
New Jersey	11.19%	10.87%
Pennsylvania	-	0.50%
Delaware	0.01%	0.51%
Maryland	1.37%	1.89%
PRFC	0.62%	1.07%
Virginia	85.32%	78.66%
North Carolina	0.49%	0.96%
South Carolina	0%	0.50%
Georgia	0%	0.50%
Florida	0.02%	0.52%

From 2018 to 2020, total landings (directed, IC/SSF, and EESA) increased among the New England states of Maine, New Hampshire, and Massachusetts (Table 2). Maine and Massachusetts have both increased their percentage of coastwide total landings in recent years, with Maine’s percentage increasing every year from 2016-2020 and Massachusetts from 2016-2021. A number of states have maintained directed fisheries while their landings have represented less than 0.2% of coastwide total landings (Connecticut, Delaware, and North Carolina). In 2021, Massachusetts, Rhode Island, Connecticut, Maryland, PRFC, and Virginia increased their percentage of coastwide total landings, relative to the previous year. Virginia’s percentage of the coastwide landings decreased greatly in 2020 relative to 2019 because the state’s largest fishery and processing plant was shut down for several weeks due to the COVID-19 pandemic.

**Draft Addendum I to Amendment 3 for Board Review. Not for Public Comment**

**Table 2.** State total landings as a percentage of coastwide (CW) landings, 2016-2021. Total landings include directed bait, reduction, IC/SSF, and EESA landings. Amendment 3 allocations for directed bait and reduction landings were implemented beginning in 2018. To protect confidentiality, information for New Hampshire, Pennsylvania, South Carolina, and Georgia have been removed. **These are proportions of the coastwide landings; they do not represent allocations.**

State	% of 2016 CW Landings	% of 2017 CW Landings	% of 2018 CW Landings	% of 2019 CW Landings	% of 2020 CW Landings	% of 2021 CW Landings
Maine	1.50%	2.31%	3.48%	4.91%	6.33%	5.28%
New Hampshire				0.99%	1.02%	
Massachusetts	0.76%	0.96%	1.37%	1.51%	2.17%	2.30%
Rhode Island	0.00%	0.45%	0.17%	0.01%	0.05%	0.83%
Connecticut	0.02%	0.05%	0.20%	0.03%	0.03%	0.04%
New York	0.37%	0.40%	0.11%	0.21%	1.09%	0.83%
New Jersey	11.47%	12.15%	11.97%	10.96%	12.22%	10.59%
Pennsylvania						
Delaware	0.02%	0.02%	0.04%	0.02%	0.04%	0.01%
Maryland	1.40%	0.76%	0.74%	0.73%	0.64%	0.65%
PRFC	0.63%	0.55%	0.79%	0.51%	0.54%	0.59%
Virginia	83.66%	82.08%	80.85%	79.93%	75.66%	77.60%
North Carolina	0.10%	0.20%	0.17%	0.12%	0.15%	0.10%
South Carolina						
Georgia						
Florida	0.07%	0.07%	0.06%	0.05%	0.06%	0.03%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>	<b>100.00%</b>

Since implementation of Amendment 3, the number of quota transfers has increased over time with 7, 17, 15, and 16 quota transfers occurring in 2018, 2019, 2020, and 2021, respectively. However, not every state transferred quota consistently; only Maine, Connecticut, Maryland, and Florida either gave or received quota every year from 2018-2021. Maine, New Hampshire, Massachusetts, and New Jersey had a net increase in quota through transfers in all four years. The net increase in quota by state over the four years ranged from 275,000 to 22.73 million pounds (Table 3). While the transfer of quota away from a state does not necessarily represent a decrease in abundance of menhaden, the transfer of quota to the New England states has coincided with increasing availability of menhaden regionally and the need for bait fish as the availability of Atlantic herring has decreased.

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**Table 3.** Quota transfers in pounds by state for 2013-2021.

State	2013	2014	2015	2016	2017	2018	2019	2020	2021	2018-2021 Net Total	2018-2021 Average
ME				1,800,000	195,180	5,400,000	6,573,592	5,450,000	5,437,698	22,861,290	5,715,323
NH							3,373,592	2,300,000	2,600,000	8,273,592	2,757,864
MA	-500,000	-260,000	-508,685	-35,986			1,300,000	2,350,000	2,492,791	6,142,791	2,047,597
RI	15,000	50,000	33,685	35,986			-400,000	-1,800,000	1,240,675	-959,325	-319,775
CT						-500,000	-2,400,000	-2,000,000	-2,000,000	-6,900,000	-1,725,000
NY	1,000,000	210,000	475,000	492,823	300,000	-1,000,000	-1,900,000	500,000		-2,400,000	-800,000
NJ									275,000	275,000	275,000
PA								-500,000	-1,000,000	-1,500,000	-750,000
DE						-150,000		-100,000		-250,000	-125,000
MD						-1,500,000	-1,000,000	-1,350,000	-1,000,000	-4,850,000	-1,212,500
PRFC									-900,000	-900,000	-900,000
VA				-1,500,000		-1,000,000	-1,000,000			-2,000,000	-1,000,000
NC	-575,000			-877,823	-495,180		-600,000	-1,800,000	-2,000,000	-4,400,000	-1,466,667
SC							-2,347,184	-1,650,000	-1,775,000	-5,772,184	-1,924,061
GA									-1,971,164	-1,971,164	-1,971,164
FL	60,000			85,000		-1,250,000	-1,600,000	-1,400,000	-1,400,000	-5,650,000	-1,412,500

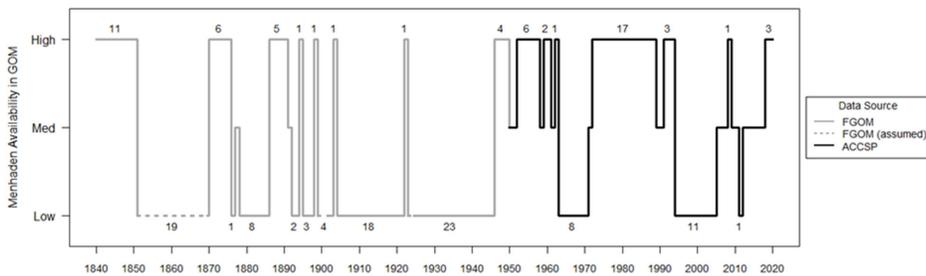
**2.2.2 Episodic Event Set Aside Program (EESA)**

The EESA Program was first implemented under Amendment 2 and clarified under Technical Addendum I later that year. Amendment 3 made no additional changes to the program. Annually, 1% of the TAC is set aside for episodic events, which are defined as any instance in which a qualified state has reached its quota allocation prior to September 1<sup>st</sup> and the state can prove the presence of unusually large amounts of menhaden in its state waters. To demonstrate a large amount of menhaden in state waters, a state can use surveys (e.g., aerial, seine) to indicate high biomass; landings information; or information highlighting the potential for fish kills, associated human health concerns, and that harvest would reduce or eliminate the fish kill. The goal of the program is to add flexibility in managing menhaden by allowing harvest during an episodic event, reduce discards, and prevent fish kills. States eligible to participate in the EESA program are limited to Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, and New York. When a state declares into the EESA, they are required to implement daily trip level harvester reporting and submit weekly reports to the ASMFC; restrict harvest and landings to state waters; and implement a maximum daily trip limit no greater than 120,000 pounds per vessel.

From 2013 through June 2022, the EESA has been used by Maine (6 years), Rhode Island (5 years), Massachusetts (2 years), and New York (2 years). Up to three states have participated at the same time. The starting date of states declaring into the program has ranged from mid-May to mid-August, with New York and Rhode Island opting in earlier than Maine and Massachusetts. Over 90% of the set-aside has been used in all years since 2016. In 2018 and 2019, Maine was the only state to declare into the EESA program and landed approximately 4.6 and 4.4 million pounds, respectively. In 2021, Maine, Massachusetts, and Rhode Island declared into the EESA program and combined the three states landed approximately 4.9 million pounds. Multiple states have implemented harvest control measures beyond the FMP’s 120,000-pound trip limit, including: lower daily landings limits, weekly limits, limited landing days, and biomass thresholds for when the commercial fishery can operate.

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The increasing reliance on the EESA program by some states has coincided with the decline in Atlantic herring and the increased availability of Atlantic menhaden in the Gulf of Maine. For more than a hundred years, there is evidence that periodic abundance of menhaden in the Gulf of Maine may last from 1 to 20 years then disappear for 1 to 20 years (Figure 1). In order to use the EESA and minimize disruptions to fishing activities, some states have sought creative ways at keeping their directed fishery open. In 2021, a number of states requested quota transfers as a group while fishing in the EESA, allowing for multiple quota transfers to be processed while the states continued to participate in the EESA program, in an effort to enable their directed fishery to resume after exiting the EESA with minimal interruption.



**Figure 1.** Reconstructed history of availability of Atlantic menhaden to the Gulf of Maine. The number of consecutive years in either a “High” or “Low” availability state are labeled. Data sources: *Fishes of the Gulf of Maine* (Bigelow and Schroeder 2002) and the Atlantic Coastal Cooperative Statistics Program (ACCSP).

**2.2.3 Incidental Catch and Small-Scale Fisheries (IC/SSF)**

A bycatch allowance was first implemented under Amendment 2, modified under Addendum I to Amendment 2 (2016), and modified again under Amendment 3. As outlined in Amendment 3, under the IC/SSF provision, after a state’s allocation is met, small-scale directed and non-directed gear types may continue to land up to 6,000 pounds of menhaden per trip per day. The following gear types are identified in Amendment 3 as eligible to participate:

*Small-scale gears:* cast nets, traps (excluding floating fish traps), pots, haul seines, fyke nets, hook and line, bag nets, hoop nets, hand lines, trammel nets, bait nets, and purse seines which are smaller than 150 fathoms long and 8 fathoms deep.

*Non-directed gears:* pound nets, anchored/stake gillnets, drift gill net, trawls, fishing weirs, fyke nets, and floating fish traps.

Since Amendment 2, not all states transition from a directed fishery to an incidental catch or small-scale fishery under the same conditions. Both New Jersey and Virginia subdivide their quotas among sectors and have done so since state quotas were implemented in 2013. Virginia allocates its annual quota to three sectors: the reduction sector, the purse seine bait sector,

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and the non-purse seine bait sector. New Jersey allocates the majority of its annual quota to the purse-seine fishery, and the remaining quota is allocated to all other gear types. Once the non-purse seine bait sector or “other gears” fishery has harvested its portion of the state’s allocation, that fishery moves into an IC/SSF regardless of whether the entire state’s quota has been harvested. This has resulted in Virginia and New Jersey reporting IC/SSF landings when they have not harvested their overall quota allocation for a given year. Since the inception of the IC/SSF provision, both states have reported landings following the closure of Virginia’s non-purse seine bait fishery and New Jersey’s “other gears” fishery as IC/SSF.

Prior to 2016, several states’ IC/SSF landings are considered confidential, therefore only information from 2016-2021 is included in Table 4. From 2016-2021, 11 different states have had IC/SSF landings, with the most number of states (8) reporting IC/SSF in a year occurring in 2016 and the fewest (1) occurring in 2019. The annual coastwide total IC/SSF landings ranged from approximately 2.1 million pounds to 13.9 million pounds. The highest amount occurred in 2020, when Maine landed the majority at 13.6 million pounds, representing 53% of Maine’s total landings that year. From 2016-2017 and 2018-2019, landings in this category increased by over 200%, with Maine being the only state with IC/SSF landings in 2019. From 2018-2020, the TAC remained constant at 216,000 mt while IC/SSF landings as a percentage of the annual TAC rose from less than 1% (2018) to nearly 3% (2020).

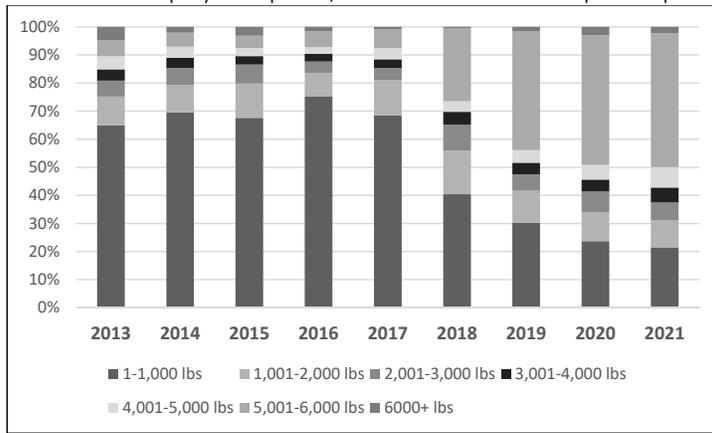
**Table 4.** IC/SSF landings in pounds from 2016-2021. Only states with these landings in this time period are included in the table. C = confidential (Some states are listed as confidential to protect the confidentiality of other states). Source: state compliance reports

State	2016	2017	2018	2019	2020	2021
Maine		5,373,940	2,995,145	10,750,929	13,605,497	11,771,235
Massachusetts					49,350	174,225
Rhode Island	39,540	135,748				C
Connecticut		126,986				C
New York	281,017	807,392			282,169	309,874
New Jersey	195,523		204,240		20,190	C
Delaware	20,823	29,285				
Maryland	995,698					
PRFC	105,669	670,447				
Virginia	325,692		110,281			
Florida	111,165	263,643				
Total	2,075,127	7,407,441	3,309,666	10,750,929	13,957,206	12,336,471
<b>Percent Change</b>		257%	-55%	225%	30%	-12%

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Since 2013, a majority of landings under this provision occur on trips that land either 1,000 pounds or less (52%), or greater than 5,000 pounds but less than 6,000 pounds (20%). However, landings per trip has increased in recent years (in 2021, 21% of trips < 1,000 pounds; 50% of trips >5,000 pounds; Figure 2). From 2017 to 2021, the majority of these landings have been caught by purse seine (83%, average for the time series). The share of IC/SSF landings using purse seine gear has increased from 57% in 2017 to approximately 88% from 2019 to 2021 (Table 5).

**Figure 2.** Percent of incidental trips by size in pounds, 2013-2021. Source: state compliance reports



**Table 5.** Annual summary of total IC/SSF landings in pounds as a fraction of coastwide TAC; and the fraction of total IC/SSF landings coming from small-scale directed purse seine fishing. Source: state compliance reports

Year	Total landings	% of TAC	landings from purse seine	% from purse seine
2013	4,376,741	1.20%	0	0%
2014	6,831,462	1.90%	0	0%
2015	5,991,612	1.50%	0	0%
2016	2,075,127	0.50%	0	0%
2017	7,407,441	1.80%	4,291,347	58%
2018	3,290,066	0.70%	2,419,194	74%
2019	10,750,929	2.40%	9,545,747	89%
2020	13,957,206	3.10%	12,332,677	88%
2021	12,336,471	2.88%	10,850,372	88%

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### **2.3.0 Social and Economic Impacts**

Atlantic menhaden provide social and economic value to a diverse group of stakeholders both directly, to commercial and recreational menhaden fishing communities, and indirectly, to those who derive value from finfish, coastal birds, or marine mammals that predate upon menhaden. Menhaden-specific ERPs were developed and implemented to account for these diverse needs. The ERPs aim to provide sufficient menhaden to support sustainable menhaden fisheries, as well as menhaden's important role as a forage fish. Ensuring a stable forage base could increase the abundance of species that predate upon menhaden, such as other finfish, coastal birds, or marine mammals. An increase in abundance of these species could, in turn, lead to positive social and economic impacts for individuals, groups, or communities which rely on these resources for consumptive (e.g., commercial or recreational harvest) or non-consumptive purposes (e.g., bird or whale watching). Individuals who hold non-use values associated with affected species may also benefit from increased abundances (e.g., existence value from knowing a particular environmental resource exists or bequest value from preserving a natural resource or cultural heritage for future generations). Estimating potential economic or social impacts to these stakeholders as a result of menhaden-specific ERPs is challenging given complex and dynamic ecological relationships as well as the lack of socioeconomic data, especially for nonmarket goods and services.

This Addendum includes several measures which could carry social and economic impacts, notably potential changes to commercial allocations, the episodic event set aside program, and the incidental catch/small-scale fisheries provisions. The impacts of these changes on an individual stakeholder group will depend not only on the direction of these changes (e.g., whether the allocation is increasing or decreasing), but also a number of other social and economic factors. The extent and distribution of positive or negative socioeconomic effects arising from changes to allocations, or other provisions, is dependent on price elasticities (responsiveness of demand to a change in price), substitute products, fishing costs, alternative employment opportunities, fishing community structure, and possibly other factors.

Identifying quota allocation methods which are fair and equitable among fishery sectors, gear types, and regions will enhance socioeconomic net benefits if changes in allocation result in higher value or more efficient use of the menhaden resource. Efficiency improving shifts in allocation, while potentially beneficial overall, could disadvantage individual stakeholders through reductions in harvests, revenues, and profits.

A 2017 socioeconomic study of the commercial bait and reduction fisheries, funded by the ASMFC, contains several findings which elucidate possible social and economic impacts resulting from changes in menhaden management. While this study was conducted to inform Amendment 3, its findings may still be informative to the measures included in this Addendum. However, it is important to note that the study was focused on potential changes to the coastwide TAC, not the measures being considered in this Addendum. A study focused on, for

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example, allocation changes might have different results based on the different spatial scales and tradeoffs considered.

In the 2017 study, researchers interviewed and surveyed industry members to uncover salient themes, analyzed historic landings data to resolve market relationships, performed economic impact analyses to consider the effects of various TAC changes, and conducted a public opinion survey to assess attitudes toward menhaden management (see Whitehead and Harrison, 2017 for the full report). Interviews and surveys of commercial fishers and other industry members found mixed opinions on several subjects; however, many agreed that the demand for menhaden bait, oil, and meal had increased in recent years. Exogenous demand increases, if leading to increases in ex-vessel prices, could benefit menhaden bait and reduction industry members.

Analysis of historic landings data revealed that prices for menhaden were negatively related to landings levels, but that this relationship was small and insignificant in some instances. In particular, state-level analysis showed ex-vessel price was insensitive to landings. This finding suggested that reductions in the TAC might reduce commercial fishery revenues as decreases in landings are not fully compensated by higher prices. The effects of a change in the allocation of TAC among states is not clear. However, it was found that ex-vessel prices of menhaden were not uniform along the coast, with some states having higher prices than others, suggesting a change in allocation could influence fleet revenues.

Economic impact analyses of changes to the TAC found income and employment decreases (increases) corresponding to TAC decreases (increases), with the largest impacts concentrated in New Jersey and Virginia. For example, the analysis suggests that when totaling direct, indirect, and induced economic changes in the bait fishery, a 5% increase in the TAC from the 2017 baseline would result in 18 more jobs, a \$476,000 increase in total earnings, and a \$1.7 million increase in total economic output. Looking at the reduction sector, a 5% increase in the TAC from the 2017 baseline is estimated to increase total economic output (includes direct, indirect, and induced economic effects) by \$3.6 million in Northumberland county and add 77 full and part-time jobs. The difference in economic impacts between the bait and reduction sector is largely due to the difference in scale between the sectors, i.e., a 5% increase to reduction landings would be much higher in metric tons than a 5% increase to bait landings. In addition, it is important to note that economic impact analyses such as the one conducted in this study are a coarse assessment of potential economic impact, and they often do not take into account specific fishery and market dynamics.

Interestingly, subsequent analysis of coastal county income and employment changes in response to changes in bait landings (not reduction landings) showed little effect, casting some doubt on the conclusion that adjustments in menhaden TAC consistently lead to changes in fishery income and employment in the bait fishery. It may also be that the magnitude of impact is dependent on the size of the fishery in each state and the ability of fishermen to harvest other species. Nonetheless, it is reasonable to expect that if the TAC were to remain fixed but be allocated to states differently, those states receiving increased allocation would have

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positive economic impacts if the increase in allocation would lead to an increase in harvest. For those that received decreased quota, the expected impacts would depend on the expected impacts on harvest: if the reduced allocation would reduce harvest, negative economic impacts would be expected; however, if the reduced allocation was less than or equal to the state's latent quota, i.e., would not have any expected impacts on harvest, no economic impacts would be expected.

### **3. PROPOSED MANAGEMENT PROGRAM**

This addendum considers modifying the following components of the management program: 1) commercial allocations, 2) IC/SSF provision, and the 3) EESA program. An objective is listed for each component to guide evaluation of proposed options for addressing the issues identified in the statement of the problem.

In response to concerns that 2020 landings were atypical due to impacts from the COVID-19 pandemic, the full extent of which are unknown and possibly variable between states, the Board elected to exclude 2020 landings data in the commercial allocation options of this draft addendum, thereby minimizing the effects of COVID-19 on allocation.

The Plan Development Team (PDT) has highlighted the management options that they recommend the Board remove in order to focus on key solutions and reduce the complexity of the document. Taking these steps will ensure the public will be able to understand and comment on proposed changes to the management program more effectively. Recommendations can be found in an accompanying memo (M22-78). As the document is drafted there are 35 total options in the Draft Addendum (16 combinations of allocation options; 3 options for the EESA program; and 16 options for the IC/SSF provision).

#### **3.1 Commercial Allocation**

Objective: Allocations should be adjusted to 1) align with the availability of the resource 2) enable states to maintain current directed fisheries with minimal interruptions during the season; 3) reduce the need for quota transfers and; 4) fully use the annual TAC without overage.

To account for the various combinations of allocation methods and timeframes the following management options have been divided into two steps. The first step outlines the method for setting the minimum allocation, and the second step outlines the approach used to allocate the remaining TAC. An option must be chosen in each step to complete an allocation package. Options under each of the following steps were developed using total landings information including quota transfers, and landings under the IC/SSF provision and EESA program.

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### Step 1:

#### **3.1.1 Allocation options for addressing the minimum allocation.**

The current fixed minimum allocation of 0.5% has been consistently underutilized by several states, with some states transferring or relinquishing some or all of their quota, and others keeping their unused quota. The Amendment 3 provisions of EESA, IC/SSF, and quota transfers have been utilized every year since the Amendment was implemented, indicating the latent quota created by the fixed minimum could be adjusted to reduce reliance on these provisions. Some states have highly variable landings, which will likely lead to them rarely exceeding their allocation under some allocation option below. It is important to keep in mind nearly all states have the potential to reach their quota prior to the end of the year under any allocation strategy under the current TAC. Any latent quota reduction produced by selecting the tiered option below will automatically be reallocated to the states based on the allocation method selected in step 2 (section 3.1.2).

Option A. Status Quo: Each state is allocated a 0.5% fixed minimum quota. Total TAC assigned under this option is 8.0% (i.e. 16 states x 0.50%= 8%).

Option B. Three-tiered fixed minimum approach: This option would assign states into three tiers (0.01%, 0.25%, or 0.50%) based on total landings. The states of Pennsylvania, South Carolina, and Georgia would be included in tier one and receive 0.01%. Tier two includes Connecticut, Delaware, North Carolina, and Florida, with each state receiving 0.25%. The remaining states would be in tier three and receive 0.5% of the TAC. The three states in tier one have consistent small-scale, bycatch fisheries, or have harvested no Atlantic menhaden from 2009-2020. The 0.01% coupled with the timeframe allocation assigned in Step 2 below would have covered their limited landings from 2009-2020 under all combinations. Depending on the selection made in Step 2 below, the tier two states would have had sufficient quota to cover their landings every year from 2009-2020, except North Carolina, which could have had up to two years that would have not been covered depending on the timeframe selected, but in nearly all other years they would have used less than half of their allocation. Total TAC assigned under this option is 5.53% (i.e., 3 states x 0.01% + 4 states \* 0.25% + 9 states \* 0.50% = 5.53%).

### Step 2:

#### **3.1.2 Timeframes to base allocating the remaining TAC.**

Option 1. Status Quo: Three-year average of landings from 2009-2011. This option only incorporates landings from a short unregulated time period and does not reflect current Atlantic menhaden distribution or fishery performance.

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Option 2. 2018, 2019 & 2021

The quota allocation timeframe is based on the most recent average landings from 2018, 2019, and 2021. This timeframe reflects the most recent landings history and is more likely to align with current stock distribution, but does not reflect previous stock distribution or fishery performance.

Option 3. Weighted Time Frames

These options consider both recent and historical timeframes with sub-options of different weighting values. These options are similar to a long term average but focus on a shorter overall timeframe, and can emphasize either more recent or historical fishery performance.

- 3A. Weighted Allocation Timeframe #1 (2009-2011 and 2018, 2019 & 2021) includes the three most recent years, excluding 2020, and the first three years of quality bait fishery data during the unregulated time period.
  - Sub-Option 1. 25% 2009-2011 / 75% 2018, 2019 & 2021 – This weighting strategy emphasizes the more recent timeframe.
  - Sub-Option 2. 50% 2009-2011 / 50% 2018, 2019 & 2021 – This strategy weights both timeframes evenly.
- 3B. Weighted Allocation Timeframe #2\* (2009-2012 and 2017-2019 & 2021) includes the four most recent years, excluding 2020, and the first four years of quality bait fishery data during the unregulated time period.
  - Sub-Option 1. 25% 2009-2012 / 75% 2017-2021– This weighting strategy emphasizes the more recent timeframe.
  - Sub-Option 2. 50% 2009-2012 / 50% 2017-2021 – This strategy weights both timeframes evenly.

**Commented [TK1]:** The PDT recommends removal because this option achieves the same objective as timeframe 1 of option 3A.

Option 4. Moving Average

This option uses a three-year moving average to annually adjust allocations as the stock and fishery dynamics change. The three-year average is lagged to allow for finalizing data and time to inform states of their quota (i.e. 2018, 2019 & 2021 average used to set 2023 allocation). This option continually adjusts allocations to recent stock distribution and fishery performance, potentially reducing the need for reallocating in the future. Landings used to calculate the three-year moving average differ under each of the options and may include a state's base quota, any quota transferred to a state, catch under the EESA, and catch under the incidental catch set aside. Any state with harvest overage within the three-year time frame that is not covered by the provisions of the FMP will not have the overage portion of their landings count in calculating the moving average, and will still be required to pay any overage back pound for pound the year following the overage occurrence.

4A. No alterations to the Option. There will be no alterations to the option as described above and total landings will be used in the calculations under this option.

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4B. Provision to limit states' moving average landings if total landings exceed the TAC.

State landings less than or equal to the coastwide TAC would be used in the calculation of the moving average, regardless of the source. If total landings (directed plus IC/SSF plus EESA) are below the TAC, then all landings would be included. If directed landings are below the TAC but IC/SSF and/or EESA landings bring total landings over the TAC, then only the portion of IC/SSF and EESA landings that achieve the TAC would count toward the moving average calculation.

Calculation Procedure: (This procedure is only for moving average calculation when the IC/SSF landings added to directed landings exceed the TAC) EESA participation requires opting in and out of the program by providing dated notice to ASMFC and weekly landings reporting at a minimum. Any overage of the EESA that is not reconciled through a transfer will be subtracted from a states total landings prior to calculation. If more than one state is participating at the time of the overage the percentage of each state landings in the week (or weeks) the overage occurred will be used to produce the state by state landings reduction required by the EESA overage. A week is defined as Sunday through Saturday.

The following will be calculated to determine the IC/SSF landings that are over the TAC to be removed from state landings prior to moving average calculation. The Landings termed Excess IC/SSF landings in the calculations below do not include IC/SSF landings for a state that total landings, combined directed and IC/SSF landings, would not have exceeded a state's quota (i.e. a state closes its directed fishery early and operates under the IC/SSF restrictions, but never exceeds its quota). EESA landings included below will be after any adjustment made above (allowable EESA only).

IC/SSF Landings over the TAC = ((Total Landings) – TAC) – (Overages that are not associated with the IC/SSF).

States Adjusted final Quota (AFQ) = (((State's Base Quota) + or – (Transfers)) + (EESA landings)) – (Overages that are not associated with the IC/SSF).

State Excess IC/SSF Landings = (State's Total Landings) > State's AFQ.

Total Excess IC/SSF Landings = The Sum of all states Excess IC/SSF Landings.

State's % of Excess IC/SSF = (State Excess IC/SSF Landings) / (Total Excess IC/SSF Landings).

Reduction of a states IC/SSF Landings = (IC/SSF landings over the TAC) \* (State's % of Excess IC/SSF).

State landings to be used in Moving average Calculation = ((States total Landings) – (Reduction of IC/SSF landings))-Overages

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Table 6. A1-3. Percent annual allocation by state using the 0.5% fixed minimum (Step 1, Option A) allocation and the 2009-2011; 2018, 2019 & 2021; and weighted timeframe allocations (Step 2, Options 1-3). Each of the two weighted timeframe combinations of 2009-2011/2018, 2019 & 2021 (Step 2, Option 3A), and 2009-2012/2017-2019 & 2021 (Step 2, Option 3B) are weighted 25% earlier /75% recent (Sub-Option 1) and 50% recent /50% earlier (Sub-Option 2).

State	Time Frame		2009-2011/2018,2019 & 2021		2009-2012/2017-2019 & 2021	
	A1 Status Quo 2009-2011	A2 2018, 2019 and 2021	A3: A-1 25%/75%	A3: A-2 50%/50%	A3: B-1 25%/75%	A3: B-2 50%/50%
ME	0.52%	4.71%	3.66%	2.61%	3.30%	2.37%
NH	0.50%	1.19%	1.01%	0.84%	0.90%	0.77%
MA	1.27%	2.09%	1.88%	1.68%	1.73%	1.54%
RI	0.52%	0.81%	0.73%	0.66%	0.75%	0.67%
CT	0.52%	0.58%	0.56%	0.55%	0.56%	0.54%
NY	0.69%	0.85%	0.81%	0.77%	0.81%	0.77%
NJ	10.87%	10.77%	10.81%	10.85%	11.32%	11.66%
PA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
DE	0.51%	0.52%	0.52%	0.52%	0.52%	0.52%
MD	1.89%	1.15%	1.34%	1.53%	1.42%	1.68%
PRFC	1.07%	1.07%	1.07%	1.07%	1.10%	1.13%
VA	78.66%	73.60%	74.85%	76.10%	74.85%	75.56%
NC	0.96%	0.62%	0.70%	0.79%	0.69%	0.75%
SC	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
GA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
FL	0.52%	0.54%	0.54%	0.53%	0.54%	0.53%

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Table 7. A4A. Percent annual allocation by state using the 0.5% fixed minimum allocation (Step 1, Option A) and the three year moving average allocation (Step 2, Option 4A) as it would have changed through time, and the year the timeframe would have been used to set allocations.

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.97%	1.64%	2.76%	3.85%	4.71%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.85%	1.19%
MA	1.27%	0.91%	0.77%	0.95%	1.09%	1.13%	1.24%	1.46%	1.69%	2.09%
RI	0.52%	0.52%	0.52%	0.55%	0.71%	0.72%	0.82%	0.71%	0.69%	0.81%
CT	0.52%	0.51%	0.51%	0.51%	0.51%	0.51%	0.53%	0.59%	0.59%	0.58%
NY	0.69%	0.67%	0.68%	0.70%	0.77%	0.79%	0.85%	0.77%	0.72%	0.85%
NJ	10.93%	13.45%	13.94%	12.81%	10.67%	10.89%	11.25%	11.41%	11.23%	10.77%
PA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
DE	0.51%	0.52%	0.52%	0.53%	0.53%	0.53%	0.52%	0.52%	0.52%	0.52%
MD	1.90%	2.18%	2.33%	2.52%	2.16%	2.02%	1.71%	1.38%	1.18%	1.15%
PRFC	1.07%	1.20%	1.30%	1.41%	1.23%	1.15%	1.06%	1.11%	1.06%	1.07%
VA	78.60%	76.18%	75.57%	76.30%	78.57%	78.04%	77.15%	76.08%	74.92%	73.60%
NC	0.96%	0.83%	0.80%	0.64%	0.68%	0.67%	0.66%	0.64%	0.65%	0.62%
SC	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
GA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
FL	0.52%	0.52%	0.54%	0.55%	0.57%	0.57%	0.57%	0.56%	0.55%	0.54%
<b>Year in Use</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021/2022</b>	<b>2023</b>

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Table 8. A4B. Percent annual allocation by state using the 0.5% fixed minimum allocation (Step 1, Option A) and the three year moving average allocation (Step 2, Option 4B), as it would have changed through time, and the year the timeframe would have been used to set allocations.

Note: 2021 values only include landings under the TAC according to the calculation outlined in Option 4B.

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.97%	1.64%	2.76%	3.85%	4.57%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.85%	1.17%
MA	1.27%	0.91%	0.77%	0.95%	1.09%	1.13%	1.24%	1.46%	1.69%	2.09%
RI	0.52%	0.52%	0.52%	0.55%	0.71%	0.72%	0.82%	0.71%	0.69%	0.81%
CT	0.52%	0.51%	0.51%	0.51%	0.51%	0.51%	0.53%	0.59%	0.59%	0.58%
NY	0.69%	0.67%	0.68%	0.70%	0.77%	0.79%	0.85%	0.77%	0.72%	0.83%
NJ	10.93%	13.45%	13.94%	12.81%	10.67%	10.89%	11.25%	11.41%	11.23%	10.79%
PA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
DE	0.51%	0.52%	0.52%	0.53%	0.53%	0.53%	0.52%	0.52%	0.52%	0.52%
MD	1.90%	2.18%	2.33%	2.52%	2.16%	2.02%	1.71%	1.38%	1.18%	1.15%
PRFC	1.07%	1.20%	1.30%	1.41%	1.23%	1.15%	1.06%	1.11%	1.06%	1.08%
VA	78.60%	76.18%	75.57%	76.30%	78.57%	78.04%	77.15%	76.08%	74.92%	73.76%
NC	0.96%	0.83%	0.80%	0.64%	0.68%	0.67%	0.66%	0.64%	0.65%	0.62%
SC	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
GA	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
FL	0.52%	0.52%	0.54%	0.55%	0.57%	0.57%	0.57%	0.56%	0.55%	0.54%
<b>Year in Use</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021/2022</b>	<b>2023</b>

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Table 9. B1-3. Percent annual allocation by state using the three tier minimum (Step 1, Option B) allocation the 2009-2011; 2018, 2019 & 2021 and weighted timeframe allocations (Step 2, Options 1-3). Each of the two weighted timeframe combinations of 2009-2011/2018, 2019 & 2021 (Step 2, Option 3A), and 2009-2012/2017-2019 & 2021 (Step 2, Option 3B) are weighted 25% earlier /75% recent (Sub-Option 1) and 50% recent /50% earlier (Sub-Option 2).

State	Time Frame		2009-2011/2018,2019 & 2021		2009-2012/2017-2019 & 2021	
	B1 2009-2011	B2 2018, 2019 and 2021	B3: A-1 25%/75%	B3: A-2 50%/50%	B3: B-1 25%/75%	B3: B-2 50%/50%
ME	0.52%	4.82%	3.74%	2.67%	3.38%	2.42%
NH	0.50%	1.20%	1.03%	0.85%	0.91%	0.77%
MA	1.29%	2.13%	1.92%	1.71%	1.77%	1.57%
RI	0.52%	0.81%	0.74%	0.67%	0.76%	0.68%
CT	0.27%	0.33%	0.32%	0.30%	0.31%	0.29%
NY	0.70%	0.86%	0.82%	0.78%	0.82%	0.77%
NJ	11.21%	11.05%	11.09%	11.13%	11.61%	11.96%
PA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
DE	0.26%	0.27%	0.27%	0.27%	0.27%	0.27%
MD	1.94%	1.17%	1.36%	1.55%	1.45%	1.71%
PRFC	1.09%	1.09%	1.09%	1.09%	1.11%	1.15%
VA	80.70%	75.57%	76.85%	78.13%	76.85%	77.58%
NC	0.72%	0.37%	0.46%	0.54%	0.45%	0.50%
SC	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
GA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FL	0.27%	0.29%	0.29%	0.28%	0.29%	0.28%

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Table 10. B4A. Percent annual allocation by State using the three tier minimum allocation (Step 1, Option B) and the three year moving average allocation (Step 2, Option 4A), as it would have changed through time, and the year the timeframe would have been used to set allocations.

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.98%	1.67%	2.82%	3.94%	4.82%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.86%	1.20%
MA	1.29%	0.92%	0.78%	0.97%	1.10%	1.15%	1.26%	1.48%	1.73%	2.13%
RI	0.52%	0.52%	0.52%	0.55%	0.72%	0.73%	0.82%	0.72%	0.69%	0.81%
CT	0.27%	0.26%	0.26%	0.26%	0.26%	0.26%	0.28%	0.34%	0.34%	0.33%
NY	0.70%	0.67%	0.69%	0.71%	0.78%	0.80%	0.85%	0.77%	0.72%	0.86%
NJ	11.21%	13.80%	14.30%	13.14%	10.94%	11.17%	11.54%	11.71%	11.52%	11.05%
PA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
DE	0.26%	0.27%	0.27%	0.28%	0.29%	0.28%	0.27%	0.28%	0.27%	0.27%
MD	1.94%	2.23%	2.38%	2.58%	2.20%	2.06%	1.74%	1.41%	1.20%	1.17%
PRFC	1.09%	1.22%	1.33%	1.44%	1.25%	1.17%	1.08%	1.12%	1.08%	1.09%
VA	80.70%	78.22%	77.59%	78.34%	80.67%	80.12%	79.21%	78.11%	76.91%	75.57%
NC	0.72%	0.59%	0.56%	0.40%	0.43%	0.42%	0.41%	0.40%	0.40%	0.37%
SC	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
GA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FL	0.27%	0.27%	0.29%	0.30%	0.32%	0.32%	0.32%	0.31%	0.31%	0.29%
<b>Year in Use</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021/2022</b>	<b>2023</b>

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Table 11. B4B. Percent annual allocation by State using the three tier minimum allocation (Step 1, Option B) and the three year moving average allocation (Step 2, Option 4B), as it would have changed through time, and the year the timeframe would have been used to set allocations.

Note: 2021 values only include landings under the TAC according to the calculation outlined in Option 4B.

State	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018, 2019 & 2021
ME	0.52%	0.51%	0.51%	0.51%	0.51%	0.98%	1.67%	2.82%	3.94%	4.68%
NH	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.52%	0.86%	1.18%
MA	1.29%	0.92%	0.78%	0.97%	1.10%	1.15%	1.26%	1.48%	1.73%	2.13%
RI	0.52%	0.52%	0.52%	0.55%	0.72%	0.73%	0.82%	0.72%	0.69%	0.82%
CT	0.27%	0.26%	0.26%	0.26%	0.26%	0.26%	0.28%	0.34%	0.34%	0.33%
NY	0.70%	0.67%	0.69%	0.71%	0.78%	0.80%	0.85%	0.77%	0.72%	0.83%
NJ	11.21%	13.80%	14.30%	13.14%	10.94%	11.17%	11.54%	11.71%	11.52%	11.07%
PA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
DE	0.26%	0.27%	0.27%	0.28%	0.29%	0.28%	0.27%	0.28%	0.27%	0.27%
MD	1.94%	2.23%	2.38%	2.58%	2.20%	2.06%	1.74%	1.41%	1.20%	1.17%
PRFC	1.09%	1.22%	1.33%	1.44%	1.25%	1.17%	1.08%	1.12%	1.08%	1.09%
VA	80.70%	78.22%	77.59%	78.34%	80.67%	80.12%	79.21%	78.11%	76.91%	75.73%
NC	0.72%	0.59%	0.56%	0.40%	0.43%	0.42%	0.41%	0.40%	0.40%	0.37%
SC	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
GA	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
FL	0.27%	0.27%	0.29%	0.30%	0.32%	0.32%	0.32%	0.31%	0.31%	0.29%
<b>Year in Use</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021/2022</b>	<b>2023</b>

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### 3.2 EESA Program

Objective: Ensure sufficient access to episodic changes in regional availability in order to minimize in-season disruptions and reduce the need for quota transfers and IC/SSF landings.

#### 3.2.1 Increase the Set-Aside

Goal: In combination with reallocation or separately, ensure the states of Maine to New York have increased bait quota for this program to reduce the need for in-season quota transfers or reliance on the IC/SSF provision in response to the increased presence of Atlantic menhaden biomass in the Northeast.

For both Options 1 and 2, the mandatory provisions, declaring participation, procedure for unused set aside, and procedure for set aside overages (Sections 4.3.6.1- 4.3.6.4) as outlined in Amendment 3 (Section 4.3.6.3) will remain in effect.

For Option 2 only, there are two sub-options for the Board's consideration. To allow for additional flexibility in managing the EESA depending on states' allocations and the need to reduce quota transfers, the following sub-options allow for the EESA to be set during the TAC setting process, rather than through adaptive management as outlined in Amendment 3.

Option 1. Status Quo (1%) – The EESA would remain at 1% of the total coastwide TAC. Should any quota remain unused after October 31<sup>st</sup>, annually, it would revert back into the common pool.

Option 2. Increase up to 5% - This option would allow the Board to increase the EESA to a specific percentage greater than or equal to 1% and less than or equal to 5%. The designated percentage of EESA would be subtracted from the total coastwide TAC prior to the distribution of allocation to states. Depending upon the option(s) chosen under Section 3.1, re-adjusting the fixed minimum quota could offset the possible increase in the EESA (see note below).

Sub-option 1. EESA is set as a static amount of 1-5%: The Board may choose an EESA between 1 and 5% and the chosen option is static until a subsequent Amendment or Addendum.

Sub-option 2. Set the EESA during Specifications at an amount between 1-5%: Under this option the Board will set the EESA at an amount between 1 to 5% during the Specification process as part of approving the TAC. The TAC and EESA may be set annually or on a multi-year basis depending on Board action.

**Note (only applies if a tiered minimum approach is selected):** The 0.5% fixed minimum from Amendment 3 allocated 8.0% of the TAC prior to timeframe based allocation of state quotas. If the fixed minimum was replaced by the three-tiered minimum allocation strategy, the 8.0% would be reduced to 5.53%. The amount of quota left by selecting the tiered option (2.47%),

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will be reallocated to the states, but increasing the EESA to 2.47% or less will result in a similar value in pounds being removed from the TAC prior to time frame based allocation. In Amendment 3, nine percent of the TAC either went to the EESA or the fixed minimum allocation.

### 3.3 IC/SSF Provision

Objective: Sufficiently constrain landings to achieve overall management goals of: 1) meeting the needs of existing fisheries, 2) reducing discards, and 3) indicating when landings can occur and if those landings are a part of the directed fishery.

In this section, there are four sub-topics to address IC/SSF landings. They include proposed changes to the timing of when states can begin landing under this provision (3.3.1); permitted gear types (3.3.2); changes to the IC/SSF trip limit (3.3.3); and considering a new accountability system for IC/SSF landings (3.3.4).

#### 3.3.1 Timing of IC/SSF Provision

Goal: Address the timing of when a state begins fishing under the provision since it impacts the duration that landings occur.

Option 1. No change (Status quo): Once a quota allocation is reached for a given state, the fishery moves to an incidental catch fishery. Currently, individual states interpret “after a quota allocation is met for a given state” differently (i.e., whether this refers to the entire allocation or a sector, fishery, or gear allocation).

Option 2. Sector/fishery/gear type allocation within a state is met: Currently, states such as New Jersey and Virginia further divide their state allocation into sector and gear type specific allocations. The provision would confirm that once a sector/fishery/gear type specific allocation is reached for a state, that state’s sector/fishery/gear type fishery can begin landing catch under the provision.

Option 3. Entire states allocation met: Once the entire quota allocation for a given state is reached, regardless of sector/fishery/gear type fishery allocations, the menhaden fishery moves to landing under the IC/SSF provision.

#### 3.3.2 Permitted Gear Types of the of IC/SSF Provision

Goal: Address the volume of landings under the provision by removing specific gear types

**Note:** Under Amendment 3, fyke nets were listed under both gear types which may lead to two different possession limits for the same gear type under 3.3.3 below, should the possession limit for directed gear types be modified. Therefore, under Options 2 and 3, fyke nets have been removed from the small-scale directed gear type category and

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maintained only in the non-directed gear type category. Additionally, trammel nets are defined as a directed gear under Amendment 3, but at the request of the Board was moved into the non-directed gear type category for Options 2 and 3 below. Option 1 Sub-Options 2 and 3 provide a mechanism for the classifications to be changed without changing permitted gear types.

Option 1. No changes to permitted gear types (Status quo): The provision would apply to both small-scale directed gears and non-directed gears. Small scale directed gears shall include cast nets, traps (excluding floating fish traps), pots, haul seines, fyke nets, hook and line, bag nets, hoop nets, hand lines, trammel nets bait nets, and purse seines which are smaller than 150 fathoms long and eight fathoms deep. Non-directed gears include pound nets, anchored/stake gillnets, drift gill net, trawls, fishing weirs, fyke nets, and floating fish traps.

Sub-Option 1 (Status quo): All gear types will retain the classifications as defined in Amendment 3.

Sub-Option 2: Fyke nets will be removed from the small-scale directed gear type category, thereby becoming listed only as a non-directed gear.

Sub-Option 3: Fyke nets will be removed from the small-scale directed gear type category, thereby becoming listed only as a non-directed gear, and trammel nets will be reclassified as a non-directed gear type.

Option 2. No purse seines, all other small-scale and non-directed gears maintained: The provision would apply to both small-scale directed gears and non-directed gears, but exclude purse seine gears. This option is included due to the growth of directed landings from small-scale purse seine gears in recent years (Table 6). Landings from purse seine gears would count against a state's directed fishery quota. Small-scale directed gears shall include cast nets, traps (excluding floating fish traps), pots, haul seines, hook and line, bag nets, hoop nets, hand lines, and bait nets. Non-directed gears include pound nets, anchored/stake gillnets, trammel nets, drift gill net, trawls, fishing weirs, fyke nets, and floating fish traps.

Option 3. Non-directed gears only: The provision shall apply to non-directed gears only. This includes pound nets, anchored/stake gillnets, trammel nets, drift gill net, trawls, fishing weirs, fyke nets, and floating fish traps.

#### **3.3.3 Trip Limit for Directed Small-Scale Fisheries of IC/SSF Provision**

Goal: Limit the annual volume of IC/SSF landings by reducing the trip limit.

The options below modify the trip limits for directed small-scale fisheries. Stationary multi-species gears are defined as pound nets, anchored/stake gill nets, fishing weirs, floating fish

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traps, and fyke nets. A trip is based on a calendar day such that no vessel may land menhaden more than once in a single calendar day. The use of multiple carrier vessels per trip to offload any bycatch exceeding the daily trip limit of Atlantic menhaden is prohibited. If Option 3 was selected in section 3.3.2 above, this section is no longer needed.

Option 1. No change to trip limit (Status quo): small-scale gears and non-directed gear types may land up to 6,000 pounds of menhaden per trip per day. Two authorized individuals, working from the same vessel fishing stationary multi-species gear, are permitted to work together and land up to 12,000 pounds from a single vessel – limited to one vessel trip per day.

For both Options 2 and 3 below, the proposed change in the trip limit would only apply to small-scale directed gears which include cast nets, traps (excluding floating fish traps), pots, haul seines, hook and line, bag nets, hoop nets, hand lines, bait nets, and purse seines which are smaller than 150 fathoms long and 8 fathoms deep. Non-directed gears and stationary multi-species gears would still be able to land up to 6,000 pounds of menhaden per trip per day, with two individuals working from the same vessel fishing stationary multi-species gear, permitted to work together can land up to 12,000 pounds.

Option 2. 4,500 pound trip limit for directed gear types: The trip limit for the directed small-scale fishery shall be 4,500 pounds of menhaden per trip per day.

Option 3. 3,000 pound trip limit for directed gear types: The trip limit for the directed small-scale fishery shall be 3,000 pounds of menhaden per trip per day.

#### **3.3.4 Catch Accounting of IC/SSF Provision**

Goal: Create a system where annual IC/SSF landings are limited and there is accountability for overages.

**Note:** Under Option 2, the Board is not limited to one option. They can choose a combination of Option 2A and 2B or the sub-options.

Option 1. IC/SSF landings do not count against a state allocation nor the annual TAC (status quo): Landings under this provision will be reported as a part of the annual FMP Review (Amendment 3, Section 5.3: Compliance Report). Landings are reported by states as a part of Annual Compliance Reports. Should a specific gear type show a continued and significant increase in landings under the provision, or it becomes clear that a non-directed gear type is directing on menhaden under this provision, the Board has the authority, through adaptive management (Amendment 3, Section 4.6), to alter the trip limit or remove that gear from the IC/SSF provision.

Option 2. IC/SSF landings are evaluated against the annual TAC: Total landings under this provision would be evaluated against the annual TAC and will be reported as a part

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of the annual FMP Review (Amendment 3, Section 5.3: Compliance Report). Landings are reported by states as a part of Annual Compliance Reports. If IC/SSF landings cause the TAC to be exceeded, meaning the TAC is exceeded after adding total IC/SSF landings to total landings that occur under state quotas and EESA, the trigger is tripped, and the Board must take action as specified in Options 2A-2B below.

#### Option 2A. Modify the Trip Limit for Permitted Gear Types in the IC/SSF

Provision: The Board will evaluate the current IC/SSF trip limit and permitted gear types and take action to reduce the trip limit for one or more permitted gear types in the IC/SSF provision.

Sub-Option 1. The trip limit will be adjusted for one or more permitted gear types in the IC/SSF provision via Board action.

Sub-Option 2. The trip limit will be adjusted for one or more permitted gear types in the IC/SSF provision through adaptive management (Amendment 3, Section 4.6).

Option 2B. Modify Permitted Gear Types in the IC/SSF Provision: The Board will evaluate the permitted gear types in the IC/SSF provision and take action to eliminate one or more gear types from the IC/SSF provision.

Sub-Option 1. Permitted gear types in the IC/SSF provision will be adjusted via Board action.

Sub-Option 2. Permitted gear types in the IC/SSF provision will be adjusted through adaptive management (Amendment 3, Section 4.6).

#### **4. COMPLIANCE SCHEDULE**

If the existing Atlantic menhaden management plan is revised by approval of this draft addendum, the measures would be effective January 1, 2023. Unless otherwise directed by the Board, allocations will be revisited no more than 3 years (2025) following implementation of this addendum, as outlined in Amendment 3.

**Draft Addendum I to Amendment 3 for Board Review. Not for Public Comment**

**5. LITERATURE CITED**

ASMFC. 2012. Amendment 2 to the Atlantic Menhaden Fishery Management Plan. ASMFC, Arlington, VA 114 p.

ASMFC. 2016. Addendum I to Amendment 2 to the Atlantic Menhaden Fishery Management Plan. ASMFC, Arlington, VA 7 p.

ASMFC. 2017. Amendment 3 to the Atlantic Menhaden Fishery Management Plan. ASMFC, Arlington, VA 111 p.

Bigelow, H.B., and Schroeder, W.C. 2002. Fishes of the Gulf of Maine. 3rd ed. Edited by B.B. Collette and G. Klein-MacPhee. Smithsonian Institution Press, Washington, D.C.



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

**TO:** Atlantic Menhaden Management Board  
**FROM:** Atlantic Menhaden Plan Development Team  
**DATE:** July 20, 2022  
**SUBJECT:** Recommendations on Draft Addendum I to Amendment 3

At the 2022 Spring Meeting, the Atlantic Menhaden Management Board provided further guidance to the Plan Development Team (PDT) to continue developing draft Addendum I to Amendment 3. The addendum considers changes to commercial allocations, the episodic event set aside (EESA) program, and the incidental catch and small-scale fisheries (IC/SSF) provision. This memo summarizes the PDT recommendations for the Board's consideration in approving the document for public comment.

Each section below includes justification for modifying and/or eliminating specific options. A decision tree for selecting state allocations is included in the Appendix. The topics are interconnected such that decisions made for one topic will impact alternatives under other topics. Because of this interconnectedness, the Board should carefully consider removal of some options to reduce complexity of the document. This will allow the public to effectively provide feedback to the Board before final action. Currently there are 35 total options in the Draft Addendum (16 combinations of allocation options; 3 options for the EESA program; and 16 options for the IC/SSF provision). **While the number of options has been significantly reduced, the PDT reiterates its recommendation that the Board continue to simplify the document as much as possible before approving for public comment.**

### Commercial Allocations

#### *3.1.2 Timeframe for Allocating Remaining Available TAC*

Option 3B. Weighted Allocation Timeframe #2 (2009-2012 and 2017-2019 & 2021): **The PDT recommends removal of timeframe #2.** The Board requested two versions of the weighted allocation timeframe be developed in October 2021. While the state allocations vary slightly between the two versions, they are conceptually the same. By having two options, it increases the possible state allocation options by four options for a total of 16 options. **The PDT reiterates its recommendation that Timeframe #2 be removed because the same objective is achieved with Timeframe #1, which utilizes the original time series plus the most recent three years.**

## **Incidental Catch and Small-Scale Fisheries Provisions**

### *3.3.2 Permitted Gear Types of the IC/SSF Provision*

The PDT found two gear types that they felt should be reclassified. First, the PDT discovered that fyke nets were mistakenly listed as both a small-scale directed gear type and a non-directed gear type in Amendment 3, thereby creating a situation where fyke nets could be applied to two different sets of regulations. Additionally, in response to a Board request, the PDT reviewed the classification of trammel nets and decided that moving them to non-directed gear would be more consistent with their operation. **Therefore, in Options 2 and 3, the PDT chose to list both fyke and trammel nets as non-directed gear only. The PDT created Option 1 Sub-options 2 and 3 to provide a mechanism for the Board to still modify the gear type classifications in the event that the Board chooses to maintain the status quo of permitted gear types in the IC/SSF provision.**

At the Spring Meeting, the PDT was requested to review Option 3 and consider creating an exception for beach seines to continue operating if this option is selected. However, given that Options 1 and 2 both allow for beach seines to continue under the IC/SSF provision and that the intent of Option 3 is to create an IC/SSF provision where there is no menhaden directed fishery, such an exception would be contrary to the spirit of the option and the range that Options 1-3 present. Furthermore, the PDT is concerned that such an exception would be exploited to develop new directed fisheries under the IC/SSF provision. **Therefore, the PDT chose not to modify the option.**

### *3.3.4 Catch Accounting of the IC/SSF Provision*

Following Board modifications to 3.3.4 and requests for further management responses to an overage of the TAC caused by IC/SSF landings, the PDT developed Options 2A and 2B, which present the Board with mechanisms to impose trip limits or gear restrictions to reduce IC/SSF landings. However, the PDT feels that the process through which the Board should take action is strictly a management decision for the Board and will likely vary depending on the chosen action. Therefore, the PDT drafted sub-options for both Option 2A and Option 2B that give the Board the choice on whether the response will be carried out through board action or adaptive management (the development of a management document). The Board must weigh the advantages and disadvantages of these sub-options. Selecting the option of modifying trip limits or gear types through Board action will allow the Board to be more responsive to TAC overages caused by the IC/SSF provision, while adaptive management will allow for more time to collect public input on the impacts of modifications on trip limits or gear types. Ultimately, if the Board chooses to pursue either Option 2A or 2B through Board action, they may still elect to use adaptive management if they believe that the action suggested under these options warrants further public input and the development of a management document.

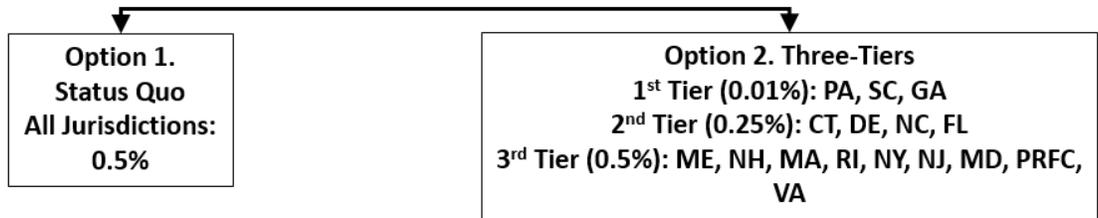
**Appendix A. Decision Tree**

The following provides a Decision Tree for selecting state allocations.

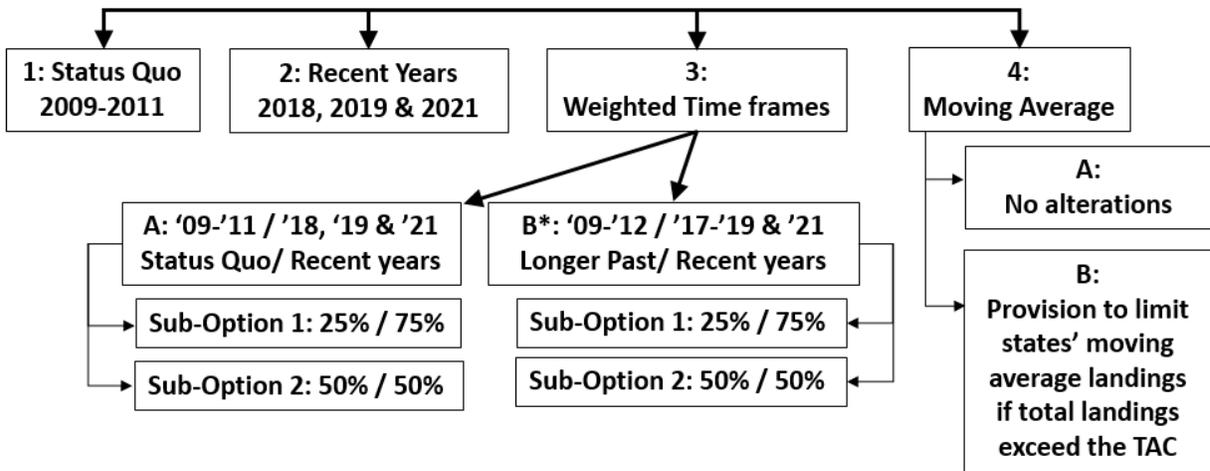
\*The PDT recommends removing these options

# Allocation Decision Tree

## Step 1: Minimum Allocation

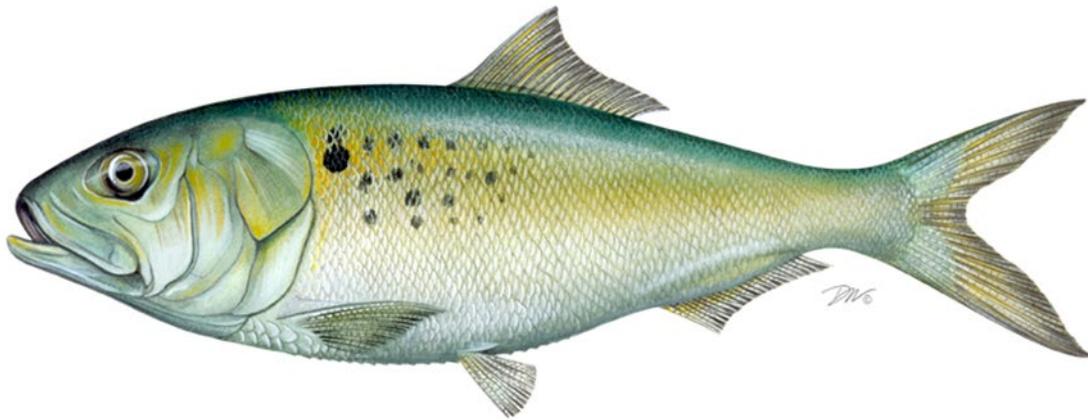


## Step 2: Timeframe to allocate remaining TAC



# Atlantic States Marine Fisheries Commission

## 2022 Atlantic Menhaden Stock Assessment Update



For Board Review



*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

# **Atlantic States Marine Fisheries Commission**

## *Atlantic Menhaden Stock Assessment Update*

*Prepared by the*

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## **ACKNOWLEDGEMENTS**

The Atlantic States Marine Fisheries Commission (ASMFC) thanks all of the individuals who contributed to the development of the Atlantic menhaden stock assessment update. The Commission specifically thanks the ASMFC Atlantic Menhaden Technical Committee (TC) and Stock Assessment Subcommittee (SAS) members who provided data and developed the stock assessment update report. Thank you to Atlantic Coastal Cooperative Statistics Program staff Adam Lee for validating landings. Thank you to Harvey Walsh (NOAA) for providing data for the EcoMon survey and James Gartland and Rob Latour (VIMS) for providing an update to the fecundity analysis.

DRAFT

## **EXECUTIVE SUMMARY**

The purpose of this assessment was to update the 2019 Atlantic Menhaden Single-Species Benchmark Stock Assessment (SEDAR 2020a) with recent data from 2018-2021. The stock assessment update reran the peer-reviewed Beaufort Assessment Model (BAM) with a terminal year of 2021 and determined stock status of Atlantic menhaden using the ecological reference points (ERPs) defined in SEDAR 2020b and accepted for management use in 2020. This stock assessment update for Atlantic menhaden adopted the format of a Terms of Reference Report as developed by the Assessment Science Committee.

### **Landings**

The Atlantic menhaden commercial fishery has two major components, a purse-seine reduction sector that harvests fish for fish meal and oil and a bait sector that supplies bait to other commercial and recreational fisheries. The first coastwide total allowable catch (TAC) for commercial landings for Atlantic menhaden was implemented in 2013 and has changed in value depending on the most recent stock assessment and management document. Incidental catch and recreational harvest are not counted toward the TAC. The current TAC for the 2021 and 2022 fishing seasons is 194,400 mt. Reduction landings have been steady since the implementation of the TAC, while bait landings have increased particularly in the northern states. For 2018-2021, reduction landings comprised about 70% of the coastwide landings. In 2021, bait and recreational landings were approximately 61,000 mt and reduction landings were approximately 136,700 mt.

### **Indices of Relative Abundance**

The juvenile Atlantic menhaden index developed from 16 fishery-independent surveys showed the highest young-of-year abundance occurred during the 1970s and 1980s. Abundance has been lower since the 1990s with some moderate increases in the mid-2000s and 2016.

Three coastwide indices of adult abundance were developed from eight fishery independent survey data sets: northern (NAD; age-2+), Mid-Atlantic (MAD; age-1+), and southern (SAD; age-1) adult indices. The NAD indicated that age-2+ relative abundance has been variable, but abundance was high in 2012 and 2019-2021. The MAD showed high relative abundance in the late 1980s and then variable abundance with peaks in 2014 and 2015. The SAD indicated that age-1 abundance was high in 1990 and then declined through the 1990s. Abundance peaked again in 2006 and then remained variable through the terminal year.

### **Fishing Mortality**

Highly variable fishing mortalities were noted throughout the entire time series and are dependent upon fishing and management policies, as well as stock status. The fishing mortality rate was highest in the 1970s and 1980s and has been declining since approximately 1990. The fishing mortality rate has been relatively stable since the mid-1990s and decreased in 2020 and 2021. Fishing effort in 2020 and 2021 was impacted by the COVID-19 pandemic with several vessels not operating due to restrictions.

### **Biomass**

Biomass has fluctuated over time with a time series high in 1959 to a low in 1973. From 1990 to the present, biomass has increased. Biomass increased at a faster rate than abundance because of the increase in the number of older fish and an increase in weight-at-age.

### **Fecundity**

Population fecundity (i.e., number of maturing ova) was highest in the early 1960s, low in the 1970s and 1980s, and high again from the 1990s to the present. The largest values of population fecundity were in 1955, 1961, and 2012. In the last decade, fecundity estimates were mostly between the ERP target and threshold with some years exceeding the target.

### **Stock Status**

The fishing mortality rate for the terminal year of 2021 was below the ERP target and threshold and the fecundity was above the ERP target and threshold. Therefore, overfishing is not occurring and the stock is not considered overfished.

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## INTRODUCTION

This Terms of Reference (TOR) report describes the update to the single-species stock assessment for Atlantic menhaden (SEDAR 2020a). This assessment extends the fishery-independent and –dependent data for Atlantic menhaden through 2021, reruns the peer-reviewed Beaufort Assessment Model (BAM), and determines stock status of Atlantic menhaden using the ecological reference points (ERPs) defined in SEDAR 2020b and accepted for management use in 2020.

### TOR 1. Fishery-Dependent Data

*Update fishery-dependent data (landings, discards, catch-at-age, etc.) that were used in the previous peer-reviewed and accepted benchmark stock assessment.*

The commercial reduction, commercial bait, and recreational landings time series were extended from the previous assessment (SEDAR 2020a) through 2021, along with the associated age compositions from the reduction and bait fisheries. For use in the BAM, landings were split into northern and southern regions as defined by waters north and south of Machipongo Inlet, Virginia, where the Chesapeake Bay is in the southern region.

Reduction landings were provided by the NOAA Fisheries Beaufort Lab. Reduction landings in the southern region have been slowly decreasing over the last few years while the northern reduction landings were increasing, although southern landings were larger than those in the north (Figure 1).

Bait landings from 1955-1984 were compiled from historic records whereas bait landings for 1985-2021 were validated with the states by the Atlantic Coastal Cooperative Statistics Program (ACCSP). Bait landings in the north increased in recent years and were over twice as much as landings in the south for the last four years (Figure 2). Several states revised their landings in the beginning of the validated time series (mid-1980s to mid-1990s) which resulted in higher landings than those in the benchmark (Figure 3). States routinely refine their landings as part of their internal data management processes and this updated time series represents the best data available. Particularly in the northern region, the revised landings resulted in a more abrupt change from the pre-1985 landings, which are from historic records and cannot be validated, to the post-1985 validated landings. The revised landings in the northern region did affect the base run of the BAM model and a bridge run has been done as part of TOR 4 to investigate the effects of this change on the results.

The Marine Recreational Fisheries Statistics Survey (MRFSS, 1981-2003) and the Marine Recreational Information Program (MRIP, 2004-2021) data sets were used to derive a time series of recreational landings of Atlantic menhaden. The uncertainty associated with recreational estimates for Atlantic menhaden is high and the landings are variable, although slightly higher in recent years (Figure 4). For use in the BAM, recreational harvest, which comprises less than 1% of coastwide harvest, was added to the bait landings. Reduction landings have remained relatively steady in the last few years with bait landings increasing over time, comprising 30% of coastwide landings in 2021 (Figure 5).

Commercial reduction and bait catch-at-age matrices were developed from the available biological data collected in each fishery by region. Age proportions of the bait catch were applied to the MRIP estimates of recreational catch and pooled with the bait catch-at-age.

See Appendix for supplemental tables (Table A1 – Table A5) for TOR 1.

## **TOR 2. Fishery-Independent Data**

*Update fishery-independent data (abundance indices, age-length data, etc.) that were used in the previous peer-reviewed and accepted benchmark stock assessment.*

Sixteen fishery-independent surveys from Rhode Island to South Carolina were used to develop young-of-year (YOY) abundance indices which were then combined into a coastwide index of relative YOY abundance using the Conn method (Conn 2010; Table 1). Eight fishery-independent surveys from Connecticut to Georgia were developed into age 1+ abundance indices and were combined into three regional adult surveys: a northern adult index (NAD), a Mid-Atlantic adult index (MAD), and a southern adult index (SAD). Several surveys were affected by the COVID-19 pandemic and had no or limited sampling in 2020 and 2021 (Table 1). The Conn method for combining the individual indices into regional or coastwide composite indices can be used on surveys with different time series lengths or missing data and allowed for a terminal year of 2021 despite some surveys not operating during the pandemic.

The coastwide YOY index of relative abundance for Atlantic menhaden indicated high abundance in the 1970s and 1980s, with declines through the 1990s (Figure 6). YOY abundance remained low but slightly higher than the benchmark's terminal year value in 2017 (SEDAR 2020a) which was the lowest value in the time series. The NAD index predicted variable abundance throughout the time series with high abundance occurring in the terminal years of 2019-2021 (Figure 7). There is large uncertainty associated with the high terminal year estimates because all three surveys used in the NAD had at least one year of missing data due to the pandemic. The MAD index predicted high abundance in the beginning of the time series followed by a lower but variable abundance through the late 1990s-early 2010s (Figure 8). Abundance in the Mid-Atlantic region began to increase in the mid-2010s but then decreased and was variable through the terminal years with 2020 representing a time series low but 2021 indicating a mid-range abundance. The SAD index predicted high abundance in 1990 followed by low abundance through the mid-2000s (Figure 9). The index peaked again in 2006 but then decreased and was variable through the terminal year. For the NAD and MAD adult indices, length compositions were developed by combining data from each of the surveys and weighting the data by the inverse of the squared sigma values outputted from the Conn method.

An index of Atlantic menhaden spawning biomass was developed using larval abundance data collected from two regional ichthyoplankton surveys (MARMAP and EcoMon; Figure 10). The index increased in the last few years through the terminal year of 2020. Data from 2021 were not available. This index was included in the base run of the assessment model in SEDAR 2020a but was excluded in this update's base run due to issues with model fitting which will be discussed in TOR 4. Additionally, the SAS is recommending that this index is further investigated during the next assessment and included that research recommendation in TOR 7.

See Appendix for supplemental tables (Table A6 – Table A7) and figures (Figure A1- Figure A4) for TOR 2.

### **TOR 3. Life History Information and Model Parameterization**

*Tabulate or list the life history information used in the assessment and/or model parameterization (M, age plus group, start year, maturity, sex ratio, etc.) and note any differences (e.g., new selectivity block, revised M value) from benchmark.*

Tabulated life history information and model inputs can be found in Table 2. Two changes were made in the data inputs or structure of the model in this stock assessment update from the benchmark other than adding additional years of data: the exclusion of the MARMAP and EcoMon ichthyoplankton surveys (MARECO) and the exclusion of the 2020 age composition data from the commercial bait fishery in the southern region due to small sample sizes. These changes are discussed in TOR 4 and sensitivity runs were developed to investigate those exclusions. The same time blocks for catch selectivity estimations used in SEDAR 2020a were used in this update. Since the last assessment (SEDAR 2020a), the fecundity information was updated by the Virginia Institute of Marine Science (R. Latour and J. Gartland, VIMS, unpublished data) using the same methods as was used for the benchmark.

### **TOR 4. Updated Beaufort Assessment Model**

*Update accepted model(s) or trend analyses and estimate uncertainty. Include sensitivity runs and retrospective analysis if possible and compare with the benchmark assessment results. Include bridge runs to sequentially document each change from the previously accepted model to the updated model.*

The benchmark assessment was updated with all available data through the terminal year of 2021. Some changes were made to the updated run from the benchmark assessment, those changes included:

1. Censoring of the MARECO ichthyoplankton index;
2. Censoring of the commercial bait south age compositions for 2020;
3. The inclusion of penalties on some of the selectivity parameters that were hitting bounds during the estimation process.

These changes to the assessment update were considered thoroughly and are discussed below under the topics of sensitivity and bridge runs. Briefly, the quality and quantity of data at the end of the time series during the COVID-19 pandemic years caused some problems with estimation of parameters and the determination of year-class strength (recruitment). The update assessment retained the same method of recruitment estimation as used during the benchmark assessment. There is no formal stock-recruitment structure, rather median recruitment is estimated along with annual recruitment deviations from that median for the duration of the time series.

In general, the updated base run assessment is similar to the benchmark assessment. The model fit well to the landings for all four fleets. In general, the patterns in the age compositions

were random and did not exhibit any patterning. The fits to the indices were similar to the fits during the benchmark assessment and did not have runs in residuals. The fits to the NAD and MAD length compositions were also similar to the fits during the benchmark assessment. Selectivity for the fisheries and the indices were similar to the last assessment.

The fishing mortality rate ( $F$ ) decreased in 2020 and 2021 and has been relatively stable since the mid-1990s (Figure 11). The recruitment class for 2019 and 2020 appears to be larger (Figure 12). However, the model does have difficulty estimating large year-classes in the terminal year of the model, as evidenced by the benchmark assessment. In addition, the sampling data for 2020 and 2021 are reduced because of the pandemic; thus, the status of the 2019 and 2020 year-classes may not be known until a further update to this assessment. Age-1+ biomass increased during the last three years, showing a steady increase (Figure 13). Finally, fecundity has been stable during the most recent years, but a large increase was estimated for 2021 (Figure 14). That rise in fecundity was due to an increase in fecundity for age-2 individuals, which is linked to a larger estimated year class in 2019. The SAS cautions that the assessment had difficulty during the benchmark estimating recruitment in the terminal years; specifically, the larger recruitment class estimated during the benchmark was estimated to be lower in this assessment. Thus, additional years of data in the next assessment will determine whether the 2019 year class remains larger or not. Until that time, the SAS notes this as an uncertainty.

The SAS evaluated one bridge run for the update assessment to address the changes in the validated northern commercial bait time series of landings which was updated by the states. The landings for this update are the best scientific information available and the most accurate time series of landings data available. Thus, this bridge run was completed for illustrative purposes. The SAS found that the largest difference between the base run results and the bridge run were in mid-1980s estimates of  $F$  on ages 2-4, as expected. The SAS was satisfied that the change in historical bait landings did not result in significant changes in model fit or a difference in stock status.

A series of sensitivity runs were completed to determine the best approach regarding the 2020 and 2021 data. During 2020 and 2021, the pandemic led to reduced or missing data for some fishery-dependent and –independent sampling programs. With the reduced sample sizes, the data that were collected in 2020 and 2021 did not necessarily reflect the same spatial and temporal extent as past years of data. Thus, the SAS choose to run several sensitivity runs including and excluding the 2020 and 2021 data to determine the impacts on the assessment outcomes. The sensitivity runs included:

1. Censoring all 2020 and 2021 data;
2. Including all 2020 and 2021 data;
3. Including the 2020 and 2021 data except for the commercial bait south 2020 age compositions while also including the MARECO or ichthyoplankton index.

Overall, these sensitivity runs demonstrated that the terminal year age composition data inform terminal year recruitment values. Without those data, the terminal year recruitment values are centered on the mean recruitment values.

A set of sensitivity runs was also completed to investigate the inclusion of the MARECO (the ichthyoplankton index). These sensitivity runs included some of those already described above whereby the index was censored or not in combination with the inclusion or censoring of the 2020 and 2021 data. Additionally, the SAS considered runs whereby the terminal year of data for this index was censored with runs with MARECO data until 2014-2020. When updating the assessment, the MARECO index was causing difficulty for parameter estimation and Hessian inversion for the model, as well as the gradient for the final solution being larger than the criterion. Upon further investigation, the MARECO index did not seem to reflect the population trend as well as other data sources. For example, the pattern of the observed MARECO index was not consistent with estimated spawning stock biomass trends despite being used as an indicator of fecundity in the population (Figure 15). The model was unable to match the increase of the MARECO index given the fits to the other indices, landings, and composition data. These discrepancies could occur for many reasons. First, the MARECO index is an ichthyoplankton index while the other indices directly measure older individuals. Second, mechanisms relating the ichthyoplankton index to the population status are difficult to discern given the unknown drivers between the fecundity/larval abundance stage and recruitment. Many potential biological mechanisms could be considered, but the SAS does not have the data to do so at this time. In addition, 2020 and 2021 data are generally atypical within the assessment, thus the MARECO index may be garnering more weight and influence in the model, which could lead to a larger gradient. During the benchmark assessment (SEDAR 2020a), the SAS noted numerous adjustments that needed to be made in order to develop a reasonable MARECO index including removal of strata, removal of months, and adjustments to account for inconsistencies in the two survey methodologies. Given these previous challenges and the influence of the other data issues created by the pandemic, it is not surprising that the use of this index for the update proved problematic for model convergence. While the MARECO index is dropped for this update, the SAS would like to investigate this topic further in future assessments. One option the SAS could consider is using nonlinear relationships between catchability and the MARECO index.

A retrospective analysis was completed for the update assessment. A series of runs were done removing the terminal year data in sequence. The update assessment had a terminal year of 2021, and the retrospective analysis was run back through a terminal year of 2016. Overall, the retrospective runs fall within the uncertainty bounds from the uncertainty analysis. While the SAS completed a retrospective analysis for this assessment, they urge caution when interpreting the results as 2020 and 2021 data were influenced by the pandemic, as described above.

A Monte Carlo bootstrap (MCB) uncertainty analysis was completed as was done for the last benchmark assessment. The configuration was kept exactly the same with uncertainty in natural mortality and fecundity. A total of 5,000 runs were completed. Some runs were excluded due to gradients, leaving 4,868 MCB runs for analysis. Overall, the uncertainty was large for all the metrics of interest. A Monte Carlo Markov Chain analysis (MCMC) was completed for the previous benchmark but not run for this update assessment. As noted in the benchmark assessment, while the MCB analysis may overestimate the uncertainty surrounding the base run, the MCMC analysis is an underestimate of the uncertainty surrounding the base

run. Hence, the MCB analysis is a more conservative approach and was the preferred uncertainty analysis.

See Appendix for supplemental tables and figures for TOR 4: model fits to landings (Figure A5 - Figure A8) and associated age comps (Figure A9 - Figure A16), model fits to indices (Figure A17 - Figure A20) and associated length comps (Figure A21 - Figure A24), estimated selectivities (Figure A25 - Figure A30), model estimated  $F$ , recruitment, biomass, and fecundity (Figure A31 - Figure A38), bridge runs (Figure A39 - Figure A46), sensitivity runs (Figure A47 - Figure A63), and the retrospective analysis (Figure A64 - Figure A71).

## **TOR 5. Stock Status**

*Update the biological reference points or trend-based indicators/metrics for the stock. Determine stock status.*

The Atlantic Menhaden Management Board (Board) adopted ERPs in Amendment 3. Thus, stock status was determined using those benchmarks. The fishing mortality rate for the terminal year of 2021 is below the ERP threshold and target ( $F_{2021}/F_{ERPThreshold} = 0.28$ ;  $F_{2021}/F_{ERPTarget} = 0.85$ ; Figure 16), and the fecundity for the terminal year of 2021 is above the ERP threshold and target ( $FEC_{2021}/FEC_{ERPThreshold} = 1.76$ ;  $FEC_{2021}/FEC_{ERPTarget} = 1.28$ ; Figure 17). Therefore, overfishing is not occurring and the stock is not overfished (Table 3).

The uncertainty in the stock status was evaluated through the MCB analysis. The terminal year  $F$  was below the ERP threshold for all of the MCB runs (Figure 18) and the terminal year fecundity was above the ERP threshold for all of the runs (Figure 19). The SAS does note that each MCB run was not run through the ERP's Northwest Atlantic Coastal Shelf Model of Intermediate Complexity for Ecosystems (NWACS-MICE) model, thus the benchmark comparisons were to those from the base run. The MCB plots are not internally consistent for each run, but do give an idea of the uncertainty related to the ERP benchmarks, which agrees with the base run stock status determinations.

## **TOR 6. Projections**

*Conduct short term projections when appropriate. Discuss assumptions if different from the benchmark and describe alternate runs.*

Short-term projections at the current Total Allowable Catch (TAC) of 194,400 mt were provided. At a TAC of 194,400 mt, the fishing mortality rate is below the ERP threshold and target, and the fecundity is above the ERP threshold and target (Figure 20). Further projections based on different removal levels will be analyzed at the Board's request.

The projections have the same methods and assumptions as those run for the benchmark assessment. It is important to note that uncertainty is accounted for in the projections. Additionally, during the benchmark (SEDAR 2020a), the SAS used a new procedure for recruitment in the projections. Instead of assuming a static median value for recruitment, as is done for many assessment projection methodologies, recruitment was projected using nonlinear time series analysis methods (Deyle et al 2018). Specifically, projections were based on the MCB runs, which allows recruitment to change from year to year in the projections

based on how recruitment has changed in the past under similar conditions. Thus, uncertainty is recognized in the recruitment time series and the methods used for projections adequately accounted for that uncertainty using the best scientific methods available. However, the board should still consider these uncertainties in the context of risk when using the projection information for management.

#### **TOR 7. Research Recommendations**

*Comment on research recommendations from the benchmark stock assessment and note which have been addressed or initiated. Indicate which improvements should be made before the stock undergoes a benchmark assessment.*

A long-standing research recommendation for Atlantic menhaden is to develop and implement a multi-year coastwide fishery-independent survey. It was noted in SEDAR 2020a that even area-specific surveys could provide substantial improvements over the indices currently used in the assessment. With that in mind, Congress included a Chesapeake Bay Atlantic Menhaden Abundance provision in the Fiscal Year 2022 Consolidated Appropriations Act (Public Law No: 117-103) encouraging NOAA Fisheries, in partnership with ASMFC and relevant states, to collect Atlantic menhaden abundance data in the Chesapeake Bay. Progress to address this research recommendation was made in 2020 when Wilberg et al. completed a project to evaluate survey designs for a combined aerial-hydroacoustic survey for Atlantic menhaden biomass in the Chesapeake Bay which was reviewed and endorsed by the TC. Regardless, no funding has been attached to the project and it remains unimplemented.

Despite the research recommendation to continue the current level of sampling from the fisheries, some sampling was reduced or temporarily discontinued due to the COVID-19 pandemic. For example, biological sampling from the bait and reduction fisheries occurred at lower samples sizes or not at all for 2020 and 2021. There is no expectation that those trends will continue following the pandemic and sampling is likely to increase to pre-pandemic levels. Similarly, an ageing workshop for Atlantic menhaden to assess precision and error among readers has not been initiated, despite plans for it in 2020, due to the pandemic and interest from agers to conduct the workshop in person.

In 2021, responding to the research recommendation to develop a spatially-explicit model for Atlantic menhaden, the Board tasked the TC and Ecological Reference Point Work Group (ERP WG) with identifying data needs and timelines for the development of that model. The TC and ERP WG produced a memo on potential spatially-explicit approaches, which highlighted that completing the task would likely extend the timeline for the next benchmark assessment, currently scheduled for 2025. The Board indicated that completing the benchmark stock assessment in 2025 as planned was the highest priority. Therefore, the next benchmark assessments will focus on refining the ERP approach developed in SEDAR 2020a and 2020b. While some spatial considerations may be incorporated in the process of refining the ERP models, spatial modeling will not be pursued until the 2025 benchmark assessments are completed.

During the next benchmark stock assessment process (scheduled for 2025), the SAS recommends that the MARECO index still be considered for inclusion in the model, but further

investigation is necessary. One option the SAS could consider is using nonlinear relationships between  $q$  and the MARECO index. Additionally, the SAS recommends that ACCSP continues to work with the states to validate bait landings and resolve the transition in the time series from pre-1985 bait landings in the northern region.

All research recommendations from SEDAR 2020a and 2020b remain important to the continued assessment of Atlantic menhaden, including those updated in this section. Please refer to the appendices at the end of this report for the complete list.

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Deyle, E., A.M. Schueller, H. Ye, G.M Pao, and G. Sugihara. 2018. Ecosystem-based forecasts of recruitment in two menhaden species. *Fish and Fisheries* 19: 769-781.

Southeast Data, Assessment, and Review (SEDAR). 2020a. SEDAR 69 - Atlantic Menhaden Single-Species Benchmark Stock Assessment and Peer Review Report. SEDAR, North Charleston, SC. 691 pp.

\_\_\_\_\_. 2020b. SEDAR 69 – Atlantic Menhaden Ecological Reference Point Benchmark Assessment and Peer Review Report. SEDAR, North Charleston, SC. 560 pp.

Wilberg, M., D. Liang, and H. Bi. 2020. Evaluating alternative designs for a combined aerial-hydroacoustic survey of Atlantic menhaden biomass in Chesapeake Bay. Final Report to: Atlantic States Marine Fisheries Commission. Solomons, Maryland. 135 pp.

**TABLES**

**Table 1. Fishery-independent surveys included in the coastwide young-of-year (YOY) and regional adult Atlantic menhaden abundance indices (Northern Adult Index, NAD; Mid-Atlantic Index, MAD; Southern Adult Index, SAD).**

<b>Conn Index</b>	<b>Fishery-Independent Survey (years of data)</b>	<b>Months</b>	<b>Length</b>
<b>NAD</b>	CT LISTS (1996-2009, 2011-2019, 2021)	Sept-lagged Jan	1990-2021
	DB Adult Trawl (1990-2021)		
	NJ Ocean Trawl (1990-1997, 1999-2019)		
<b>MAD</b>	MD Gill Net (1985-1995, 1998-2002, 2005-2021)	March-May	1985-2021
	VIMS Shad Gill Net (1998-2021)		
<b>SAD</b>	NC p915 (2008-2019)	April-July	1990-2021
	SEAMAP (1990-2019)		
	GA EMTS (2003-2021)		
<b>YOY</b>	RI Trawl (1990-2021)	Varies by survey	1959-2021
	CT LISTS (1996-2009, 2011-2017)		
	CT River Alosine (1987-2021)		
	CT Thames River Alosine (1998-2016)		
	NY Juvenile Striped Bass Seine (2000-2021)		
	NY Peconic Bay Trawl (1987-2021)		
	NY WLIS Seine (1986-2021)		
	NJ Ocean Trawl (1990-2019)		
	NJ Striped Bass YOY Seine (1986-2019, 2021)		
	DB Inner Bays (1986-2021)		
	MD Coastal Trawl (1972-1992, 1994, 1998-2021)		
	MD Juvenile Striped Bass (1959-2021)		
	VIMS Juvenile Trawl (1990-2021)		
	VIMS Striped Bass Seine (1968-1972, 1980, 1982, 1985-2021)		
	NC p120 (1989-2021)		
SC Electrofishing (2001-2021)			

**Table 2. Model structure and life history information used in the stock assessment.**

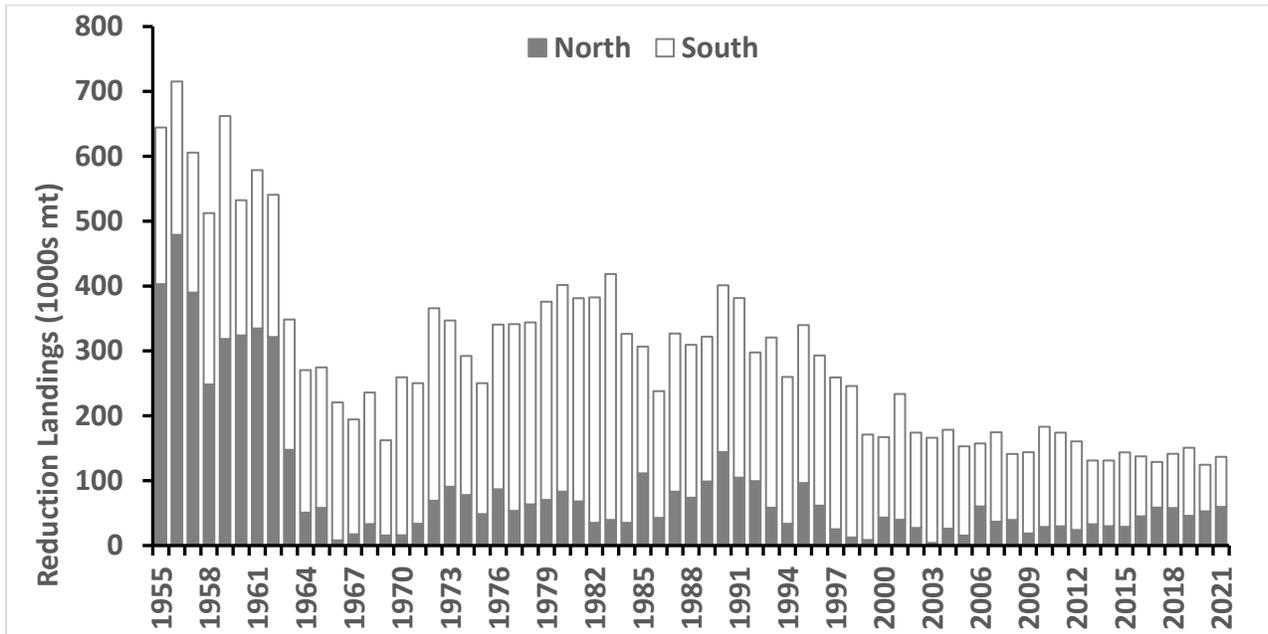
	Value(s)
Years in Model	1955-2021
Age Plus Group	6+
Fleets	2 (north and south regions for bait and reduction fisheries)
Fecundity	Time-varying fecundity-at-age
Natural Mortality	Age-varying natural mortality
Maturity	Time-varying maturity-at-age based on length-at-age
Sex Ratio	Fixed at 1:1 for males:females

	Age Group						
	0	1	2	3	4	5	6+
Natural Mortality	1.76	1.31	1.03	0.90	0.81	0.76	0.72

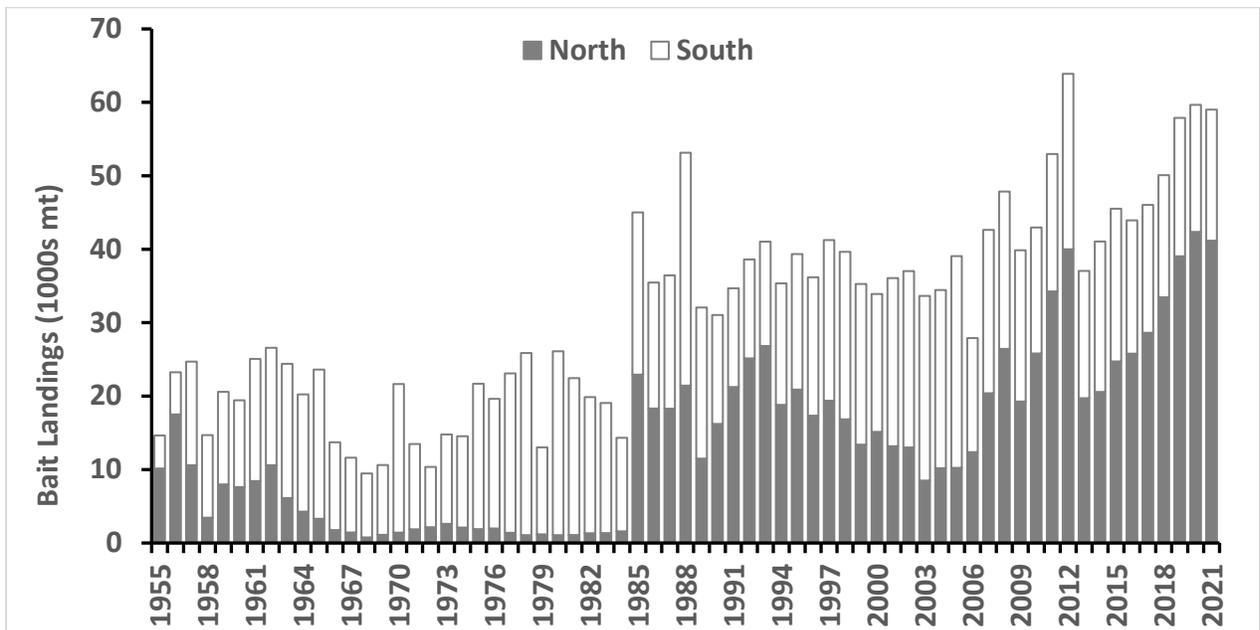
**Table 3. Current fishing mortality ( $F$ ) and fecundity ( $FEC$ ) ecological reference points (ERP targets and thresholds) along with terminal year values from the base run of the BAM for the stock assessment update for determining stock status. Fecundity is in billions of eggs.**

Reference Point	ERP Value	2021 Value	Stock Status
$F_{THRESHOLD}$	0.57	0.16	Not Overfishing
$F_{TARGET}$	0.19		
$FEC_{THRESHOLD}$	1,492,854	2,570,080	Not Overfished
$FEC_{TARGET}$	2,003,986		

**FIGURES**



**Figure 1. Atlantic menhaden reduction landings (1000s mt) from 1955-2021. The northern region is comprised of landings from north of Virginia Eastern Shore and the southern region is comprised of landings from Virginia Eastern Shore and Chesapeake Bay through Florida (Source: NOAA Fisheries Beaufort).**



**Figure 2. Atlantic menhaden bait landings (1000s mt) from 1955-2021. The northern region includes landings from Maine to Maryland’s Eastern Shore, excluding the Chesapeake Bay. The southern region includes landings from the Chesapeake Bay to Florida. Only landings from 1985 on can be validated (Source: ACCSP).**

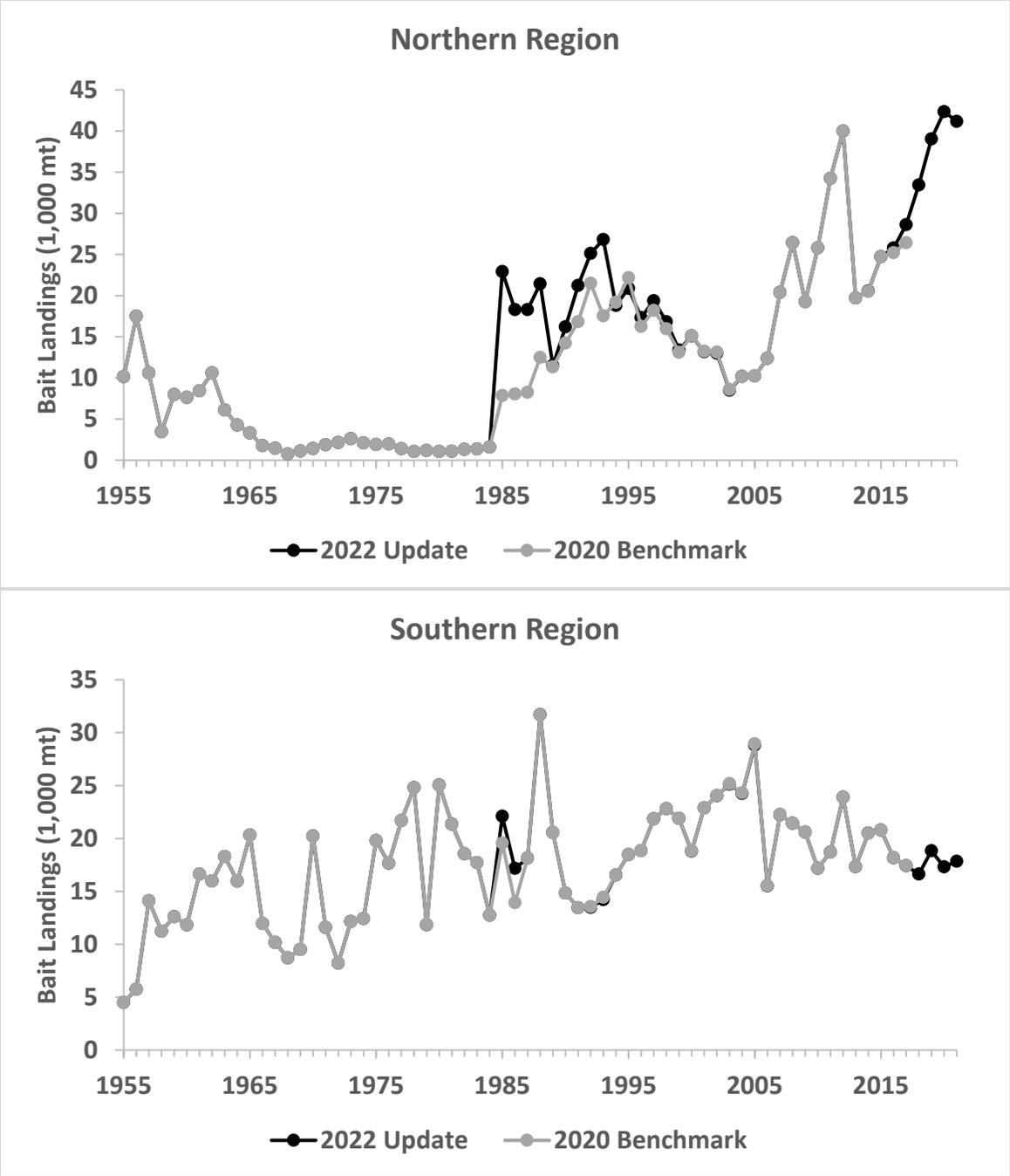


Figure 3. Differences between bait landings from the benchmark and update by region.

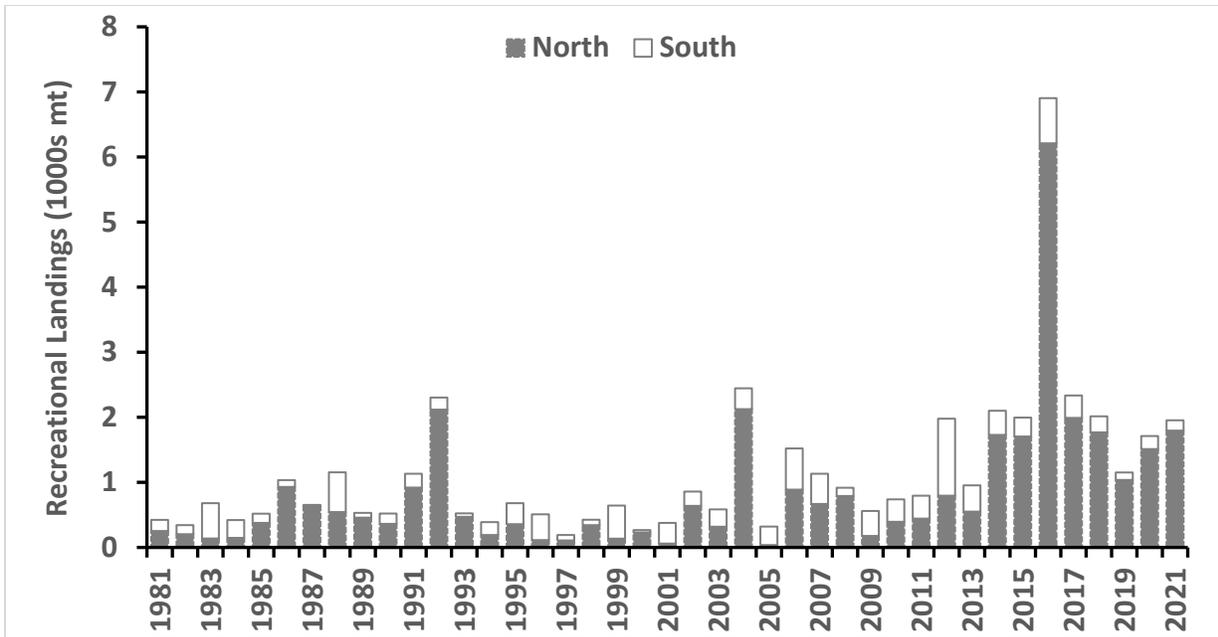


Figure 4. Atlantic menhaden recreational landings (1000s mt) from 1981-2021. The northern region includes landings from Maine to Maryland’s Eastern Shore, excluding the Chesapeake Bay. The southern region includes landings from the Chesapeake Bay to Florida (Source: MRIP).

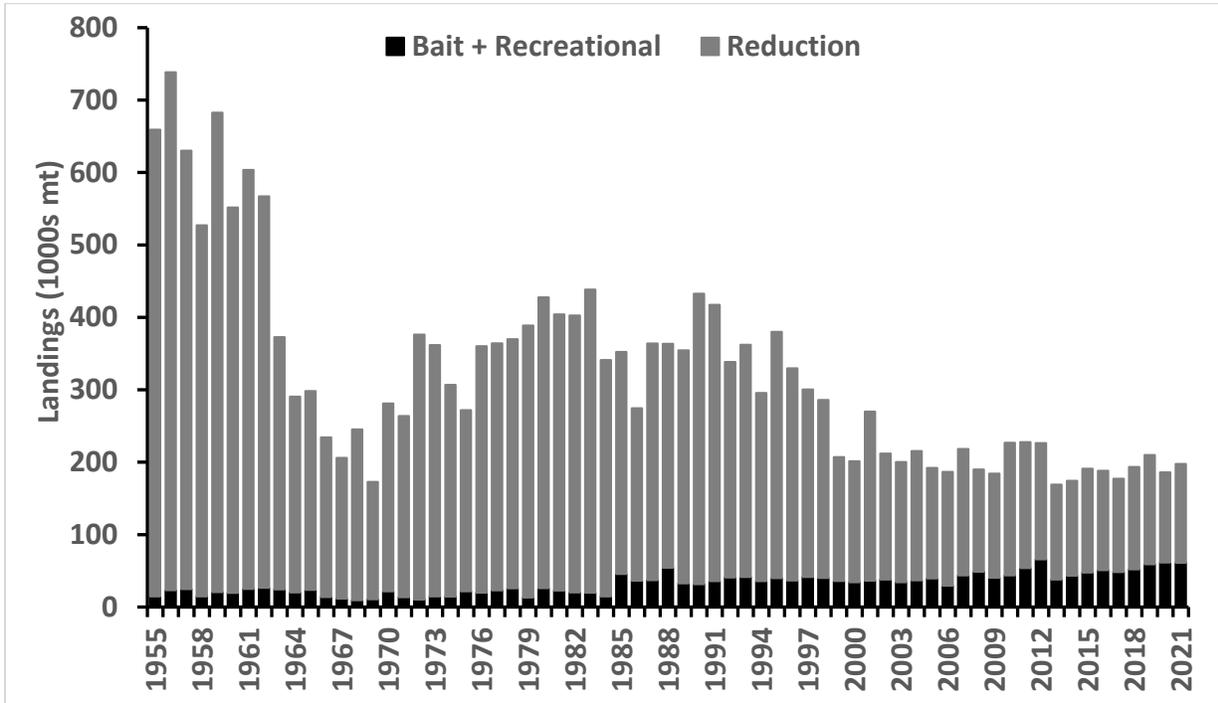


Figure 5. Coastwide Atlantic menhaden landings for the reduction and bait fisheries (1955-2021).

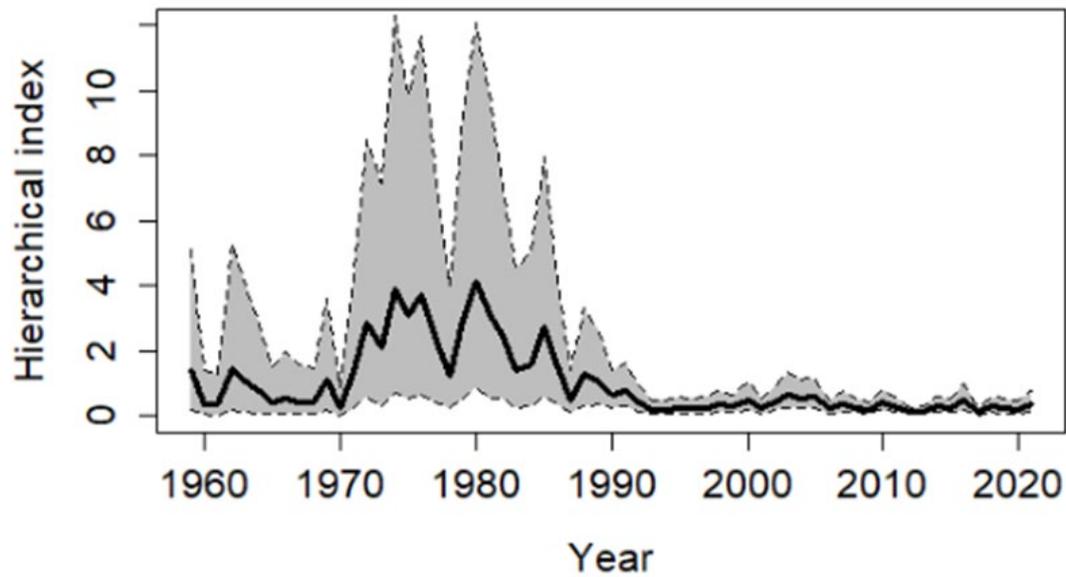


Figure 6. Time series of the young-of-year (YOY) Atlantic menhaden relative abundance index as estimated from hierarchical analysis (Conn 2010). The black line gives the posterior mean and the grey, dashed lines represent a 95% credible interval about the time series.

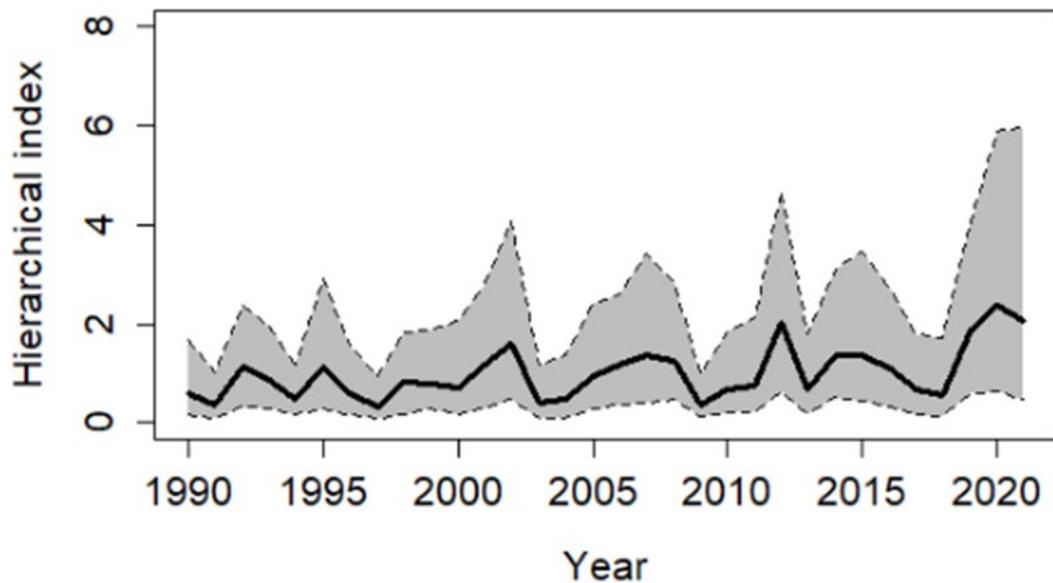


Figure 7. Time series of the northern adult Atlantic menhaden relative abundance index (NAD) as estimated from hierarchical analysis (Conn 2010). The black line gives the posterior mean and the grey, dashed lines represent a 95% credible interval about the time series.

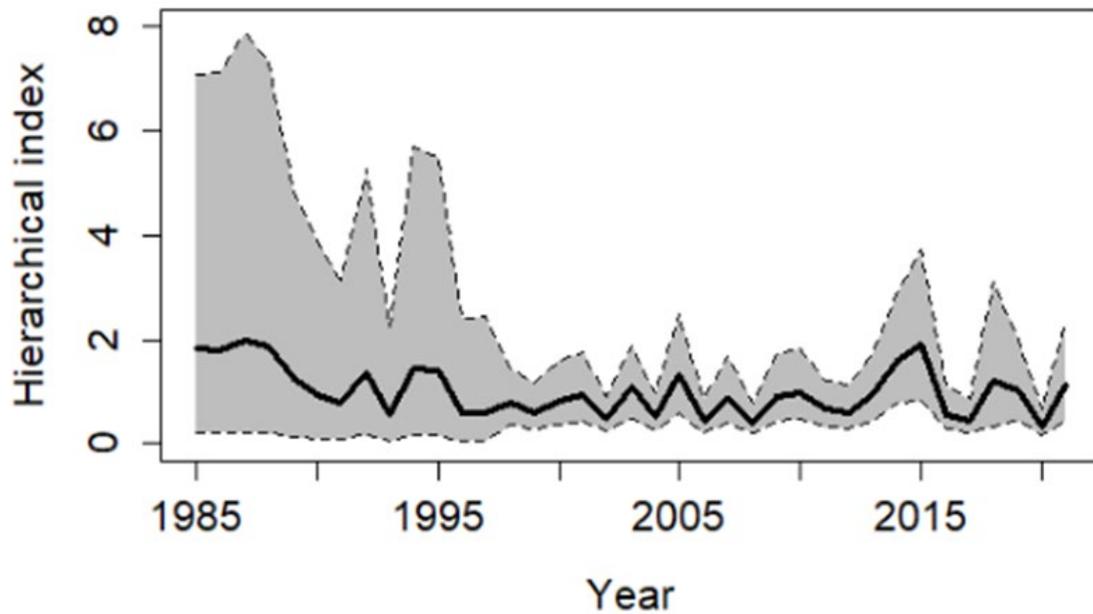


Figure 8. Time series of the Mid-Atlantic adult menhaden relative abundance index (MAD) as estimated from hierarchical analysis (Conn 2010). The black line gives the posterior mean and the grey, dashed lines represent a 95% credible interval about the time series.

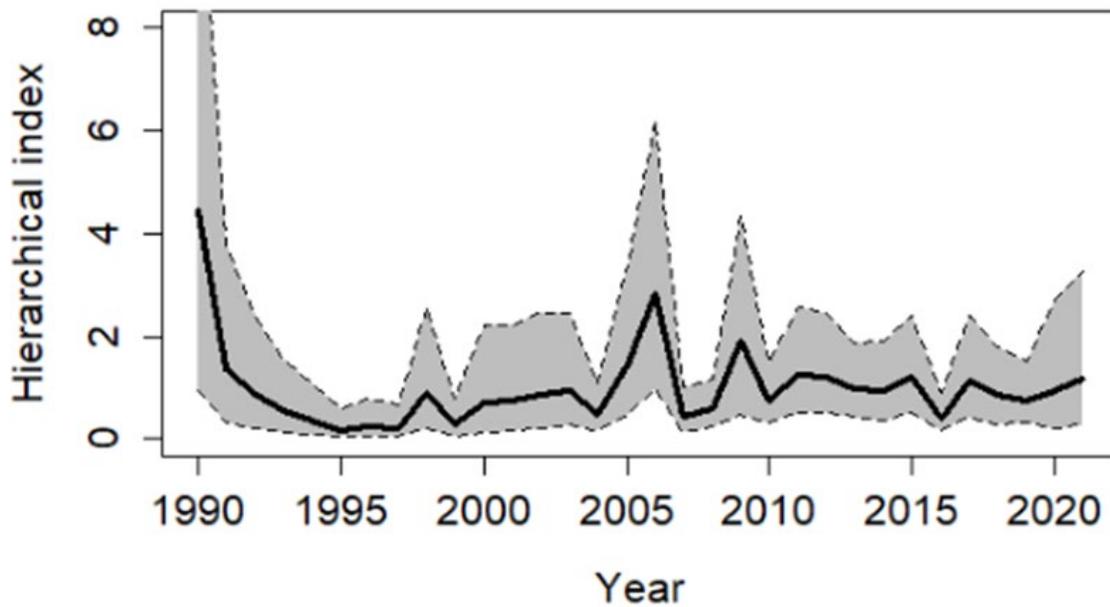


Figure 9. Time series of the southern adult Atlantic menhaden relative abundance index (SAD) as estimated from hierarchical analysis (Conn 2010). The black line gives the posterior mean and the grey, dashed lines represent a 95% credible interval about the time series.

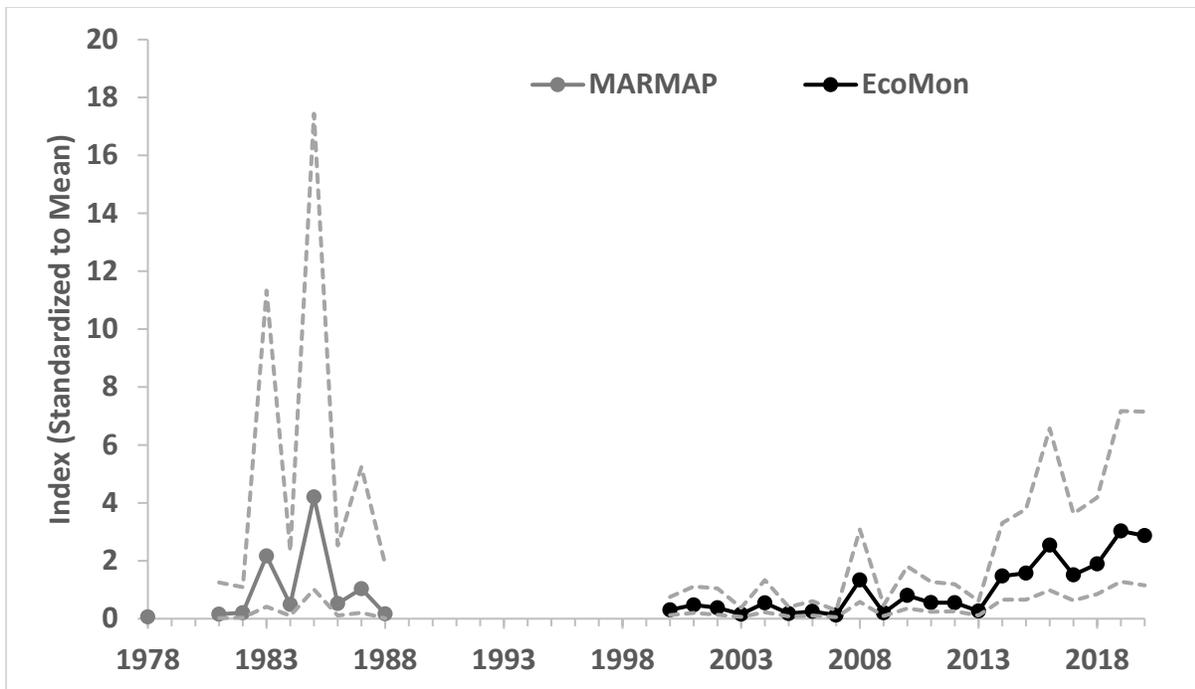


Figure 10. Standardized index of relative spawning stock biomass abundance of Atlantic menhaden developed from the MARMAP and EcoMon ichthyoplankton surveys. Dashed lines represent 95% confidence intervals. The 1978 upper confidence interval has not been included on the graph because of its large value (94).

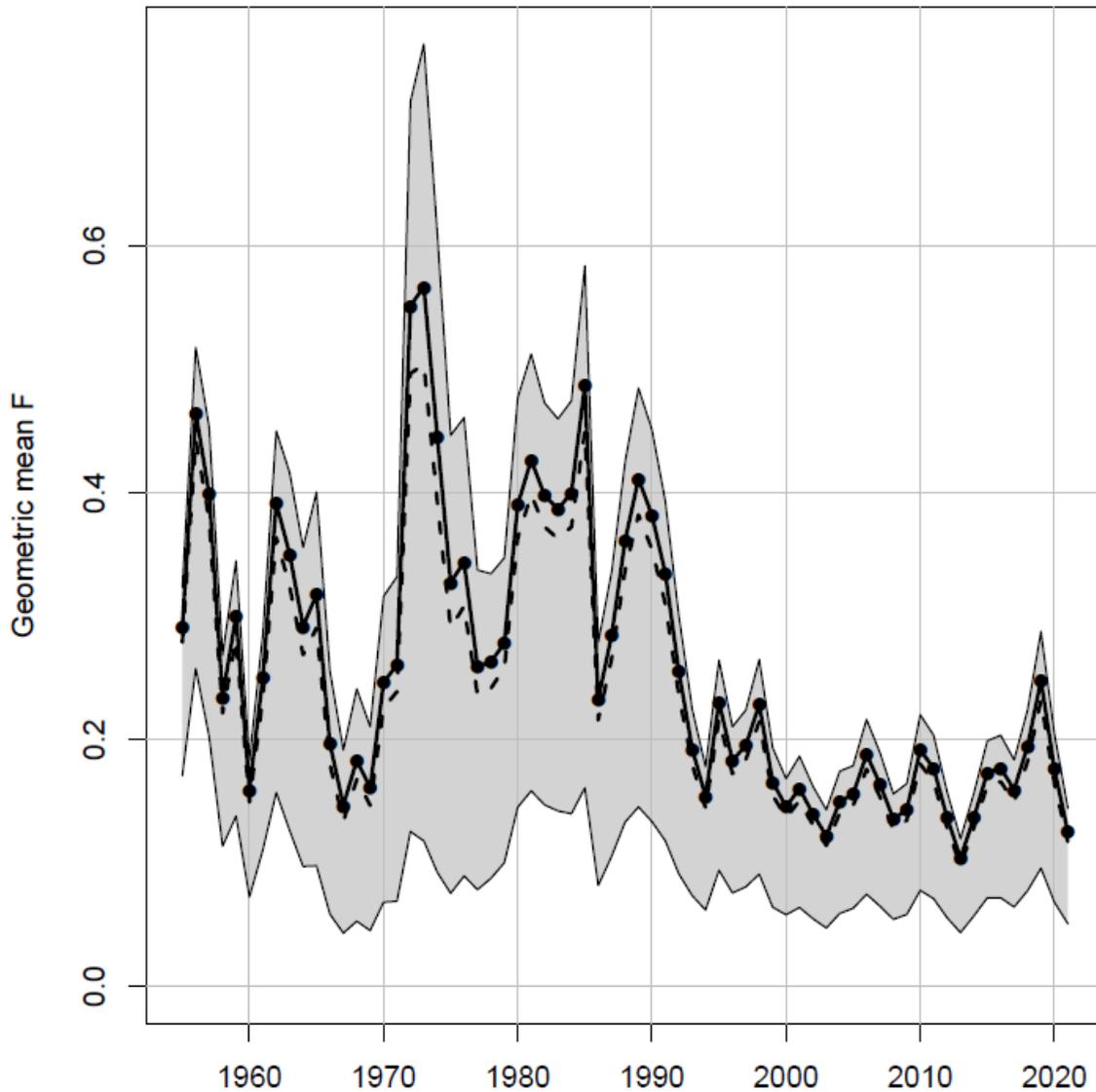
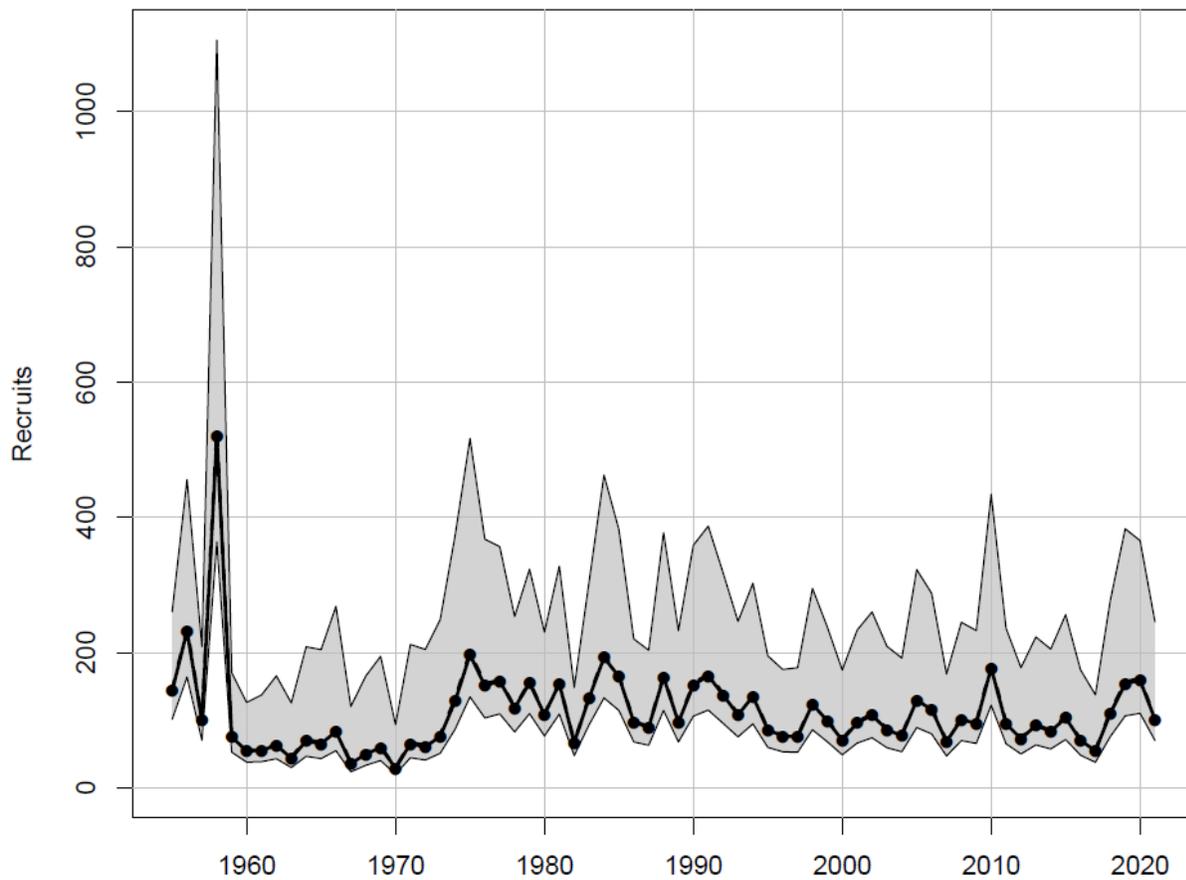


Figure 11. Time series of the geometric mean fishing mortality rate for ages-2 to 4 from 1955-2021 for the Monte Carlo bootstrap runs. The grey represents the 5<sup>th</sup> and 95<sup>th</sup> percentiles across the runs, while the black line with closed black circles represents the base run. The dashed line represents the median of the MCB runs.



**Figure 12. Estimated recruitment over time from 1955-2021 for the Monte Carlo bootstrap runs. The grey represents the 5<sup>th</sup> and 95<sup>th</sup> percentiles across the runs, while the black line with closed black circles represents the base run.**

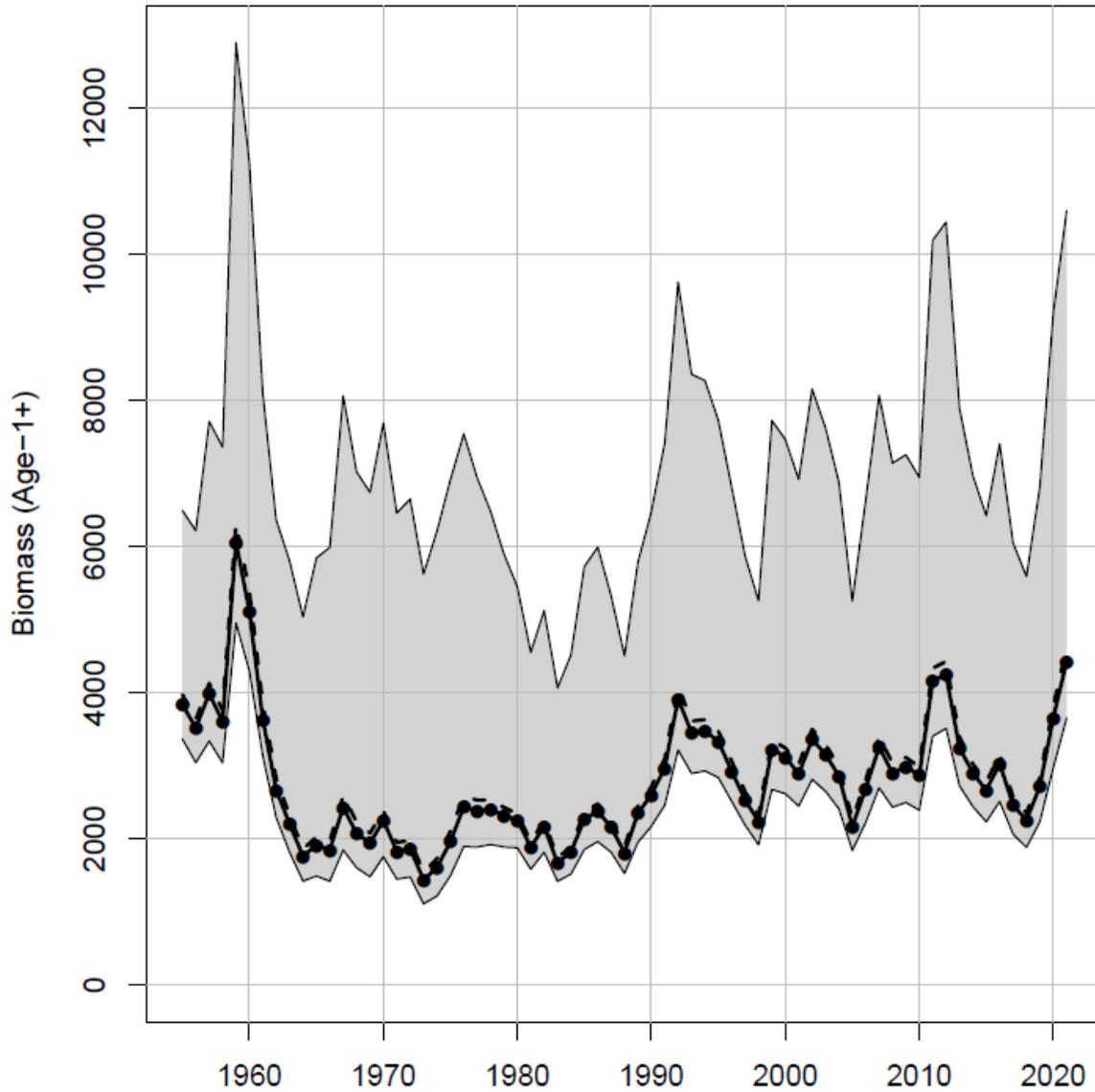


Figure 13. Time series of age-1+ biomass from 1955-2021 for the Monte Carlo bootstrap runs. The grey represents the 5<sup>th</sup> and 95<sup>th</sup> percentiles across the runs, while the black line with closed black circles represents the base run. The dashed line represents the median of the MCB runs.

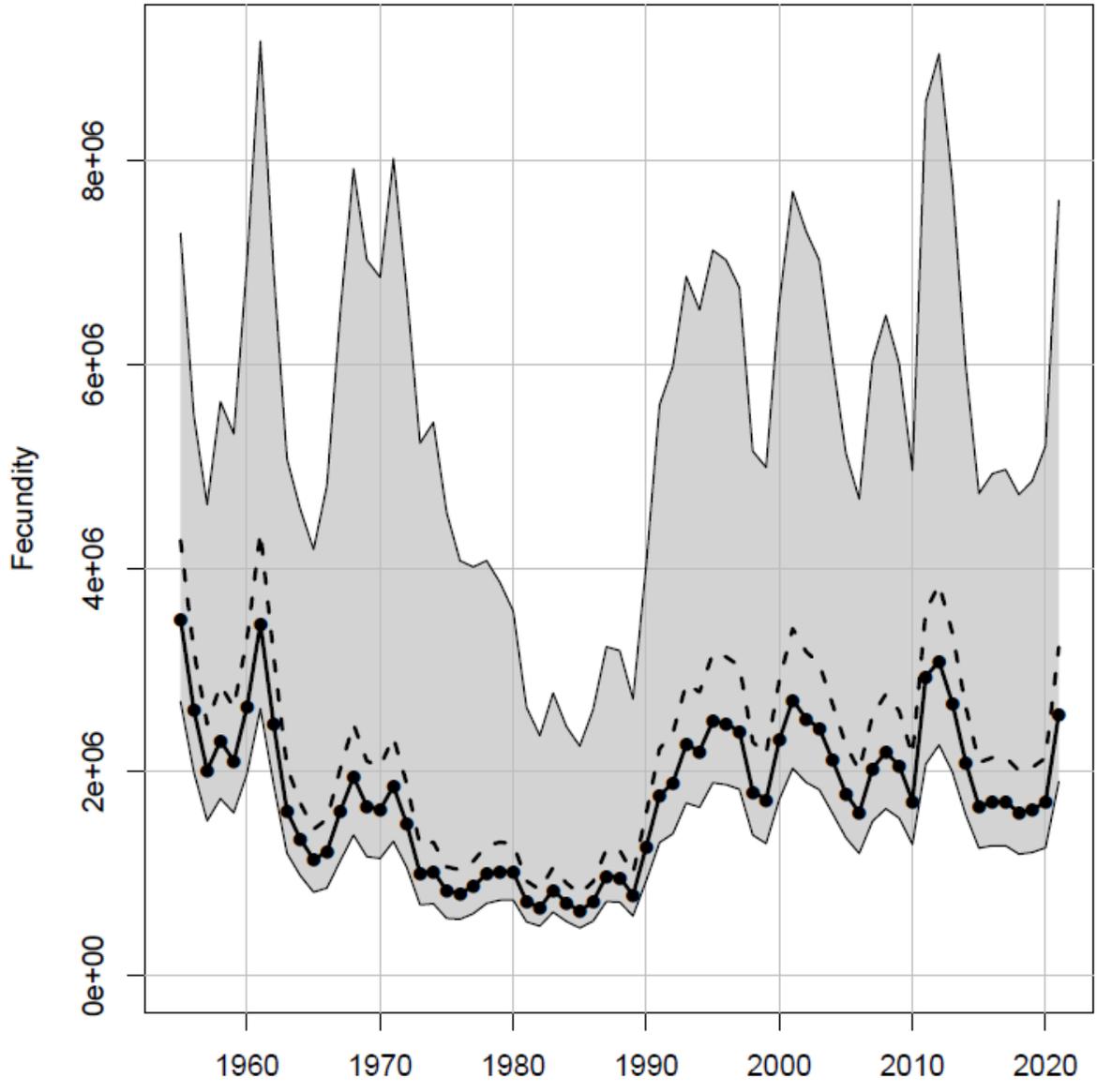
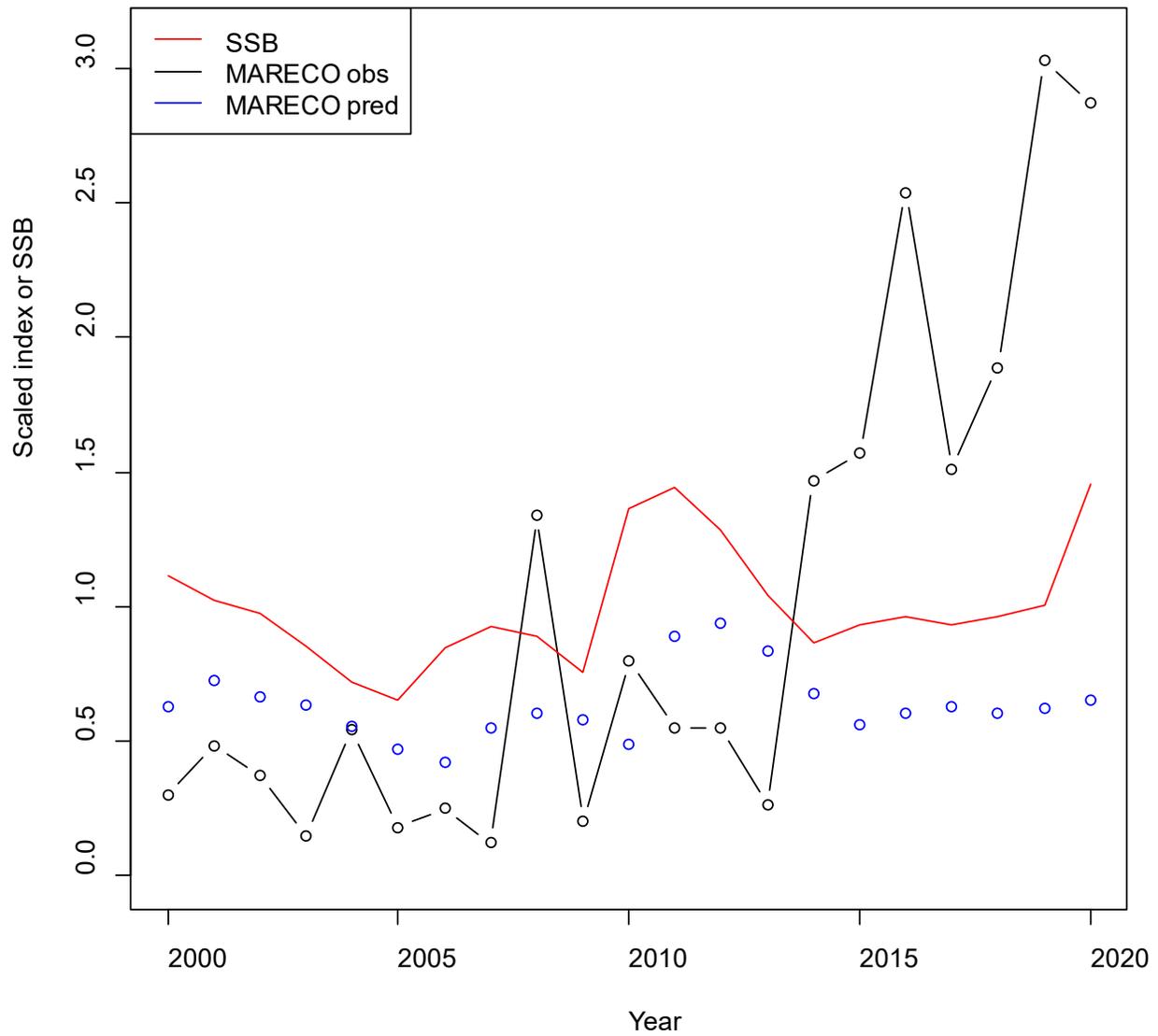


Figure 14. Time series of fecundity from 1955-2021 for the Monte Carlo bootstrap runs. The grey represents the 5<sup>th</sup> and 95<sup>th</sup> percentiles across the runs, while the black line with closed black circles represents the base run. The dashed line represents the median of the MCB runs.



**Figure 15. Observed and predicted values for the MARECO index and estimated spawning stock biomass (SSB).**

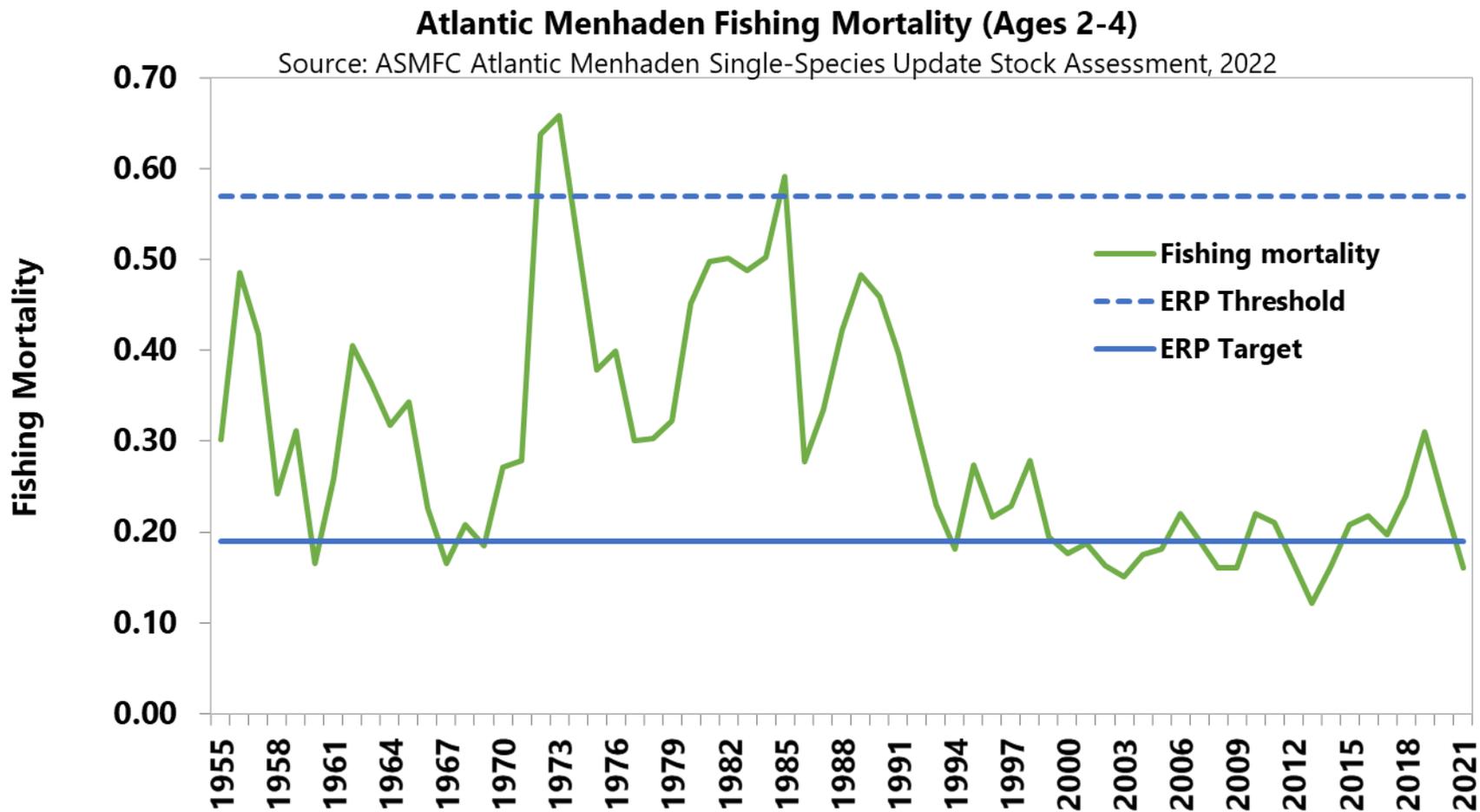


Figure 16. The full fishing mortality rate for 1955-2021 compared to the ecological reference point (ERP) threshold and target for fishing mortality rate. The full fishing mortality is dependent upon selectivity for the fisheries, and thus can represent ages-2 to 4, depending upon the year.

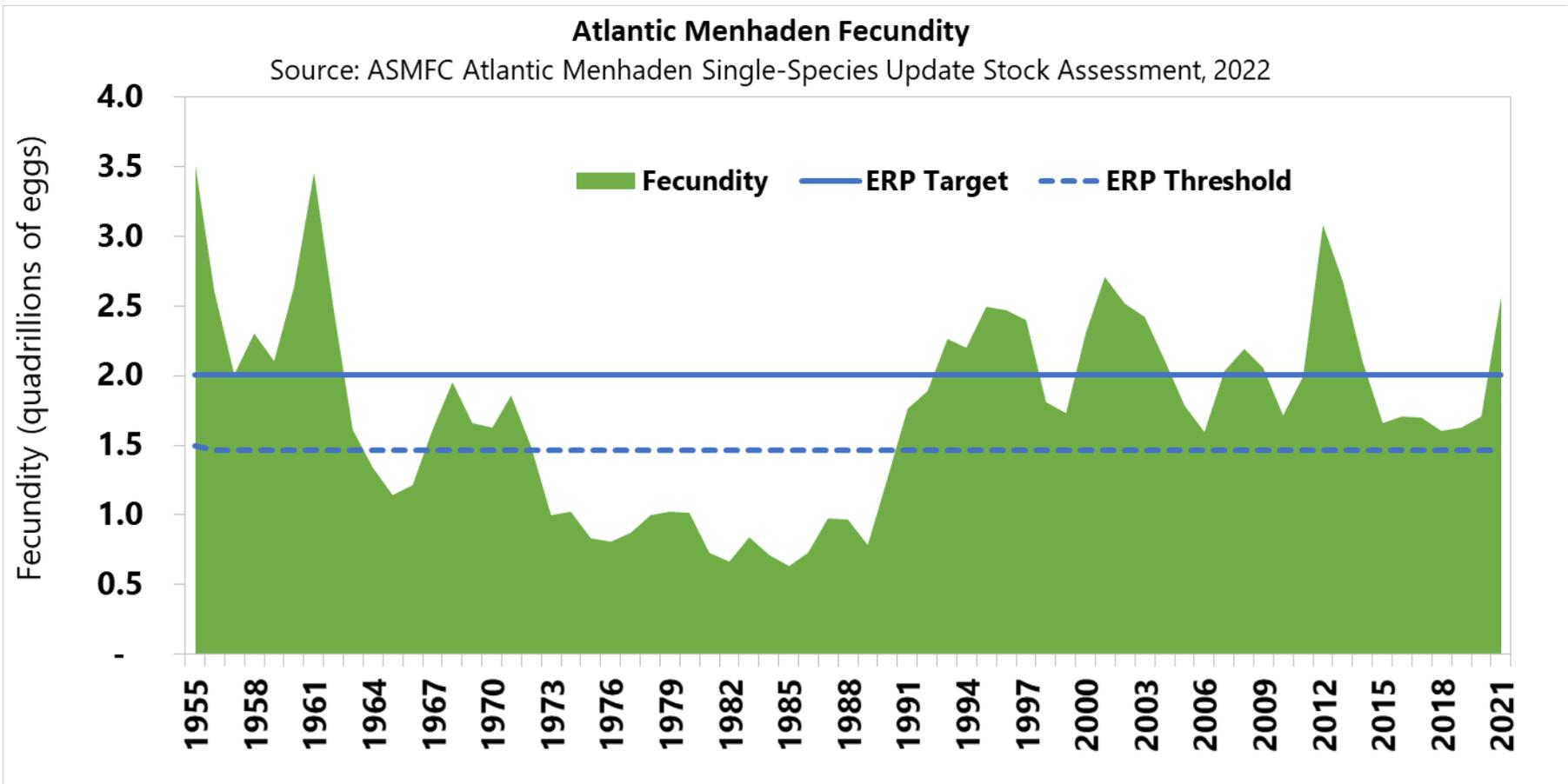
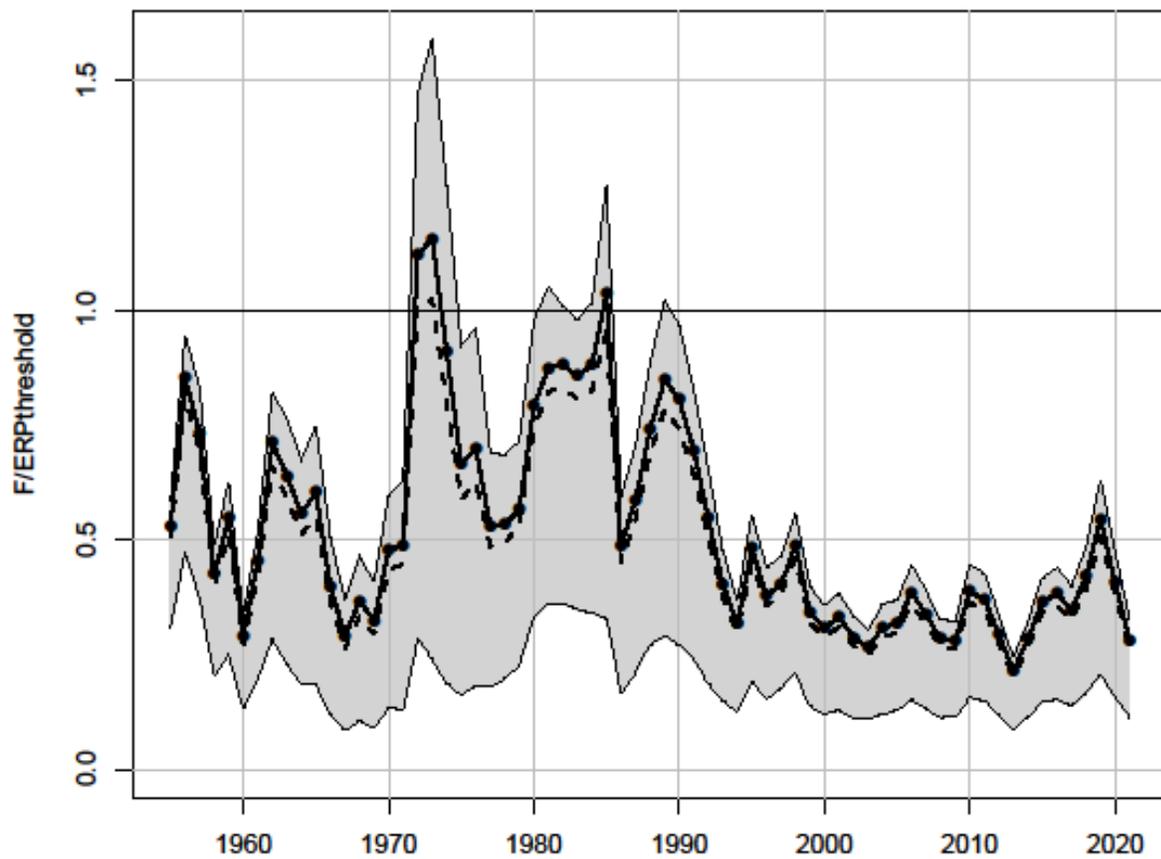


Figure 17. The fecundity for 1955-2021 compared to the ecological reference point (ERP) threshold and target for fecundity.



**Figure 18.** Fishing mortality rate from the MCB analysis over the ERP  $F$  threshold. The grey represents the 5th and 95th percentiles across the runs, while the black line with closed black circles represents the base run. The dashed line represents the median of the MCB run.

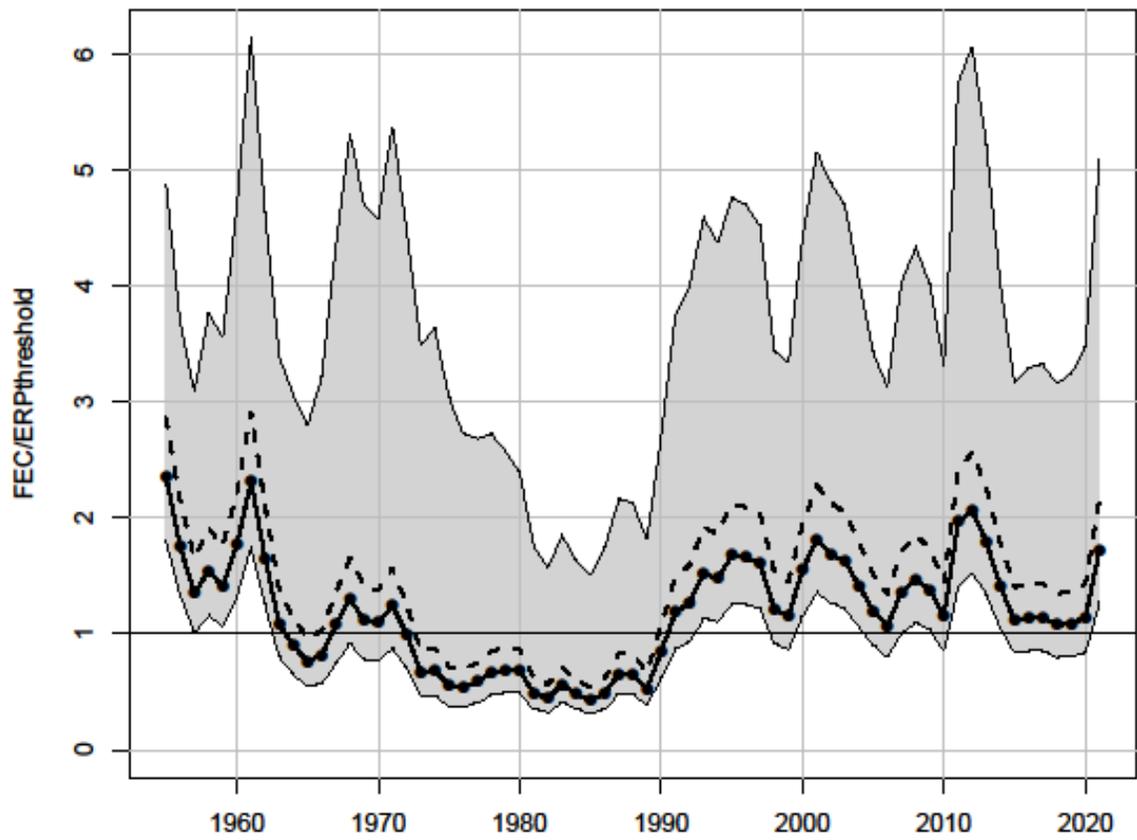
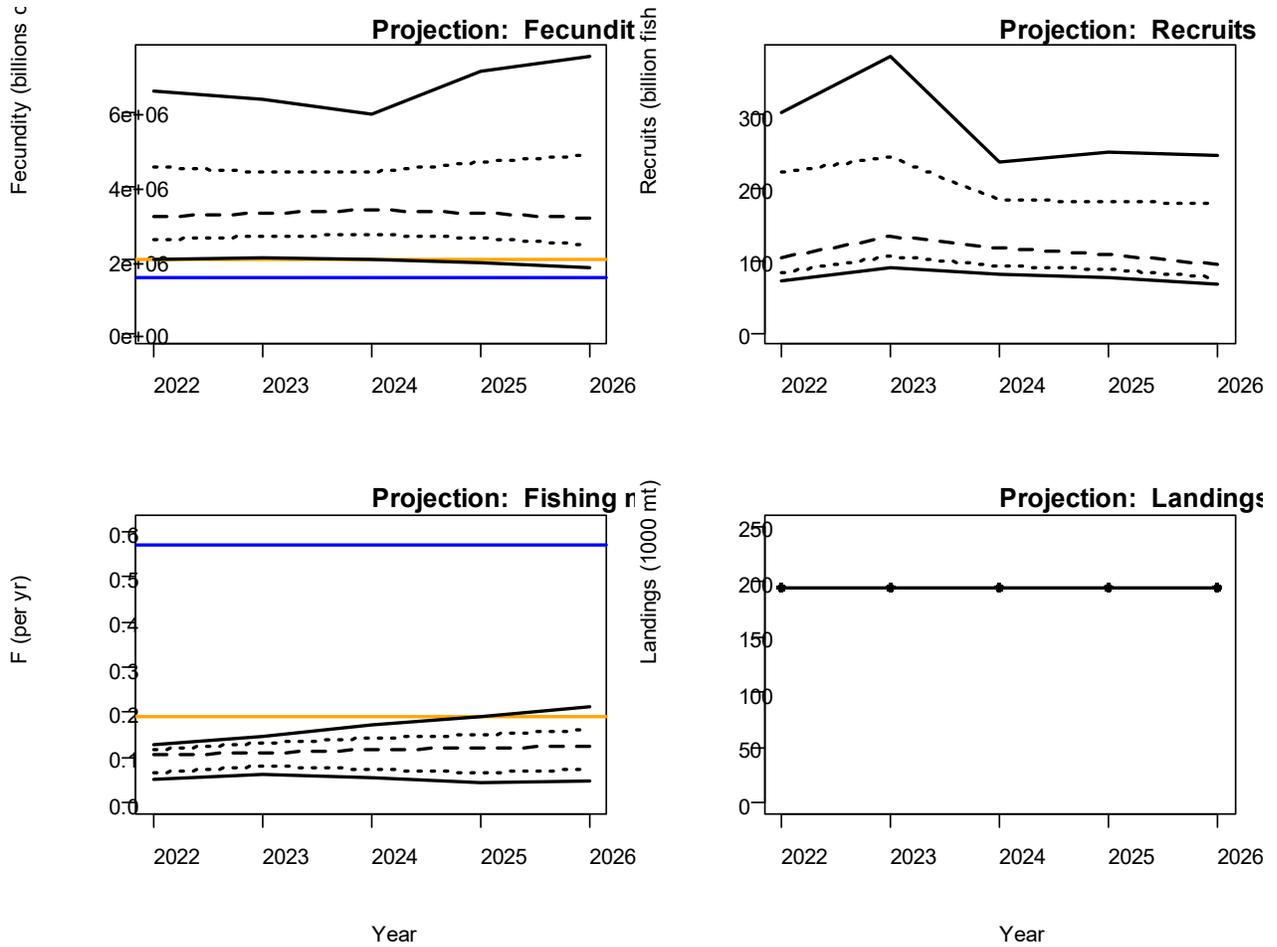


Figure 19. Fecundity from the MCB analysis over the ERP fecundity threshold. The grey represents the 5th and 95th percentiles across the runs, while the black line with closed black circles represents the base run. The dashed line represents the median of the MCB runs.



**Figure 20.** Fecundity, fishing mortality rate, and recruits projected from 2022 to 2026 for a coastwide total allowable catch of 194,400 mt. The orange lines represent the target fishing mortality rate and fecundity for the ecological reference points, while the blue lines represent the threshold fishing mortality rate and fecundity for the ecological reference points.

**APPENDIX**

**Appendix Tables**

**Table A1. Atlantic menhaden landings (in 1,000s of metric tons) by fishery and region, 1955-2021.**

Year	Reduction Landings			Bait Landings			Recreational Landings			Total Landings
	Total	North	South	Total	North	South	Total	North	South	
1955	644.48	402.74	241.74	14.64	10.14	4.50				659.12
1956	715.25	478.89	236.36	23.25	17.51	5.74				738.50
1957	605.58	389.80	215.78	24.71	10.60	14.11				630.29
1958	512.39	248.34	264.05	14.69	3.46	11.23				527.07
1959	662.17	318.44	343.73	20.58	7.98	12.61				682.76
1960	532.24	323.86	208.37	19.44	7.61	11.83				551.68
1961	578.61	334.76	243.85	25.07	8.44	16.63				603.68
1962	540.66	321.36	219.31	26.58	10.60	15.98				567.24
1963	348.44	147.55	200.89	24.39	6.11	18.28				372.83
1964	270.40	50.61	219.80	20.23	4.27	15.97				290.64
1965	274.60	57.96	216.64	23.62	3.30	20.32				298.22
1966	220.69	7.89	212.80	13.72	1.76	11.96				234.41
1967	194.39	17.21	177.18	11.61	1.44	10.17				206.00
1968	235.86	33.07	202.80	9.46	0.75	8.71				245.32
1969	162.33	15.41	146.92	10.61	1.11	9.50				172.94
1970	259.39	15.80	243.59	21.64	1.41	20.23				281.03
1971	250.32	33.44	216.87	13.47	1.87	11.60				263.79
1972	365.87	69.09	296.78	10.35	2.14	8.21				376.22
1973	346.92	90.69	256.23	14.77	2.61	12.16				361.69
1974	292.20	77.90	214.31	14.54	2.11	12.43				306.74
1975	250.21	48.40	201.81	21.69	1.89	19.80				271.90
1976	340.54	86.84	253.70	19.63	1.98	17.65				360.17
1977	341.16	53.31	287.85	23.09	1.39	21.70				364.25
1978	344.08	63.53	280.55	25.87	1.07	24.80				369.95
1979	375.74	70.19	305.55	13.02	1.17	11.85				388.76
1980	401.53	83.02	318.51	26.11	1.07	25.05				427.64
1981	381.31	68.06	313.25	22.44	1.08	21.36	0.42	0.25	0.17	404.17
1982	382.46	35.08	347.38	19.86	1.32	18.54	0.34	0.20	0.14	402.66
1983	418.63	39.37	379.26	19.06	1.36	17.71	0.68	0.14	0.54	438.38

**Table A1. Continued**

Year	Reduction Landings			Bait Landings			Recreational Landings			Total Landings
	Total	North	South	Total	North	South	Total	North	South	
1984	326.30	34.97	291.33	14.33	1.59	12.75	0.42	0.15	0.27	341.05
1985	306.67	111.25	195.42	45.02	22.92	22.10	0.52	0.38	0.14	352.21
1986	237.99	42.57	195.42	35.47	18.30	17.17	1.04	0.93	0.10	274.49
1987	326.90	82.99	243.91	36.43	18.30	18.13	0.65	0.63	0.02	363.98
1988	309.29	73.64	235.65	53.14	21.43	31.70	1.15	0.54	0.61	363.58
1989	322.00	98.82	223.18	32.07	11.49	20.57	0.53	0.46	0.08	354.60
1990	401.15	144.10	257.05	31.04	16.21	14.84	0.52	0.36	0.16	432.72
1991	381.43	104.55	276.87	34.68	21.23	13.45	1.13	0.92	0.21	417.24
1992	297.64	99.14	198.50	38.61	25.13	13.48	2.30	2.12	0.19	338.55
1993	320.60	58.37	262.23	41.04	26.82	14.22	0.52	0.47	0.05	362.16
1994	259.99	33.39	226.60	35.35	18.81	16.54	0.39	0.19	0.20	295.73
1995	339.92	96.30	243.62	39.35	20.88	18.47	0.68	0.36	0.32	379.95
1996	292.93	61.55	231.38	36.19	17.34	18.85	0.51	0.11	0.40	329.62
1997	259.14	25.17	233.98	41.24	19.38	21.86	0.19	0.11	0.08	300.57
1998	245.91	12.33	233.58	39.64	16.83	22.81	0.43	0.34	0.08	285.98
1999	171.19	8.42	162.77	35.27	13.39	21.89	0.64	0.13	0.51	207.11
2000	167.26	43.19	124.08	33.91	15.11	18.79	0.27	0.23	0.04	201.43
2001	233.56	39.62	193.94	36.06	13.17	22.89	0.38	0.06	0.32	269.99
2002	174.07	27.17	146.89	37.04	13.00	24.04	0.86	0.64	0.22	211.96
2003	166.11	4.15	161.96	33.64	8.50	25.14	0.58	0.32	0.27	200.33
2004	178.47	25.91	152.55	34.44	10.19	24.25	2.45	2.12	0.32	215.35
2005	152.85	15.37	137.48	39.06	10.23	28.83	0.32	0.04	0.28	192.23
2006	157.36	60.15	97.21	27.89	12.38	15.52	1.52	0.89	0.63	186.77
2007	174.48	36.63	137.84	42.63	20.39	22.24	1.13	0.67	0.47	218.24
2008	141.14	39.30	101.84	47.87	26.43	21.44	0.92	0.79	0.13	189.93
2009	143.75	18.66	125.09	39.86	19.26	20.60	0.56	0.18	0.39	184.17
2010	183.10	28.67	154.43	42.97	25.80	17.17	0.74	0.39	0.35	226.81
2011	174.02	29.57	144.45	52.96	34.26	18.70	0.80	0.44	0.35	227.78
2012	160.62	23.91	136.71	63.89	39.99	23.90	1.98	0.80	1.18	226.48
2013	131.02	32.70	98.32	37.04	19.72	17.32	0.95	0.55	0.40	169.01
2014	131.10	29.90	101.20	41.06	20.56	20.50	2.10	1.73	0.37	174.26
2015	143.50	28.80	114.70	45.52	24.73	20.79	2.00	1.70	0.29	191.02
2016	137.40	45.00	92.40	43.94	25.78	18.16	6.90	6.21	0.69	188.25
2017	128.92	58.45	70.47	46.04	28.62	17.42	2.33	1.99	0.35	177.29
2018	141.31	57.72	83.59	50.08	33.45	16.63	2.01	1.77	0.25	193.41
2019	150.82	45.78	105.05	57.88	39.05	18.83	1.15	1.04	0.11	209.86
2020	124.60	52.55	72.05	59.66	42.35	17.31	1.71	1.51	0.20	185.98
2021	136.69	59.62	77.07	59.00	41.17	17.83	1.95	1.80	0.16	197.65

**Table A2. Catch-at-age for the northern commercial reduction fishery from 1955-2021.**

Year	0	1	2	3	4	5	6+	# of fish sampled
1955	0	0.015	0.471	0.217	0.253	0.032	0.012	8408
1956	0	0.133	0.555	0.195	0.025	0.072	0.020	11050
1957	0	0.270	0.610	0.051	0.033	0.017	0.020	11247
1958	0	0.025	0.908	0.042	0.010	0.008	0.009	8777
1959	0	0.531	0.291	0.159	0.009	0.004	0.007	10470
1960	0	0.009	0.892	0.037	0.049	0.009	0.004	9346
1961	0	0.003	0.160	0.803	0.012	0.018	0.003	8059
1962	0	0.015	0.245	0.218	0.457	0.033	0.032	9598
1963	0	0.296	0.438	0.095	0.068	0.080	0.023	6058
1964	0	0.034	0.357	0.345	0.128	0.065	0.072	4619
1965	0	0.160	0.370	0.373	0.071	0.013	0.014	6564
1966	0	0.201	0.467	0.212	0.100	0.009	0.012	1859
1967	0	0.055	0.296	0.567	0.072	0.009	0.000	1840
1968	0	0.007	0.479	0.388	0.116	0.009	0.001	5701
1969	0	0.001	0.251	0.594	0.149	0.005	0	3621
1970	0	0.150	0.793	0.050	0.007	0	0	700
1971	0	0.126	0.288	0.433	0.137	0.017	0	760
1972	0	0.169	0.286	0.452	0.085	0.008	0	759
1973	0	0.021	0.821	0.133	0.024	0.001	0	729
1974	0	0.028	0.844	0.117	0.006	0.004	0	1280
1975	0	0	0.798	0.175	0.025	0.001	0	1850
1976	0	0.092	0.823	0.071	0.013	0	0	2010
1977	0	0.022	0.567	0.326	0.079	0.006	0.001	2200
1978	0	0	0.298	0.567	0.120	0.015	0	1861
1979	0	0.007	0.579	0.332	0.076	0.006	0	1688
1980	0	0.002	0.237	0.462	0.243	0.051	0.004	1744
1981	0	0.001	0.357	0.357	0.210	0.070	0.006	2220
1982	0	0.042	0.393	0.473	0.063	0.025	0.004	840
1983	0	0.012	0.826	0.120	0.037	0.005	0	840
1984	0	0.024	0.343	0.506	0.097	0.029	0.001	3110
1985	0	0.020	0.760	0.089	0.111	0.017	0.003	1490
1986	0	0.010	0.795	0.107	0.050	0.031	0.006	530
1987	0	0.005	0.652	0.277	0.058	0.006	0.002	940
1988	0	0	0.225	0.486	0.260	0.026	0.003	1650
1989	0	0.081	0.623	0.173	0.097	0.025	0	1360

**Table A2. Continued**

Year	0	1	2	3	4	5	6+	# of fish sampled
1990	0	0.011	0.788	0.134	0.049	0.018	0.001	1660
1991	0	0.085	0.430	0.385	0.072	0.023	0.005	1460
1992	0	0.058	0.687	0.107	0.118	0.026	0.004	1180
1993	0	0.045	0.675	0.226	0.036	0.017	0.002	640
1994	0	0.017	0.420	0.333	0.183	0.047	0	300
1995	0	0.020	0.567	0.329	0.079	0.006	0	710
1996	0	0	0.579	0.320	0.092	0.008	0	500
1997	0	0	0.495	0.293	0.158	0.055	0	130
1998	0	0	0.657	0.281	0.062	0	0	100
1999	0	0	0.389	0.428	0.168	0.015	0	120
2000	0	0.005	0.559	0.406	0.019	0.011	0	490
2001	0	0	0.150	0.796	0.055	0	0	380
2002	0	0.040	0.347	0.491	0.120	0.002	0	290
2003	0	0	0.474	0.378	0.139	0.010	0	90
2004	0	0.004	0.615	0.320	0.061	0	0	290
2005	0	0	0.219	0.605	0.174	0.002	0	240
2006	0	0.022	0.456	0.422	0.099	0.001	0	1040
2007	0	0.022	0.761	0.174	0.041	0.002	0	520
2008	0	0.002	0.216	0.668	0.106	0.008	0	550
2009	0	0.123	0.299	0.463	0.102	0.013	0	240
2010	0	0	0.456	0.348	0.193	0.003	0	380
2011	0	0.058	0.726	0.190	0.023	0.003	0	410
2012	0	0.001	0.778	0.192	0.029	0	0	330
2013	0	0.028	0.724	0.233	0.015	0	0	370
2014	0	0.085	0.518	0.274	0.119	0.004	0	290
2015	0	0.006	0.593	0.362	0.038	0	0	390
2016	0	0.075	0.413	0.481	0.031	0	0	700
2017	0	0.017	0.572	0.393	0.015	0.003	0	1070
2018	0	0.088	0.680	0.211	0.021	0	0	590
2019	0.002	0.503	0.407	0.081	0.008	0	0	650
2020								0
2021	0	0.106	0.849	0.045	0	0	0	80

**Table A3. Catch-at-age for the southern commercial reduction fishery from 1955-2021.**

Year	0	1	2	3	4	5	6+	# of fish sampled
1955	0.374	0.323	0.269	0.016	0.016	0.002	0	7742
1956	0.017	0.885	0.049	0.018	0.004	0.022	0.004	8831
1957	0.151	0.598	0.217	0.010	0.011	0.007	0.006	8467
1958	0.059	0.466	0.443	0.018	0.005	0.005	0.004	7008
1959	0.003	0.855	0.099	0.034	0.005	0.002	0.002	7490
1960	0.052	0.192	0.701	0.018	0.025	0.008	0.004	4167
1961	0	0.538	0.217	0.234	0.004	0.007	0	5158
1962	0.040	0.387	0.491	0.033	0.044	0.003	0.002	6197
1963	0.079	0.460	0.386	0.059	0.007	0.008	0.002	6977
1964	0.187	0.433	0.349	0.028	0.002	0	0	5824
1965	0.184	0.528	0.269	0.018	0.001	0	0	13017
1966	0.265	0.414	0.299	0.020	0.001	0	0	13848
1967	0.007	0.663	0.269	0.057	0.003	0	0	13648
1968	0.143	0.349	0.468	0.037	0.003	0	0	21168
1969	0.188	0.442	0.330	0.038	0.002	0	0	11511
1970	0.016	0.650	0.309	0.022	0.003	0	0	7761
1971	0.083	0.288	0.569	0.054	0.005	0.001	0	7510
1972	0.033	0.618	0.285	0.061	0.003	0	0	5800
1973	0.036	0.372	0.591	0.001	0	0	0	5640
1974	0.196	0.388	0.413	0.003	0	0	0	4330
1975	0.154	0.371	0.469	0.006	0.001	0	0	5450
1976	0.101	0.572	0.324	0.003	0	0	0	4720
1977	0.140	0.289	0.567	0.003	0	0	0	5080
1978	0.158	0.230	0.558	0.050	0.003	0	0	5250
1979	0.413	0.172	0.403	0.012	0.001	0	0	4680
1980	0.028	0.476	0.452	0.038	0.004	0.001	0	5548
1981	0.316	0.186	0.460	0.038	0	0	0	7000
1982	0.038	0.306	0.558	0.096	0.001	0	0	8230
1983	0.279	0.148	0.547	0.016	0.008	0.001	0	4340
1984	0.396	0.311	0.244	0.040	0.007	0.002	0	8580
1985	0.235	0.394	0.364	0.006	0	0	0	6230
1986	0.056	0.126	0.797	0.019	0.002	0.001	0	4880
1987	0.022	0.253	0.691	0.031	0.003	0	0	6460
1988	0.175	0.146	0.573	0.099	0.006	0.001	0	5708
1989	0.069	0.514	0.402	0.014	0.001	0	0	5530

**Table A3. Continued**

Year	0	1	2	3	4	5	6+	# of fish sampled
1990	0.190	0.078	0.697	0.023	0.010	0.002	0	5180
1991	0.317	0.360	0.281	0.038	0.004	0.001	0	6230
1992	0.243	0.428	0.313	0.014	0.002	0	0	4430
1993	0.049	0.266	0.608	0.074	0.003	0	0	4680
1994	0.064	0.197	0.609	0.094	0.035	0.002	0	4410
1995	0.044	0.408	0.366	0.150	0.031	0.002	0	3900
1996	0.036	0.226	0.630	0.092	0.015	0.001	0	3720
1997	0.027	0.260	0.423	0.236	0.047	0.007	0.001	3970
1998	0.073	0.187	0.535	0.123	0.073	0.009	0.001	3740
1999	0.188	0.292	0.428	0.069	0.020	0.003	0	3500
2000	0.140	0.205	0.510	0.127	0.016	0.002	0	2550
2001	0.039	0.073	0.604	0.265	0.018	0.001	0	3540
2002	0.242	0.284	0.321	0.140	0.012	0	0	3310
2003	0.088	0.185	0.643	0.073	0.010	0.001	0	3400
2004	0.020	0.234	0.670	0.060	0.015	0.001	0	3880
2005	0.020	0.131	0.618	0.210	0.018	0.003	0	3290
2006	0.016	0.525	0.378	0.072	0.008	0	0	2530
2007	0.001	0.306	0.631	0.054	0.008	0	0	3270
2008	0.017	0.115	0.812	0.053	0.003	0	0	2220
2009	0.007	0.515	0.311	0.147	0.019	0.001	0	2590
2010	0.017	0.447	0.494	0.034	0.008	0	0	2890
2011	0	0.477	0.467	0.048	0.007	0.002	0	2820
2012	0.007	0.183	0.789	0.020	0.001	0	0	2300
2013	0.043	0.457	0.388	0.095	0.016	0	0	1760
2014	0.007	0.482	0.377	0.106	0.026	0.002	0	1790
2015	0	0.141	0.759	0.092	0.009	0	0	2170
2016	0.022	0.303	0.509	0.160	0.006	0	0	1800
2017	0	0.249	0.581	0.144	0.026	0	0	1280
2018	0.036	0.334	0.479	0.136	0.015	0	0	1520
2019	0.002	0.755	0.202	0.037	0.004	0.001	0	1620
2020	0.0	0.177	0.819	0.003	0	0	0	450
2021	0.0	0.831	0.167	0.002	0.001	0	0	660

**Table A4. Catch-at-age for the northern commercial bait fishery (includes MRIP estimate of recreational catch).**

Year	0	1	2	3	4	5	6+	# of fish sampled
1985	0	0.010	0.754	0.116	0.093	0.022	0.006	0
1986	0	0.001	0.207	0.563	0.116	0.091	0.023	0
1987	0	0.002	0.215	0.531	0.226	0.016	0.010	0
1988	0	0	0.070	0.521	0.363	0.041	0.004	0
1989	0	0.010	0.216	0.374	0.310	0.089	0.001	30
1990	0	0.003	0.536	0.261	0.143	0.053	0.005	0
1991	0	0.014	0.247	0.543	0.136	0.048	0.011	0
1992	0	0.027	0.359	0.210	0.312	0.074	0.018	0
1993	0	0.008	0.327	0.494	0.099	0.065	0.008	29
1994	0	0	0.111	0.495	0.341	0.050	0.003	401
1995	0	0	0.092	0.471	0.437	0.001	0	190
1996	0	0	0.413	0.442	0.137	0.008	0	203
1997	0	0	0.145	0.324	0.395	0.118	0.018	111
1998	0	0	0.104	0.379	0.420	0.084	0.013	225
1999	0	0	0.147	0.476	0.322	0.044	0.011	201
2000	0	0.004	0.416	0.314	0.229	0.030	0.007	266
2001	0	0	0.112	0.735	0.135	0.014	0.004	678
2002	0	0	0.054	0.553	0.335	0.058	0	524
2003	0	0	0.128	0.663	0.199	0.010	0	101
2004	0	0.007	0.438	0.381	0.161	0.013	0	29
2005	0	0.002	0.188	0.626	0.162	0.022	0	0
2006	0	0.004	0.279	0.566	0.147	0.001	0.004	259
2007	0	0	0.384	0.482	0.125	0.008	0.002	729
2008	0	0	0.262	0.585	0.139	0.013	0	973
2009	0	0	0.204	0.608	0.175	0.013	0	435
2010	0	0	0.365	0.380	0.227	0.025	0.002	466
2011	0	0	0.142	0.486	0.327	0.045	0	449
2012	0	0	0.392	0.468	0.130	0.008	0.002	547
2013	0	0	0.257	0.555	0.159	0.029	0	236
2014	0	0	0.066	0.525	0.387	0.020	0.002	806
2015	0	0.002	0.377	0.522	0.099	0	0	1291
2016	0	0.020	0.390	0.529	0.054	0.007	0	1018
2017	0	0.017	0.565	0.380	0.036	0.001	0	1487
2018	0	0.000	0.272	0.595	0.123	0.010	0	331
2019	0	0.038	0.357	0.445	0.142	0.015	0.004	837
2020	0	0.007	0.688	0.251	0.045	0.007	0.002	754
2021	0	0.030	0.651	0.234	0.082	0.004	0	234

**Table A5. Catch-at-age for the southern commercial bait fishery (includes MRIP estimate of recreational catch).**

Year	0	1	2	3	4	5	6	# of fish sampled
1985	0.004	0.313	0.659	0.016	0.006	0.002	0	800
1986	0.001	0.064	0.860	0.066	0.006	0.003	0.001	420
1987	0.001	0.089	0.836	0.068	0.006	0.000	0	220
1988	0.004	0.060	0.663	0.232	0.038	0.003	0	10
1989	0.004	0.341	0.577	0.063	0.013	0.003	0	0
1990	0.005	0.061	0.903	0.026	0.003	0.001	0	10
1991	0.012	0.301	0.595	0.084	0.005	0.001	0	78
1992	0.000	0.554	0.446	0.000	0	0	0	70
1993	0.008	0.357	0.530	0.097	0.006	0.003	0	121
1994	0.001	0.142	0.650	0.150	0.052	0.005	0	139
1995	0	0.392	0.374	0.217	0.017	0	0	174
1996	0	0.006	0.757	0.199	0.037	0	0	156
1997	0	0.055	0.531	0.346	0.056	0.008	0.004	293
1998	0.036	0.065	0.539	0.237	0.108	0.012	0.003	411
1999	0	0.105	0.663	0.174	0.052	0.006	0	338
2000	0.008	0.222	0.659	0.112	0	0	0	270
2001	0.004	0.043	0.658	0.275	0.017	0.004	0	286
2002	0	0.047	0.265	0.494	0.173	0.020	0.002	180
2003	0.007	0.095	0.740	0.142	0.015	0	0	328
2004	0	0.066	0.733	0.167	0.031	0.003	0	327
2005	0	0.008	0.515	0.447	0.027	0.003	0	316
2006	0	0.327	0.451	0.197	0.024	0	0	220
2007	0	0.243	0.671	0.067	0.019	0	0	434
2008	0.005	0.044	0.809	0.112	0.017	0.013	0	366
2009	0.004	0.241	0.367	0.341	0.047	0	0	573
2010	0.003	0.306	0.527	0.102	0.059	0.002	0	435
2011	0	0.338	0.470	0.121	0.051	0.020	0	508
2012	0	0.068	0.825	0.085	0.017	0.002	0.002	408
2013	0.007	0.449	0.289	0.173	0.054	0.027	0	434
2014	0	0.437	0.365	0.138	0.055	0.005	0	559
2015	0.010	0.309	0.589	0.089	0.002	0	0	251
2016	0	0.225	0.423	0.324	0.021	0.007	0	205
2017	0	0.267	0.496	0.229	0.008	0	0	137
2018	0	0.328	0.446	0.166	0.060	0.001	0	280
2019	0	0.580	0.250	0.125	0.039	0.003	0.003	684
2020	0	0.004	0.023	0.973	0	0	0	65
2021	0	0.689	0.307	0.003	0.001	0.001	0	101

**Table A6. Young-of-year abundance index (YOY), northern adult index (NAD), Mid-Atlantic adult index (MAD), and southern adult index (SAD) of abundance for Atlantic menhaden developed from the Conn method with associated coefficients of variation (CV).**

Year	YOY		NAD		MAD		SAD	
	Index	CV	Index	CV	Index	CV	Index	CV
1959	1.40	1.05						
1960	0.39	1.04						
1961	0.34	1.05						
1962	1.46	1.00						
1963	1.07	1.05						
1964	0.74	1.09						
1965	0.41	1.05						
1966	0.54	1.03						
1967	0.42	1.04						
1968	0.43	0.92						
1969	1.10	0.88						
1970	0.26	0.91						
1971	1.33	0.87						
1972	2.87	0.75						
1973	2.10	0.93						
1974	3.90	0.83						
1975	3.09	0.82						
1976	3.72	0.81						
1977	2.43	0.82						
1978	1.26	0.83						
1979	2.96	0.82						
1980	4.12	0.73						
1981	3.15	0.82						
1982	2.44	0.73						
1983	1.41	0.84						
1984	1.56	0.83						
1985	2.72	0.74			1.82	1.14		
1986	1.50	0.69			1.80	1.15		
1987	0.50	0.68			1.99	1.16		
1988	1.27	0.64			1.89	1.11		
1989	1.09	0.55			1.23	1.15		

**Table A6. Continued**

Year	YOY		NAD		MAD		SAD	
	Index	CV	Index	CV	Index	CV	Index	CV
1990	0.64	0.49	0.60	0.70	0.96	1.16	4.45	0.66
1991	0.76	0.48	0.36	0.68	0.78	1.17	1.38	0.68
1992	0.43	0.48	1.12	0.49	1.35	1.19	0.87	0.68
1993	0.19	0.54	0.87	0.50	0.56	1.22	0.55	0.72
1994	0.21	0.50	0.48	0.55	1.45	1.11	0.35	0.79
1995	0.26	0.52	1.15	0.60	1.39	1.13	0.18	0.86
1996	0.22	0.52	0.59	0.65	0.60	1.19	0.26	0.79
1997	0.27	0.50	0.34	0.69	0.60	1.18	0.22	0.82
1998	0.36	0.48	0.81	0.54	0.79	0.36	0.91	0.70
1999	0.30	0.49	0.78	0.55	0.60	0.39	0.26	0.79
2000	0.48	0.47	0.69	0.75	0.82	0.39	0.72	0.80
2001	0.26	0.45	1.18	0.56	0.95	0.35	0.76	0.75
2002	0.44	0.43	1.59	0.60	0.46	0.39	0.88	0.69
2003	0.66	0.43	0.40	0.74	1.08	0.33	0.94	0.61
2004	0.57	0.42	0.47	0.72	0.53	0.35	0.46	0.55
2005	0.60	0.41	0.94	0.61	1.33	0.37	1.45	0.52
2006	0.25	0.42	1.18	0.49	0.45	0.37	2.84	0.48
2007	0.38	0.43	1.36	0.60	0.88	0.38	0.42	0.56
2008	0.27	0.42	1.26	0.50	0.40	0.40	0.58	0.41
2009	0.20	0.42	0.37	0.62	0.91	0.37	1.90	0.54
2010	0.41	0.43	0.68	0.64	0.99	0.36	0.75	0.40
2011	0.28	0.42	0.75	0.68	0.66	0.34	1.25	0.42
2012	0.12	0.44	2.02	0.52	0.59	0.39	1.19	0.42
2013	0.15	0.42	0.65	0.68	0.92	0.36	0.97	0.39
2014	0.30	0.42	1.36	0.52	1.61	0.34	0.94	0.42
2015	0.25	0.43	1.35	0.60	1.91	0.40	1.20	0.42
2016	0.49	0.43	1.09	0.60	0.57	0.39	0.41	0.47
2017	0.11	0.44	0.66	0.67	0.44	0.38	1.15	0.45
2018	0.29	0.44	0.56	0.79	1.21	0.61	0.86	0.46
2019	0.25	0.47	1.89	0.48	1.01	0.41	0.76	0.41
2020	0.22	0.48	2.39	0.58	0.33	0.42	0.96	0.71
2021	0.36	0.46	2.07	0.73	1.13	0.45	1.16	0.71

**Table A7. List of surveys used in the Conn indices and their associated sigma ( $\sigma^p$ ) values, or the standard deviation of the process error. Benchmark and update values are provided for comparison.**

	<b>Survey</b>	<b>2019 Benchmark</b>	<b>2022 Update</b>
<b>Age 1+ Surveys</b>	CT Long Island Sound Trawl	0.96	1.90
	DE Adult Trawl	0.88	0.44
	NJ Ocean Trawl	1.53	1.15
	MD Striped Bass Spring Gill Net	2.23	2.22
	VIMS Shad and River Herring Monitoring	0.24	0.21
	NC Program 915 Pamlico Sound Gill Net	0.92	0.71
	SEAMAP	0.40	0.52
	GA Ecological Monitoring Trawl	0.50	0.73
<b>YOY Surveys</b>	RI Coastal Trawl	2.96	2.94
	CT River Juvenile Alosine Seine	2.50	2.52
	CT Thames River Seine	3.16	3.16
	CT Long Island Sound Trawl	1.34	1.28
	NY Peconic Bay Small Mesh Trawl	3.78	3.58
	NY Western Long Island Seine	2.99	3.10
	NY Juvenile Striped Bass Beach Seine	1.18	2.09
	NJ Ocean Trawl	1.85	1.89
	NJ Delaware River Striped Bass Seine	1.81	1.81
	DE Inland Bays	11.34	4.93
	MD Coastal Bays Trawl	2.17	1.33
	MD Juvenile Striped Bass Seine	1.64	1.44
	VIMS Juvenile Fish and Blue Crab Trawl	1.31	1.22
	VIMS Juvenile Striped Bass Seine	3.05	1.50
	NC Program 120 Estuarine Trawl	0.82	1.00
	SC Electrofishing	0.92	0.97

### Appendix Figures

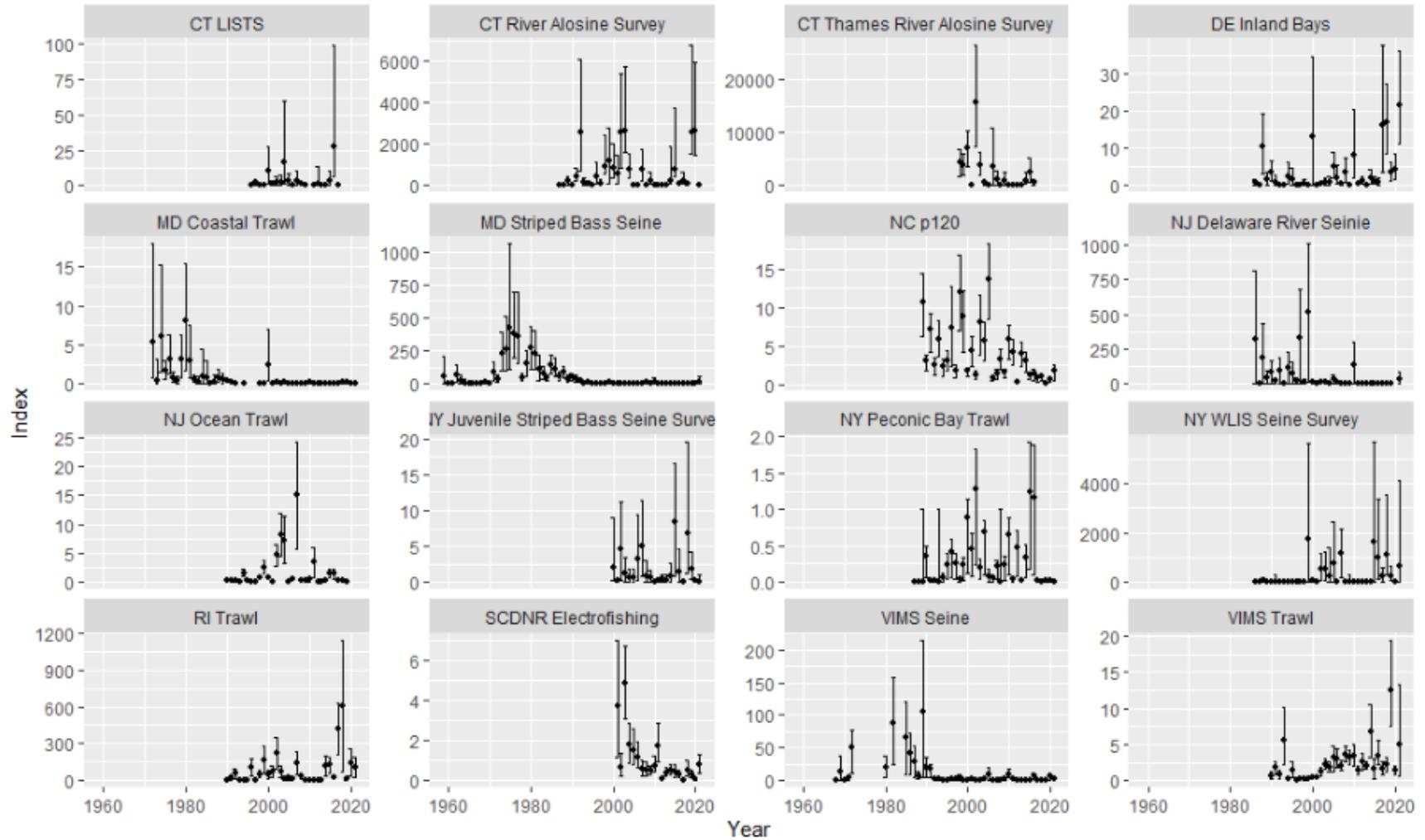


Figure A1. Individual YOY indices with 95% confidence intervals used in the coastwide YOY index.

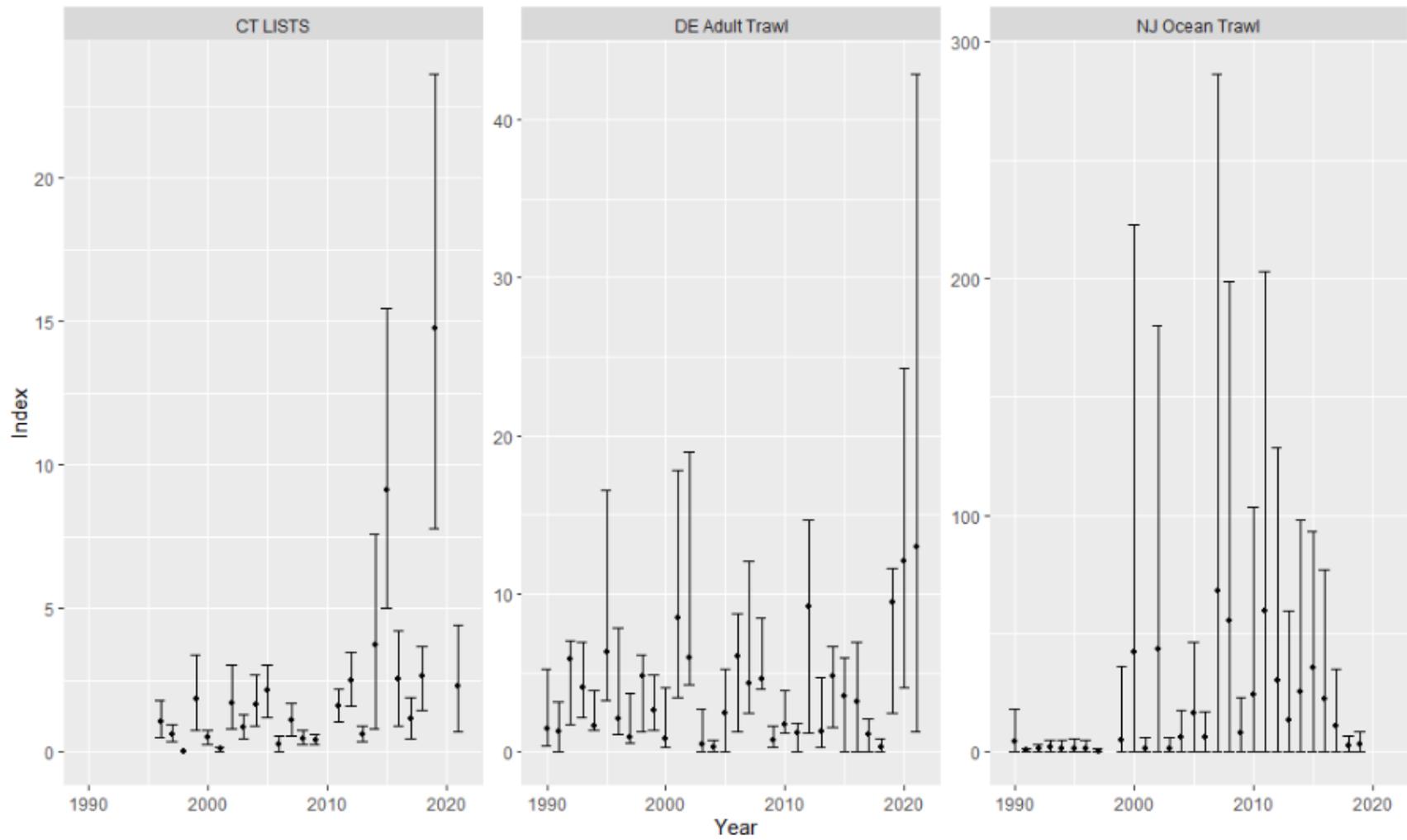


Figure A2. Individual adult indices with 95% confidence intervals used in the NAD index.

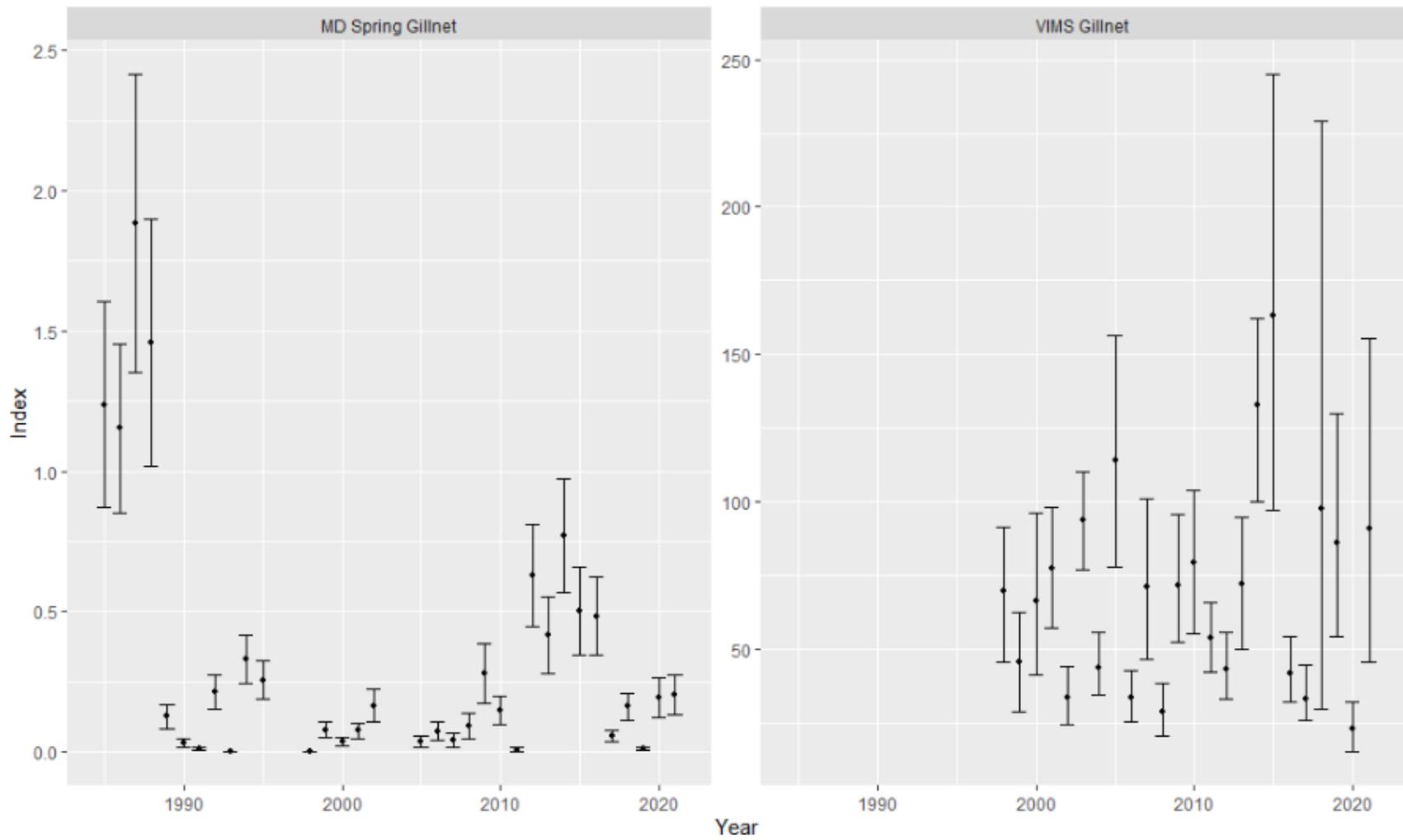
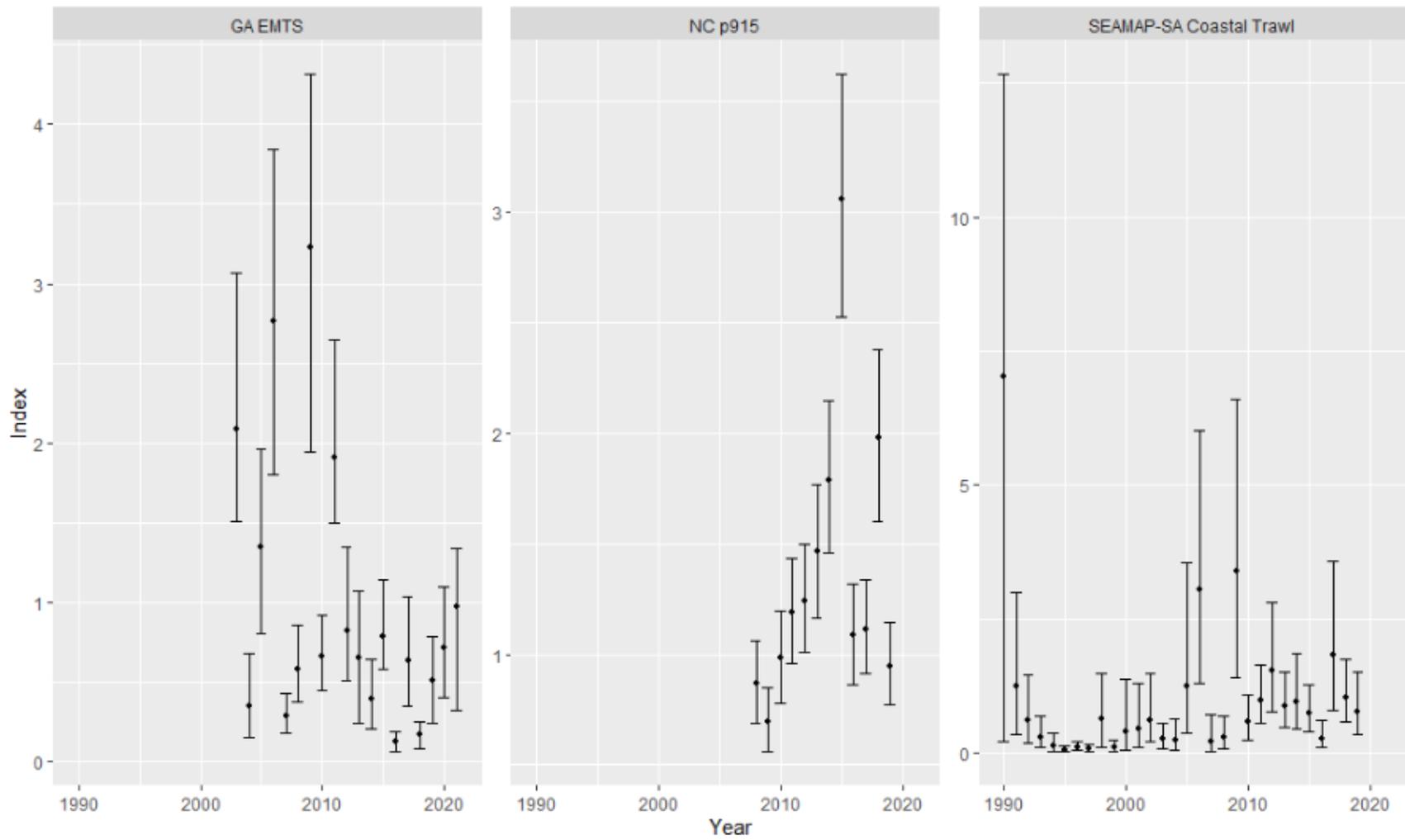
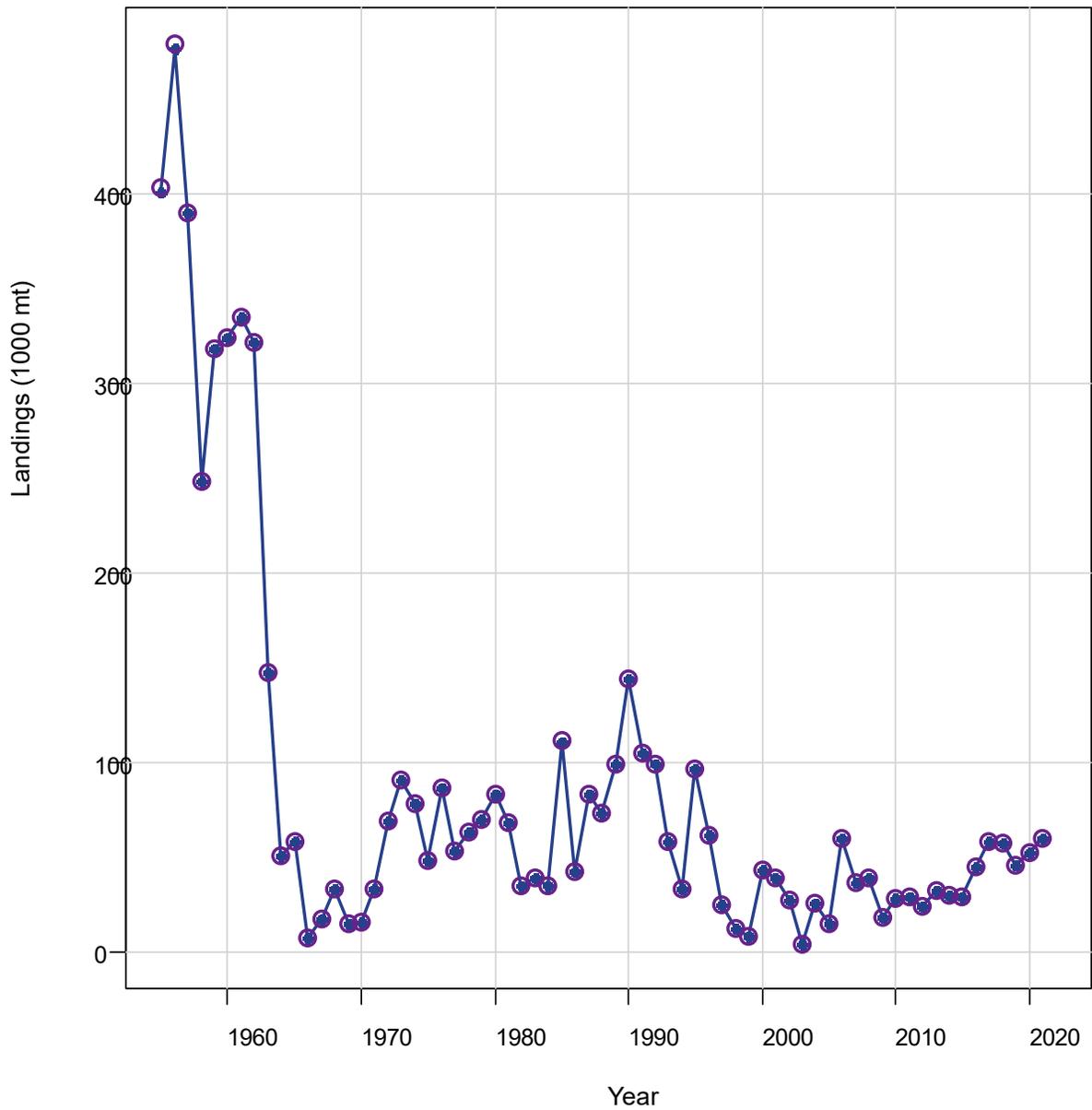


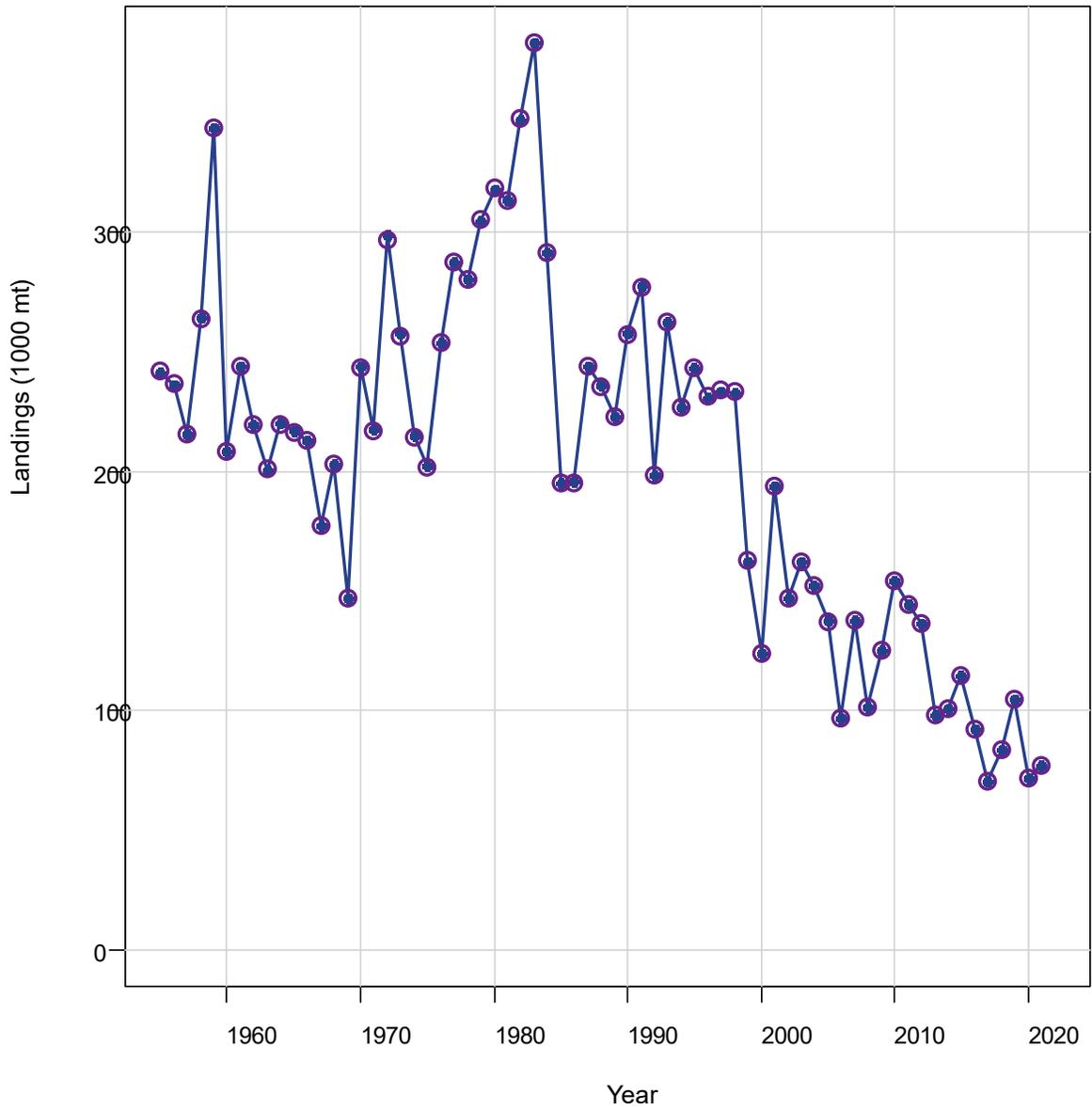
Figure A3. Individual adult indices with 95% confidence intervals used in the MAD index.



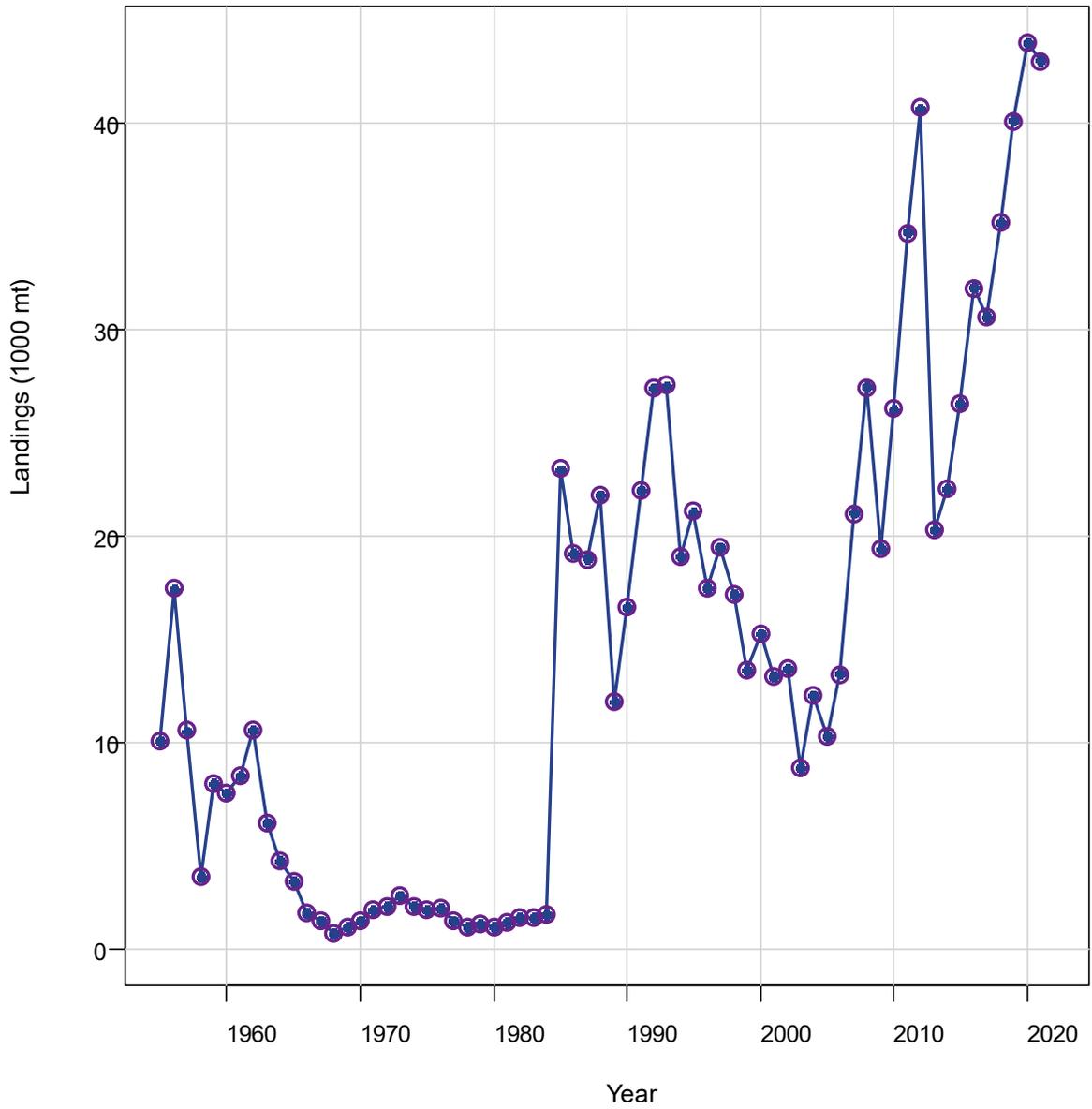
**Figure A4. Individual adult indices with 95% confidence intervals used in the SAD index**



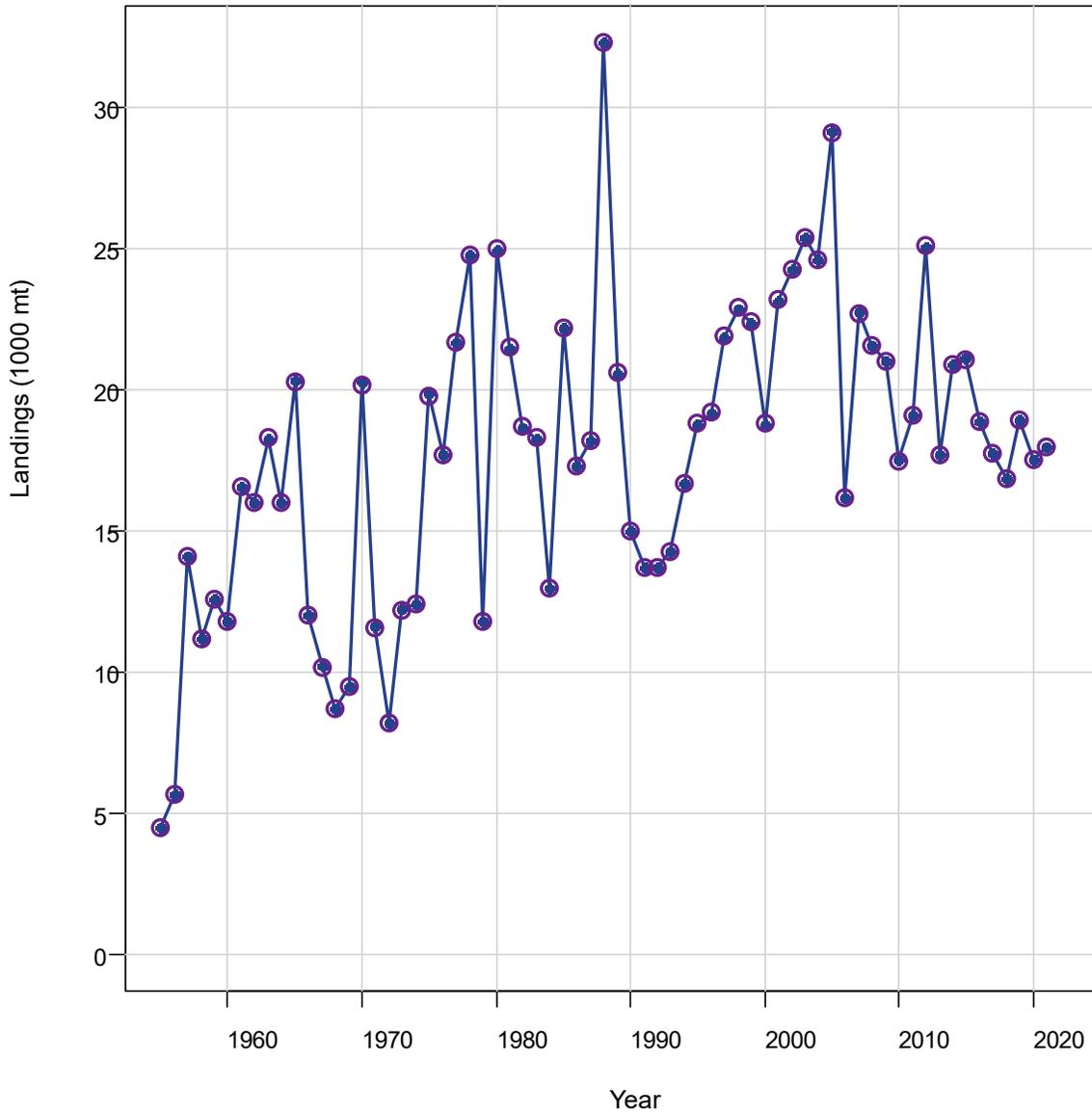
**Figure A5. Predicted fit to the observed landings for the commercial reduction north fleet for 1955-2021.**



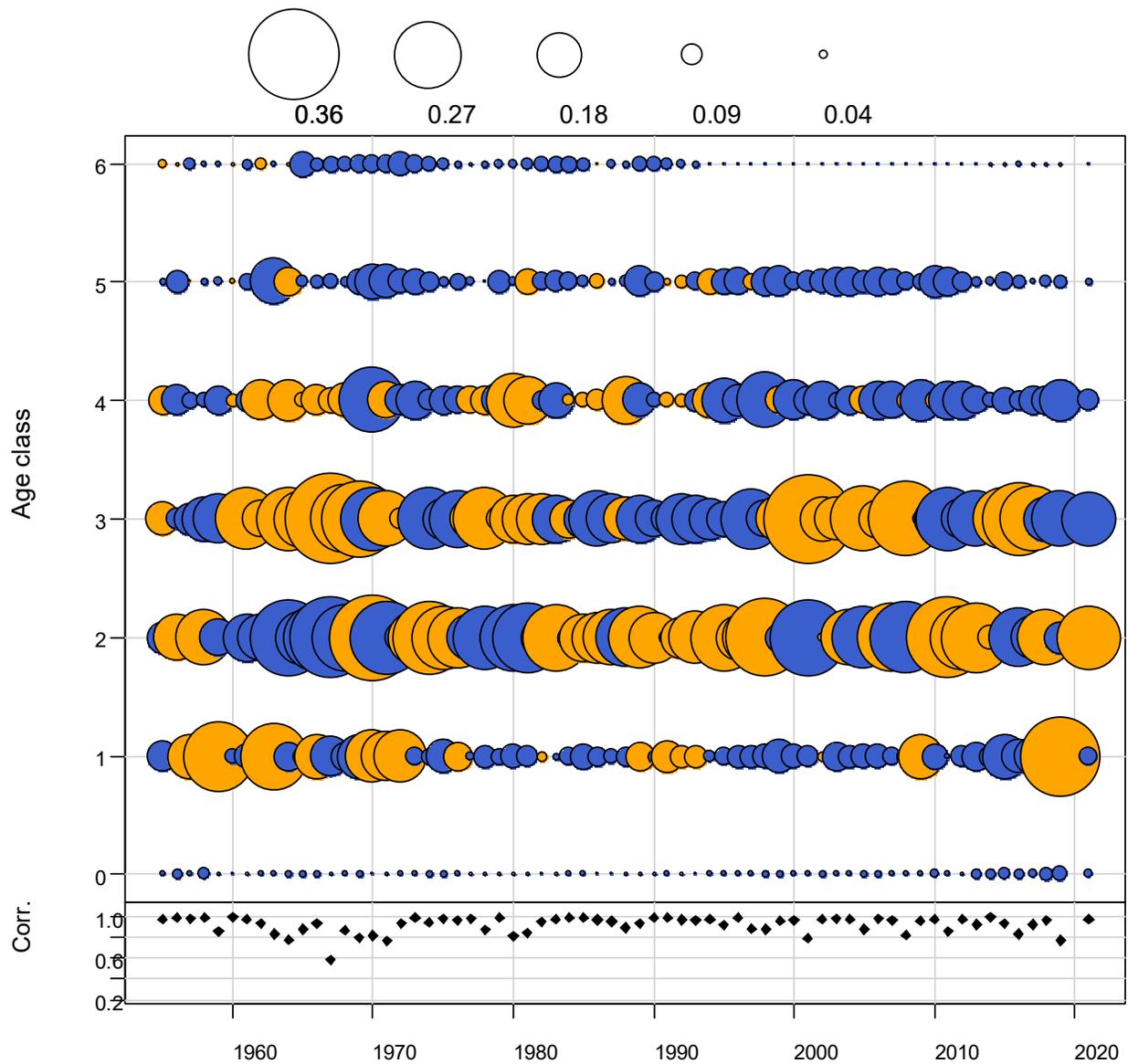
**Figure A6. Predicted fit to the observed landings for the commercial reduction south fleet for 1955-2021.**



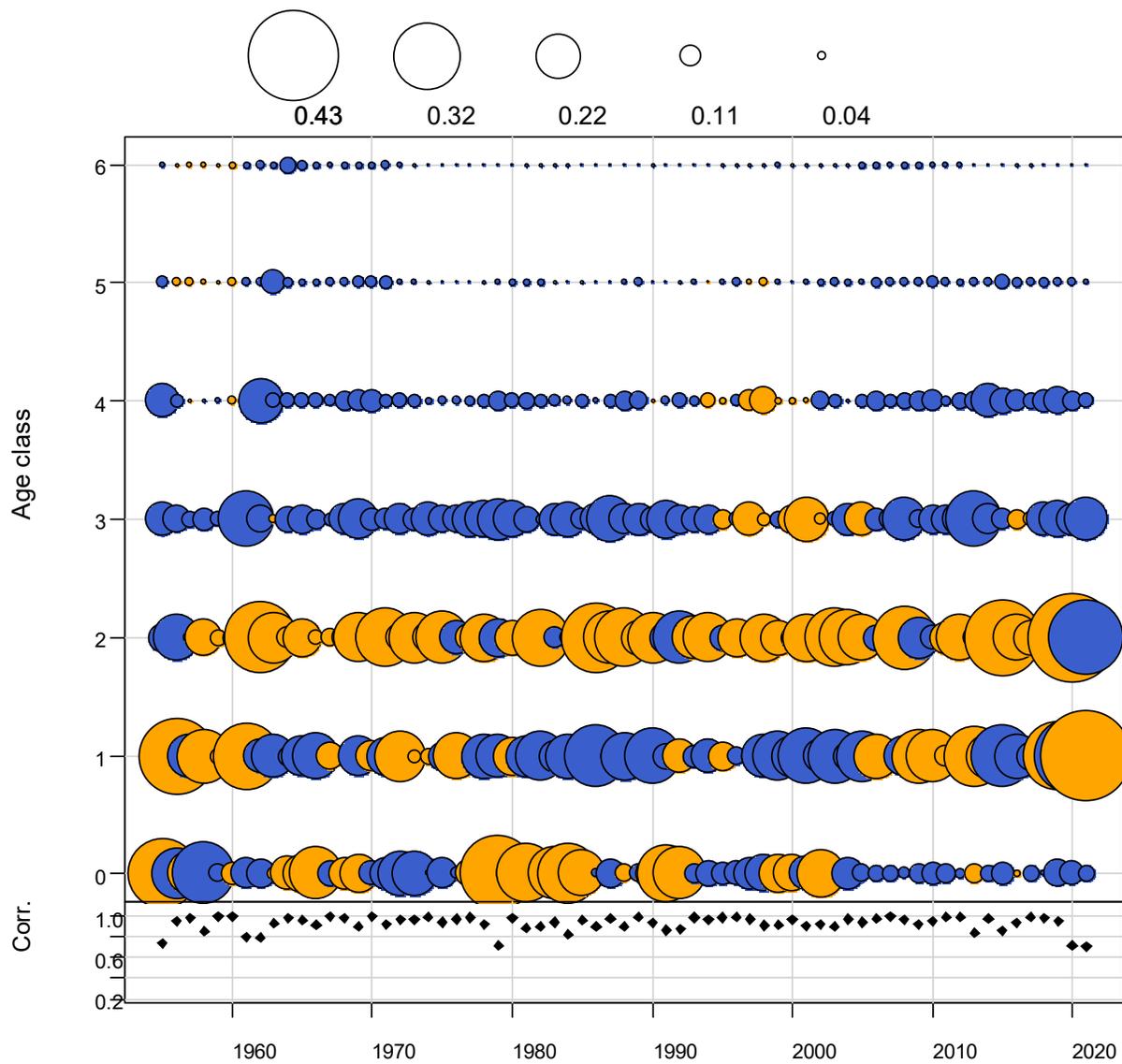
**Figure A7. Predicted fit to the observed landings for the commercial bait north fleet for 1955-2021.**



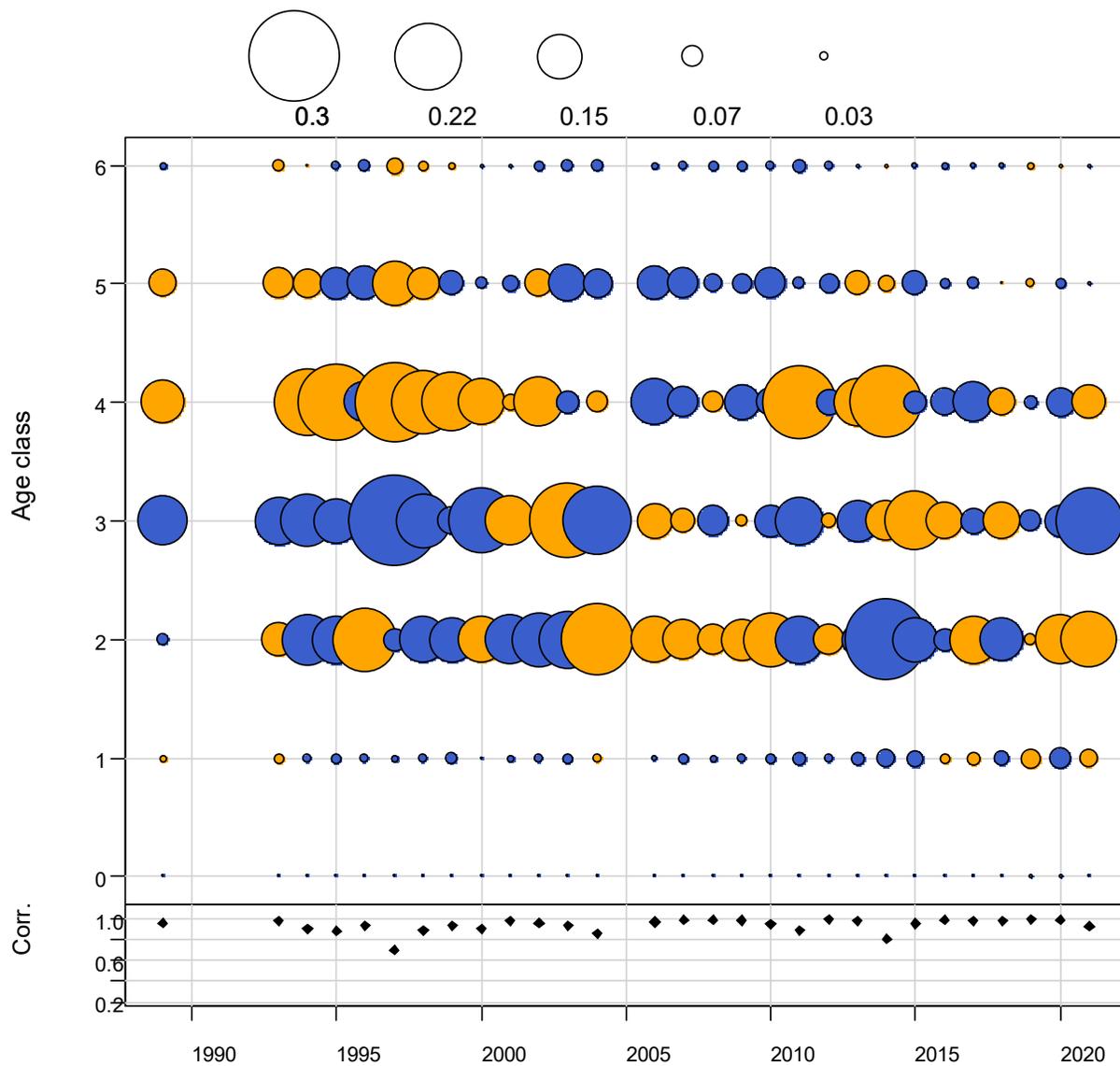
**Figure A8. Predicted fit to the observed landings for the commercial bait south fleet for 1955-2021.**



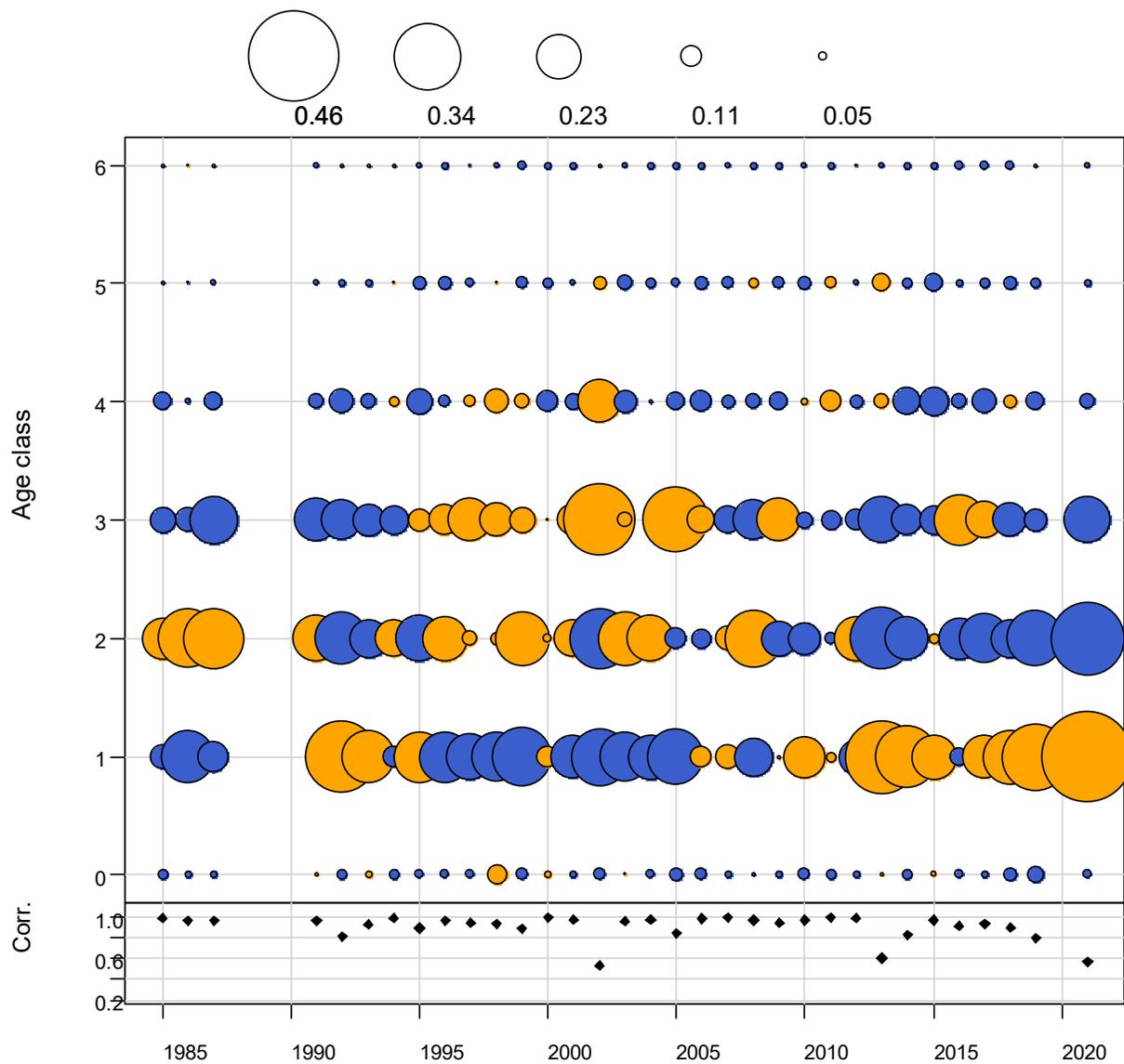
**Figure A9. Bubble plot of the fits to the age compositions for the commercial reduction north fleet. Orange indicates an underestimate, while blue indicates an overestimate. The bottom panel indicates the correlation between the observed data and the model prediction.**



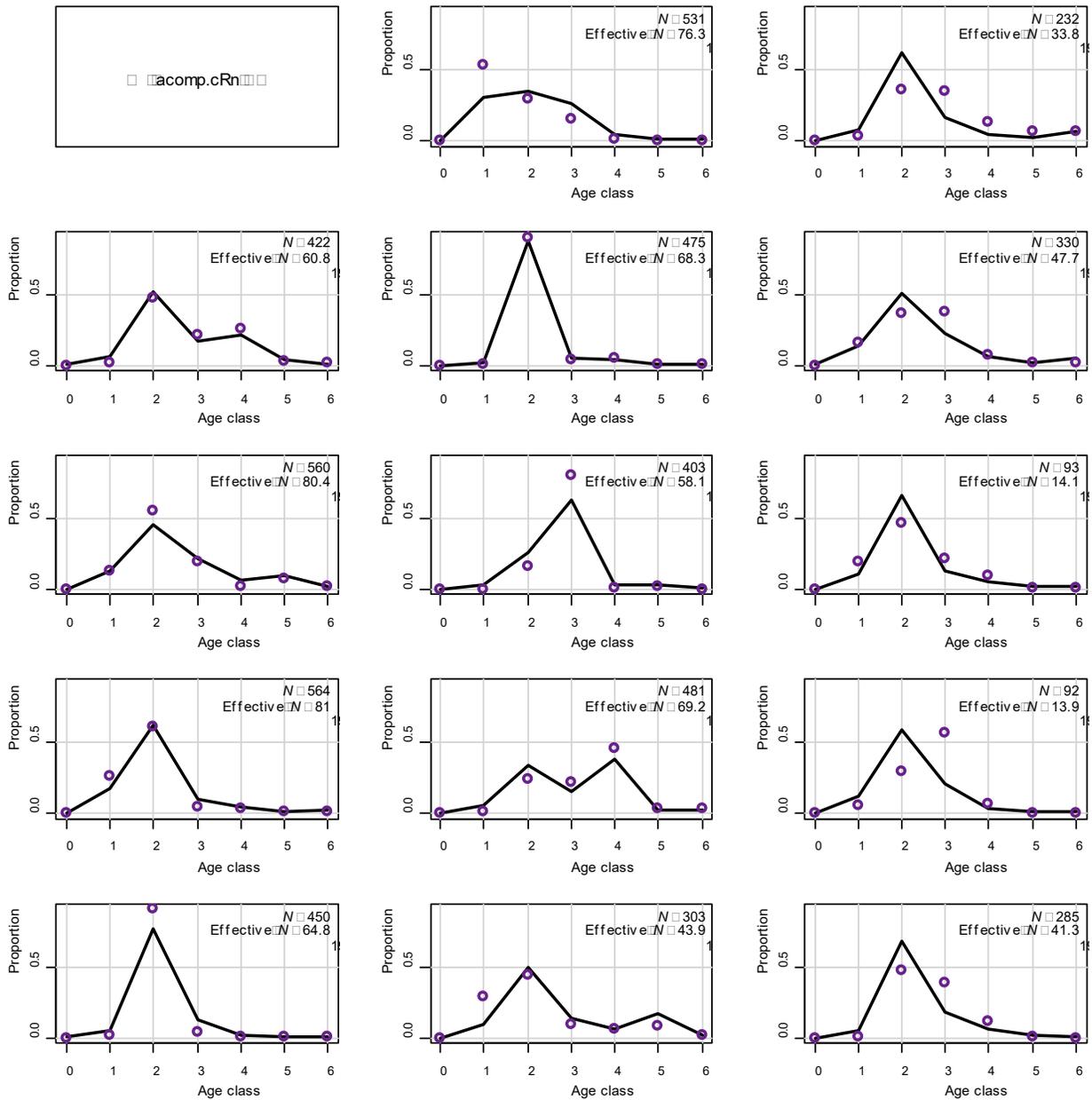
**Figure A10.** Bubble plot of the fits to the age compositions for the commercial reduction south fleet. Orange indicates an underestimate, while blue indicates an overestimate. The bottom panel indicates the correlation between the observed data and the model prediction.



**Figure A11.** Bubble plot of the fits to the age compositions for the commercial bait north fleet. Orange indicates an underestimate, while blue indicates an overestimate. The bottom panel indicates the correlation between the observed data and the model prediction.



**Figure A12.** Bubble plot of the fits to the age compositions for the commercial bait south fleet. Orange indicates an underestimate, while blue indicates on overestimate. The bottom panel indicates the correlation between the observed data and the model prediction.



**Figure A13. Annual age composition plots for the commercial reduction north fleet for 1955-2021. Open circles are the observed data, while the line indicates the model fit.**

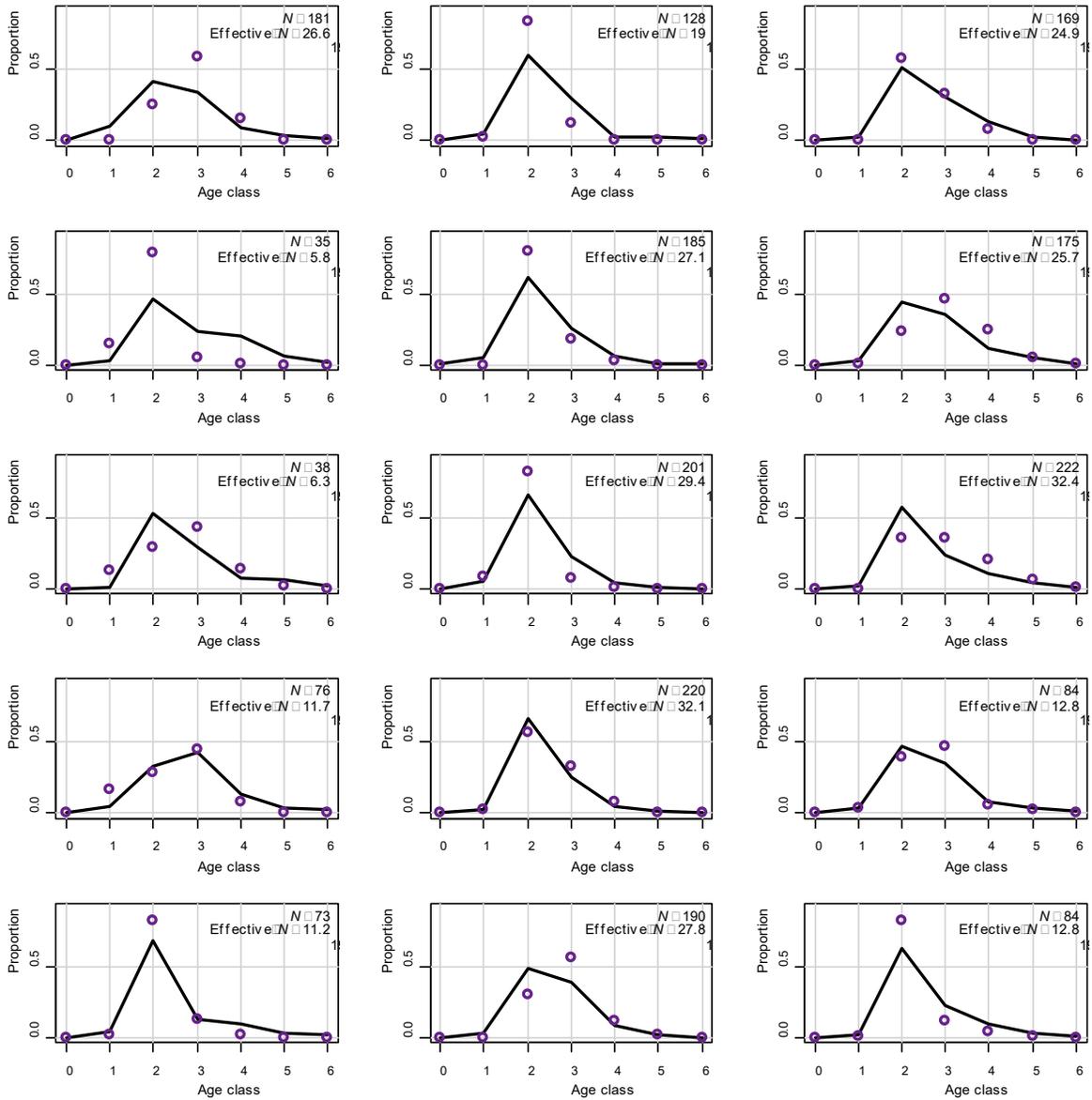


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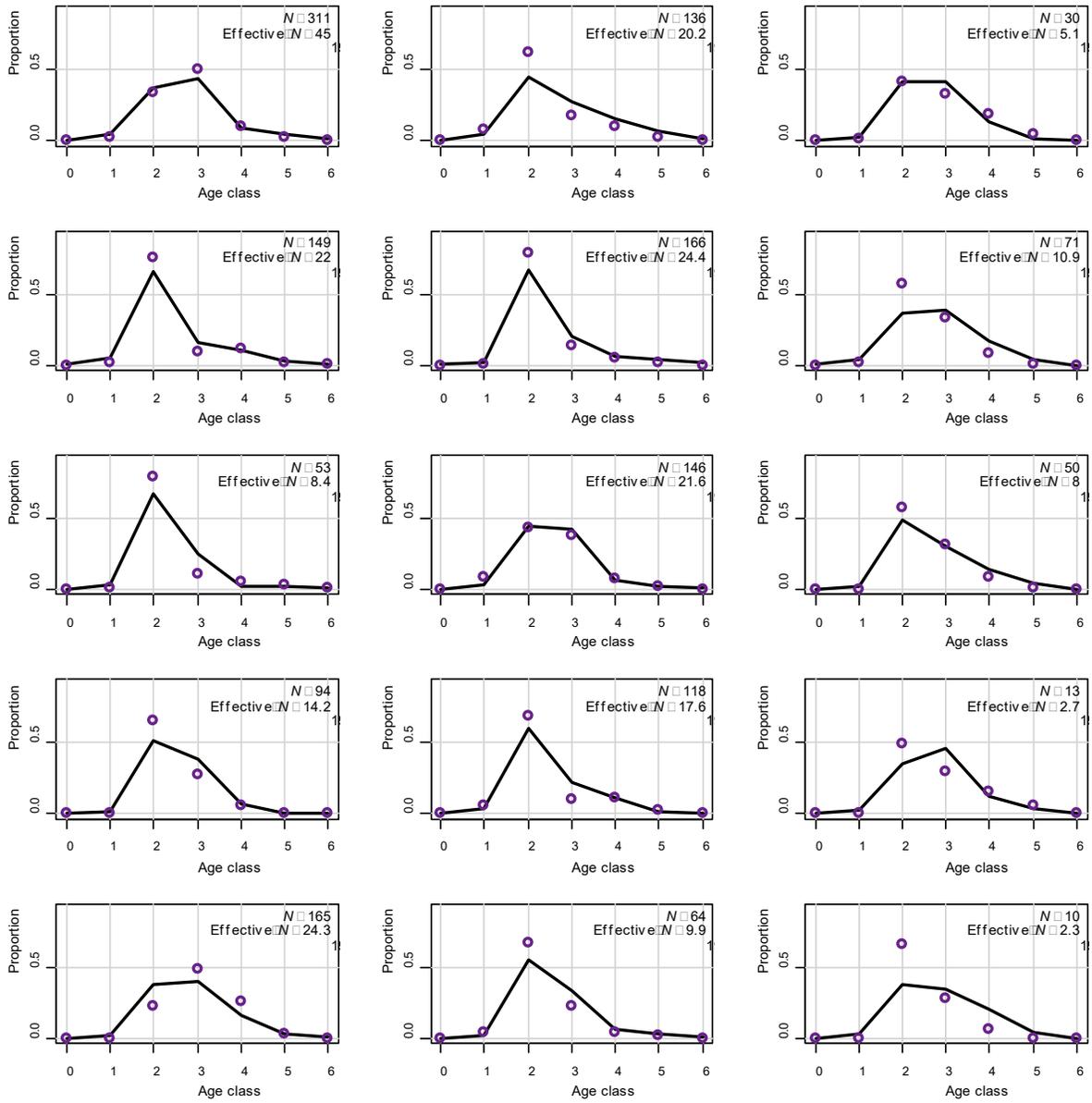


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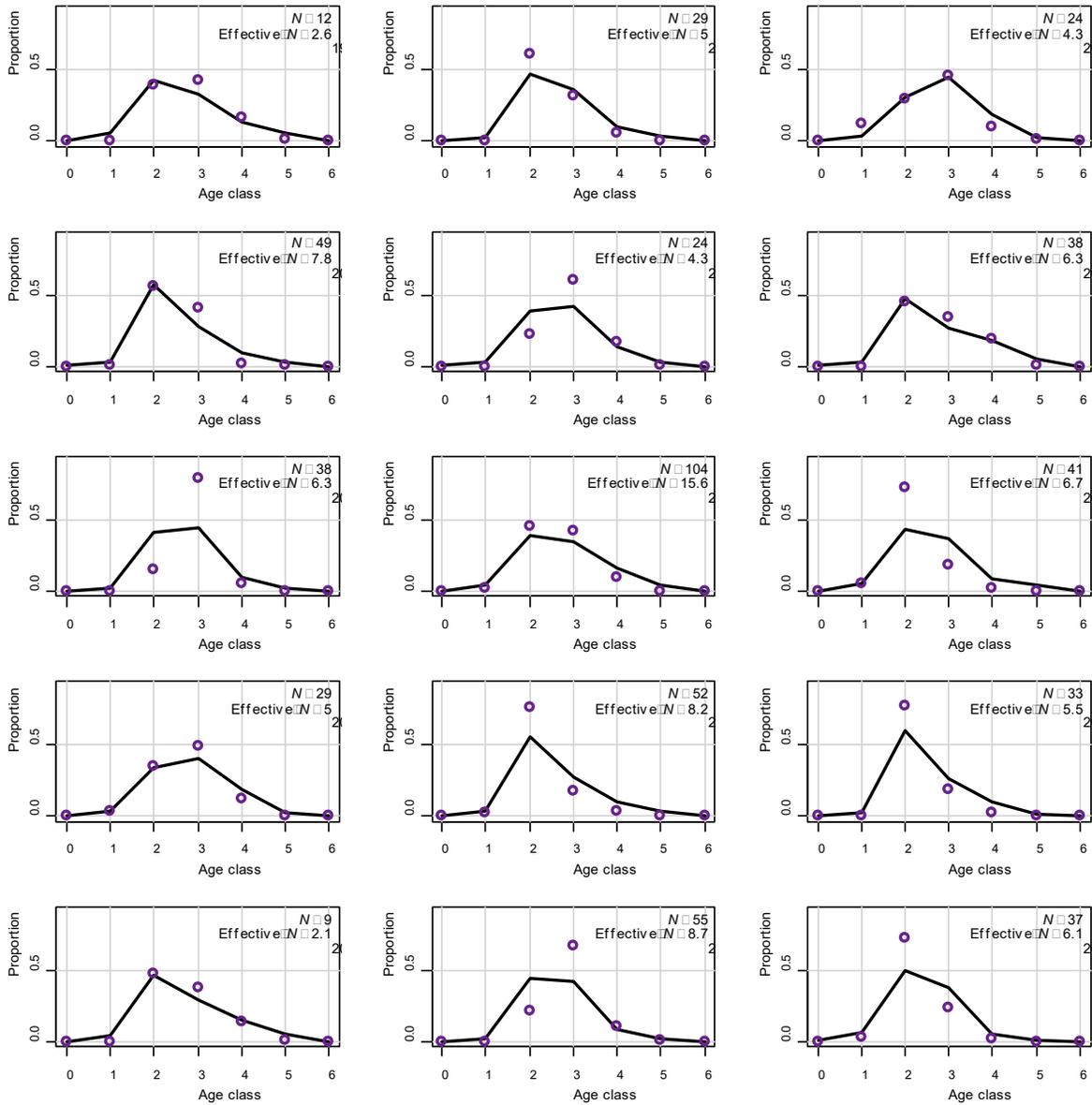


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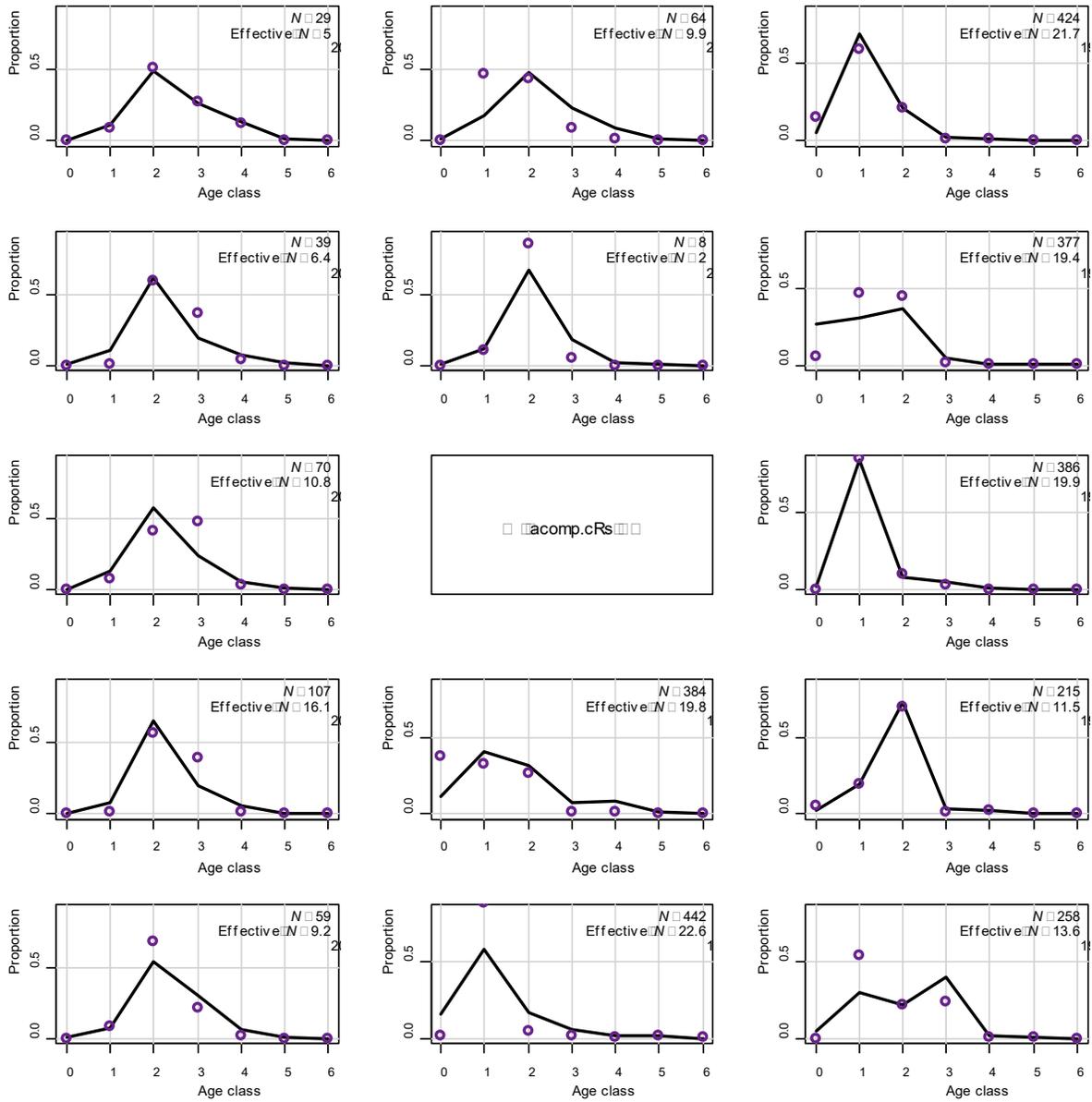
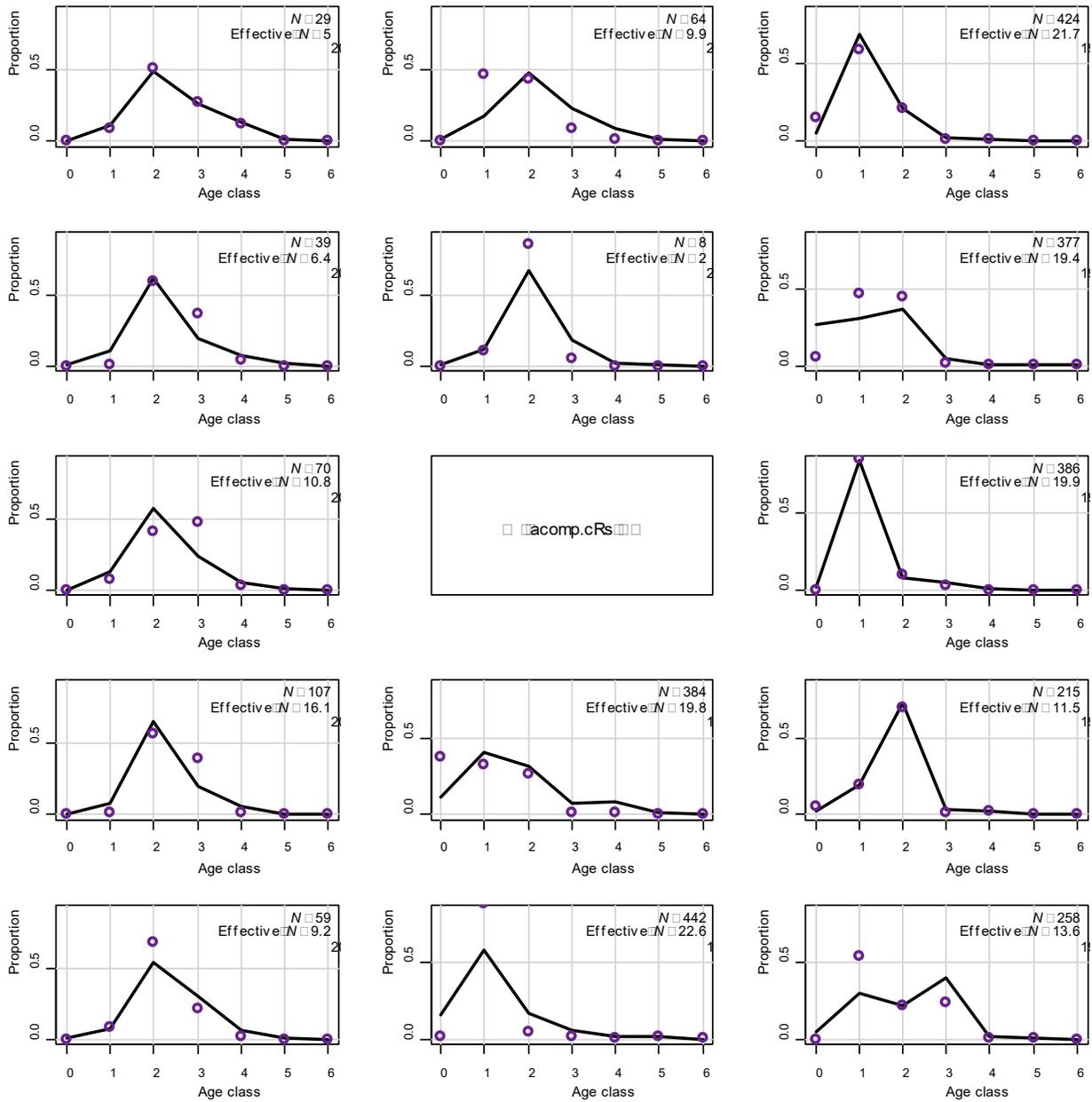


Figure A13. Continued



**Figure A14. Annual age composition plots for the commercial reduction south fleet for 1955-2021. Open circles are the observed data, while the line indicates the model fit.**

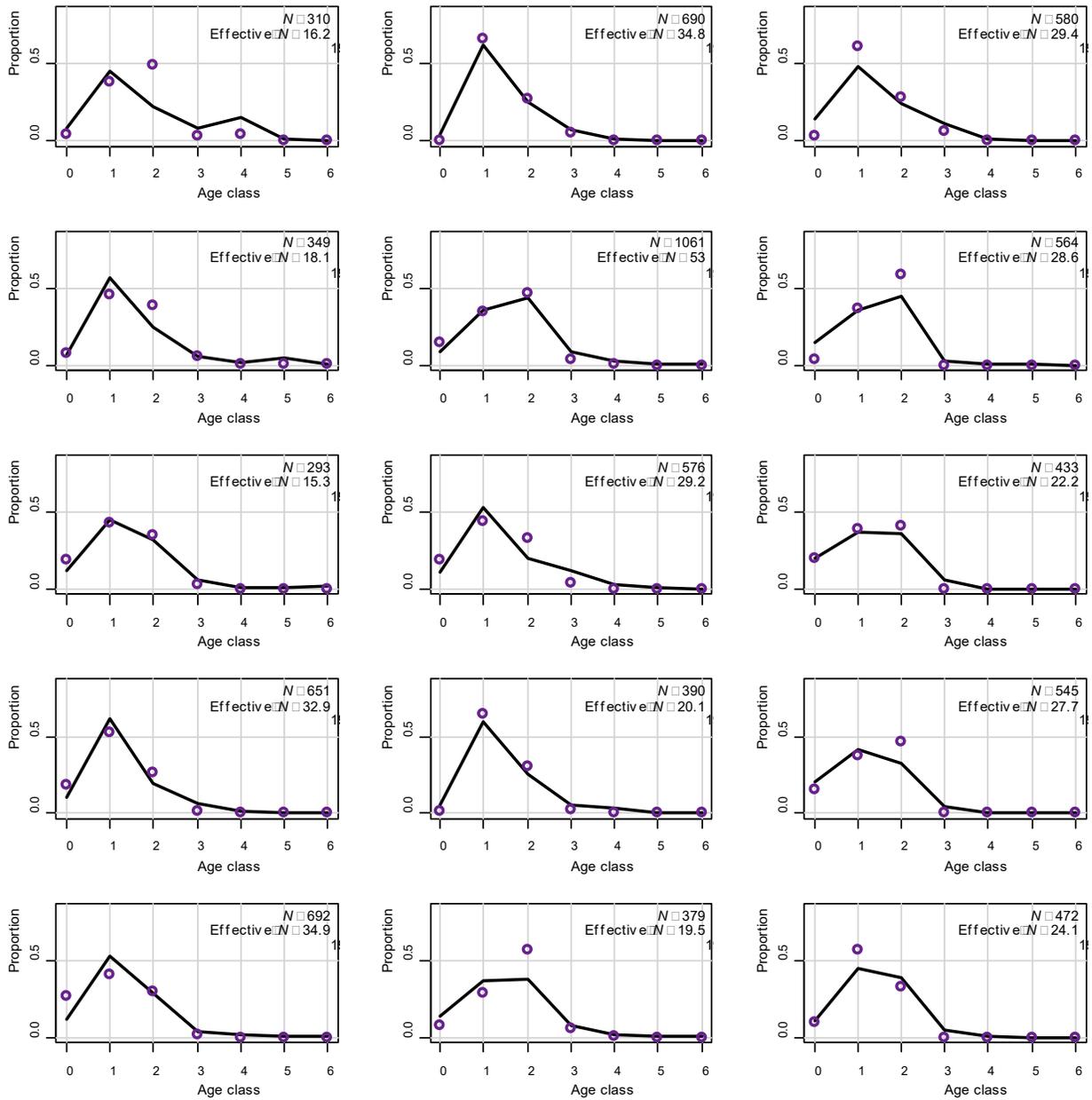


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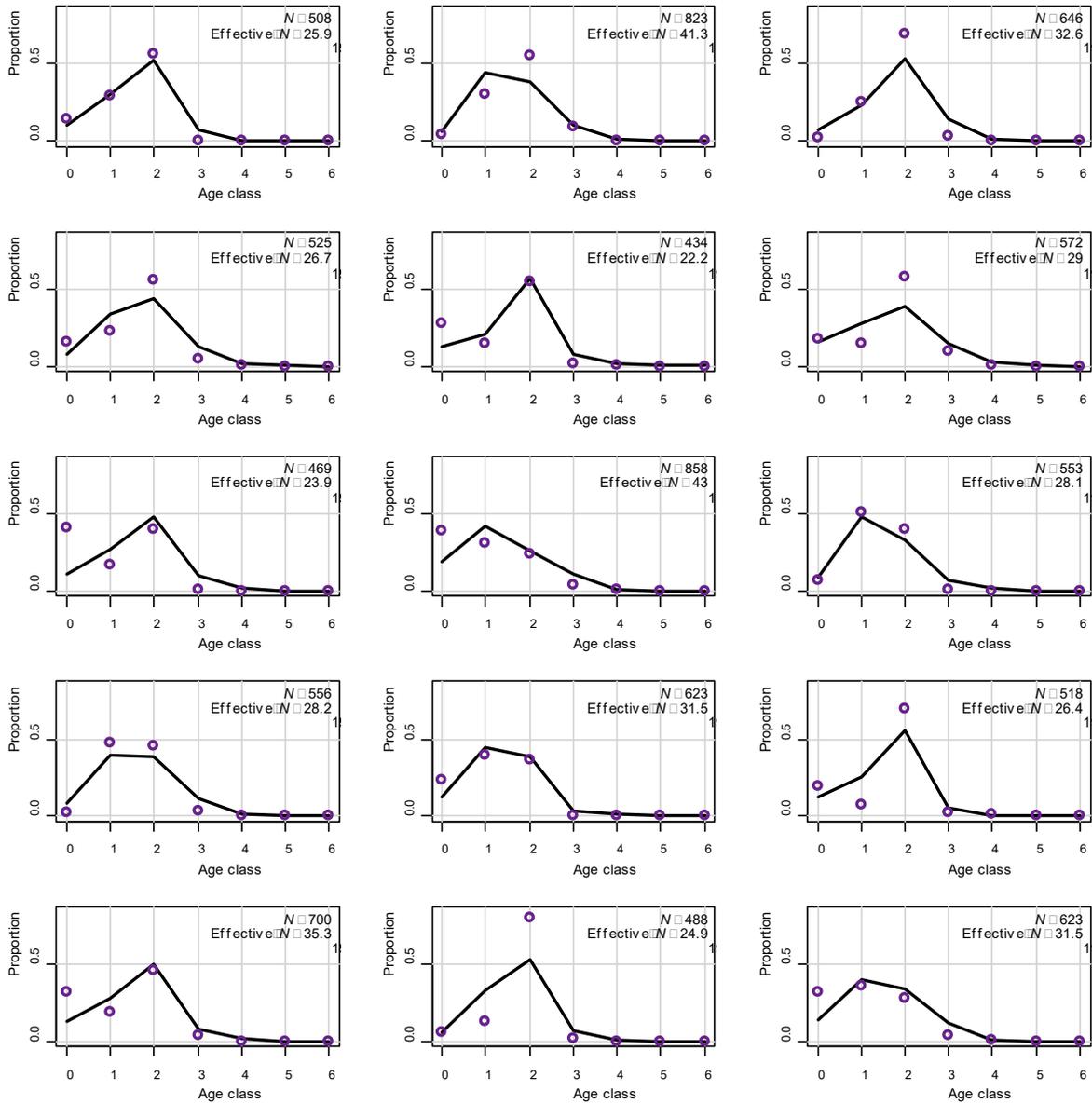


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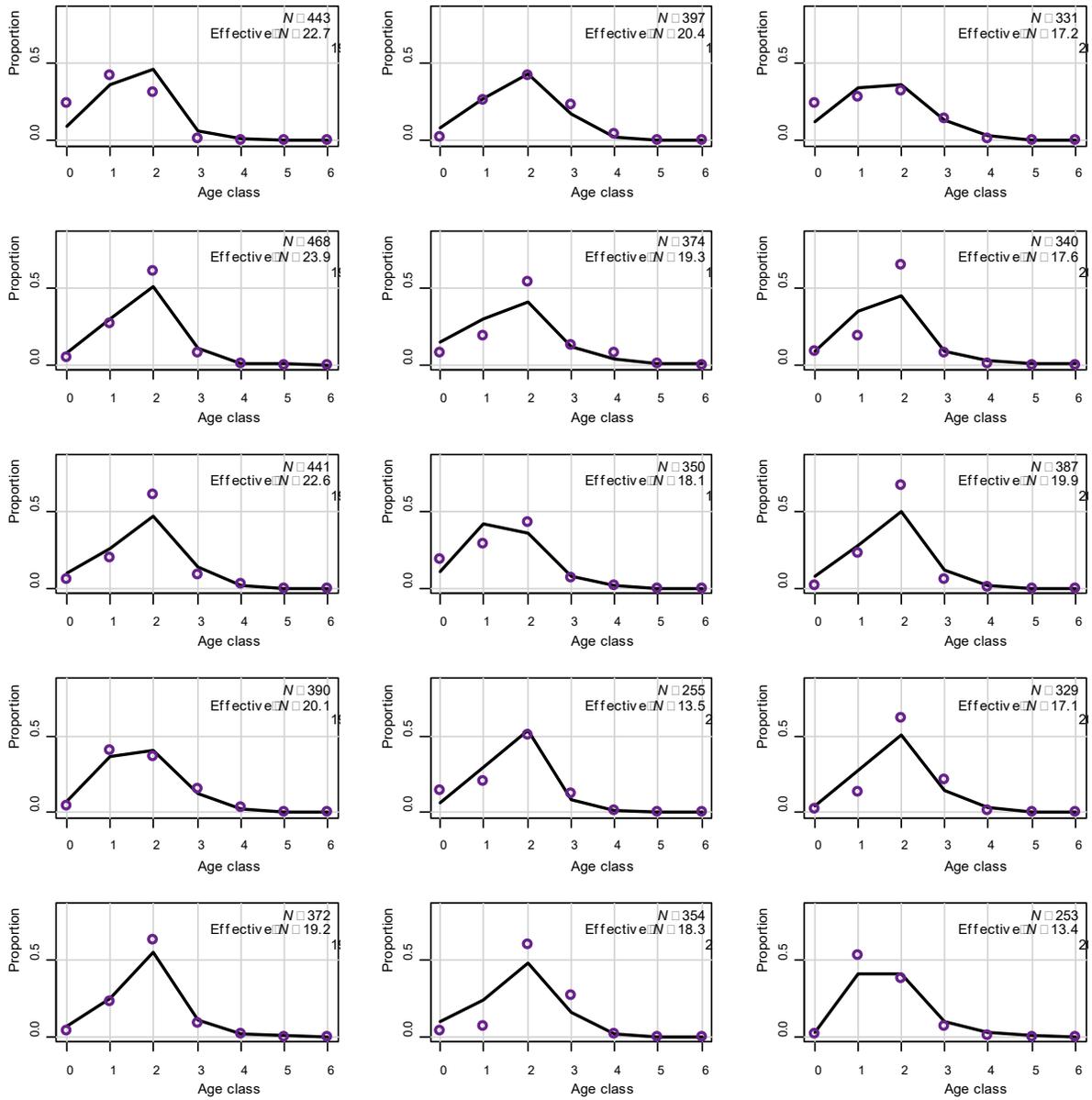


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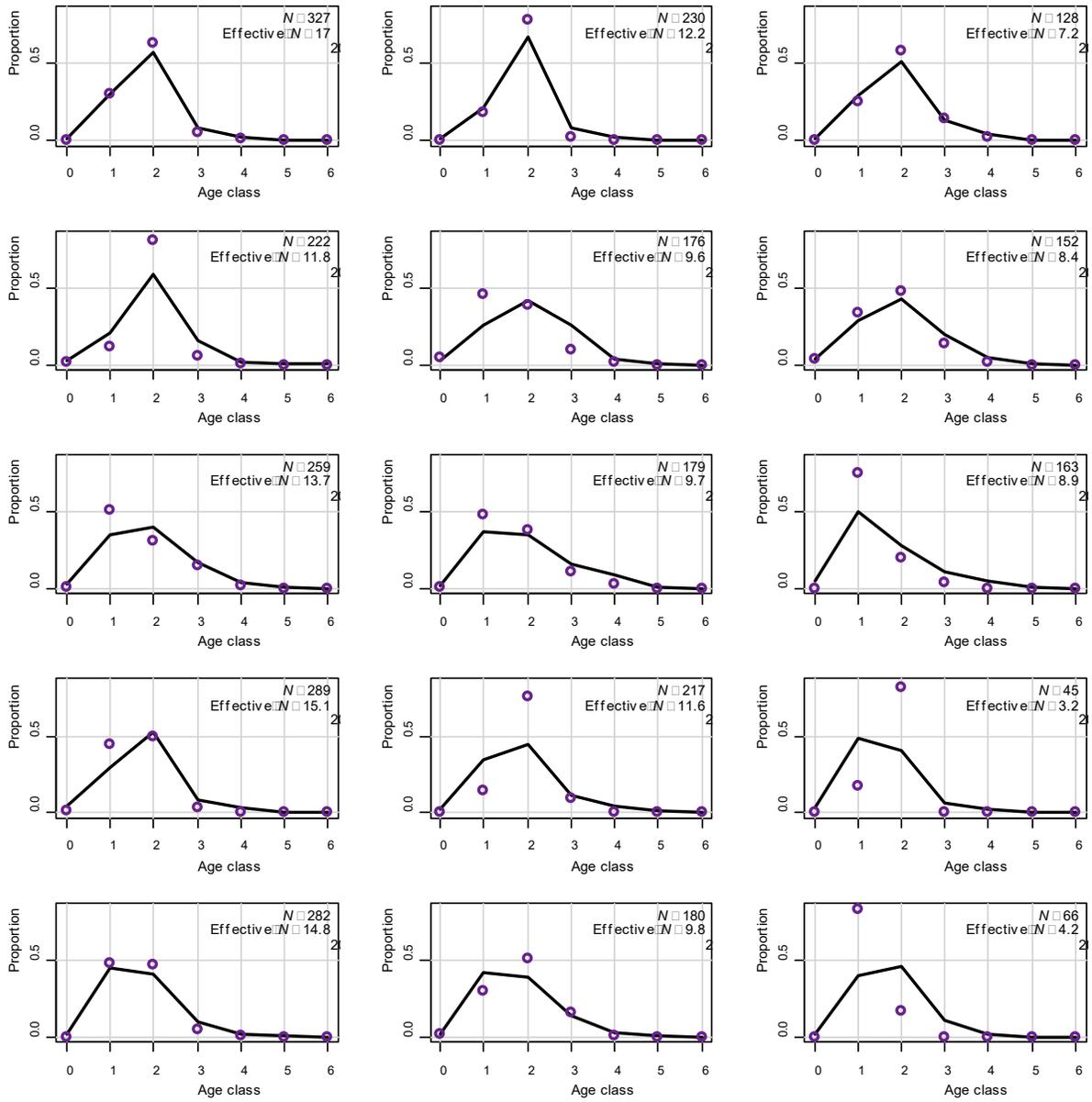
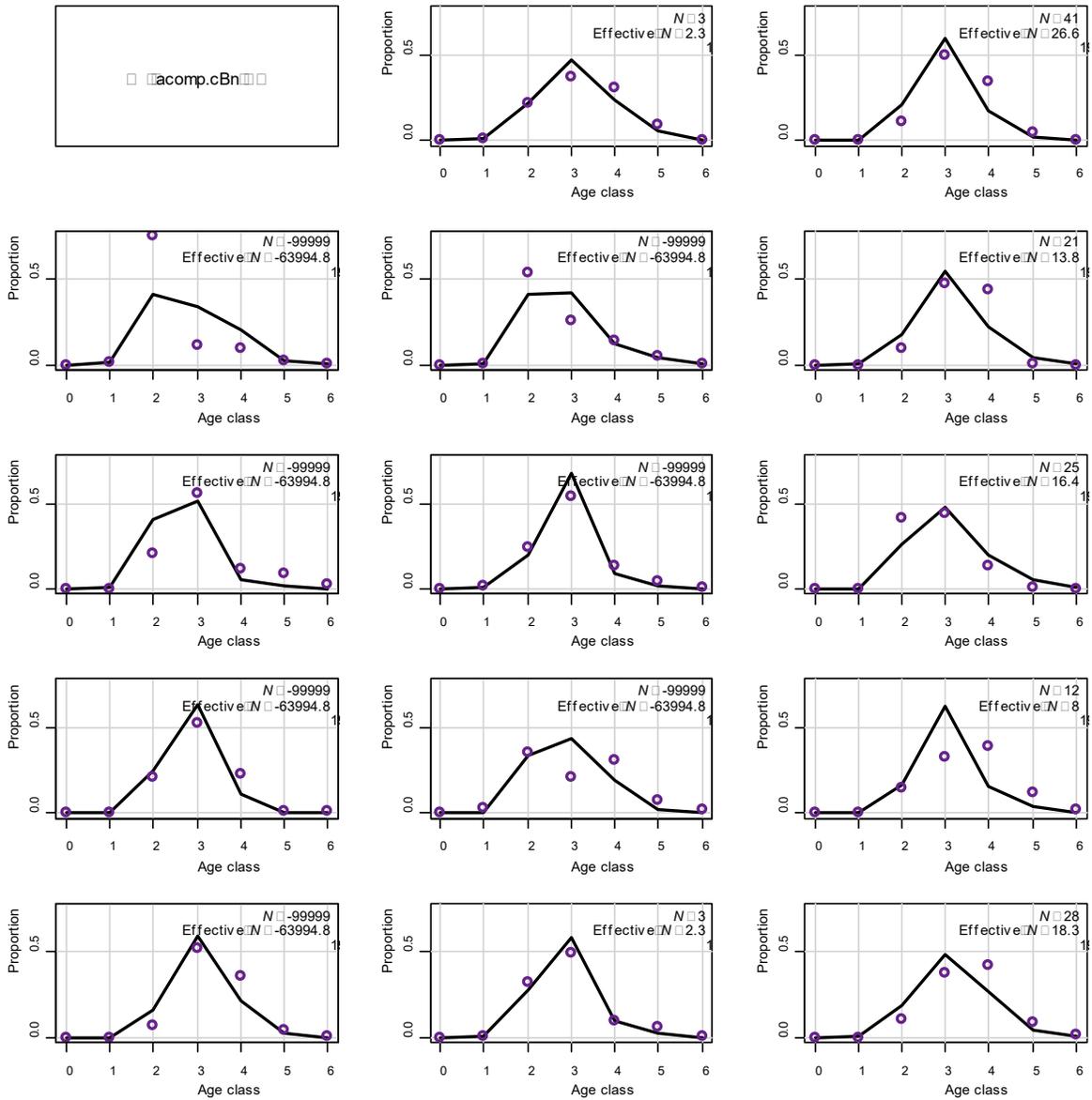


Figure A14. Continued



**Figure A15. Annual age composition plots for the commercial bait north fleet for 1985-2021. Open circles are the observed data, while the line indicates the model fit.**

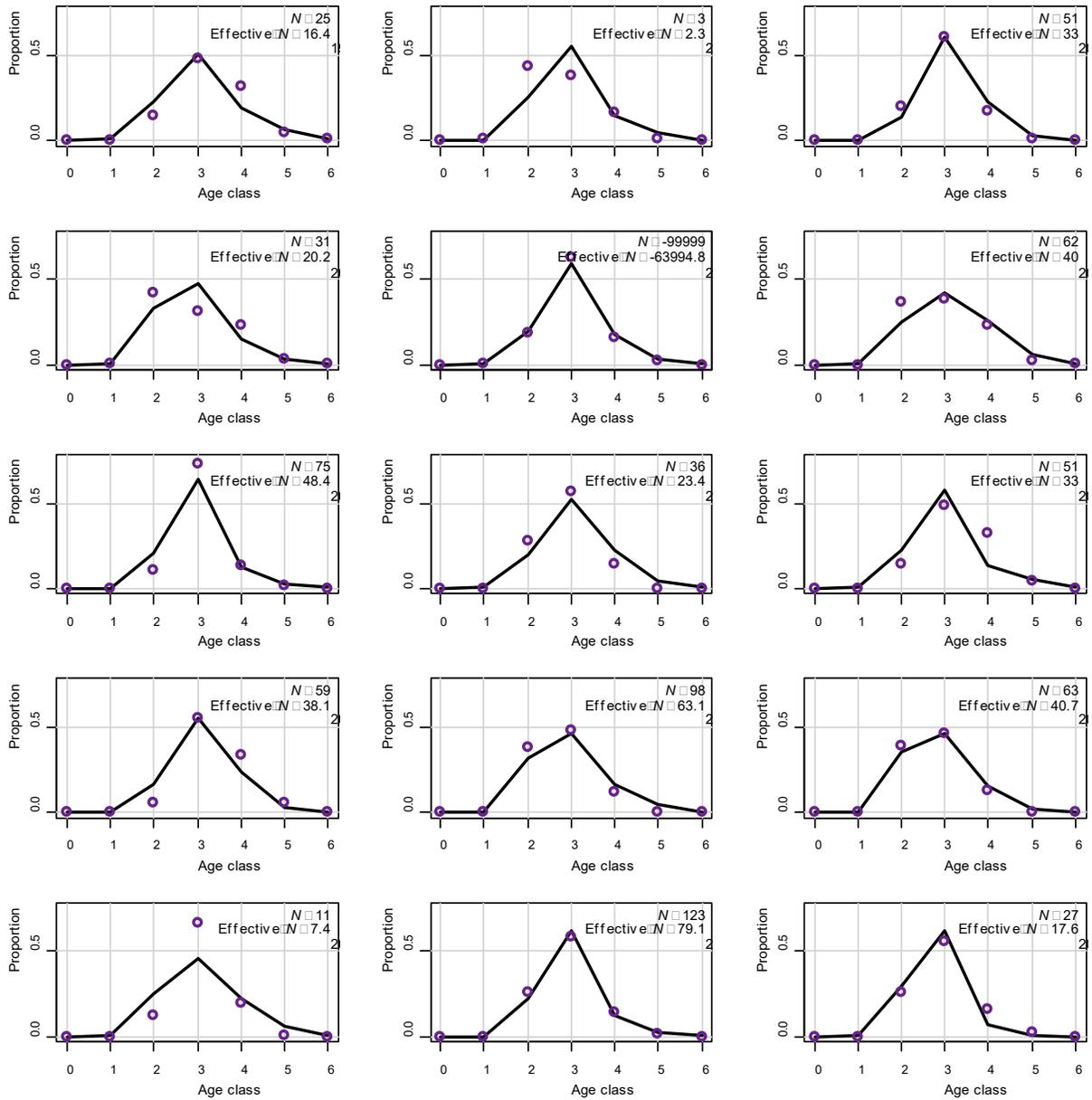


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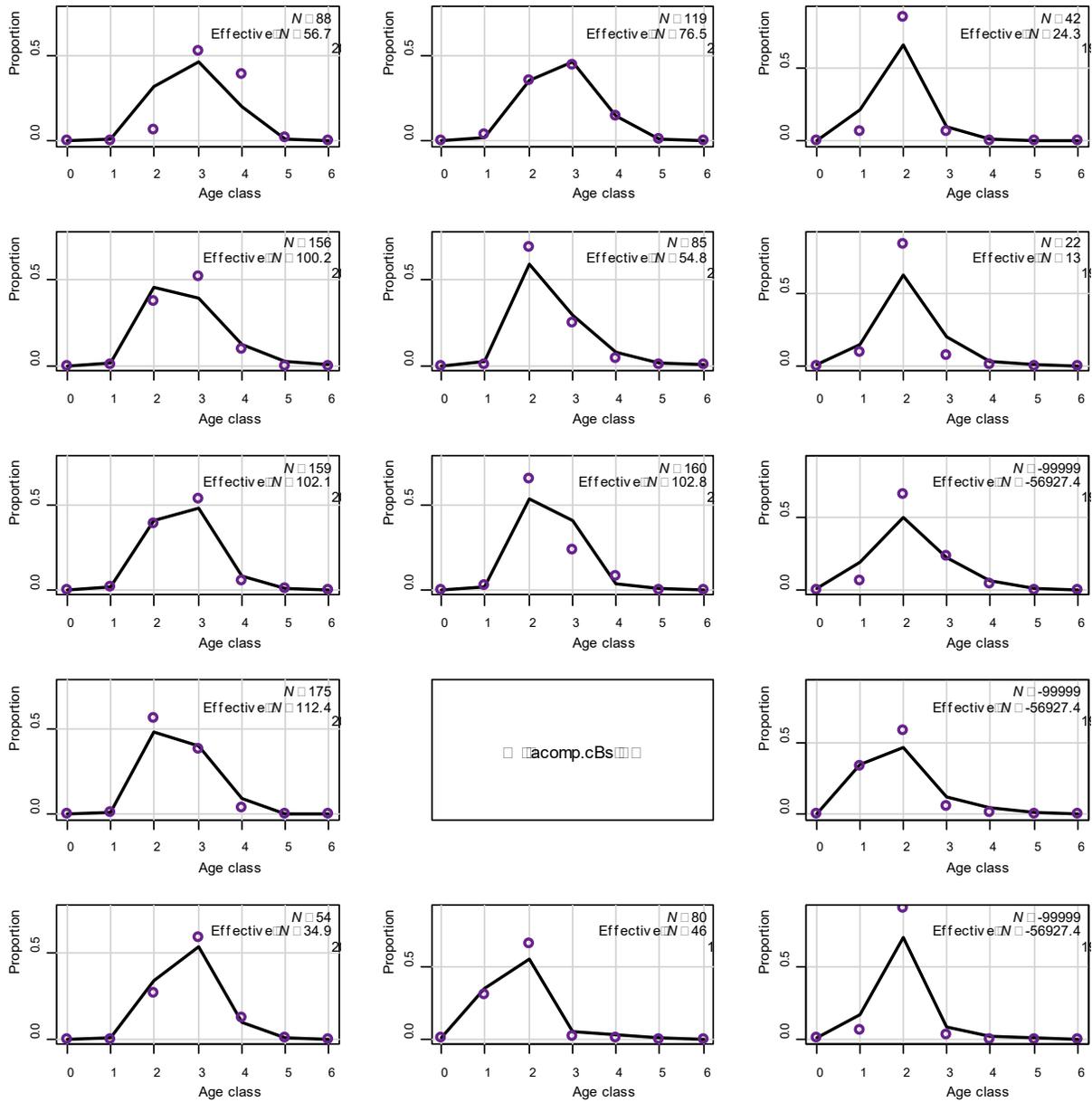
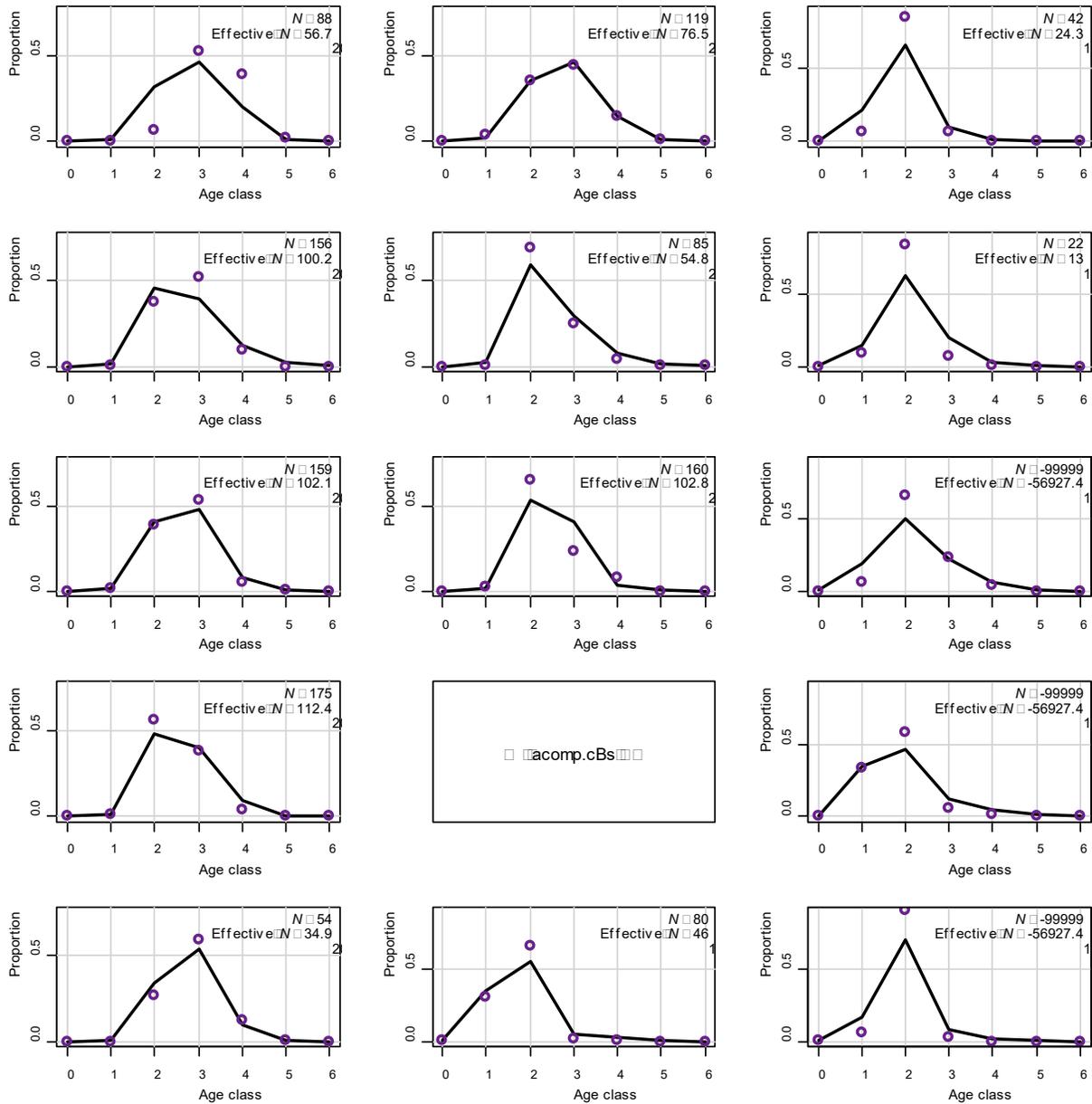


Figure A15. Continued



**Figure A16. Annual age composition plots for the commercial bait south fleet for 1985-2021. Open circles are the observed data, while the line indicates the model fit.**

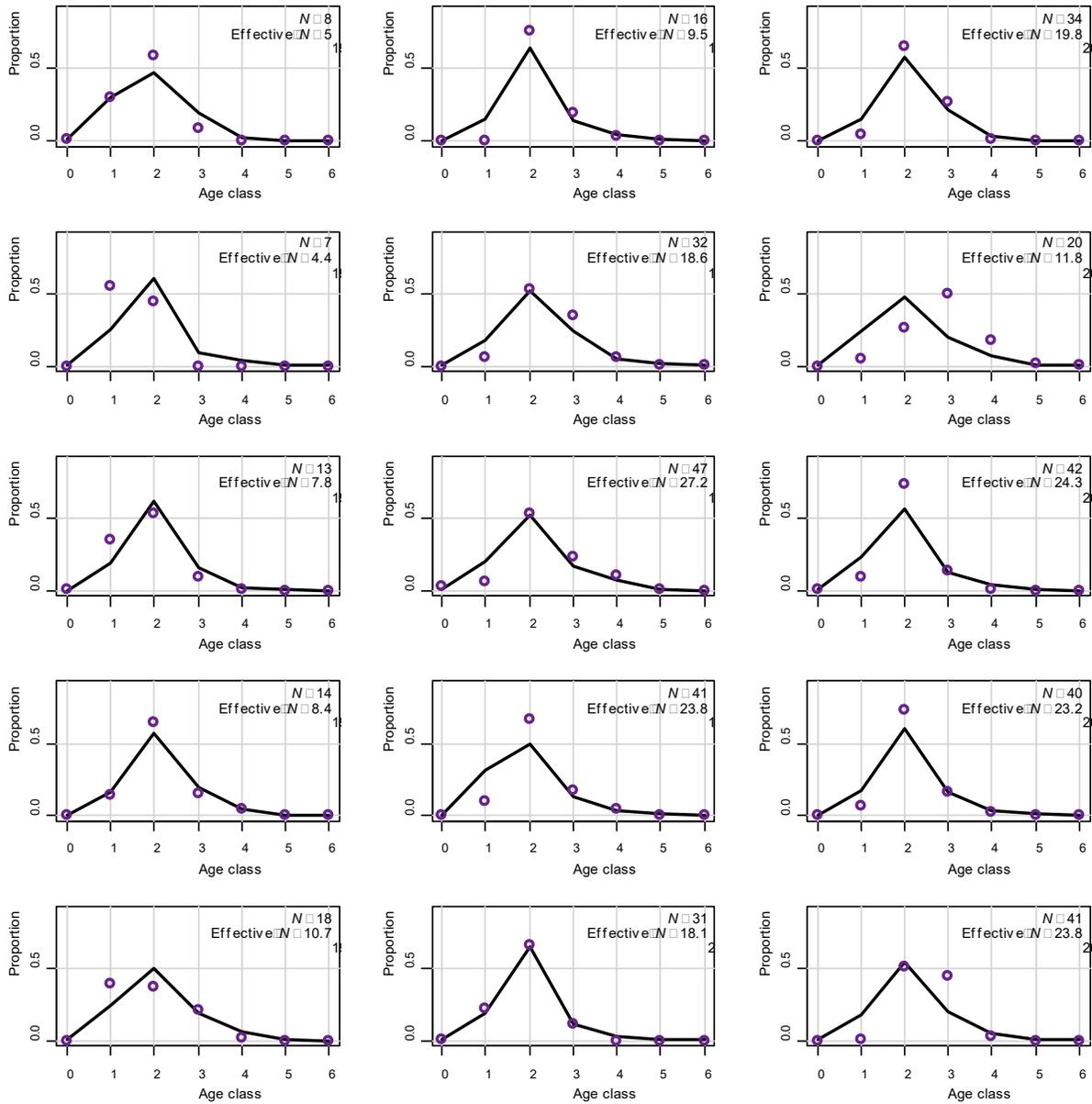


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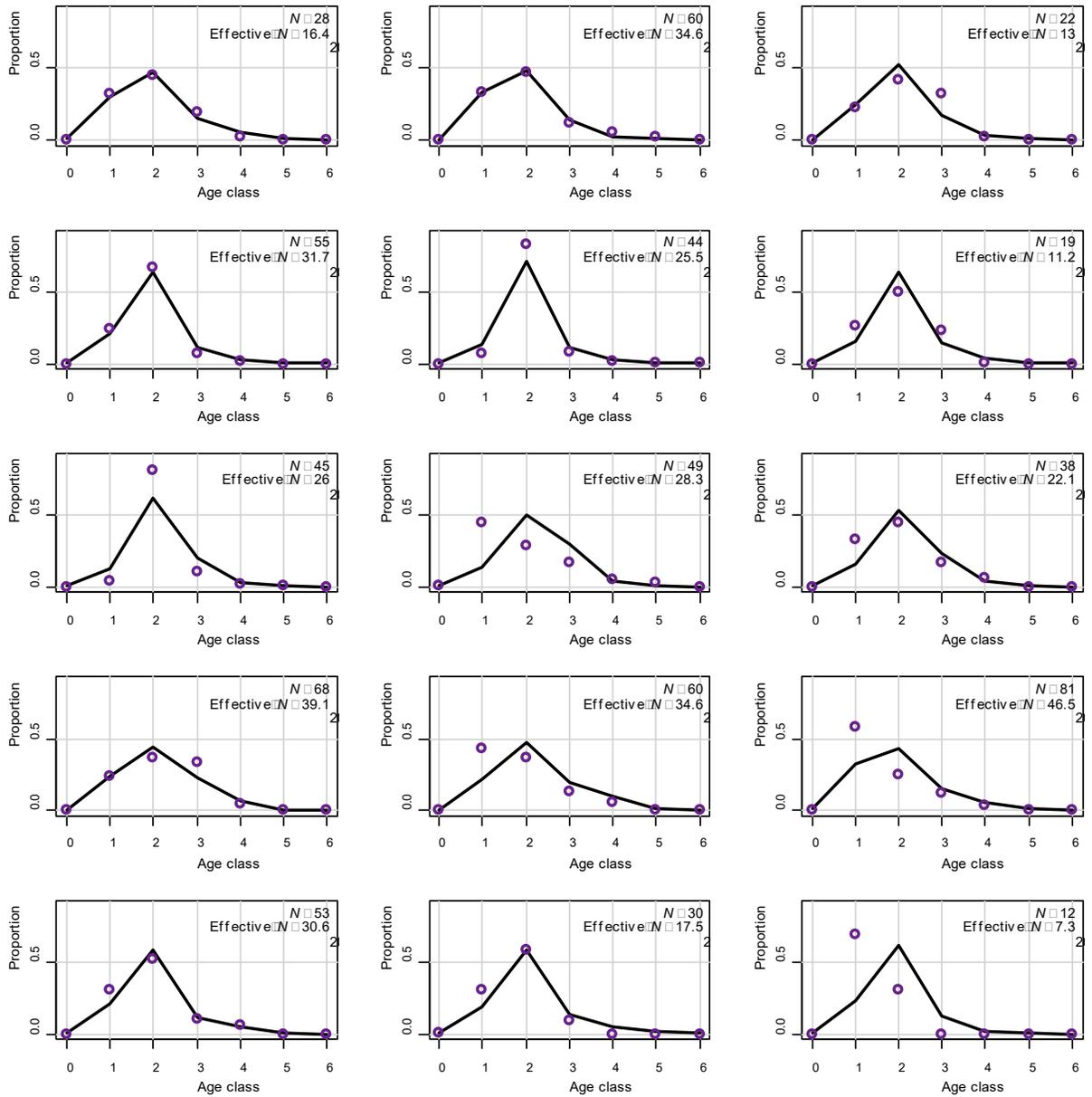
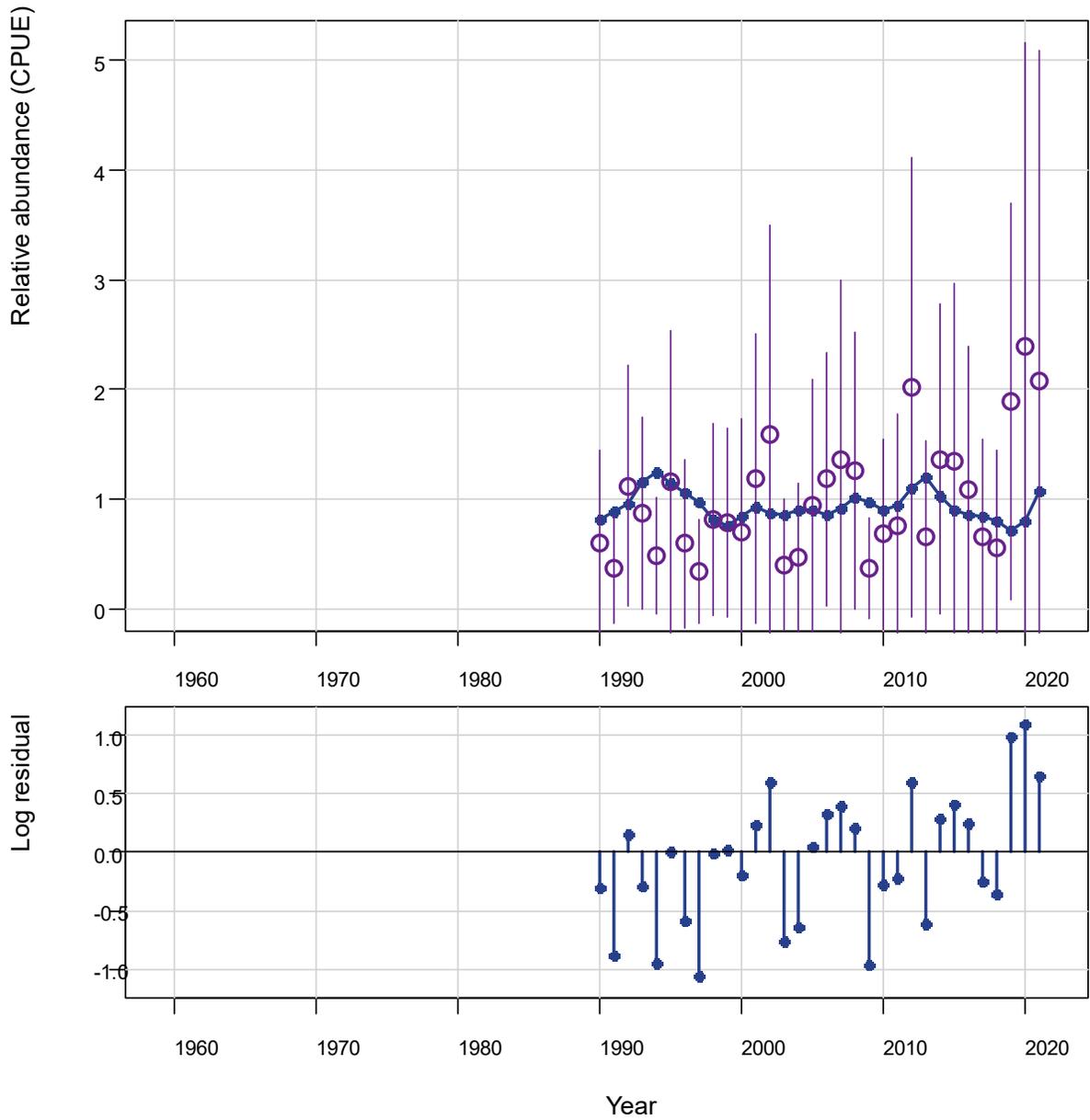
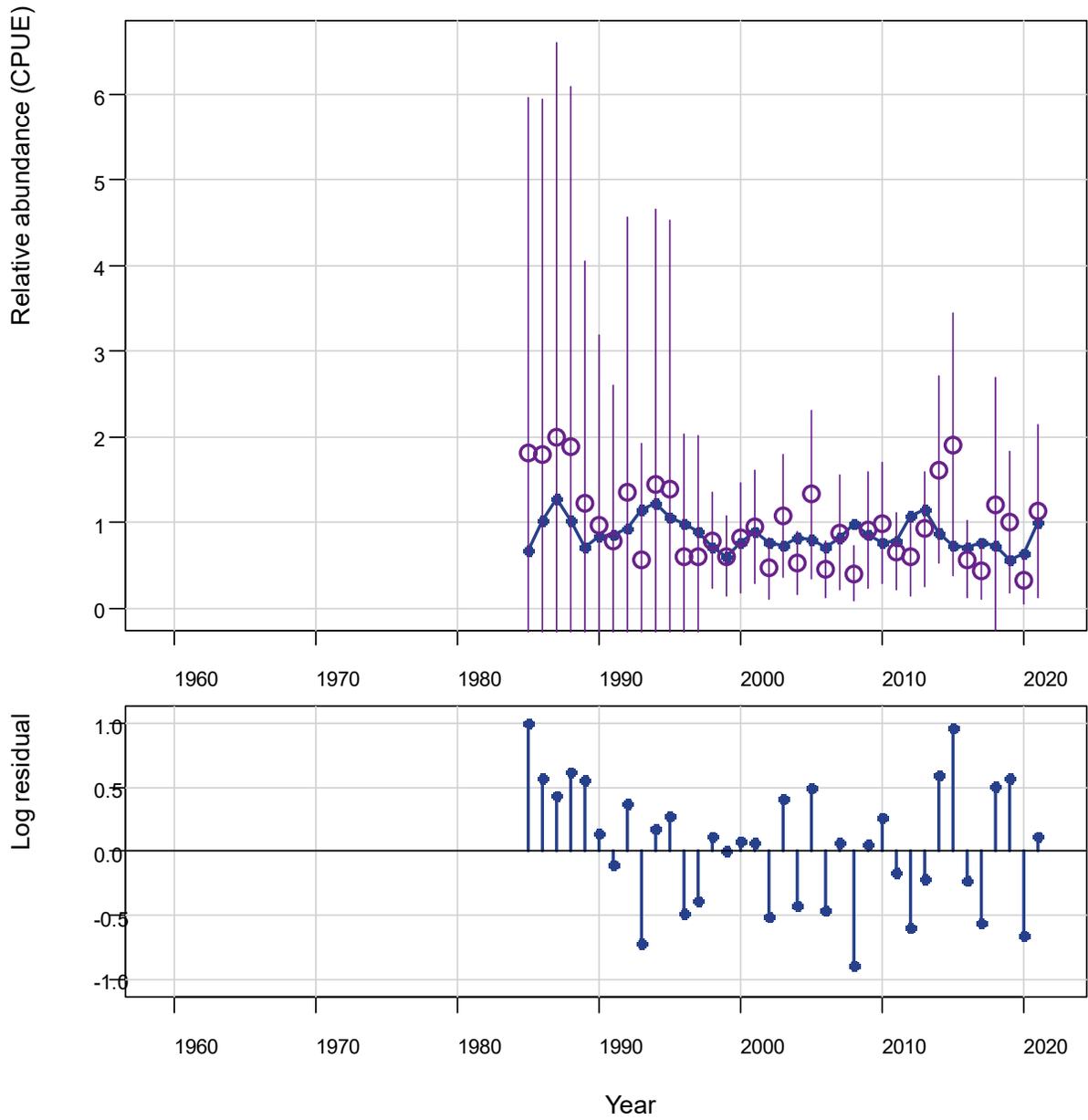


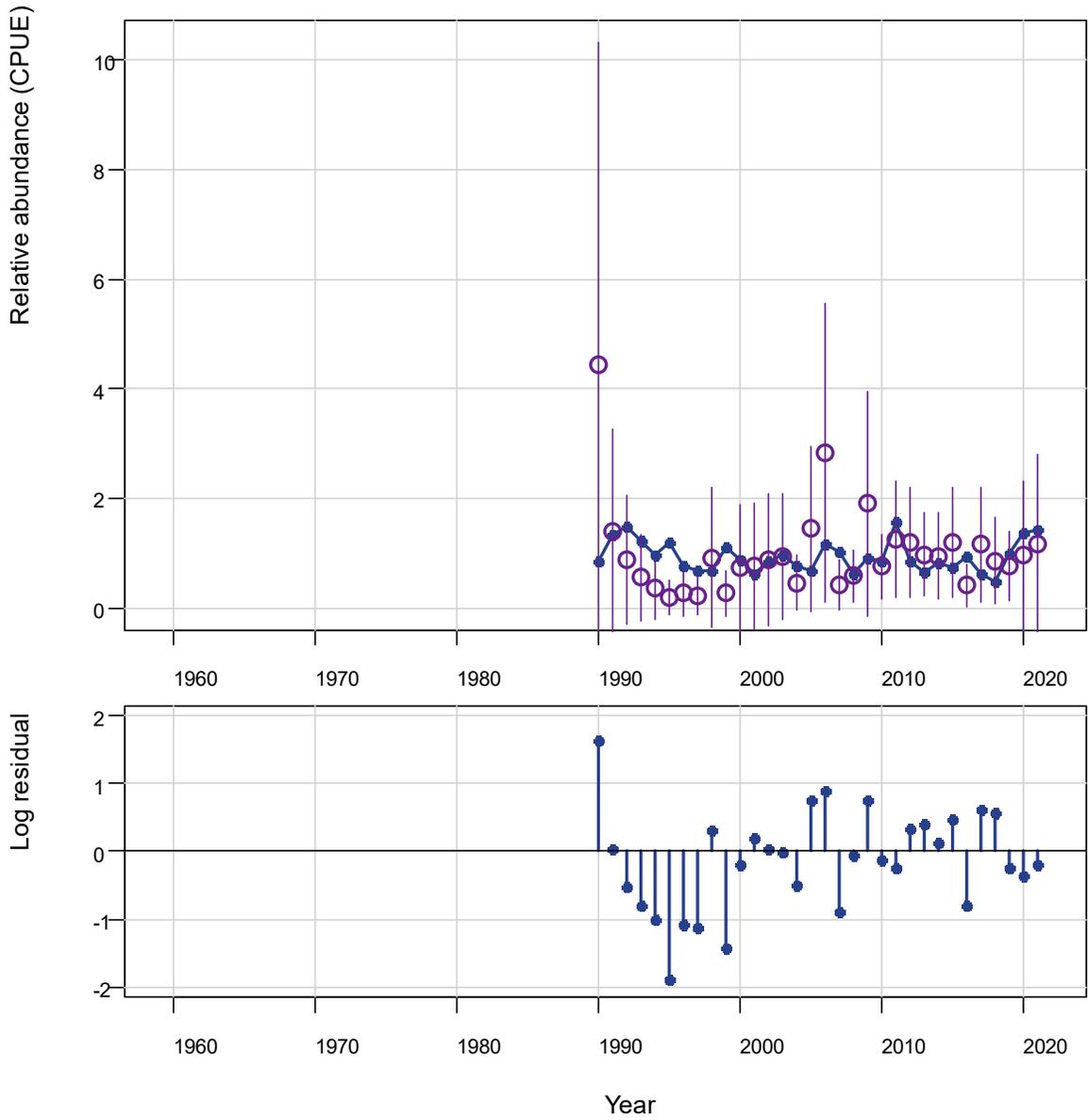
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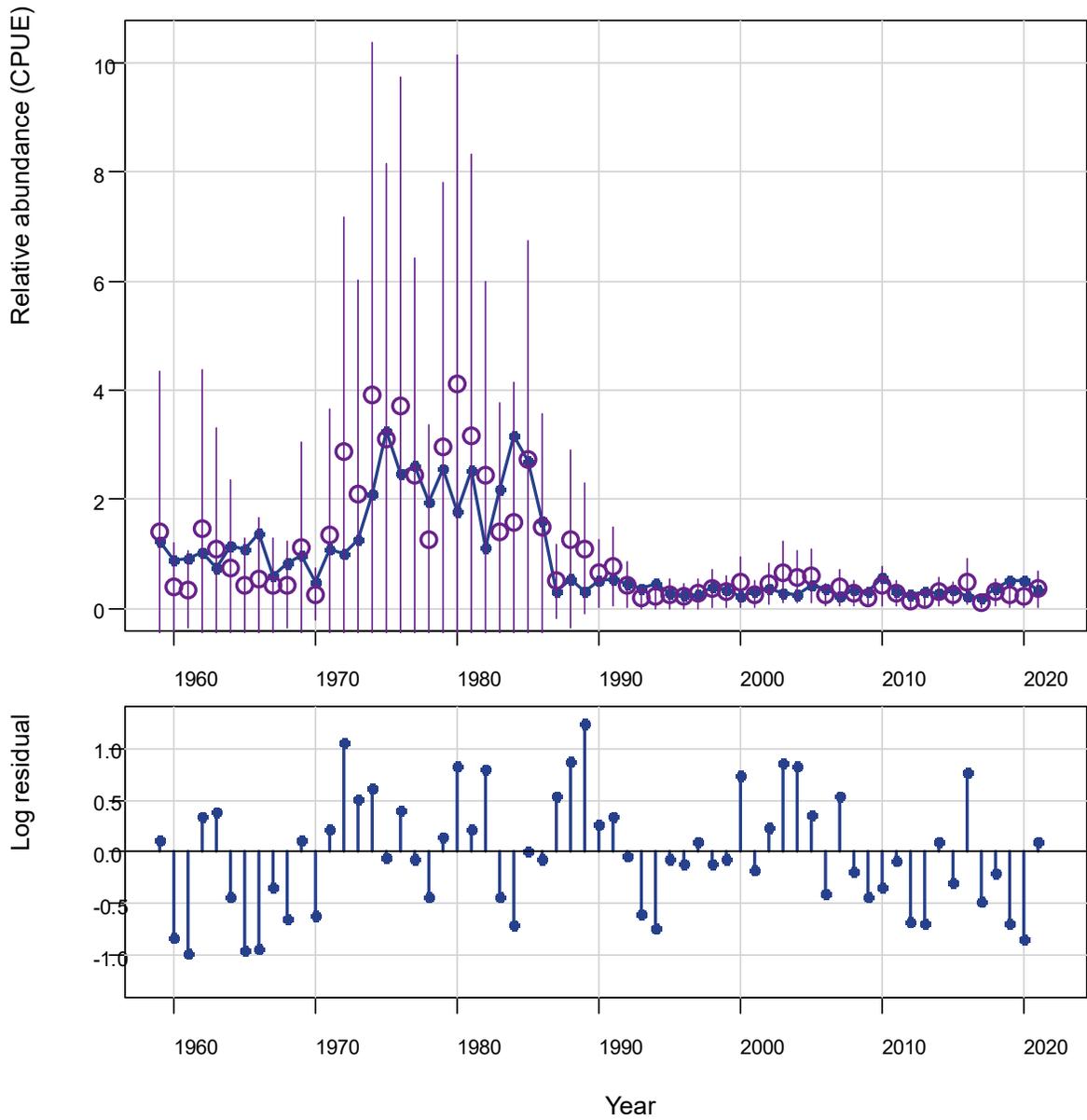
**Figure A17. Predicted fit (blue, closed circle with line) to the observed (open circle) NAD index. The lower panel indicates the residual for each data point.**



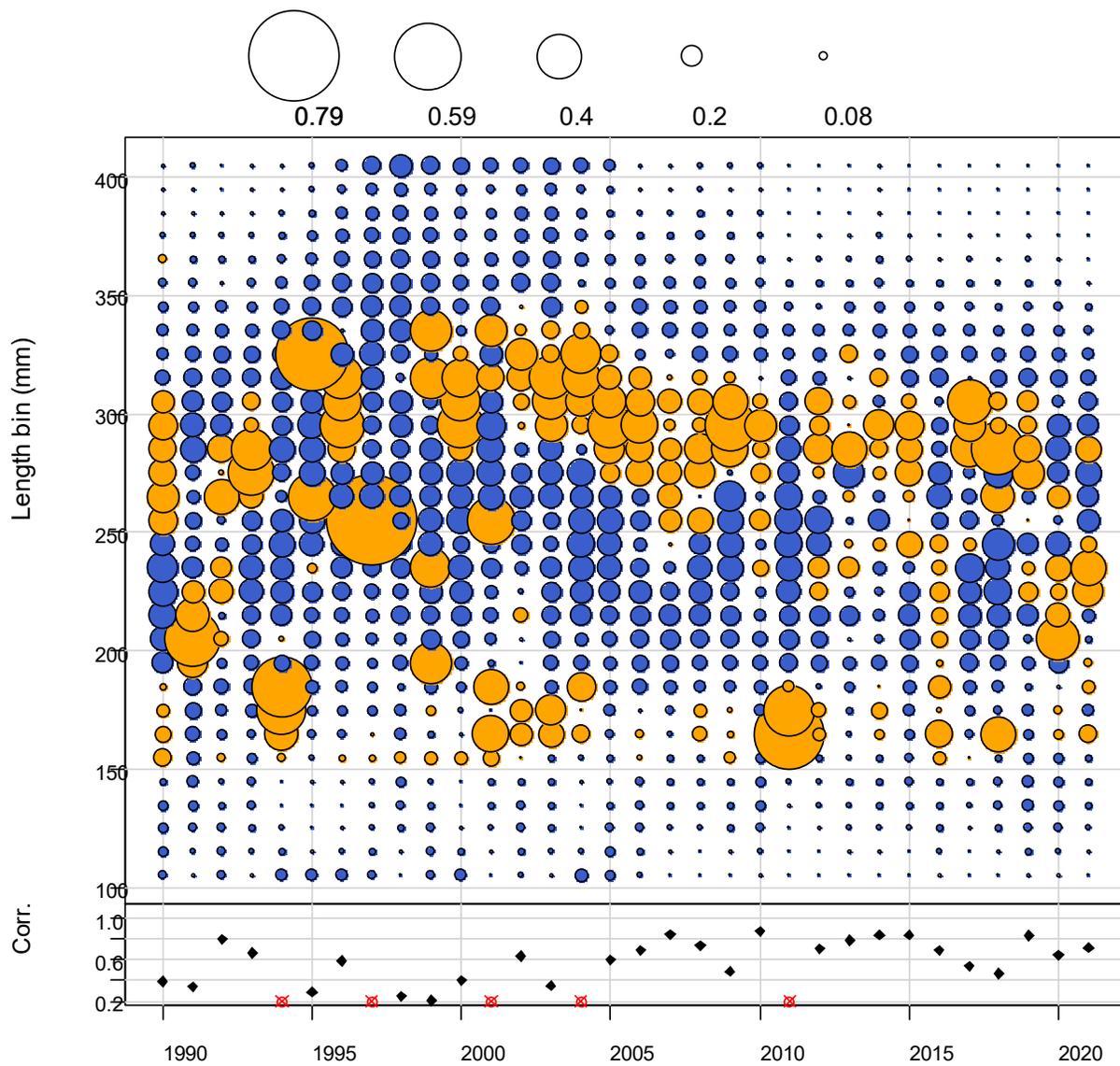
**Figure A18. Predicted fit (blue, closed circle with line) to the observed (open circle) MAD index. The lower panel indicates the residual for each data point.**



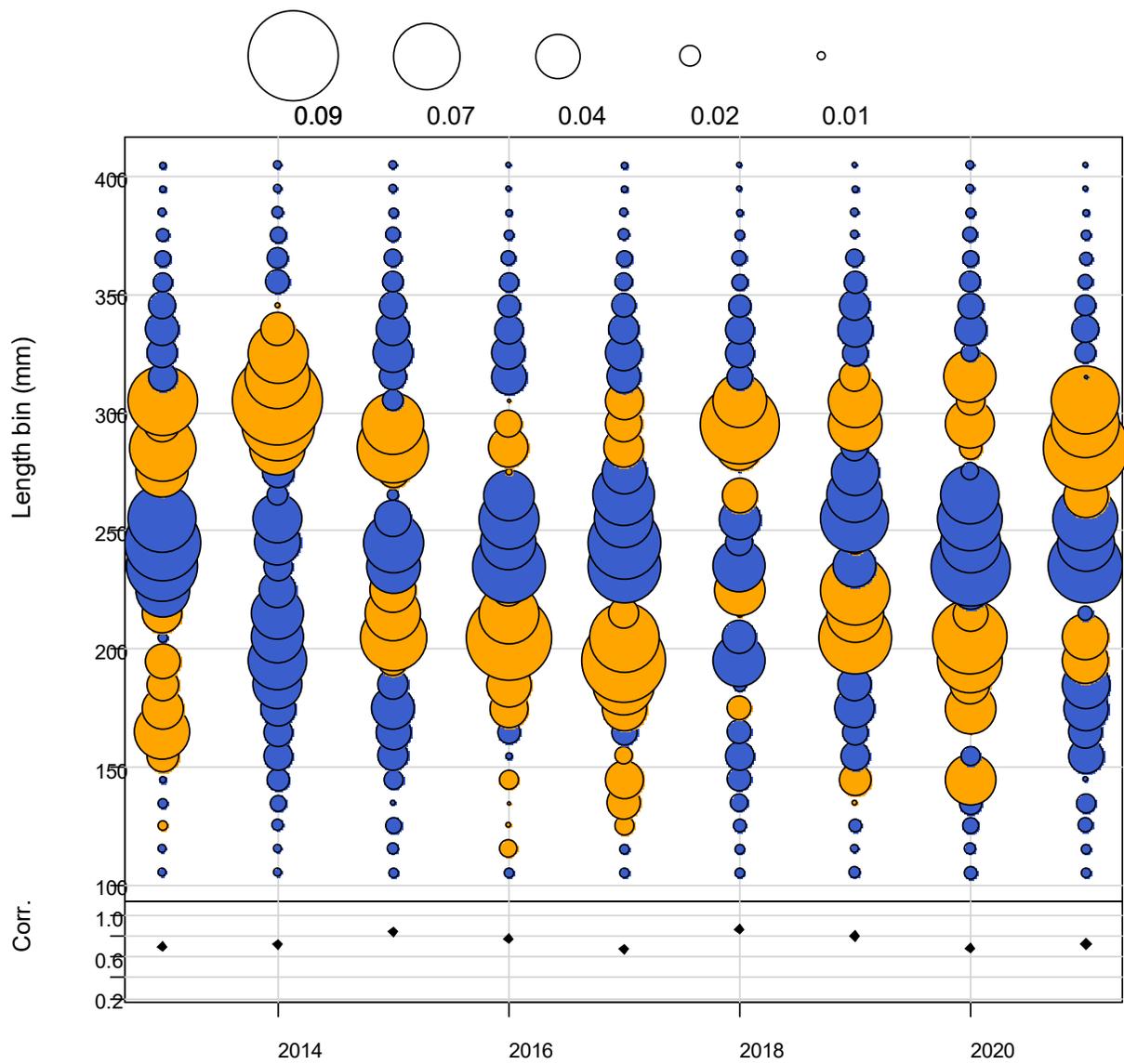
**Figure A19.** Predicted fit (blue, closed circle with line) to the observed (open circle) SAD index. The lower panel indicates the residual for each data point.



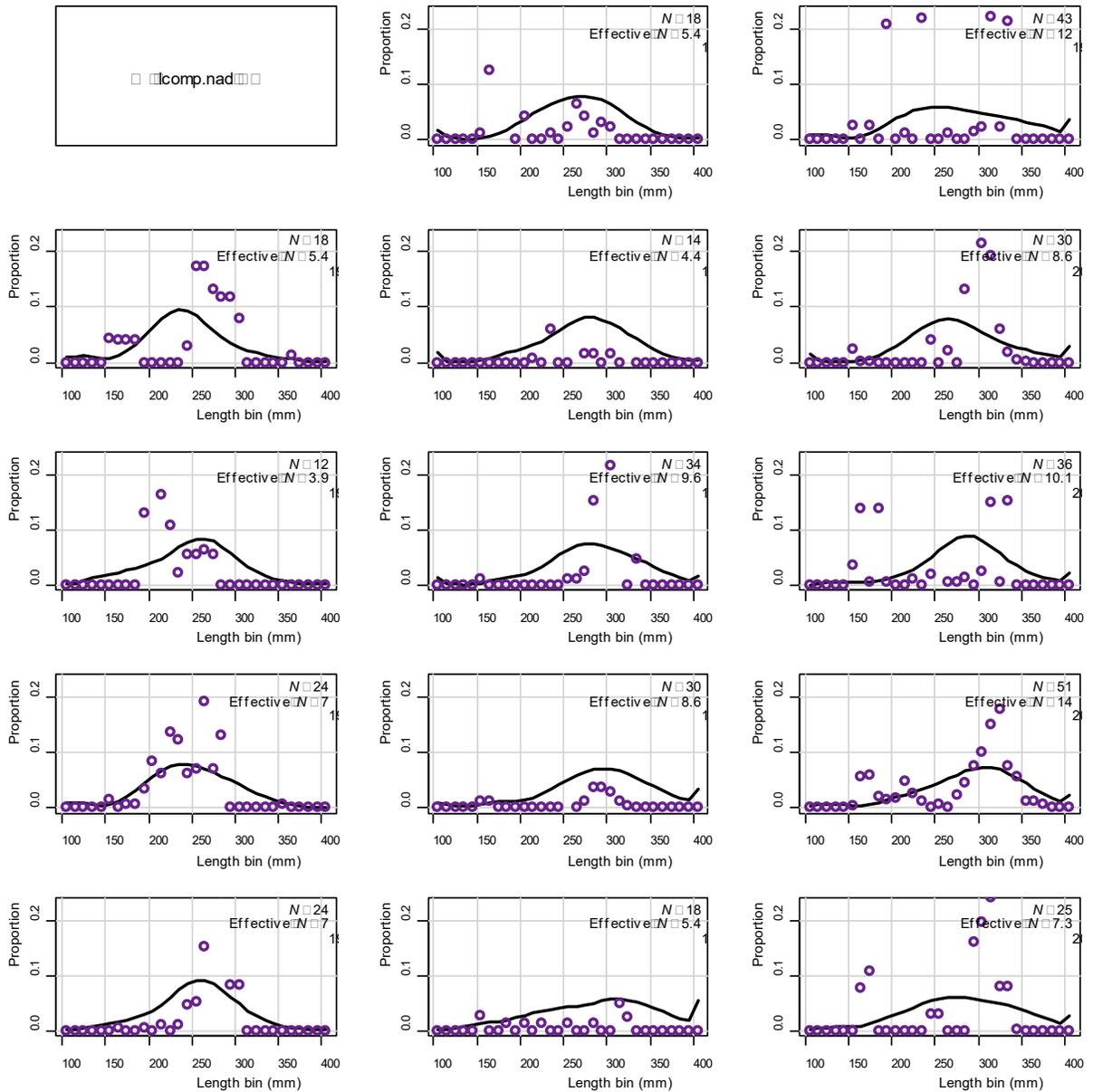
**Figure A20. Predicted fit (blue, closed circle with line) to the observed (open circle) recruitment index. The lower panel indicates the residual for each data point.**



**Figure A21.** Bubble plot of the fits to the length compositions for the NAD index. Orange indicates an underestimate, while blue indicates an overestimate. The bottom panel indicates the correlation between the observed data and the model prediction.



**Figure A22.** Bubble plot of the fits to the length compositions for the MAD index. Orange indicates an underestimate, while blue indicates on overestimate. The bottom panel indicates the correlation between the observed data and the model prediction.



**Figure A23.** Annual length composition plots for the NAD index for 1990-2021. Open circles are the observed data, while the line indicates the model fit.

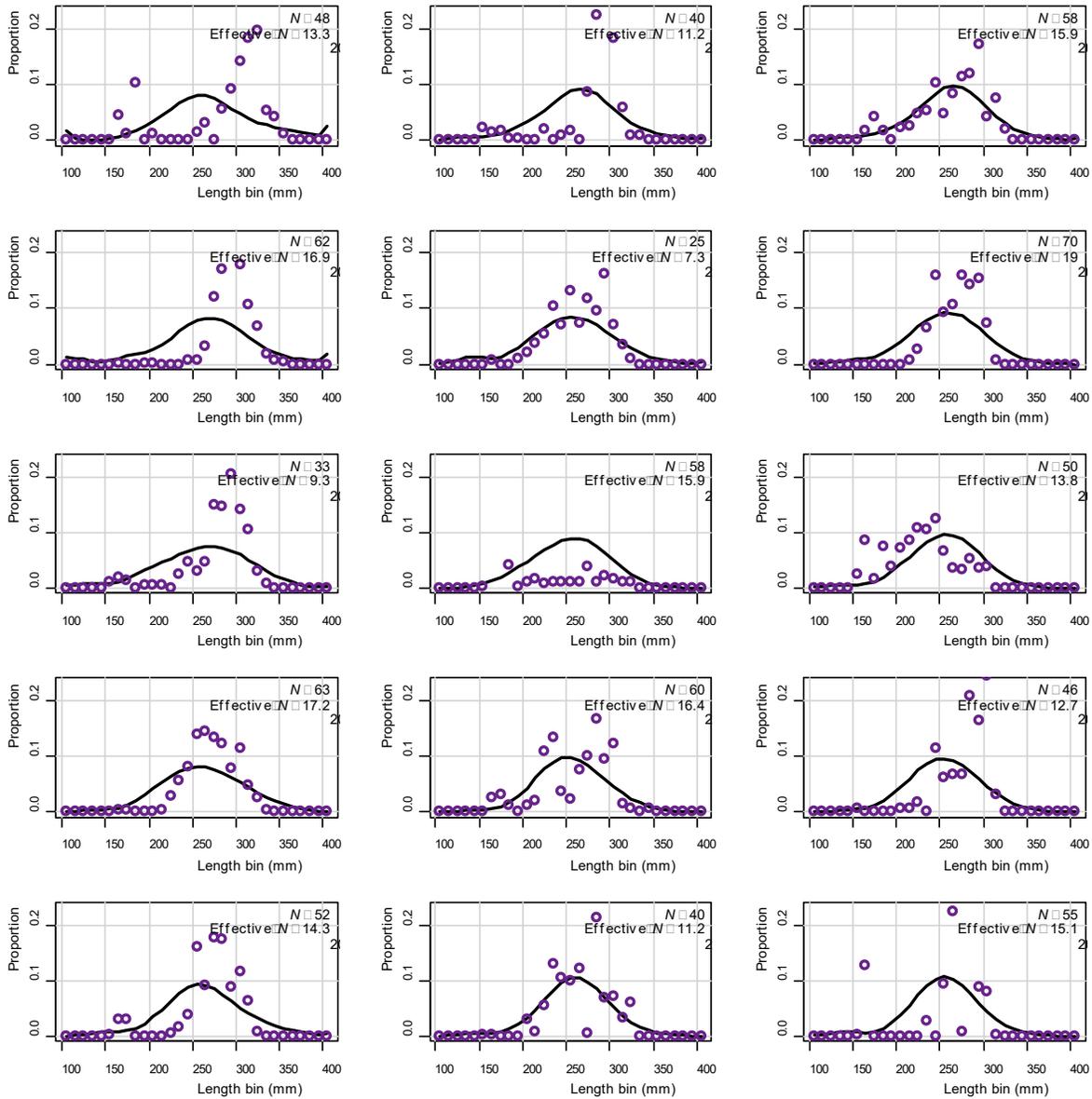


Figure A23. Continued

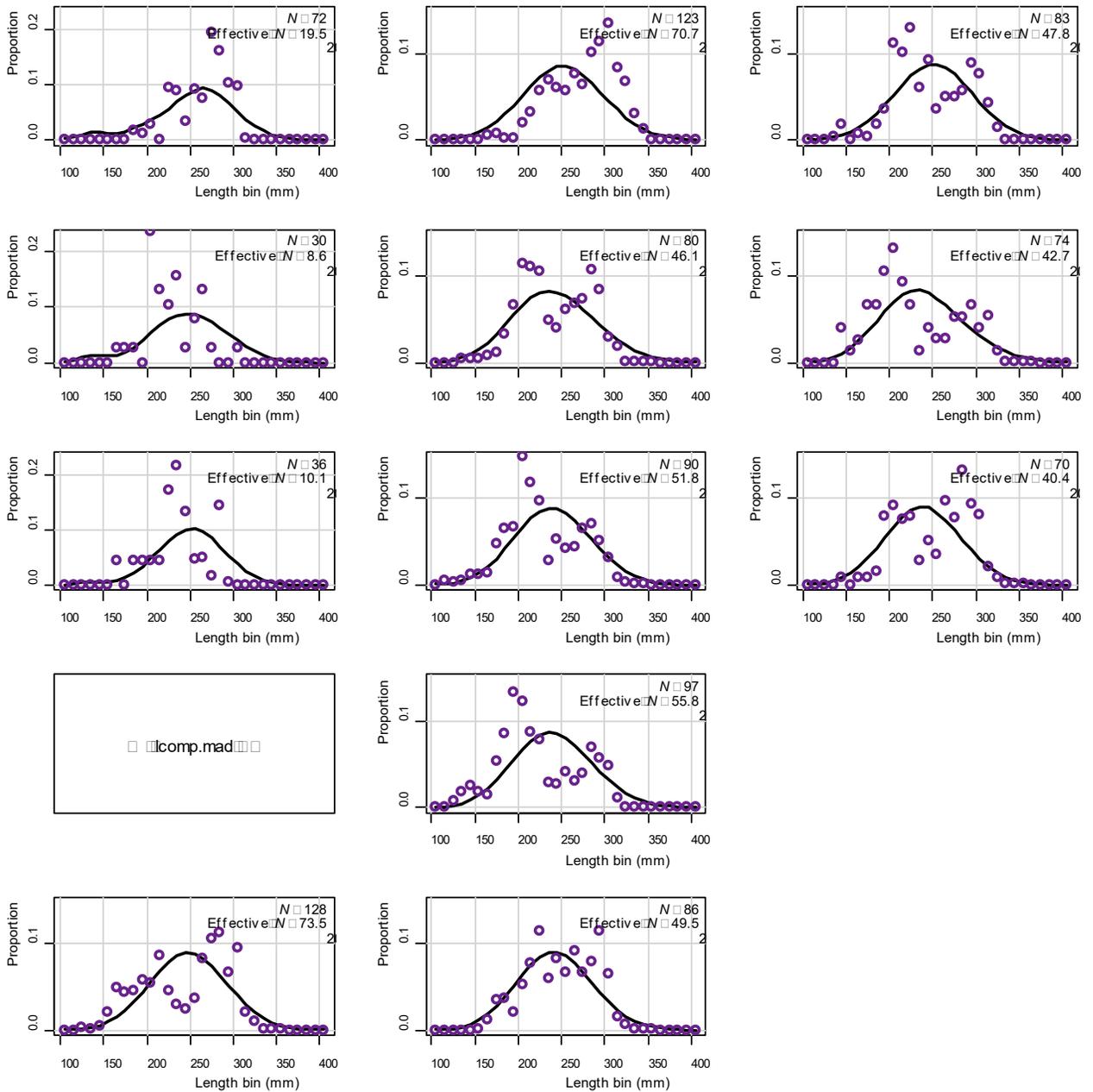
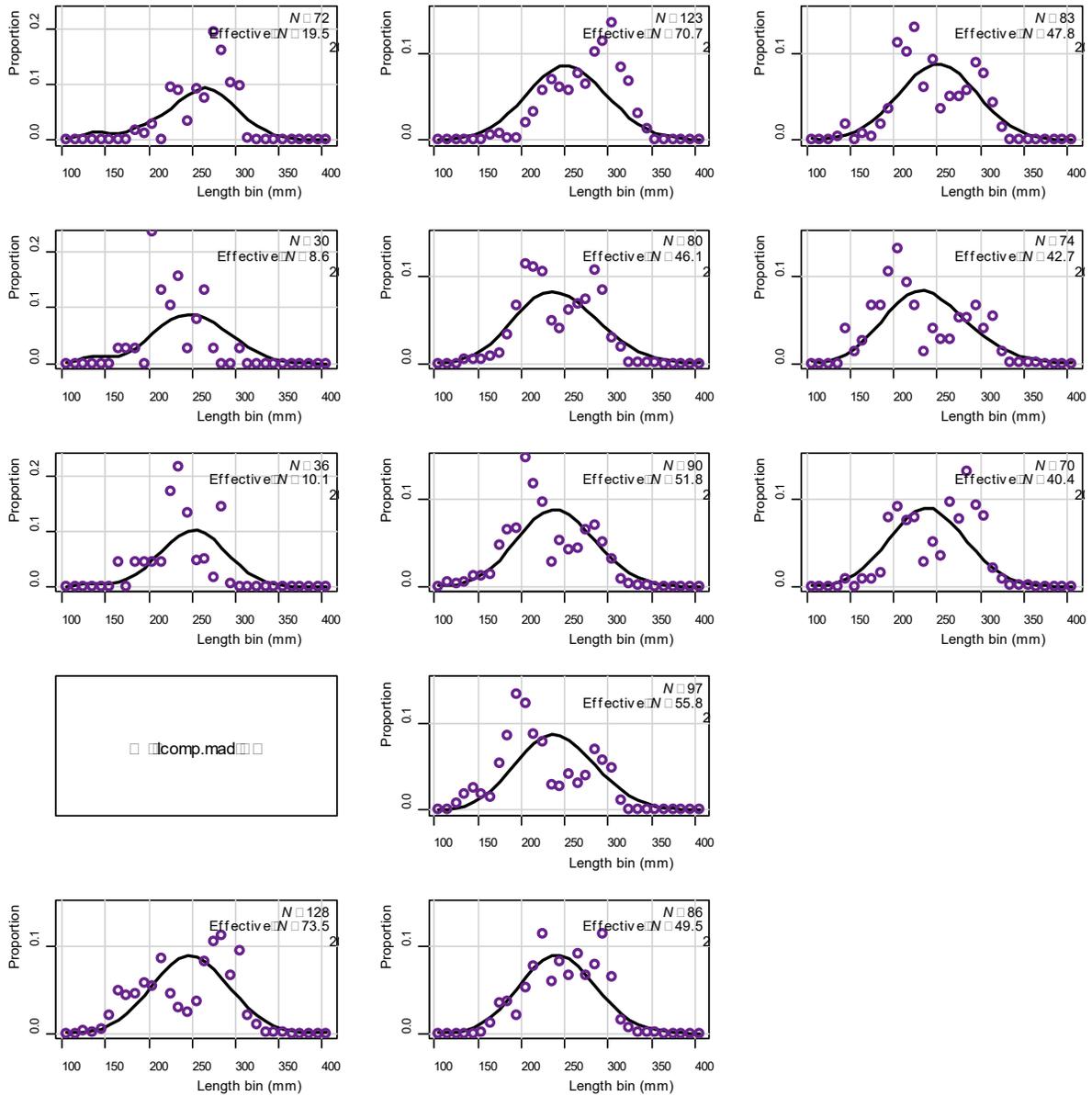
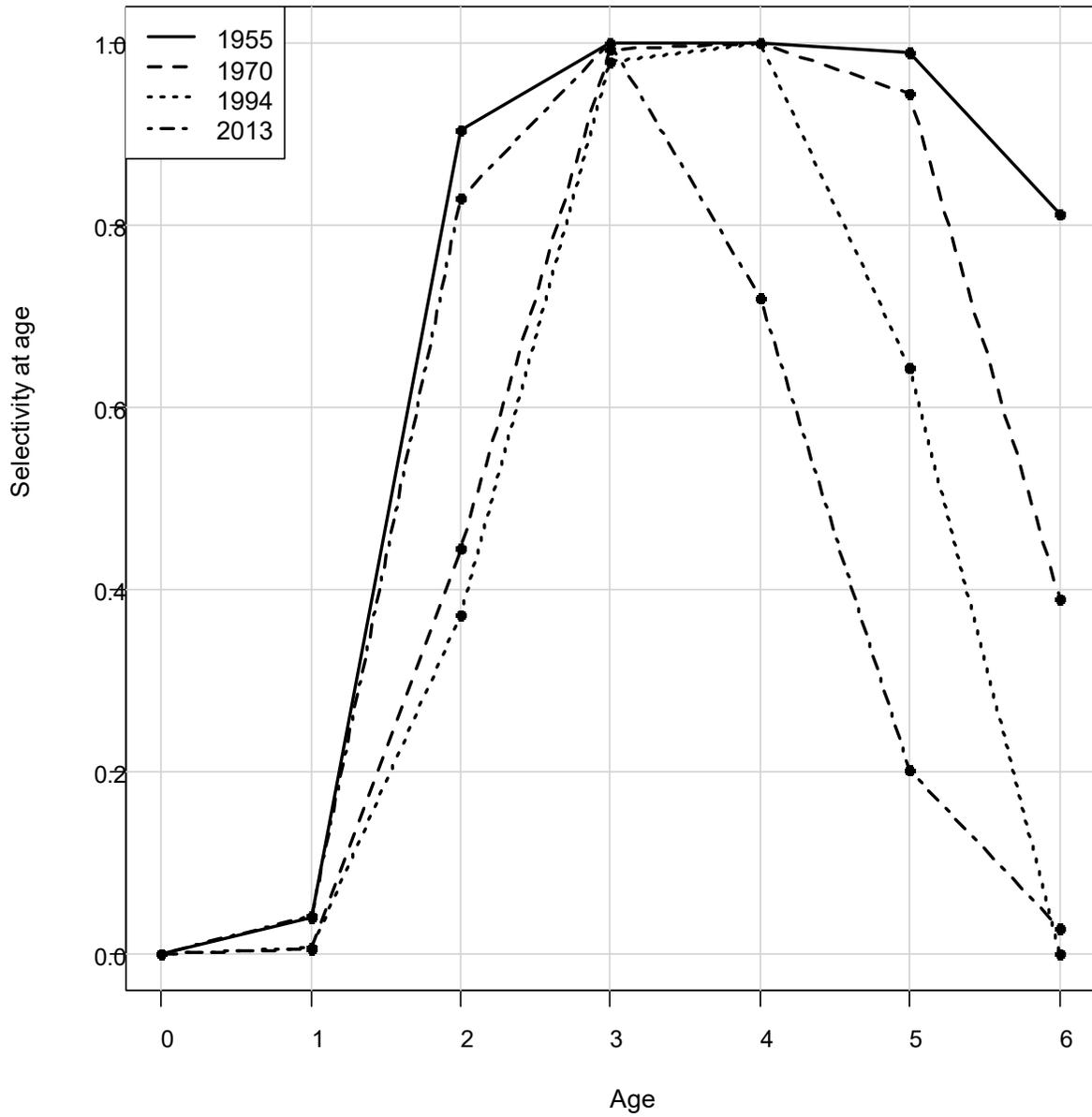


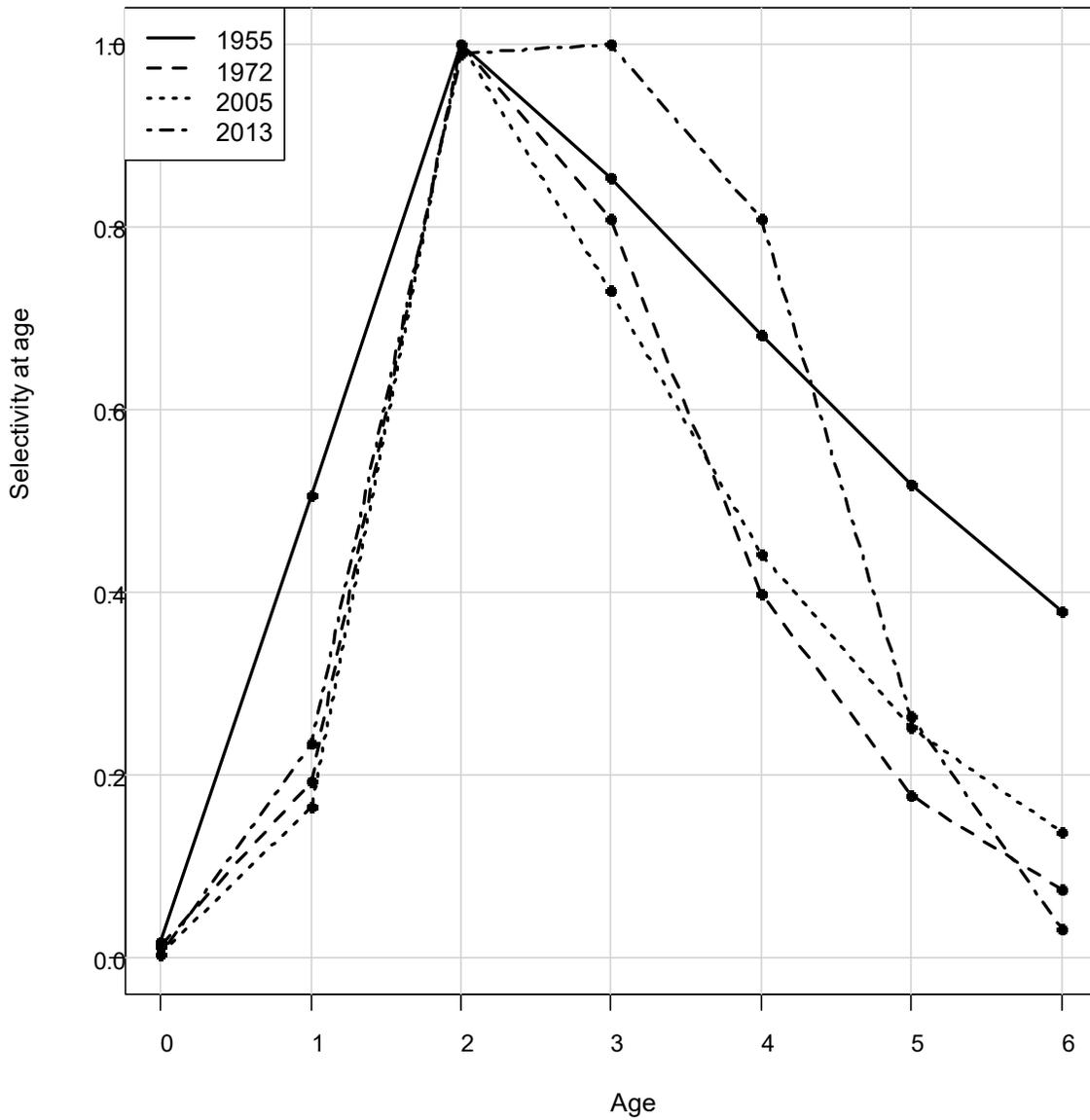
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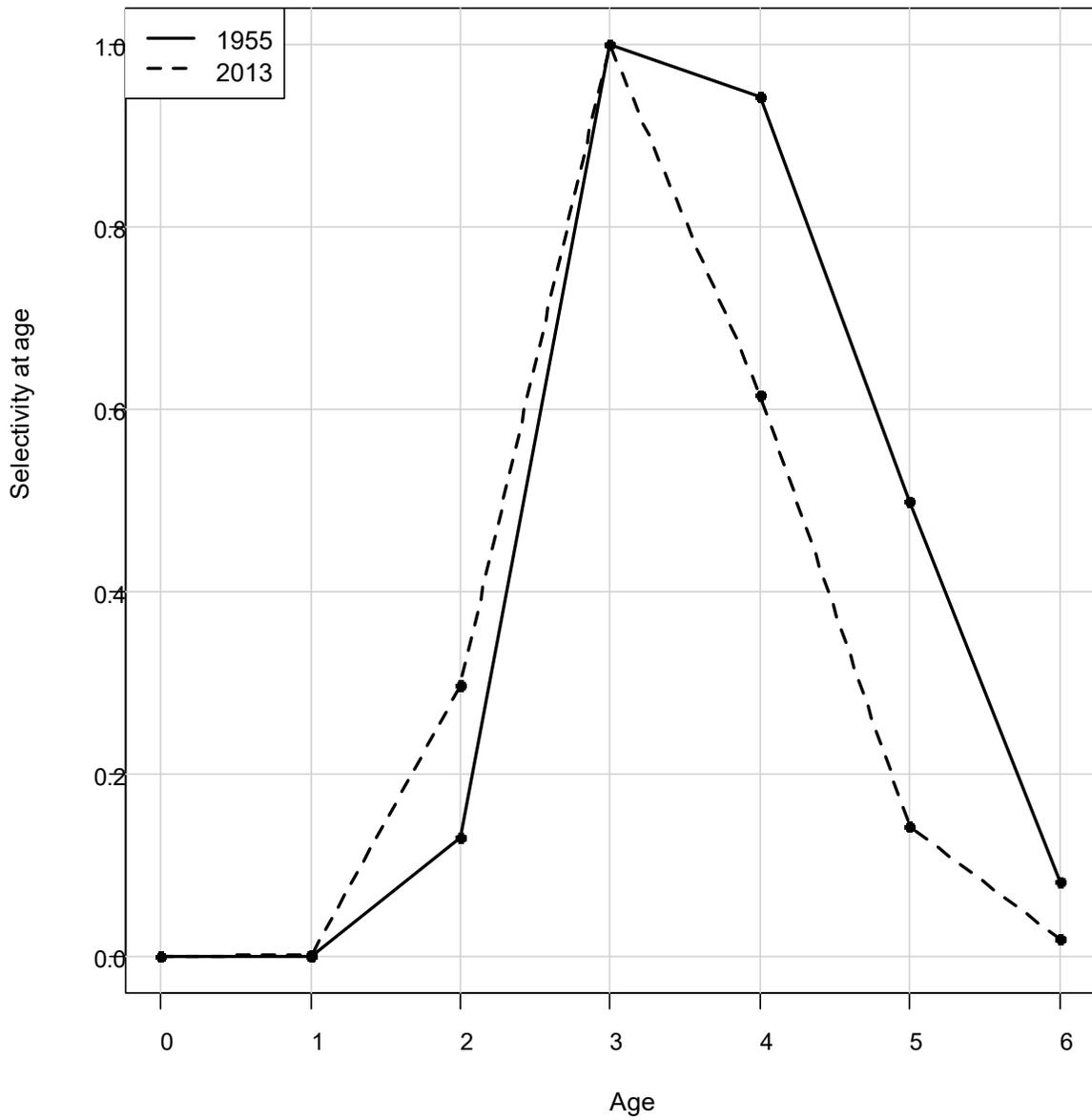
**Figure A24. Annual length composition plots for the MAD index for 2013-2021. Open circles are the observed data, while the line indicates the model fit.**



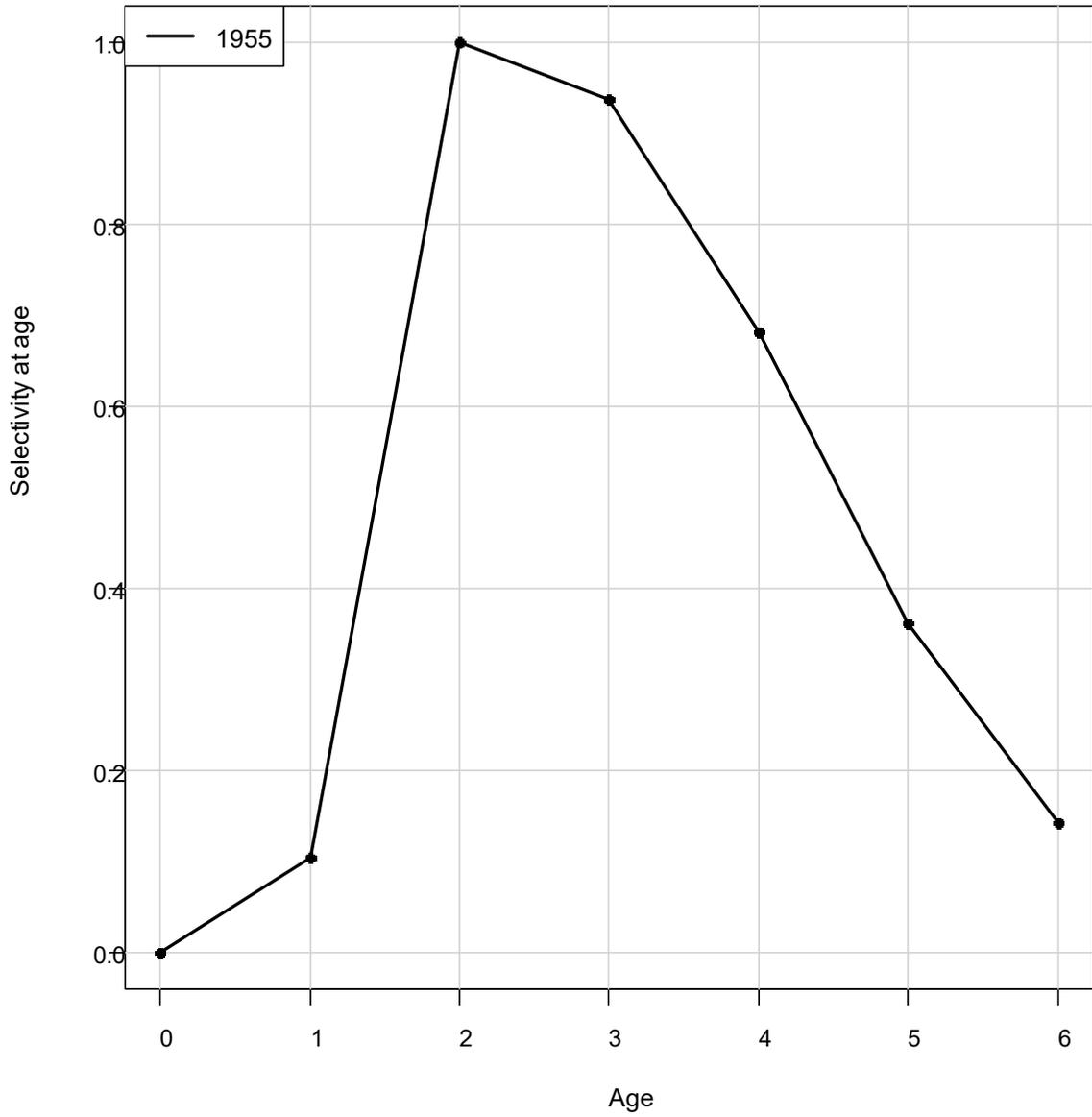
**Figure A25. Estimated selectivity of the northern commercial reduction landings for 1955-1969, 1970-1993, 1994-2012, and 2013-2021.**



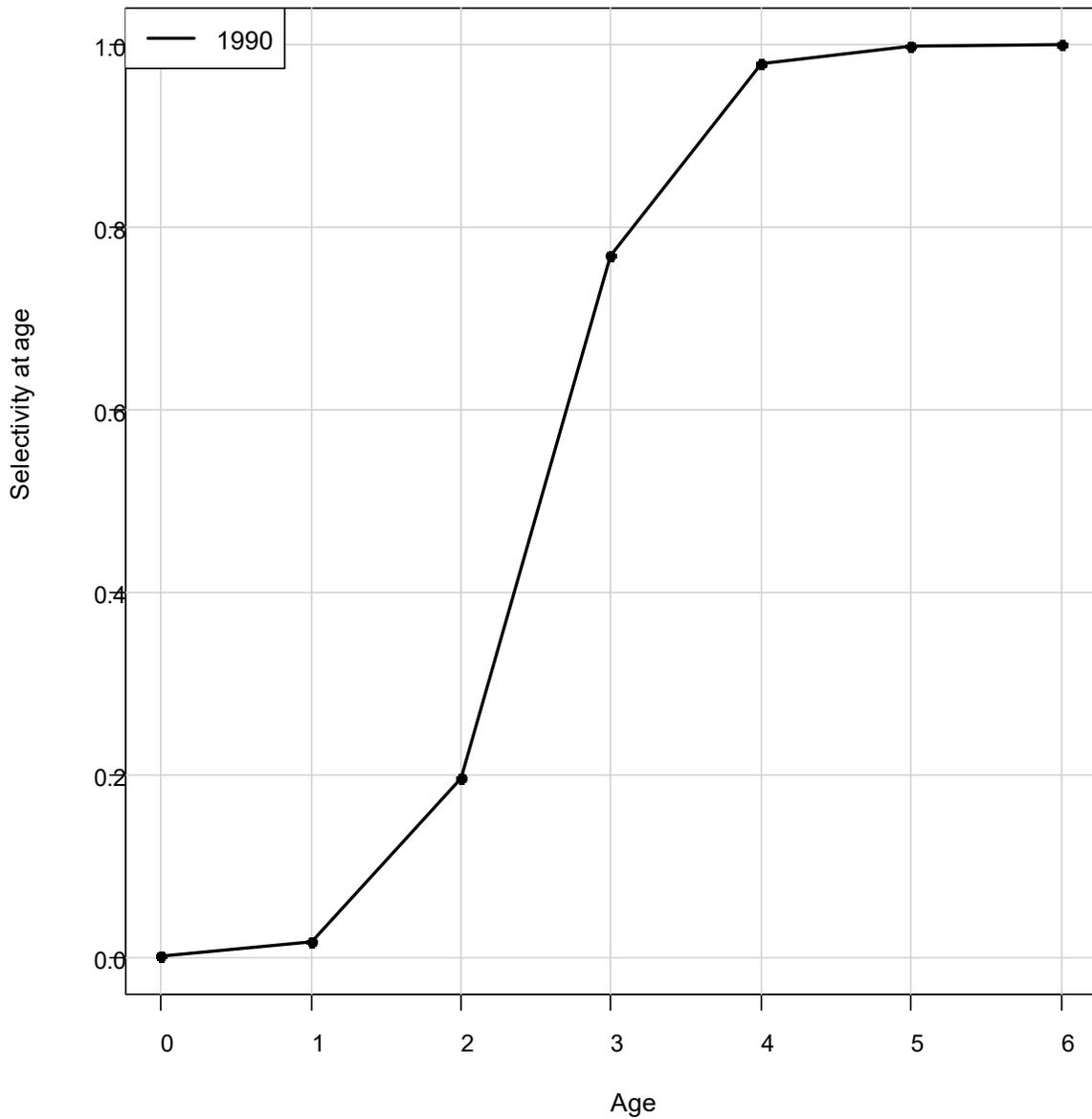
**Figure A26. Estimated selectivity of the southern commercial reduction landings for 1955-1971, 1972-2004, 2005-2012, and 2013-2021.**



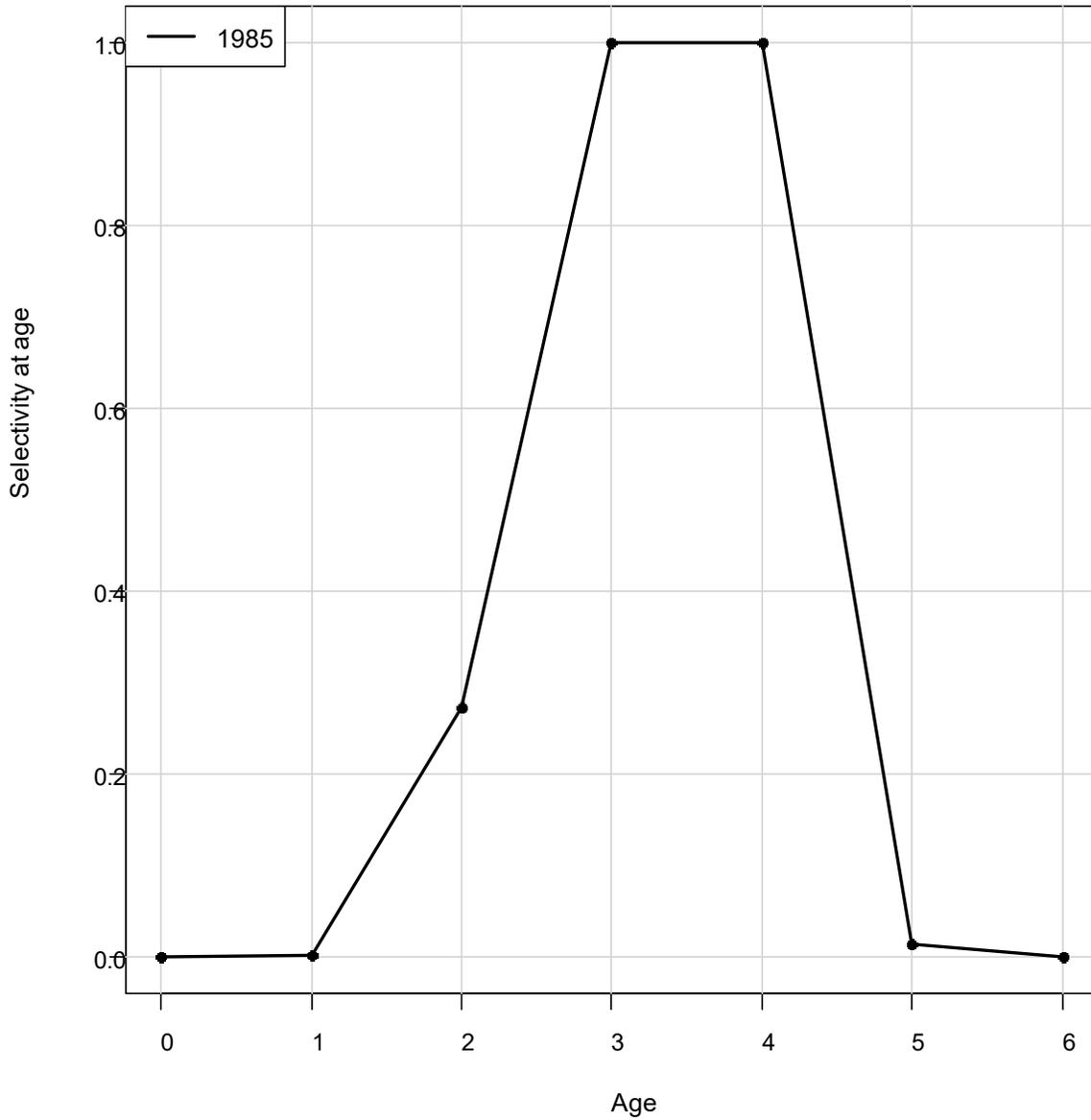
**Figure A27. Estimated selectivity of the northern commercial bait landings for 1955-2012 and 2013-2021.**



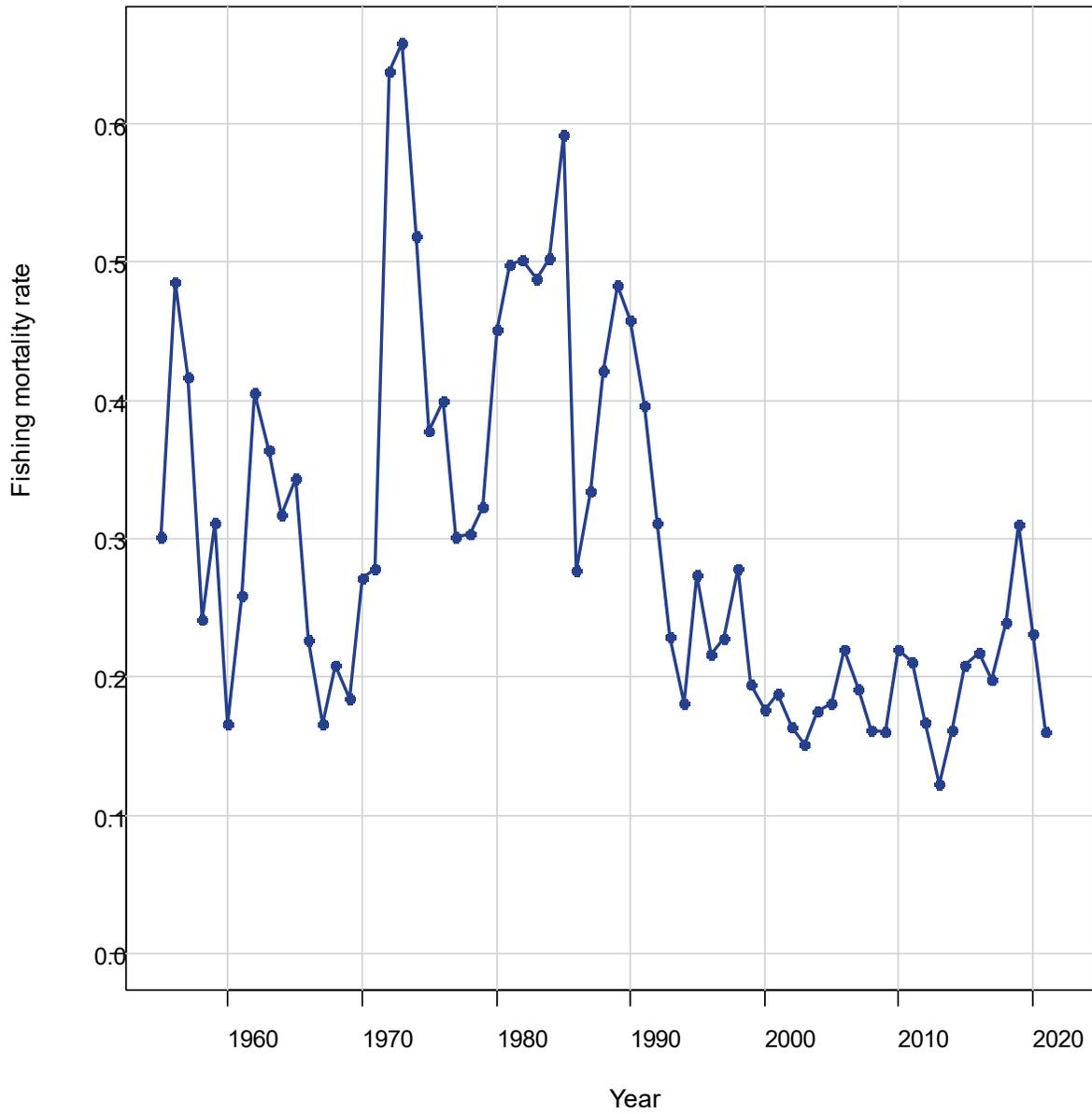
**Figure A28. Estimated selectivity of the southern commercial bait landings for 1955-2021.**



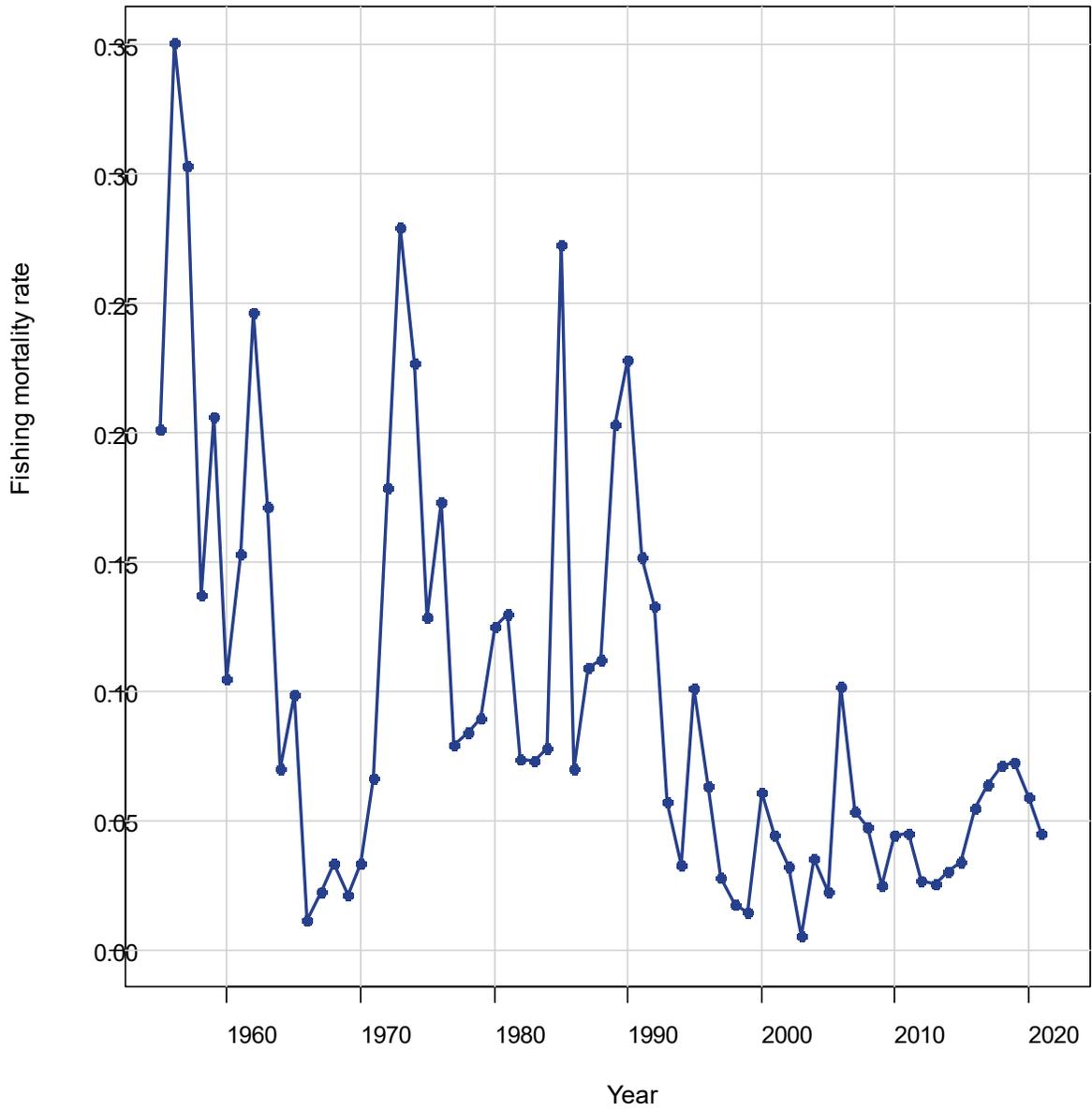
**Figure A29. Estimated selectivity for the NAD index for 1990-2021.**



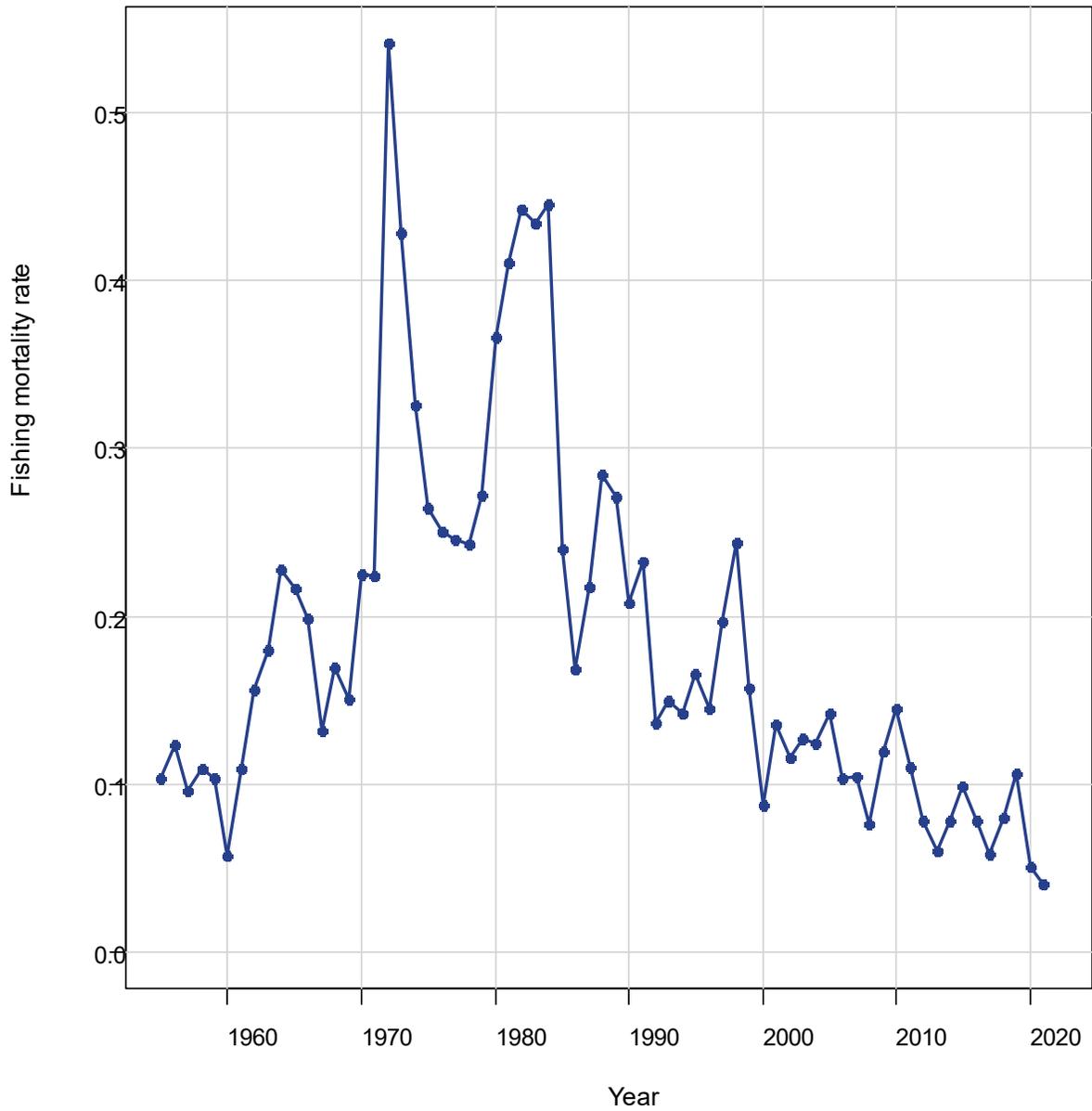
**Figure A30. Estimated selectivity for the MAD index for 1985-2021.**



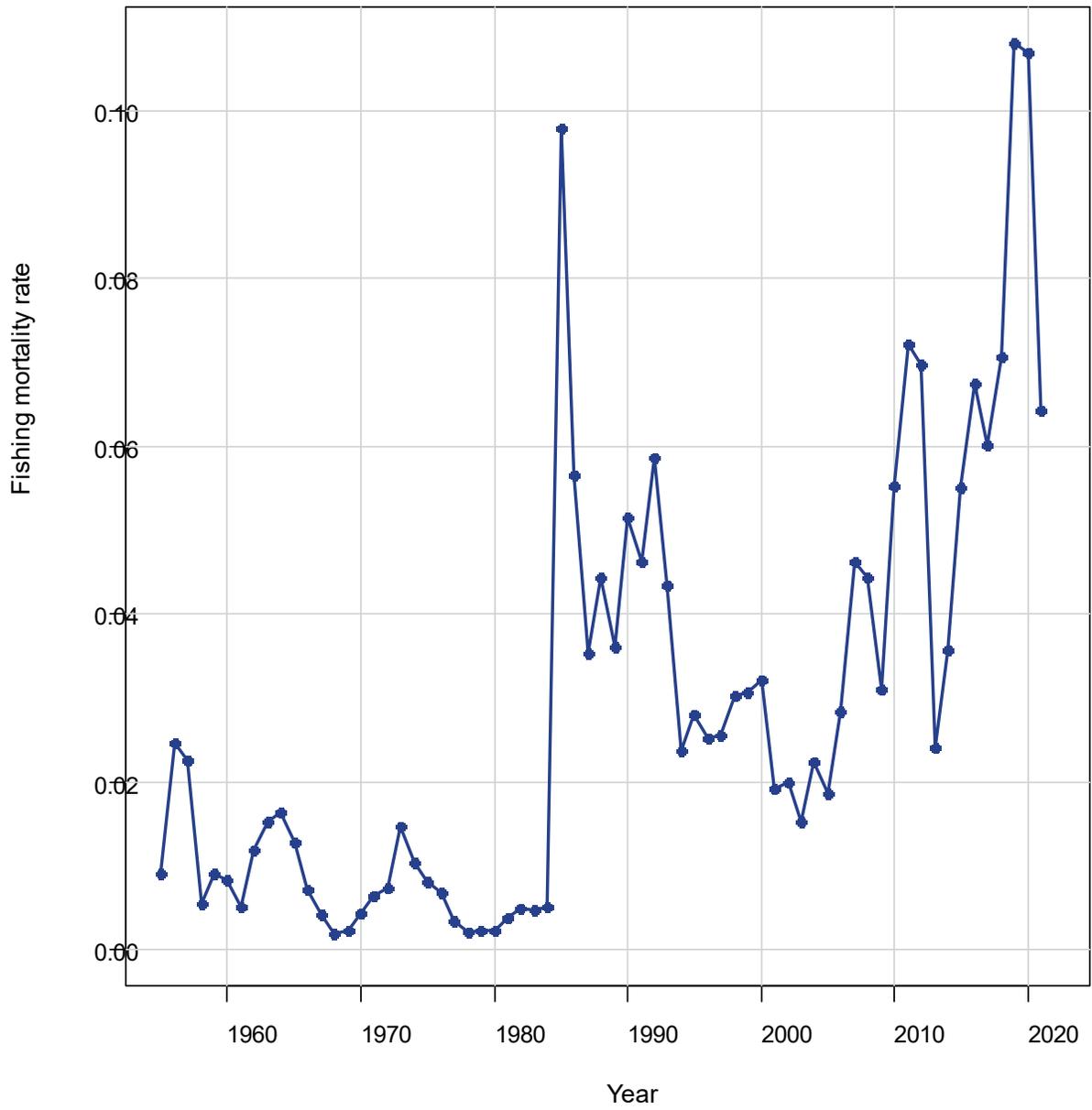
**Figure A31. The full fishing mortality rate for 1955-2021.**



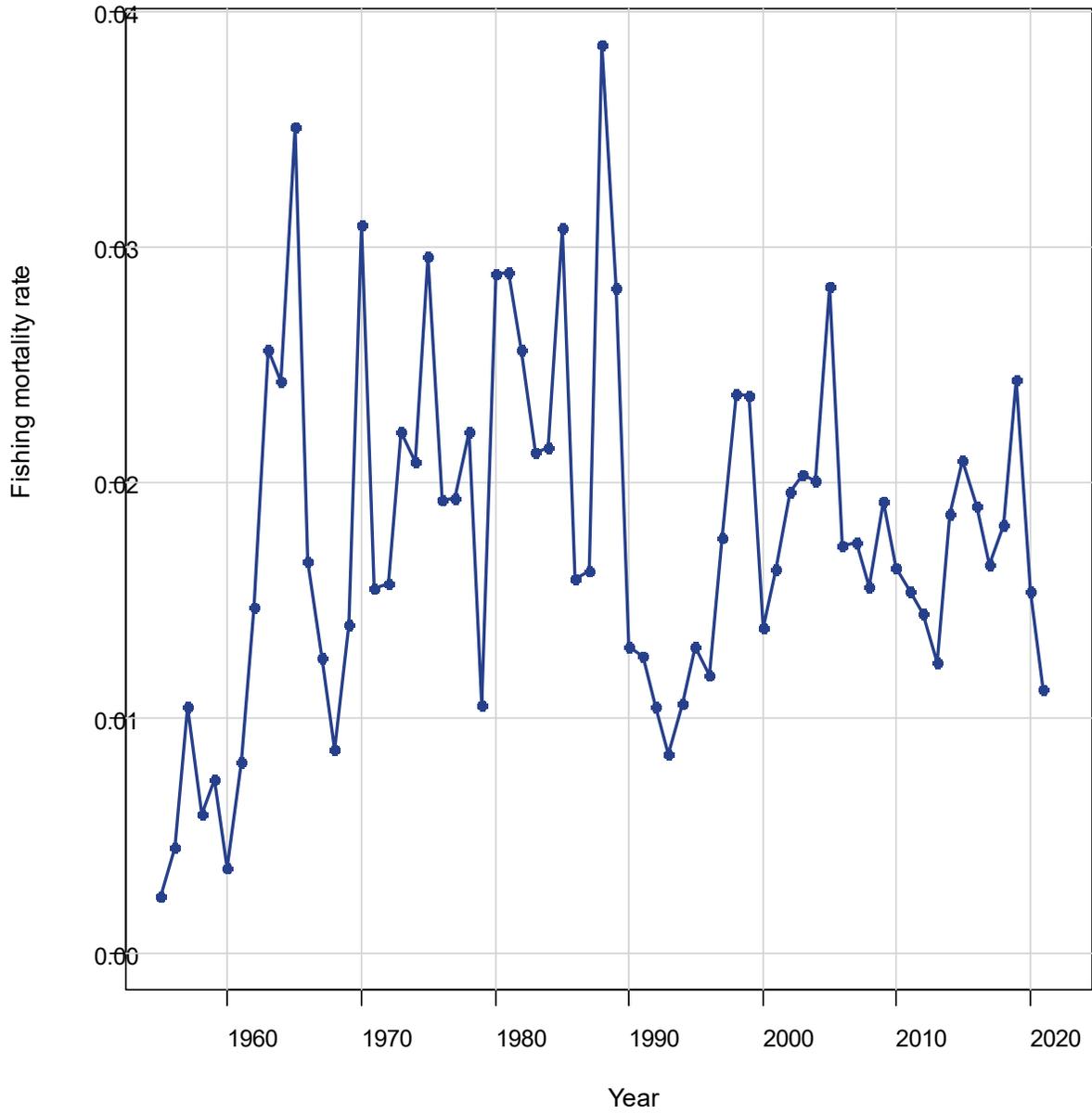
**Figure A32. The fishing mortality rate for the commercial reduction north fleet for 1955-2021.**



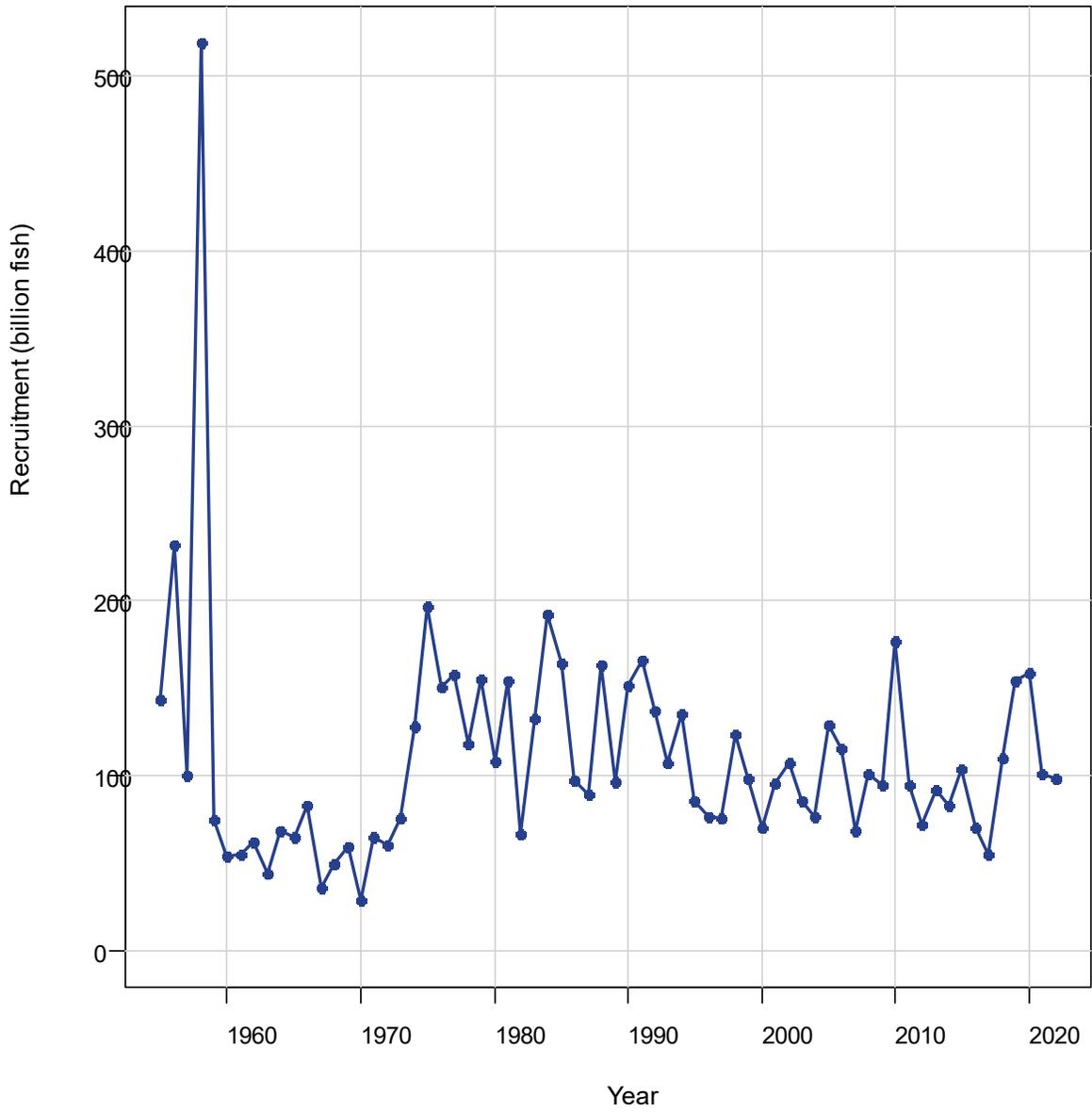
**Figure A33. The fishing mortality rate for the commercial reduction south fleet for 1955-2021.**



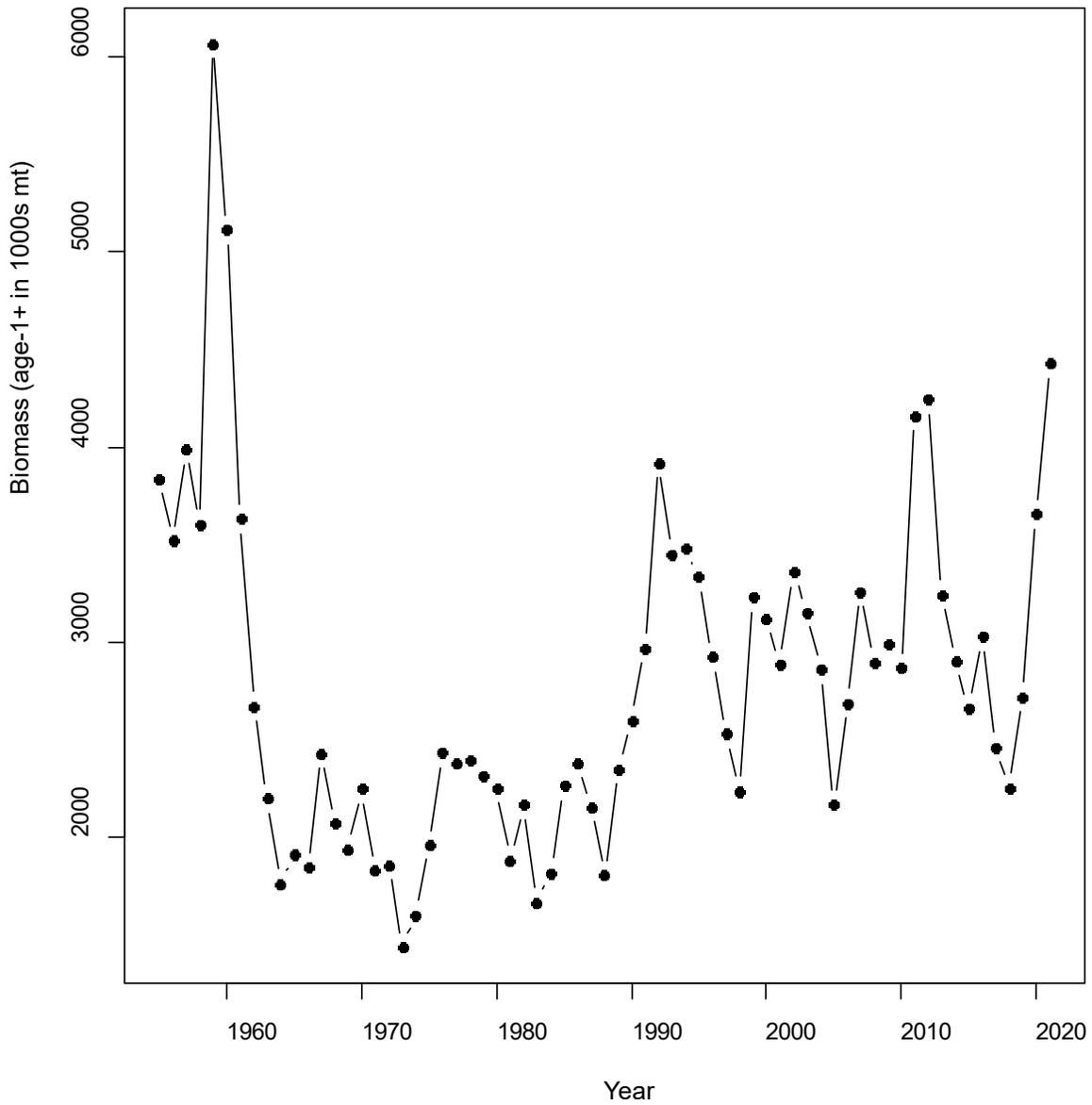
**Figure A34. The fishing mortality rate for the commercial bait north fleet for 1955-2021.**



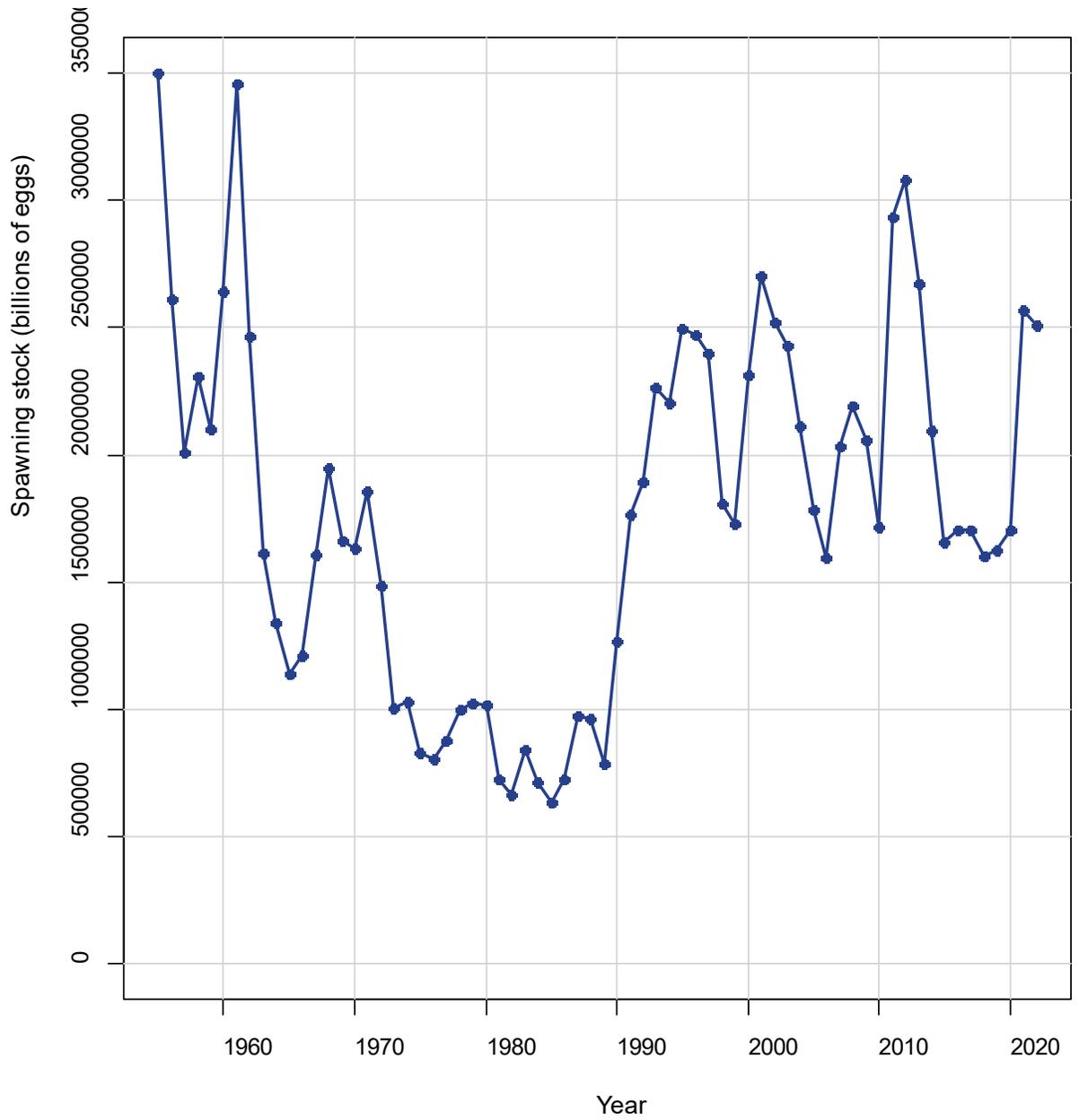
**Figure A35. The fishing mortality rate for the commercial bait south fleet for 1955-2021.**



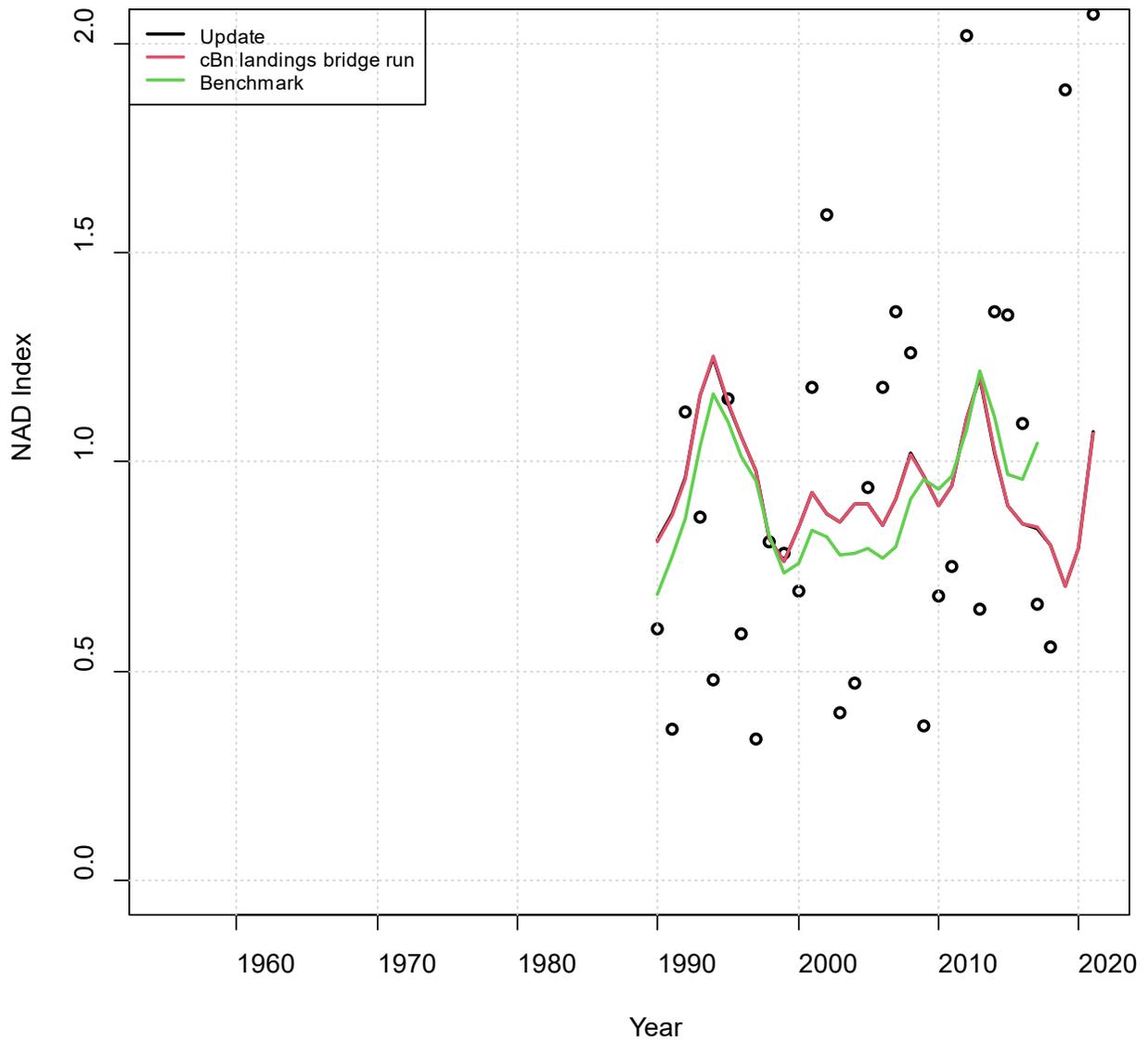
**Figure A36. The estimated time series of recruitment for 1955-2021. The 2022 point is a projected recruitment point.**



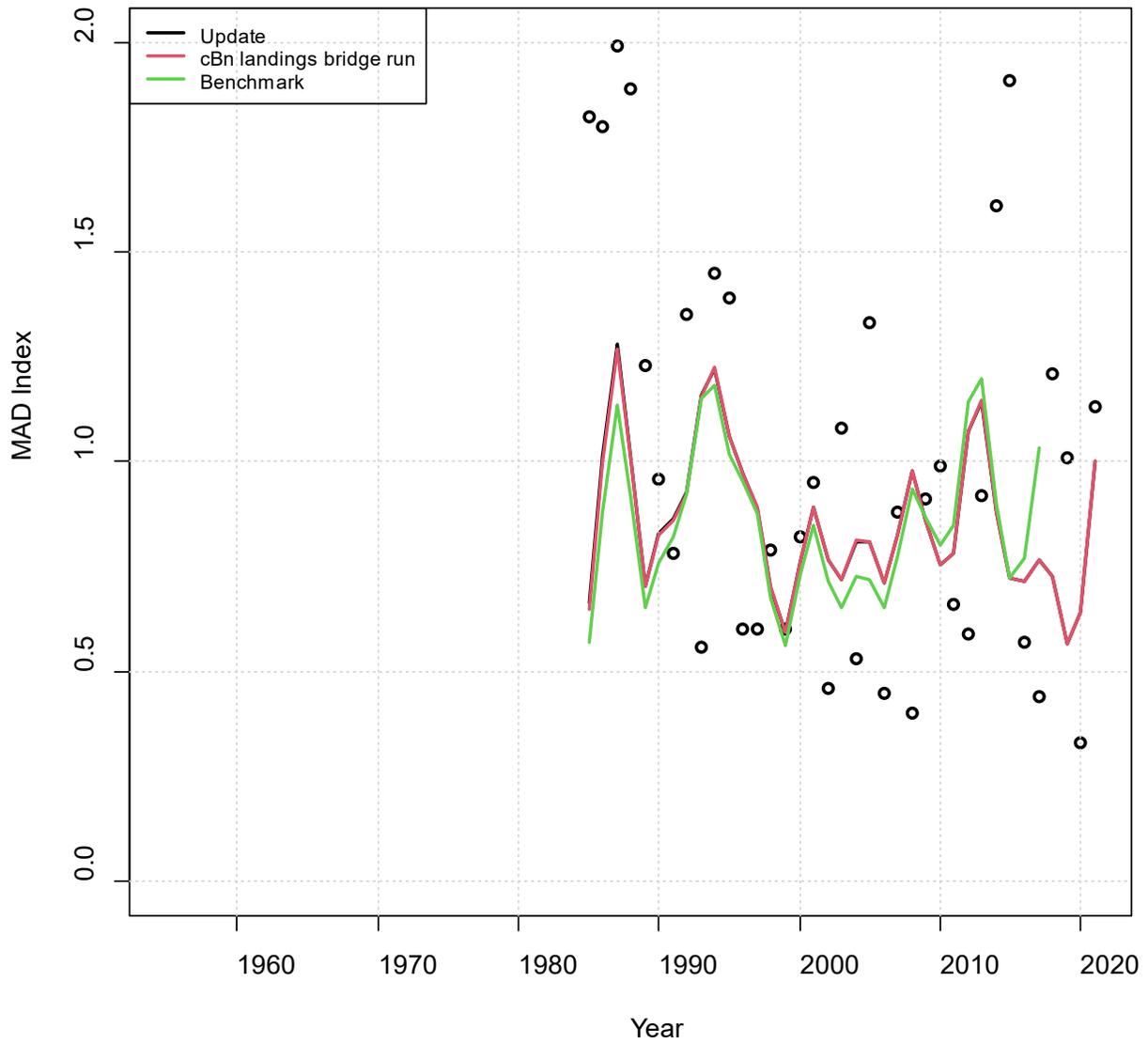
**Figure A37. Age-1+ biomass in 1000s of mt for 1955-2021.**



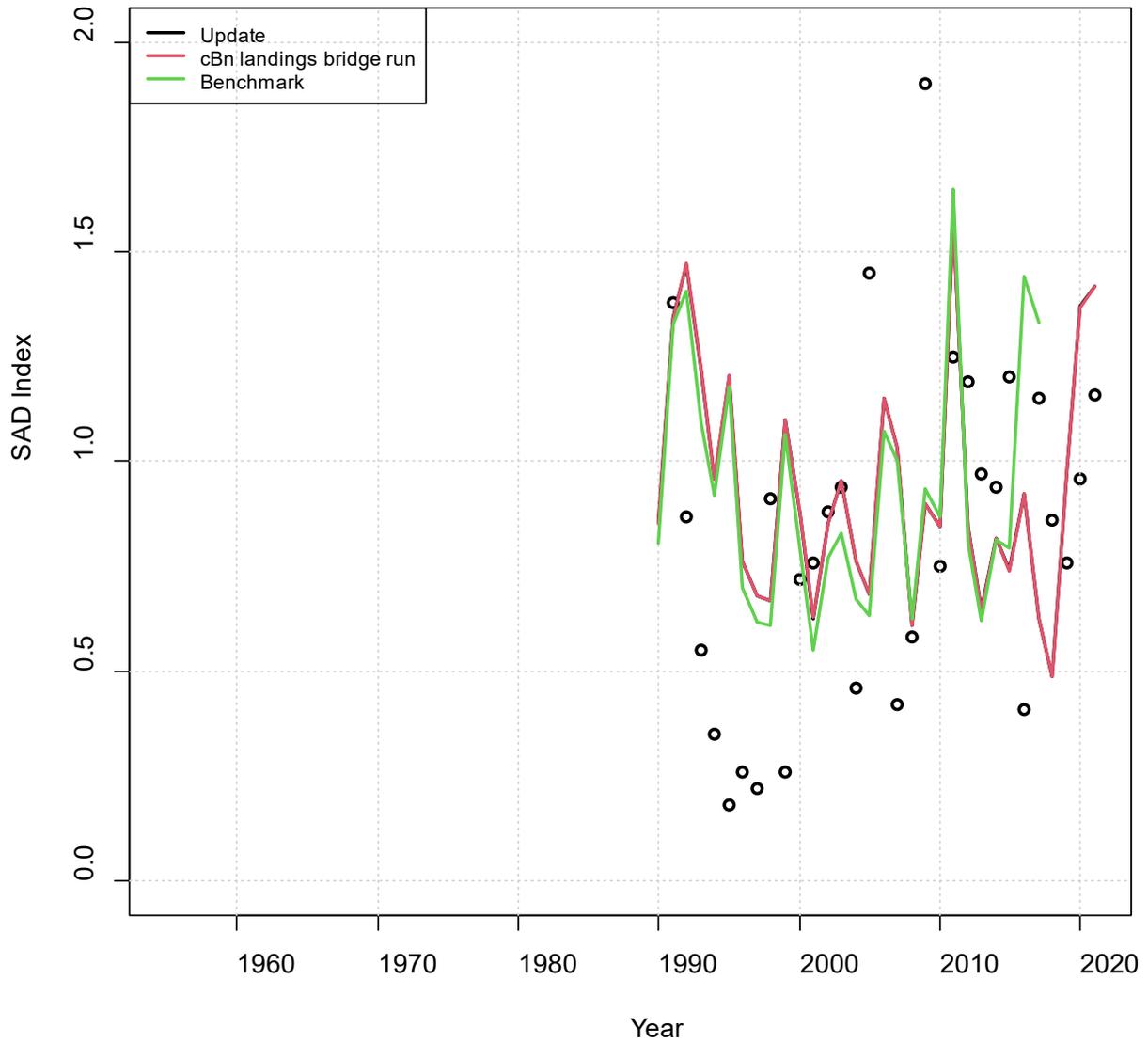
**Figure A38. Fecundity in billions of ova for 1955-2022. The 2022 value is a projection value.**



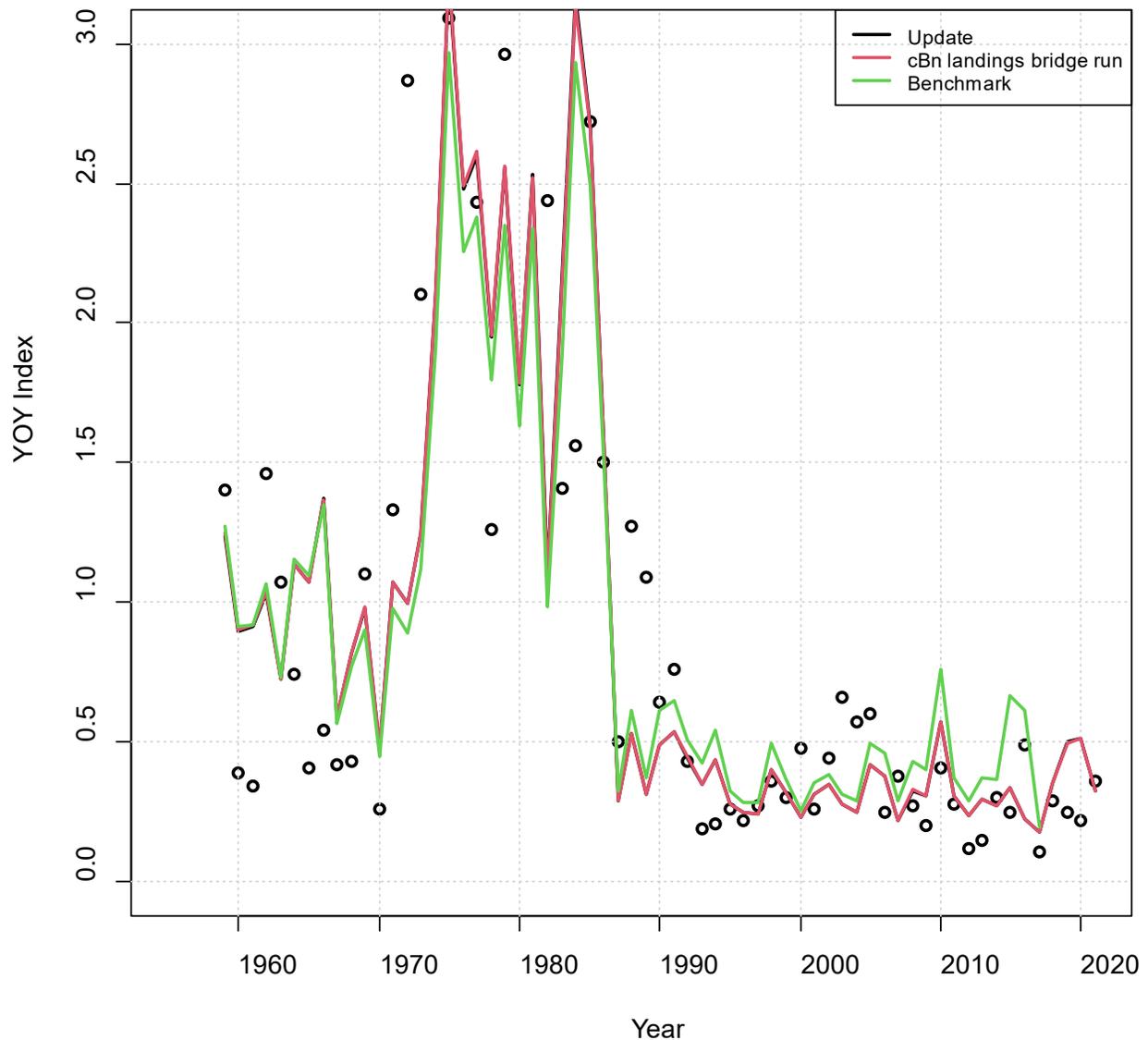
**Figure A39.** Fit to the observed (open circles) NAD index for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.



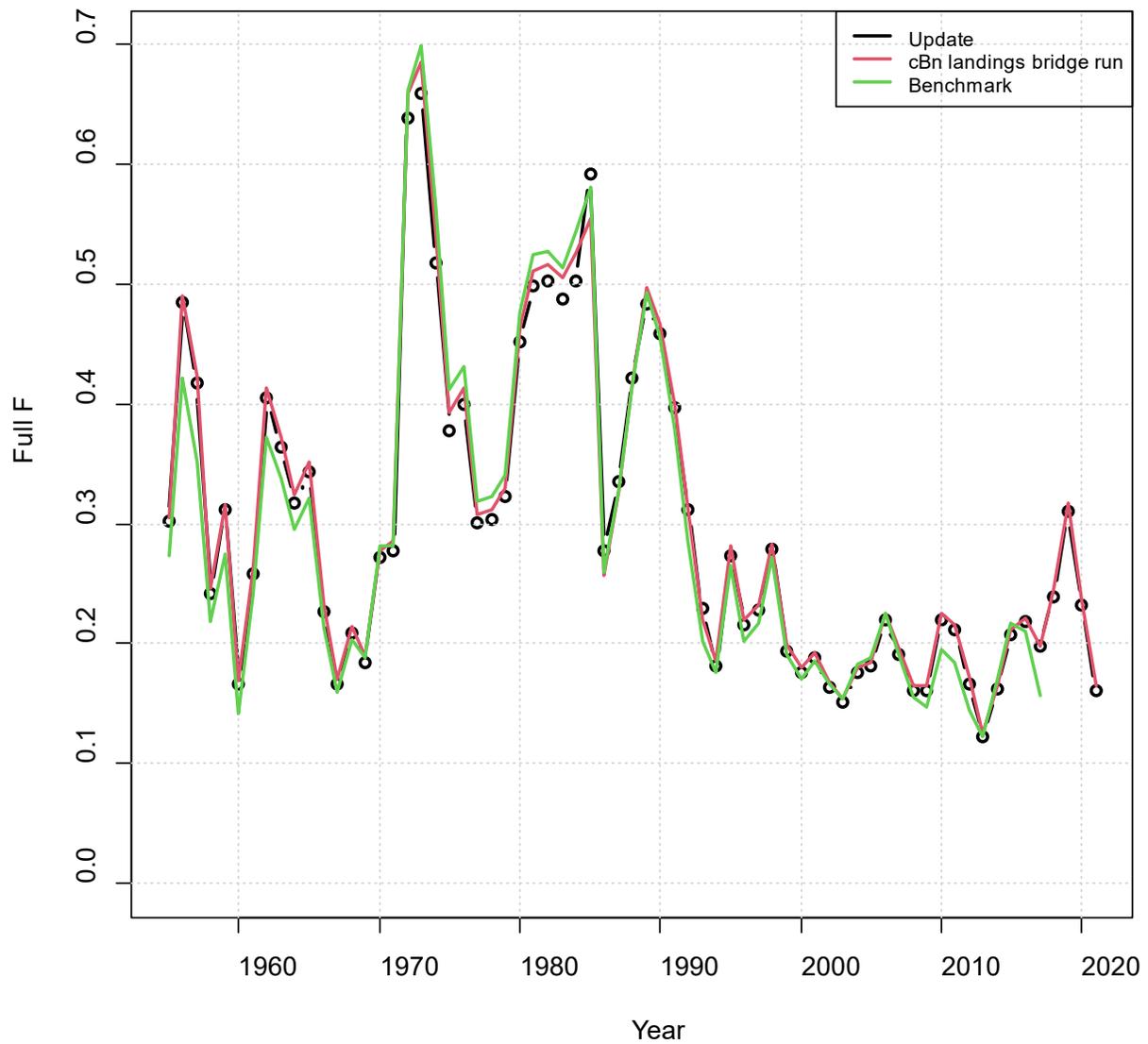
**Figure A40. Fit to the observed (open circles) MAD index for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.**



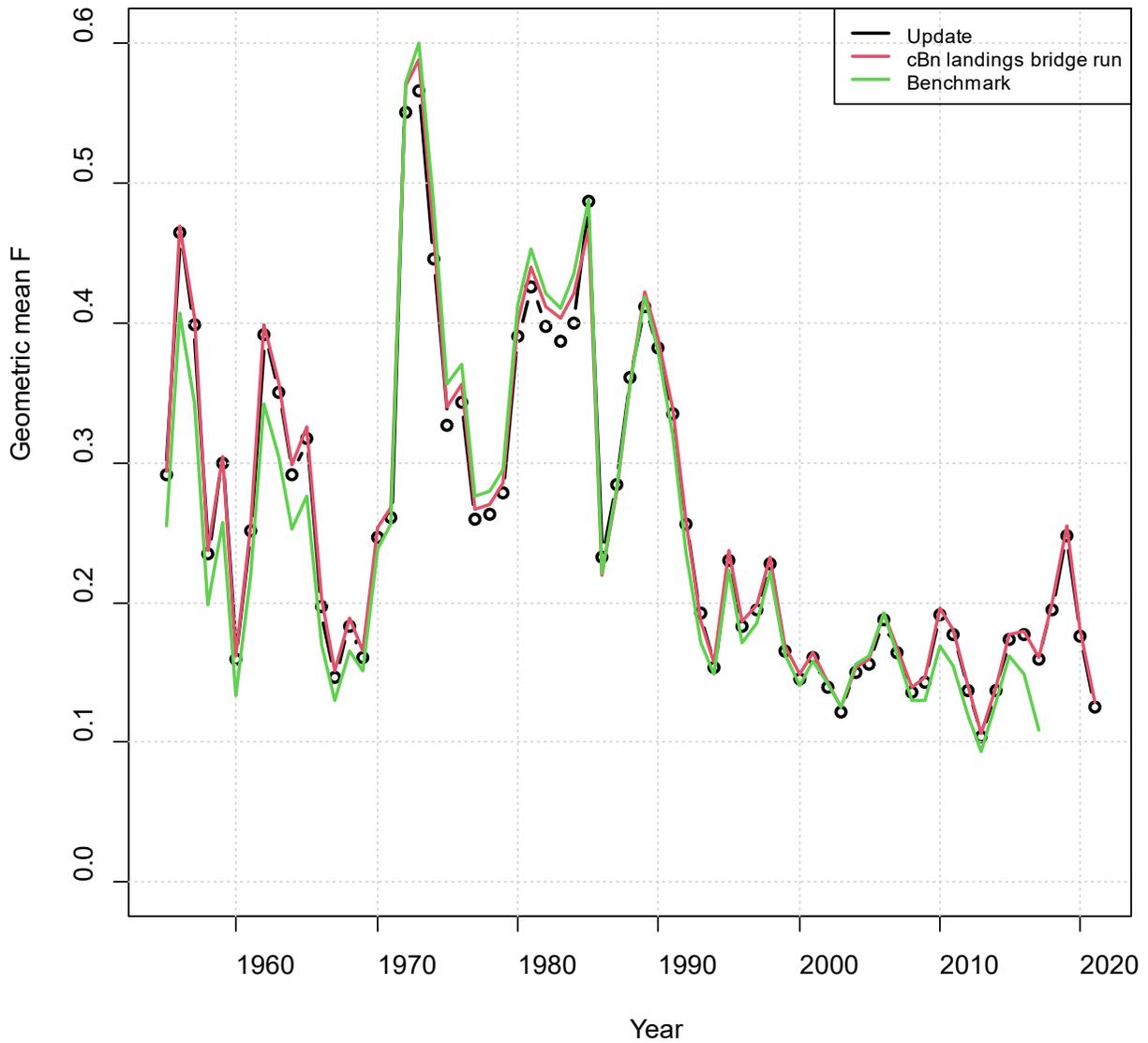
**Figure A41.** Fit to the observed (open circles) SAD index for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.



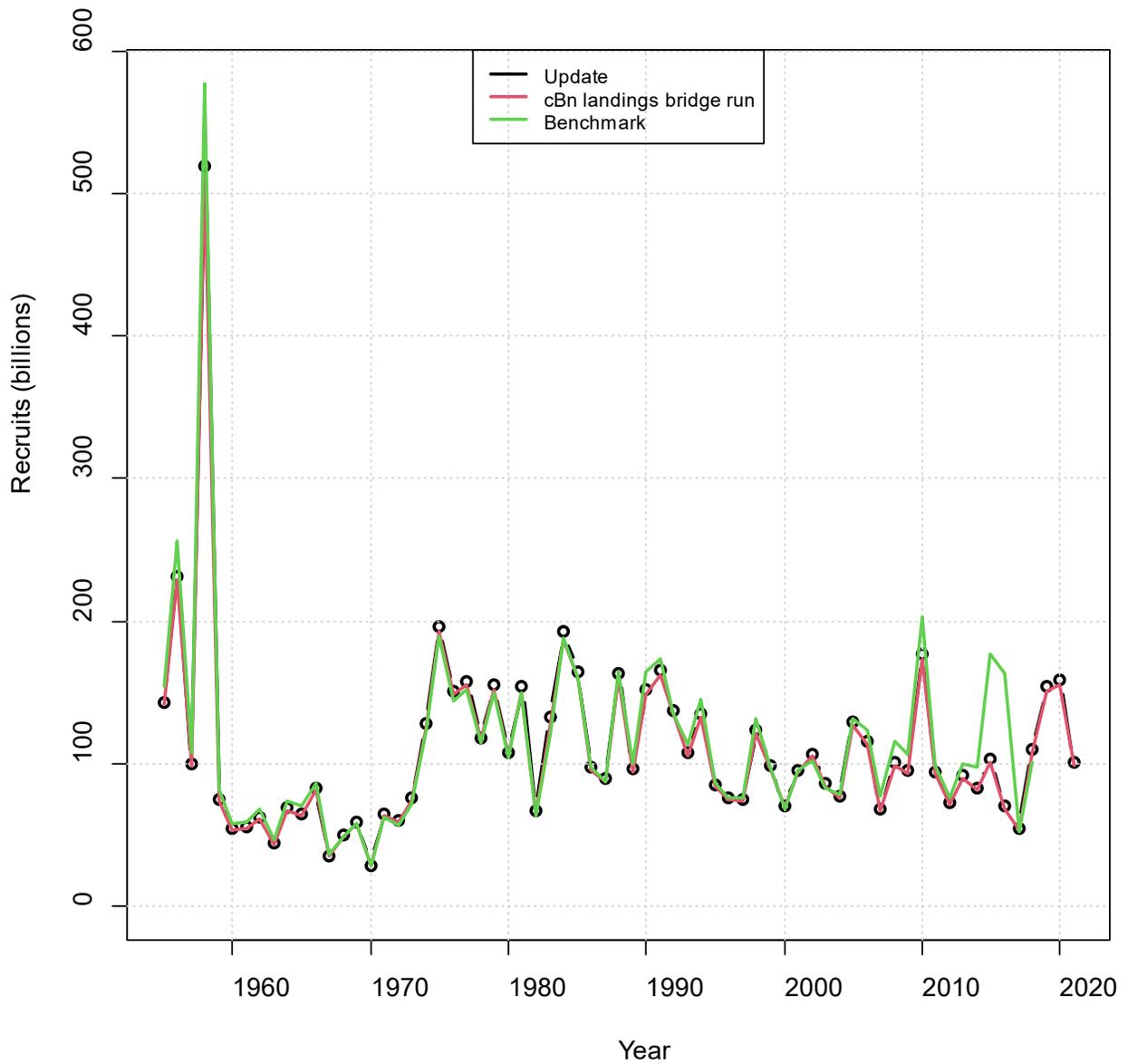
**Figure A42.** Fit to the observed (open circles) recruitment index for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.



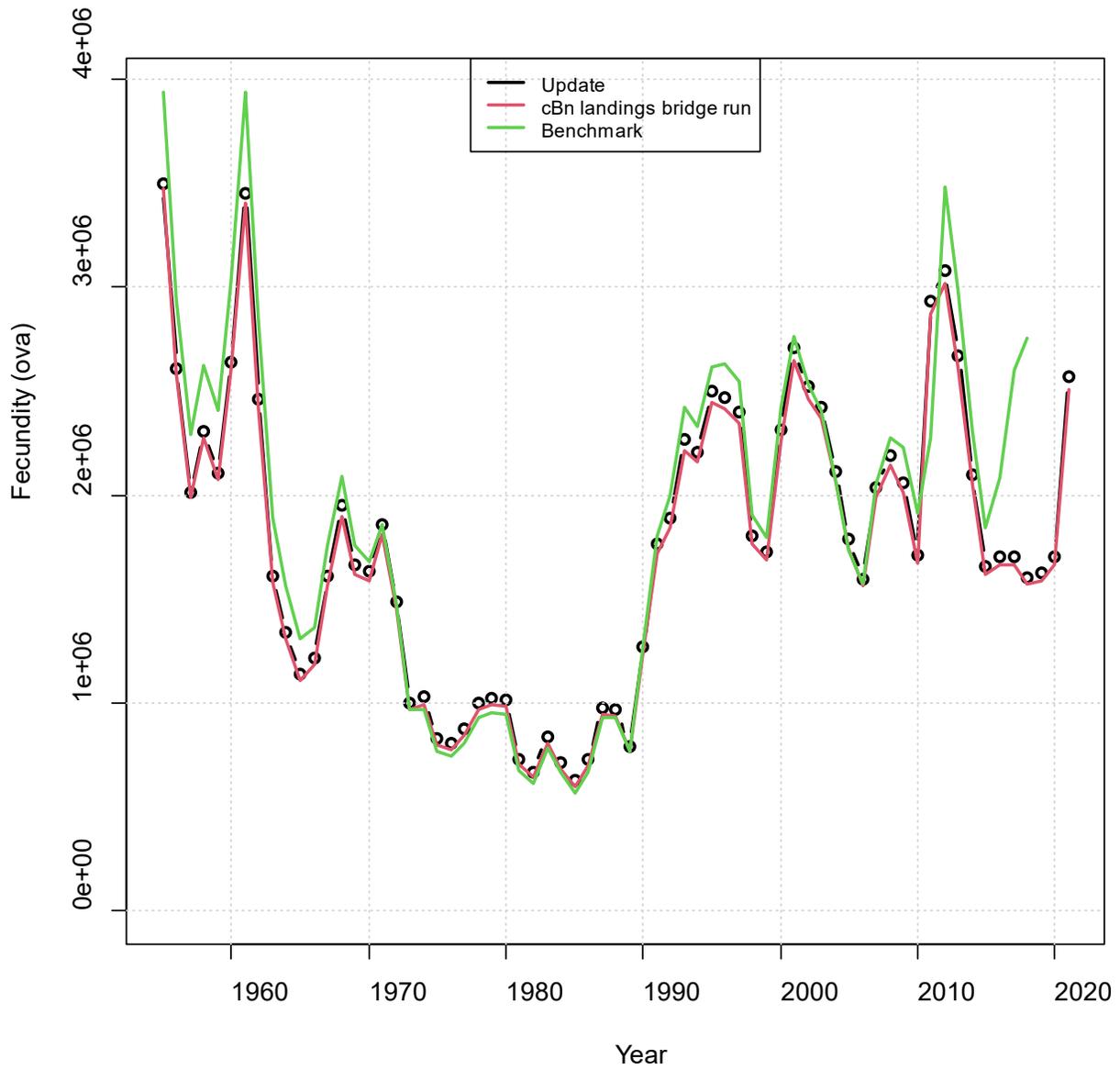
**Figure A43. Estimates of the full fishing mortality rate for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.**



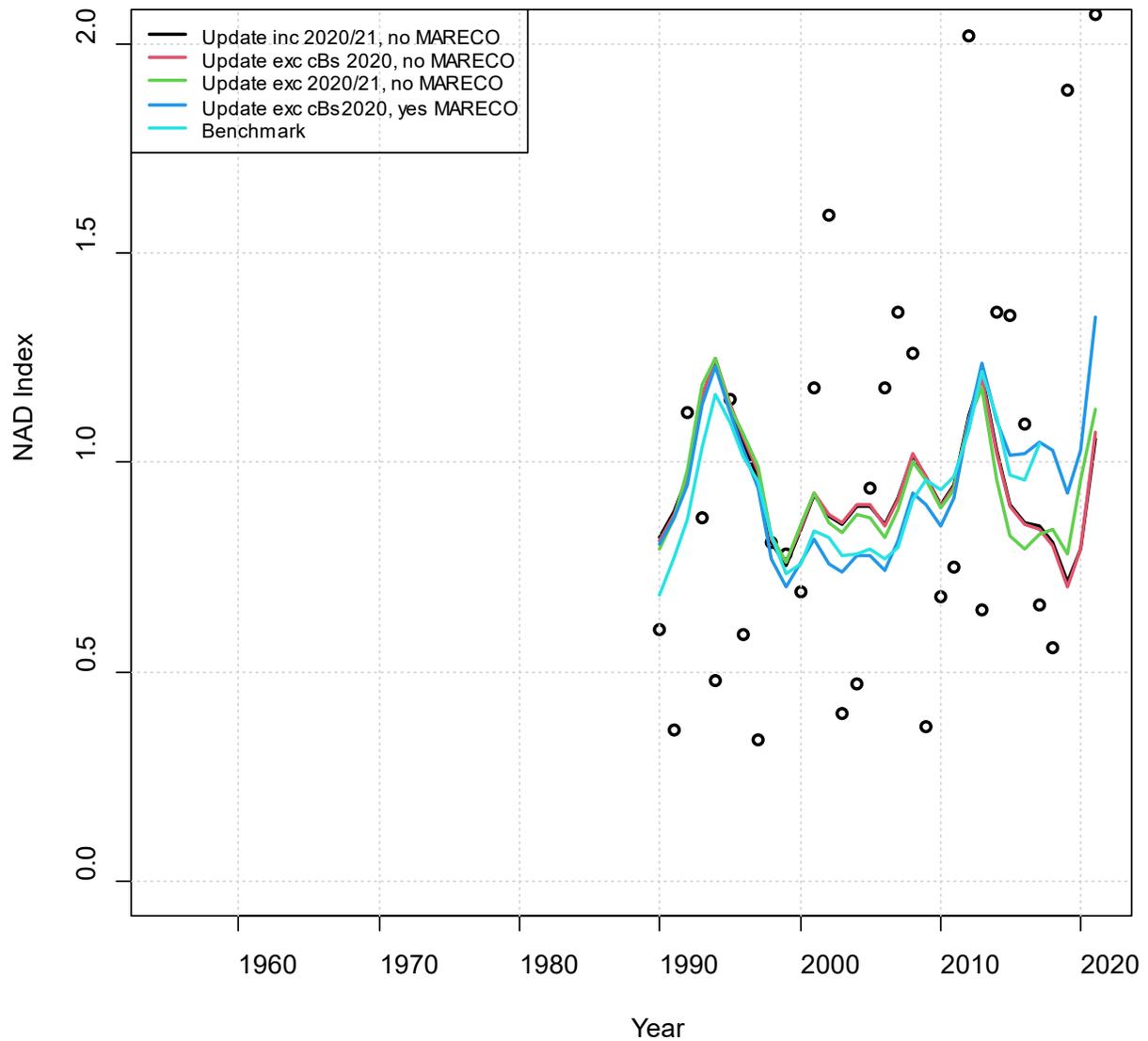
**Figure A44. Estimates of the geometric mean fishing mortality rate for ages-2 to -4 for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.**



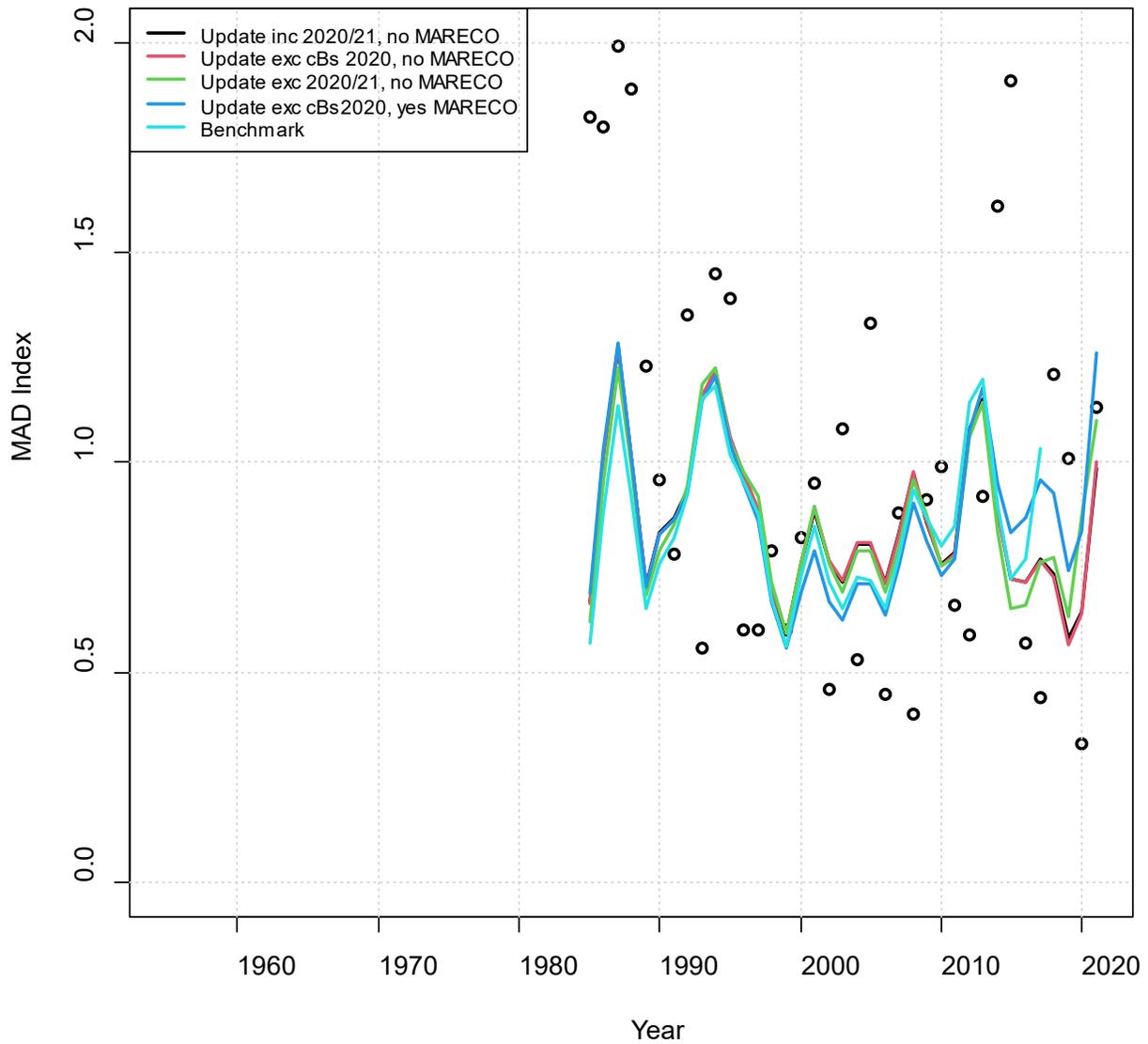
**Figure A45.** Estimates of the recruitment time series for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.



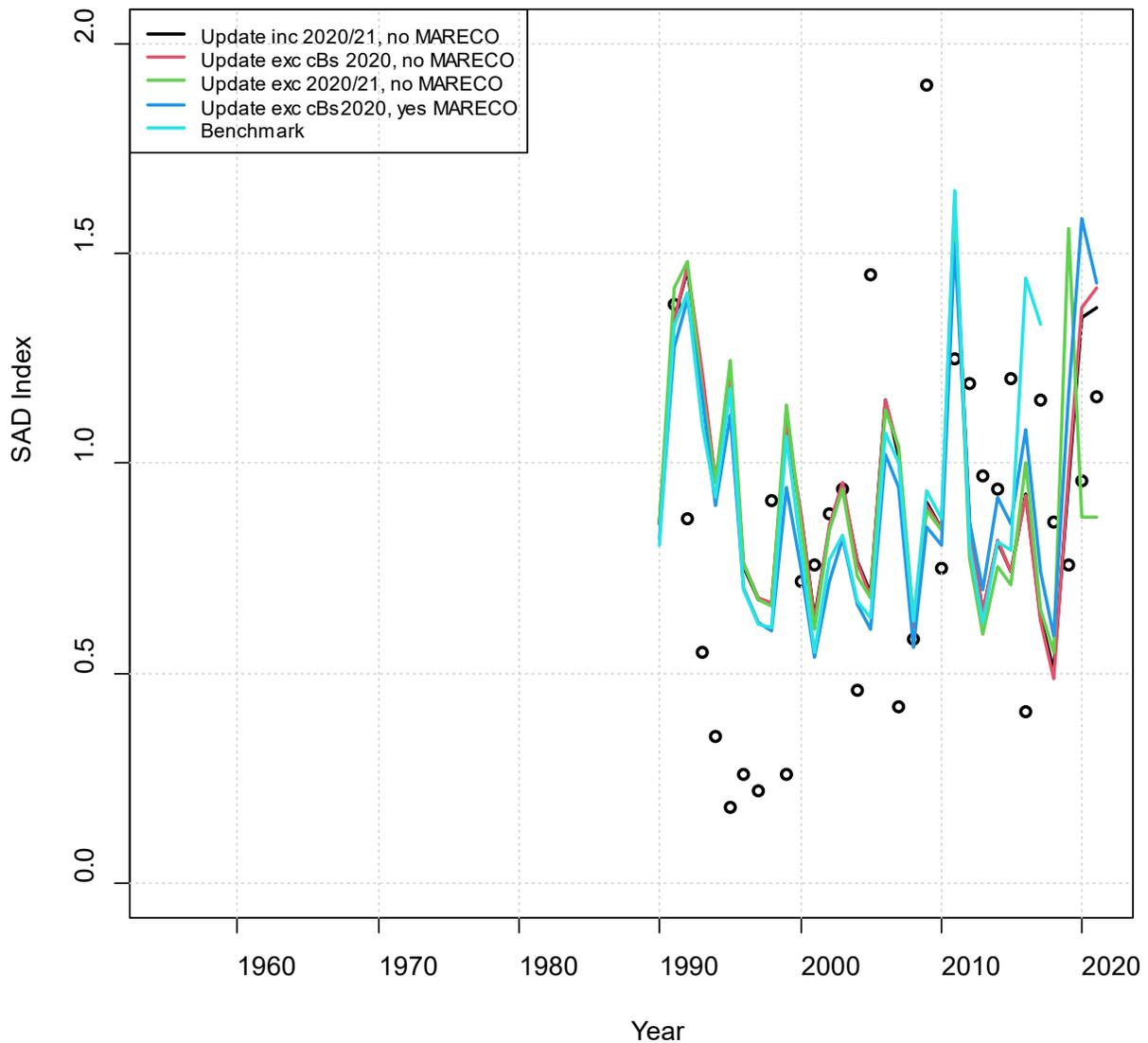
**Figure A46.** Estimates of the fecundity for the base run for this update assessment, the commercial bait north landings from the last assessment, and the last benchmark assessment.



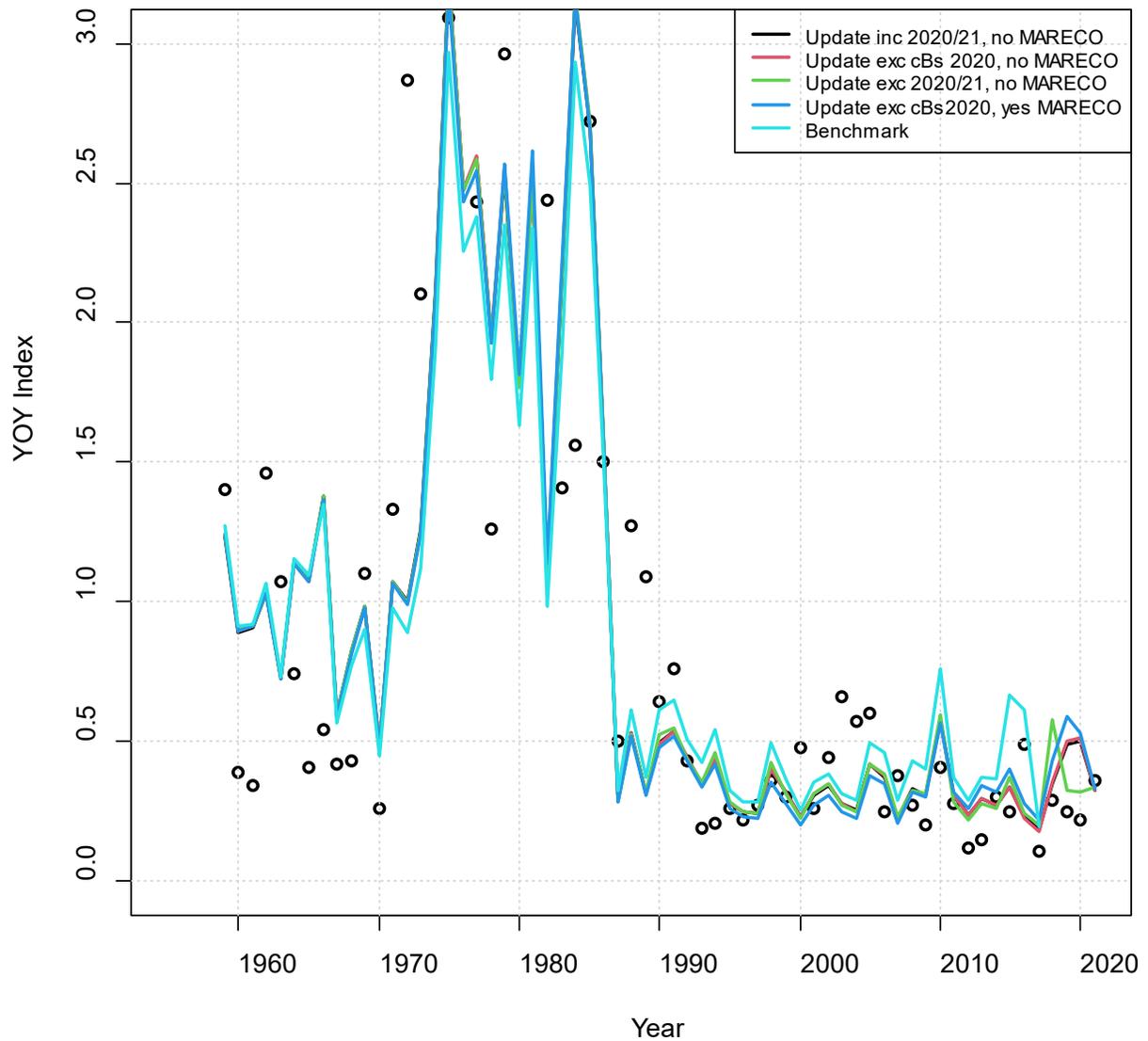
**Figure A47. Fit to the observed (open circles) NAD index for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.**



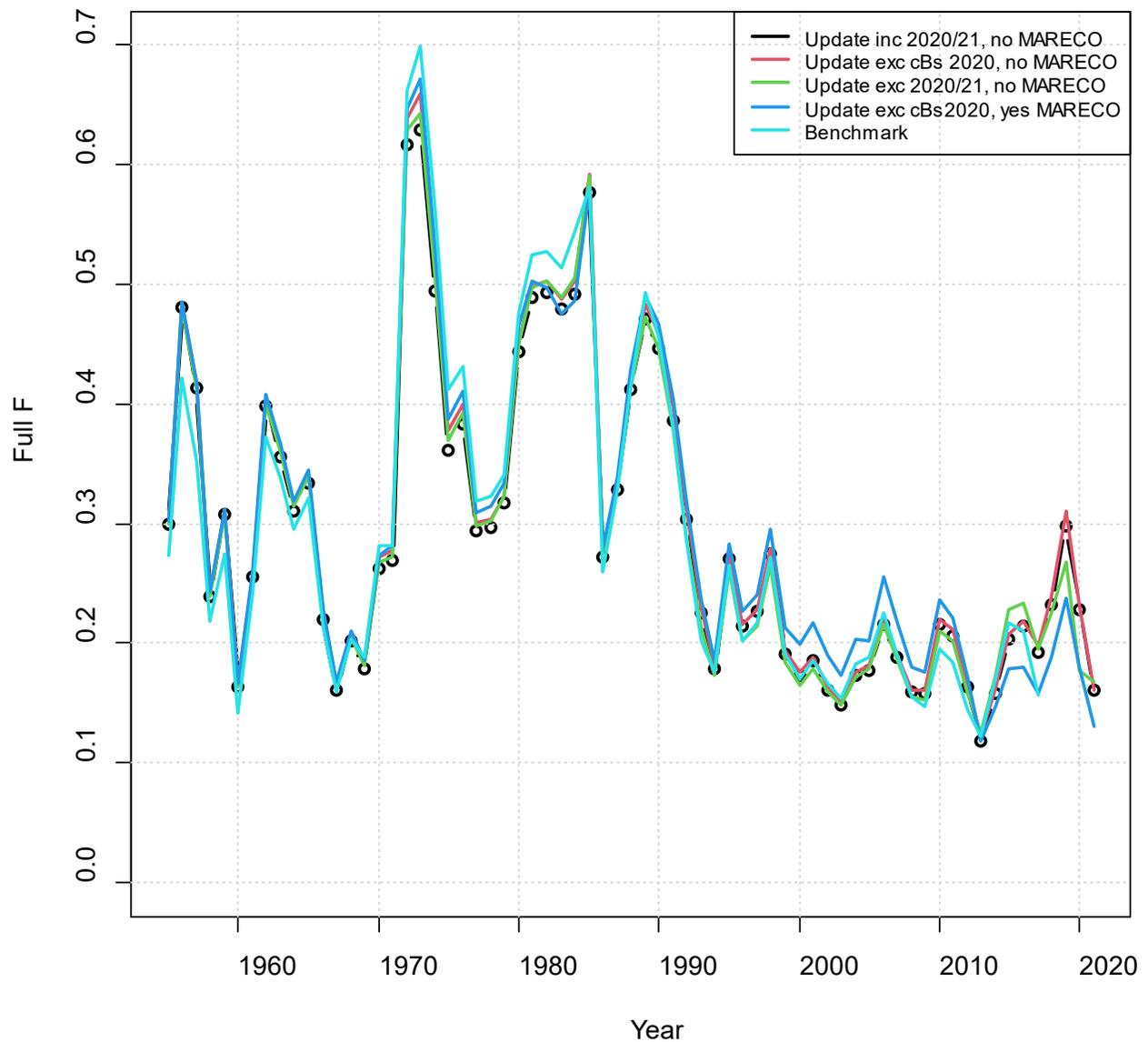
**Figure A48.** Fit to the observed (open circles) MAD index for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.



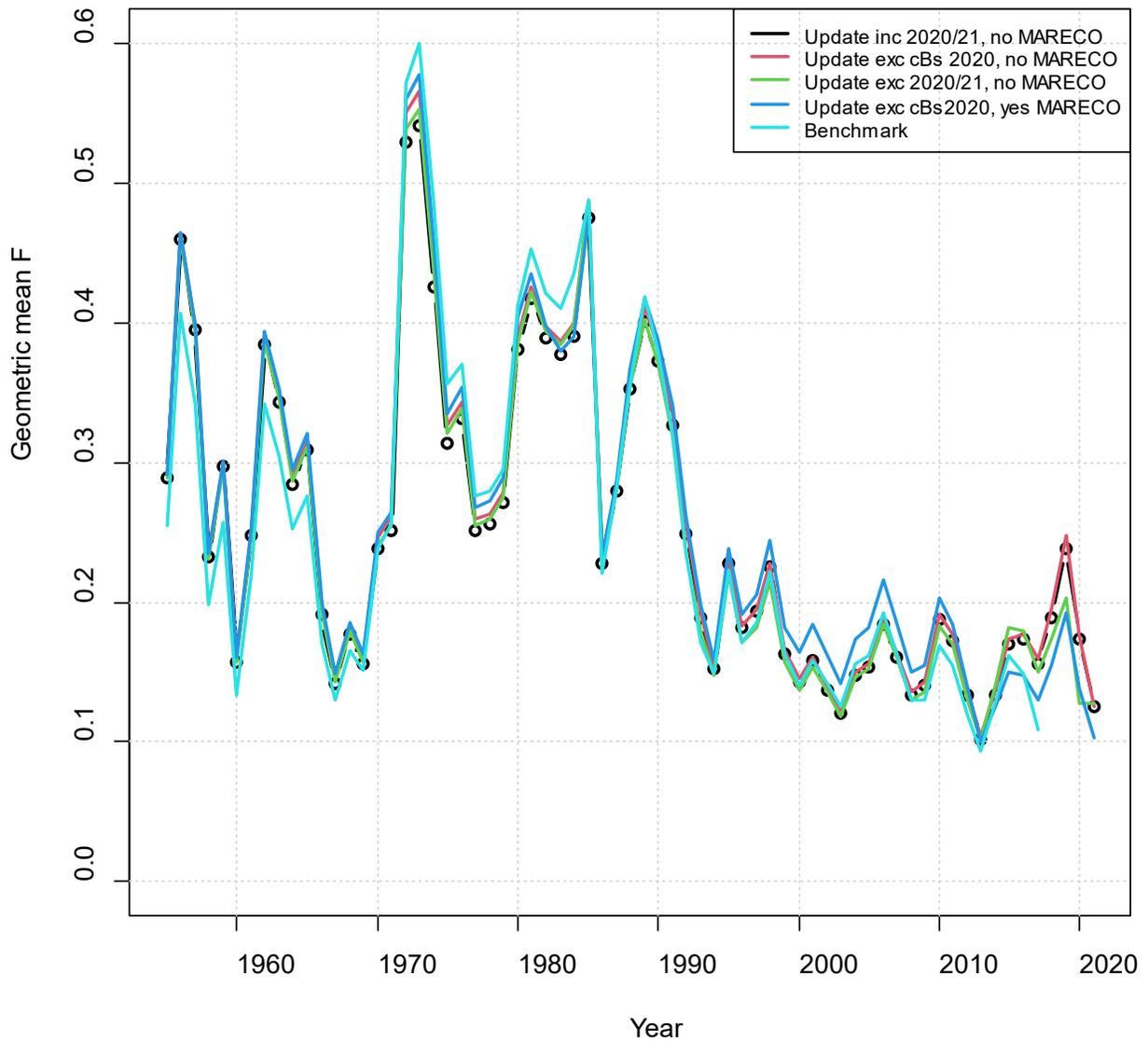
**Figure A49.** Fit to the observed (open circles) SAD index for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.



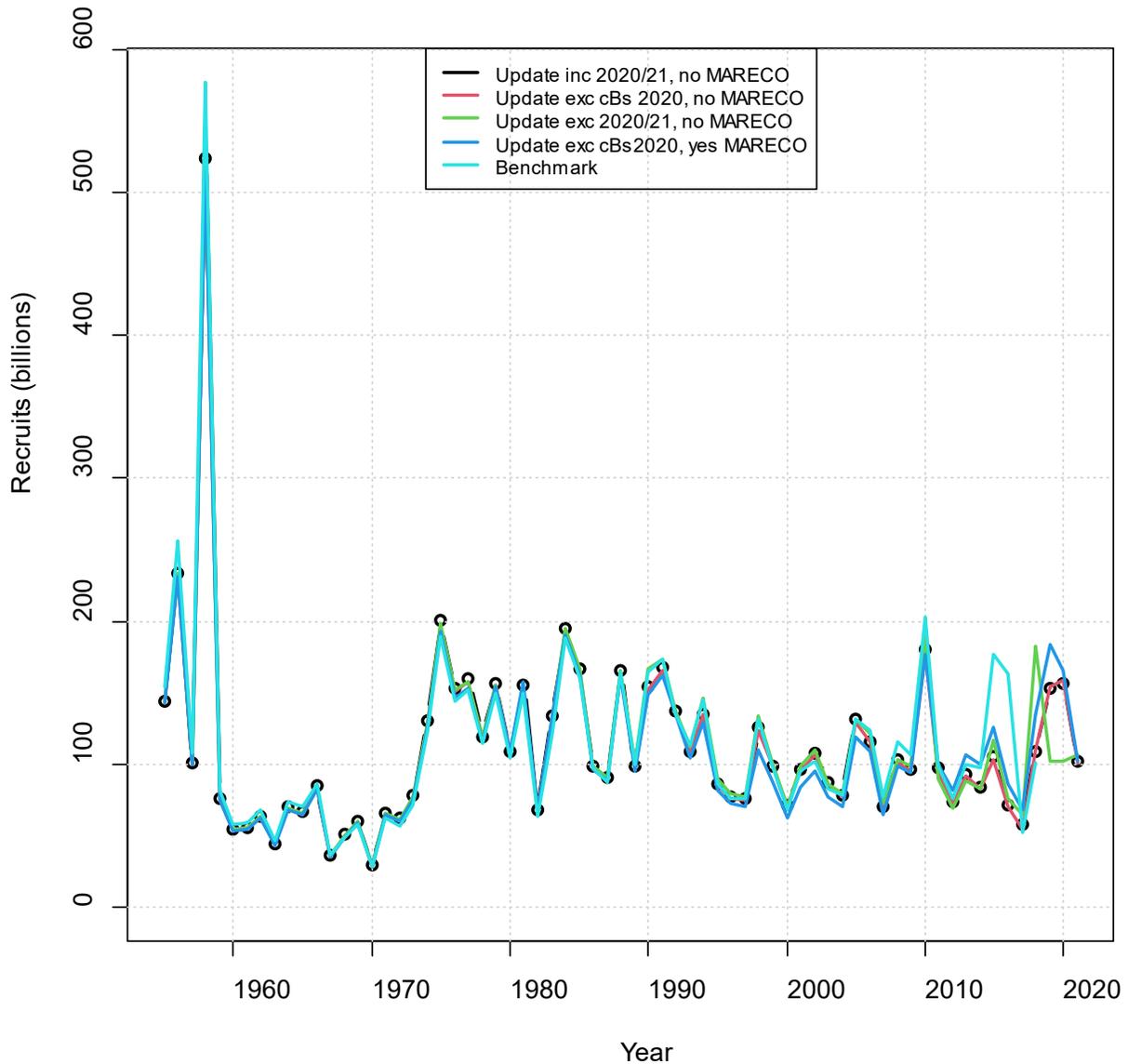
**Figure A50.** Fit to the observed (open circles) recruitment index for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.



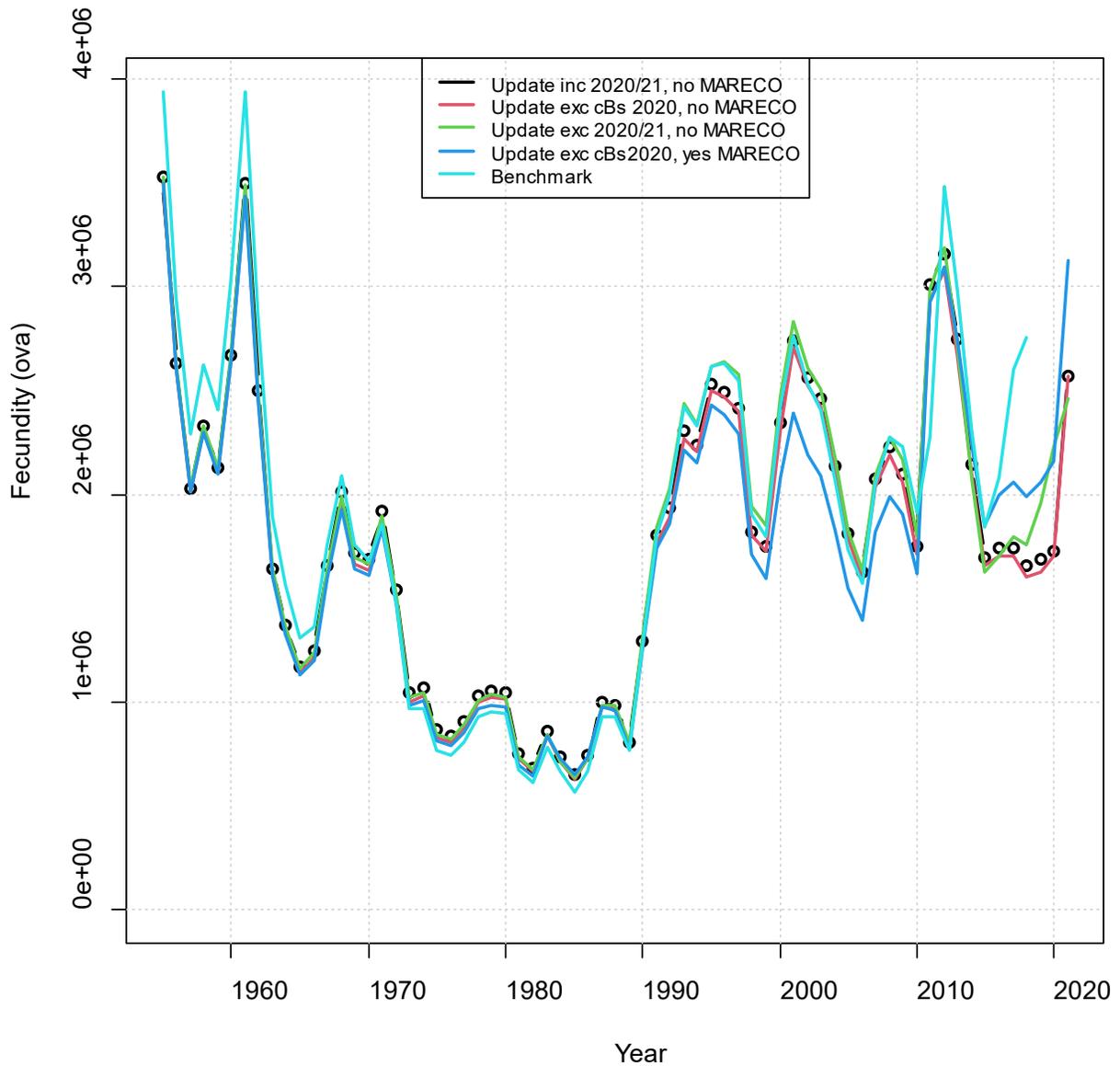
**Figure A51.** Estimates of the full fishing mortality rate for the base run for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.



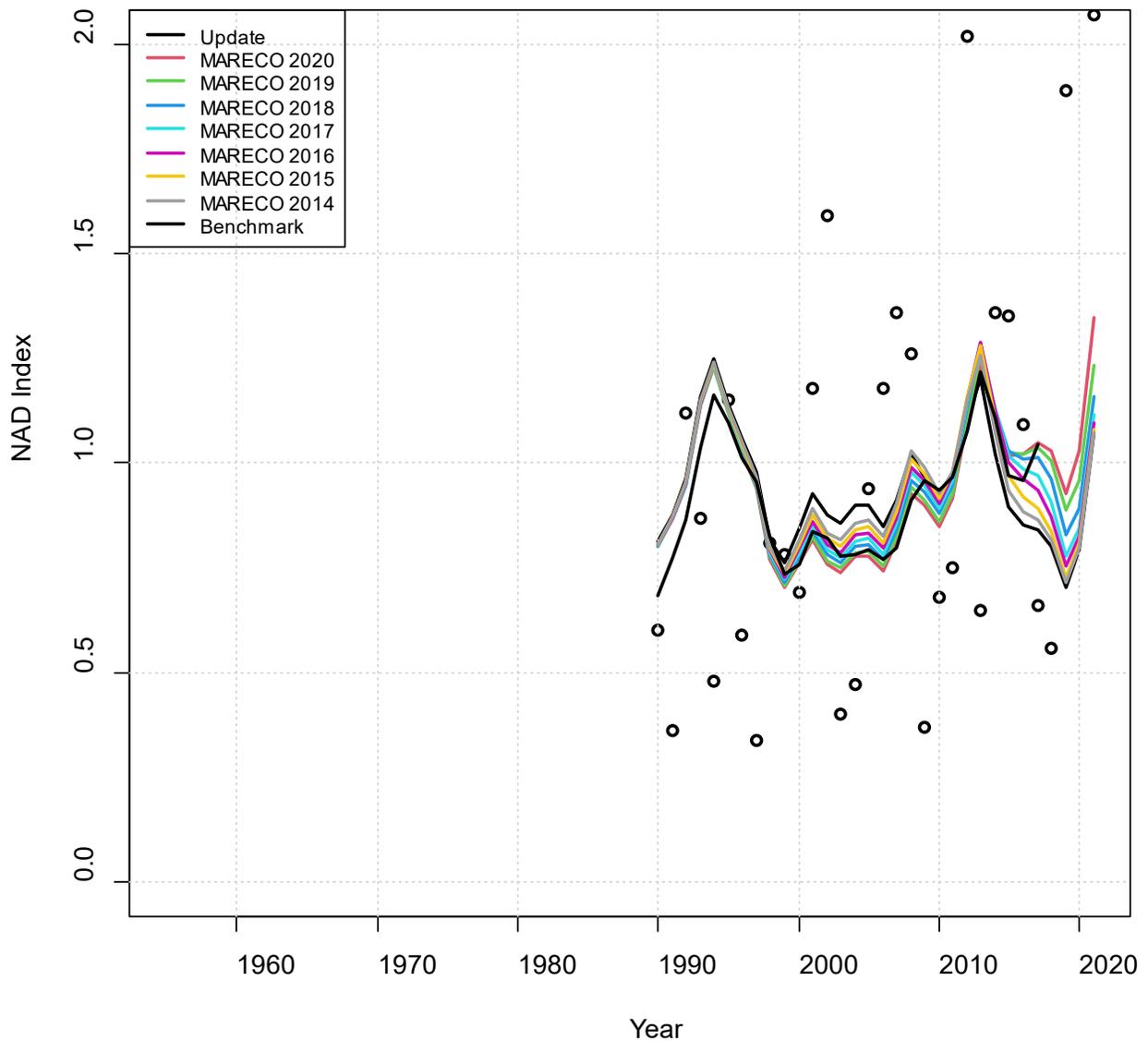
**Figure A52.** Estimates of the geometric mean fishing mortality rate for ages-2 to -4 for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.



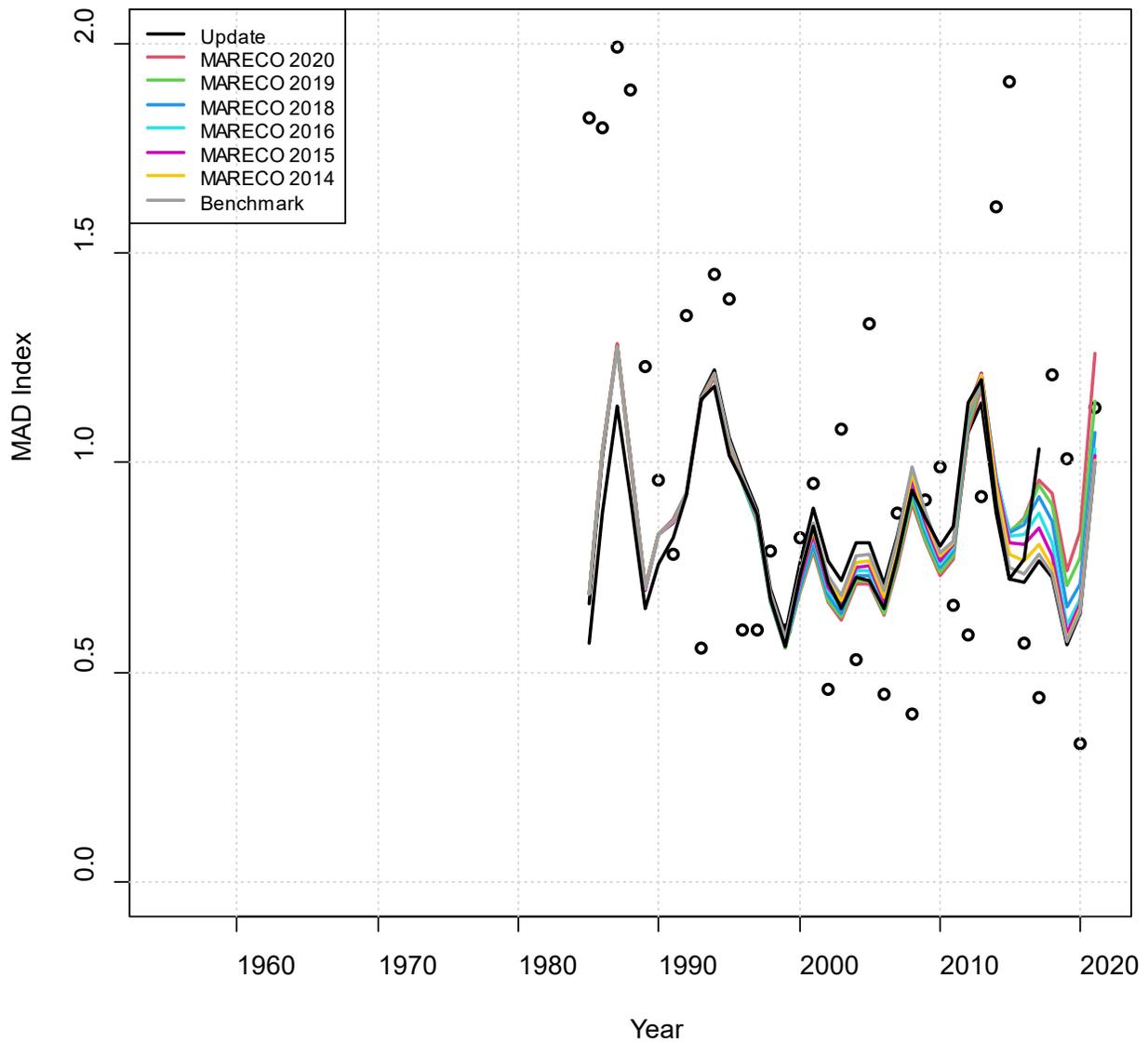
**Figure A53. Estimates of the recruitment time series for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.**



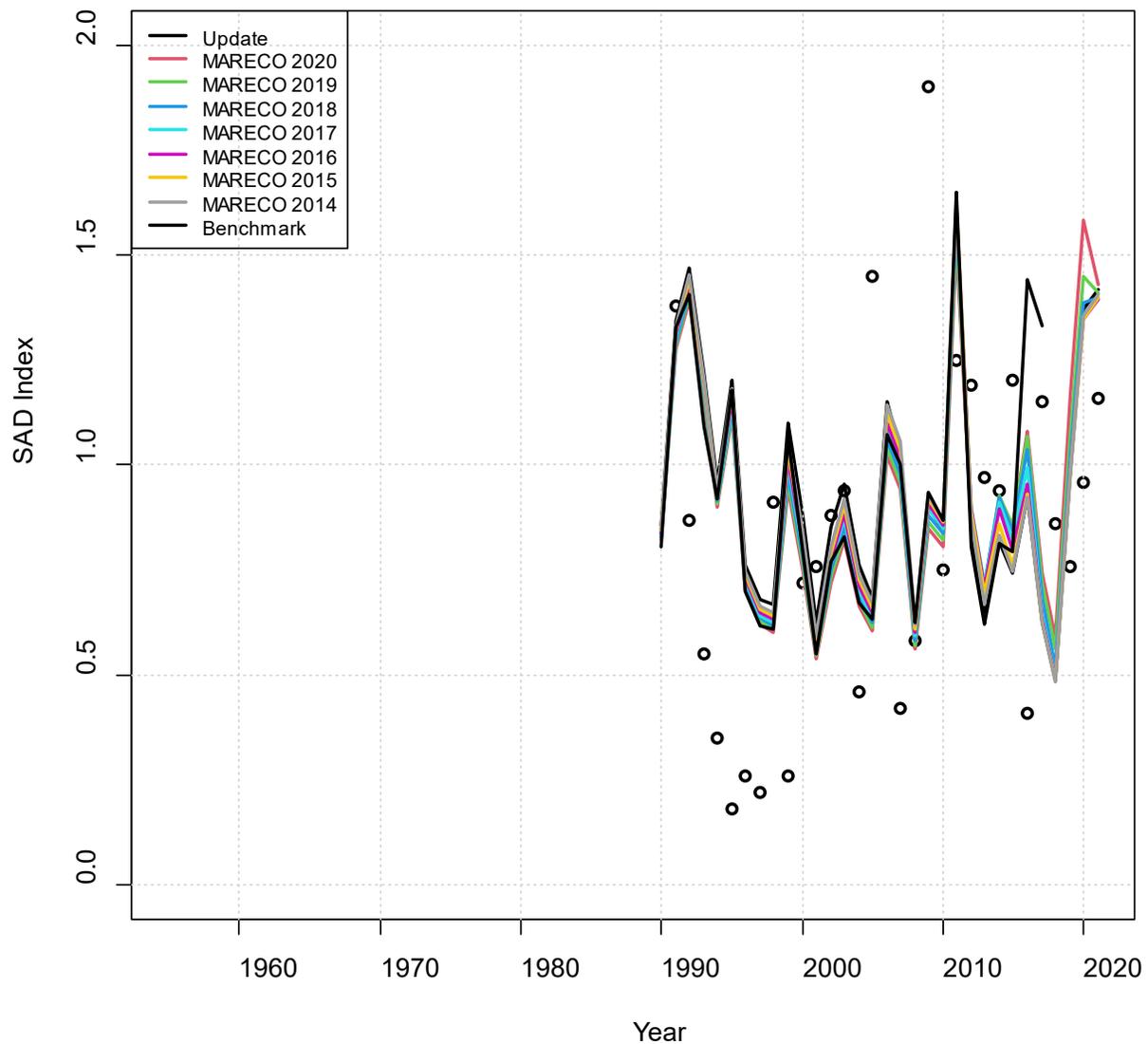
**Figure A54.** Estimates of the fecundity for the base run (labeled Update exc cBs 2020, no MARECO) for a series of runs related to the inclusion of the 2020 and 2021 data. The runs either included or excluded the 2020 and 2021 data, excluded the commercial bait south (cBs) data for 2020, or included or excluded the ichthyoplankton index called the MARECO index.



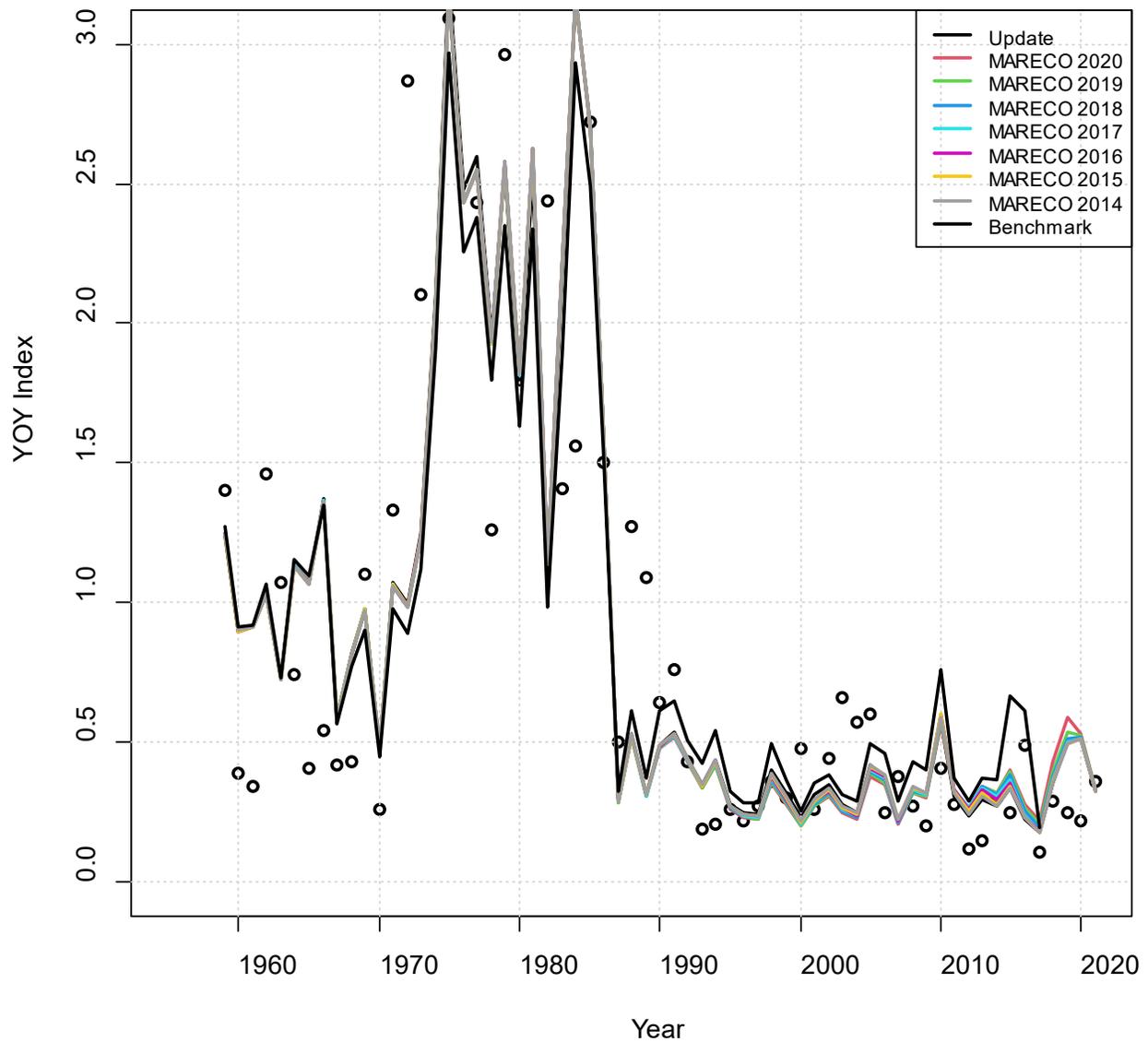
**Figure A55.** Fit to the observed (open circles) NAD index for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



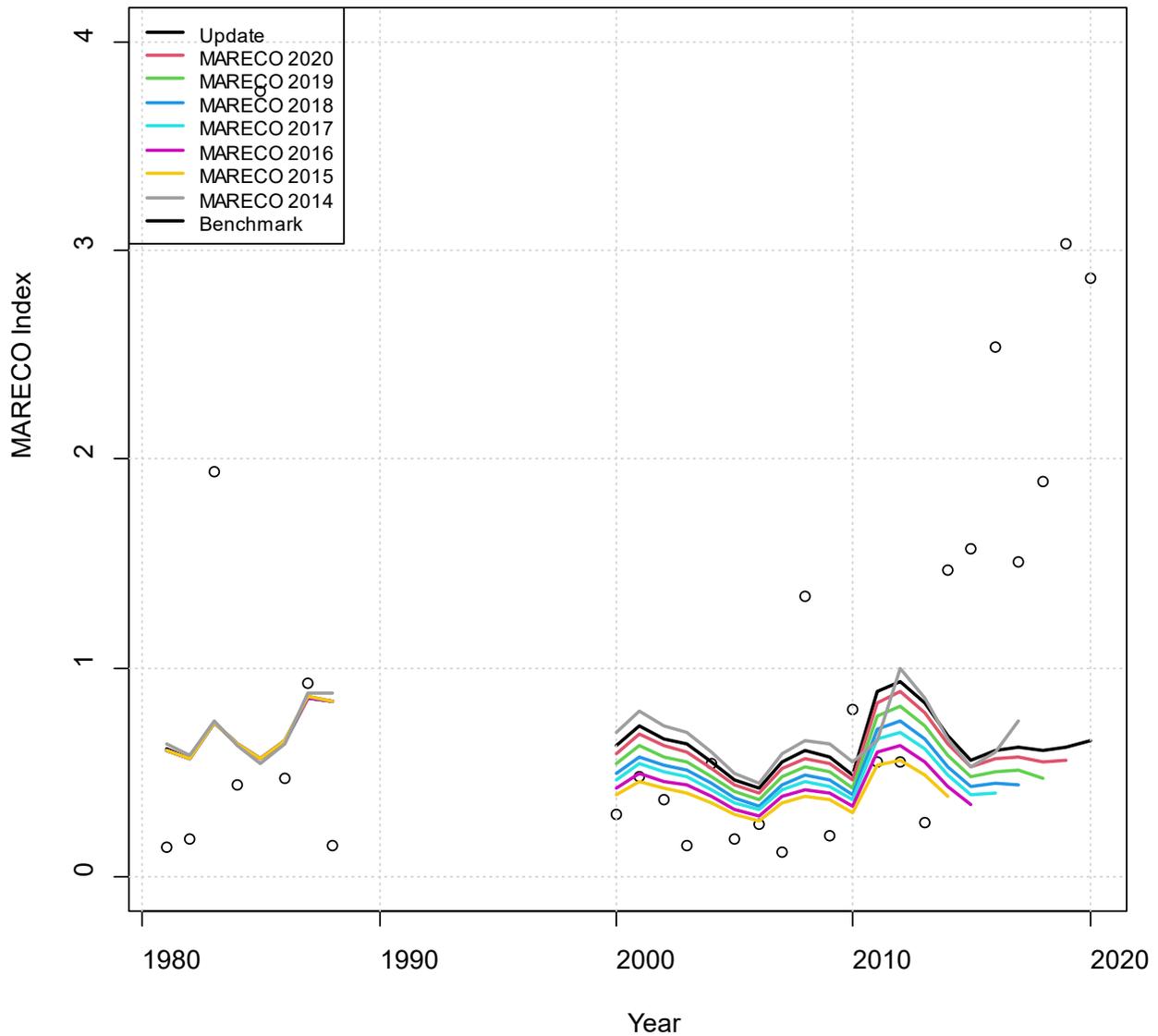
**Figure A56.** Fit to the observed (open circles) MAD index for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



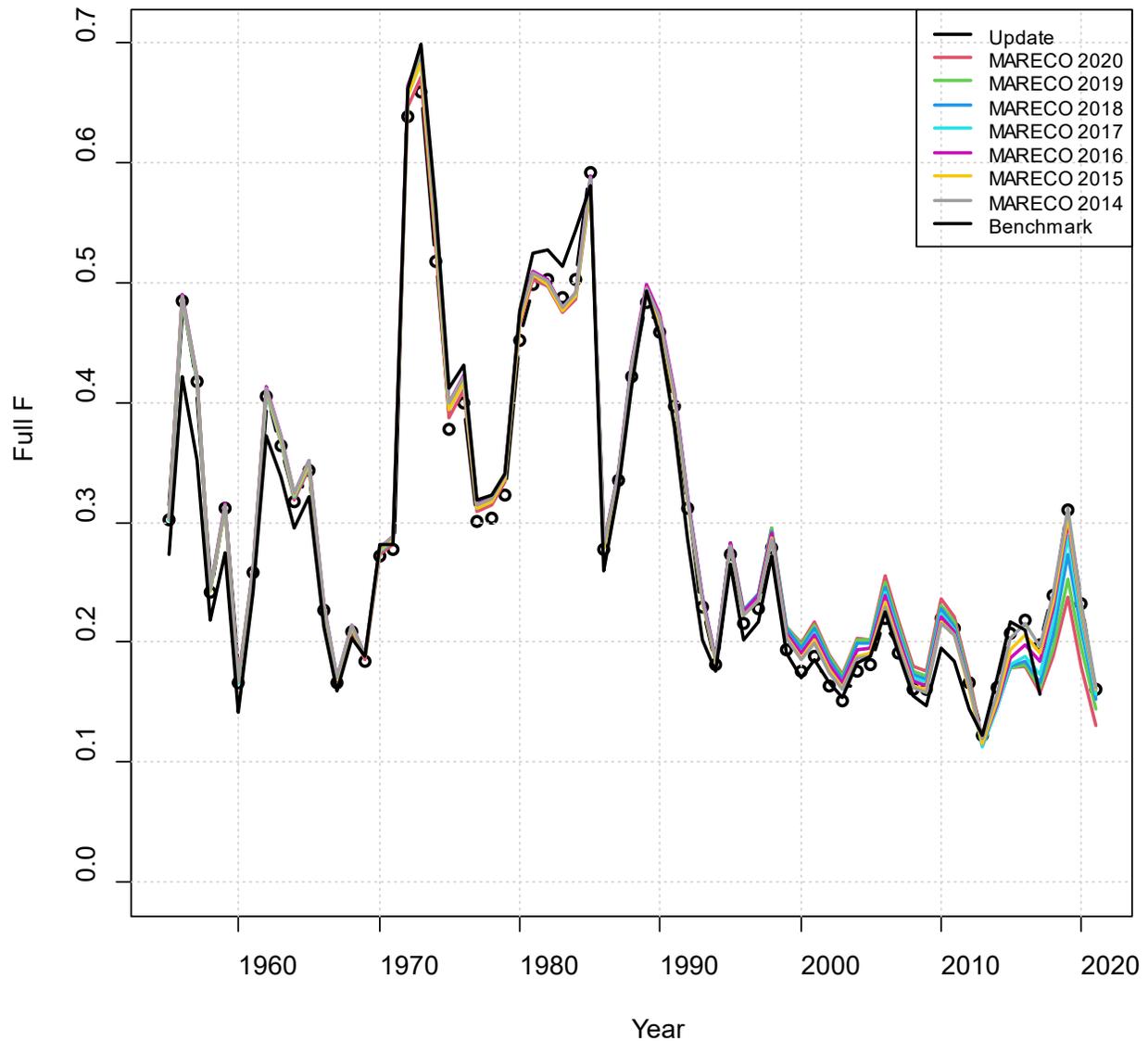
**Figure A57.** Fit to the observed (open circles) SAD index for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



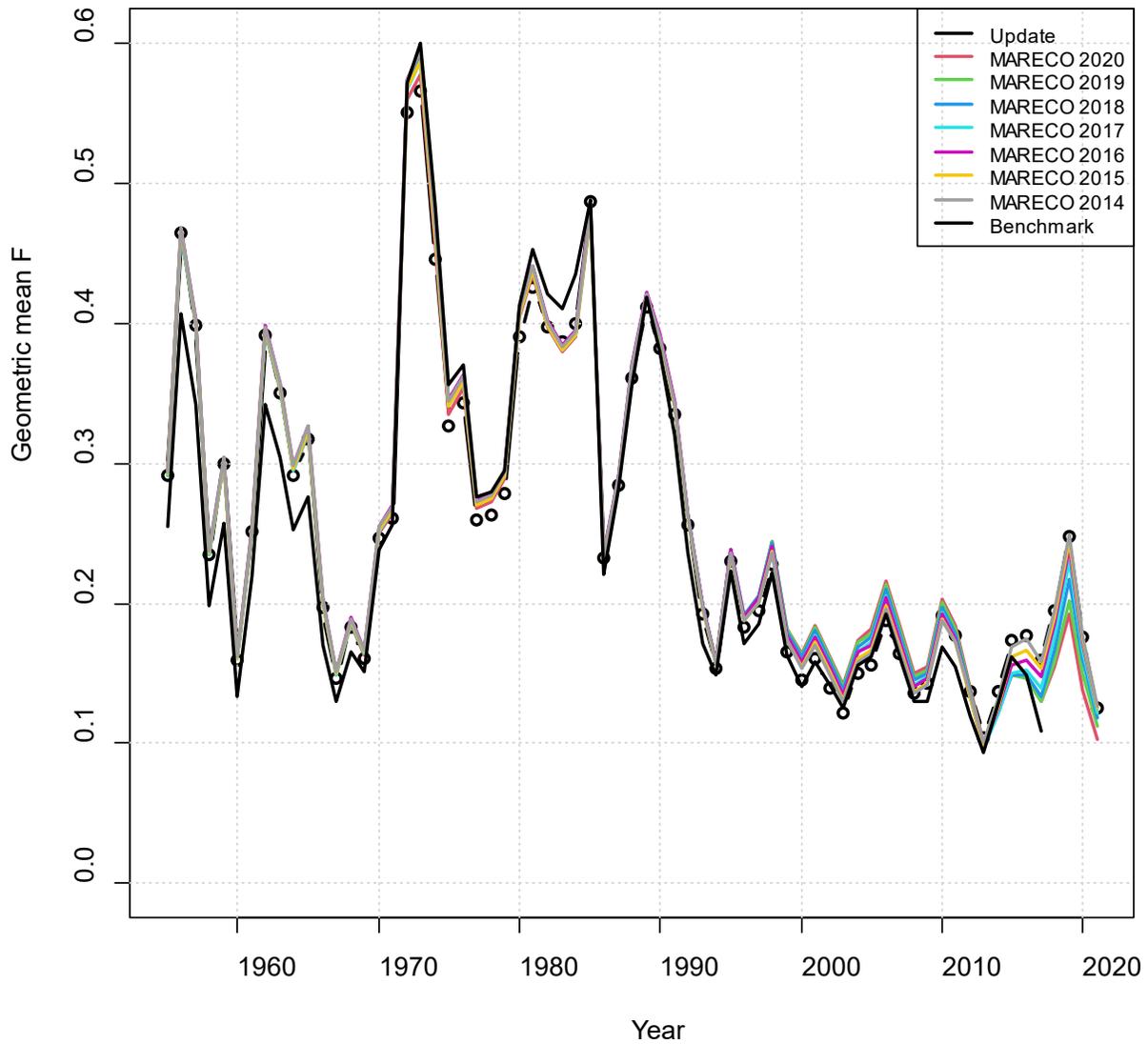
**Figure A58.** Fit to the observed (open circles) recruitment index for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



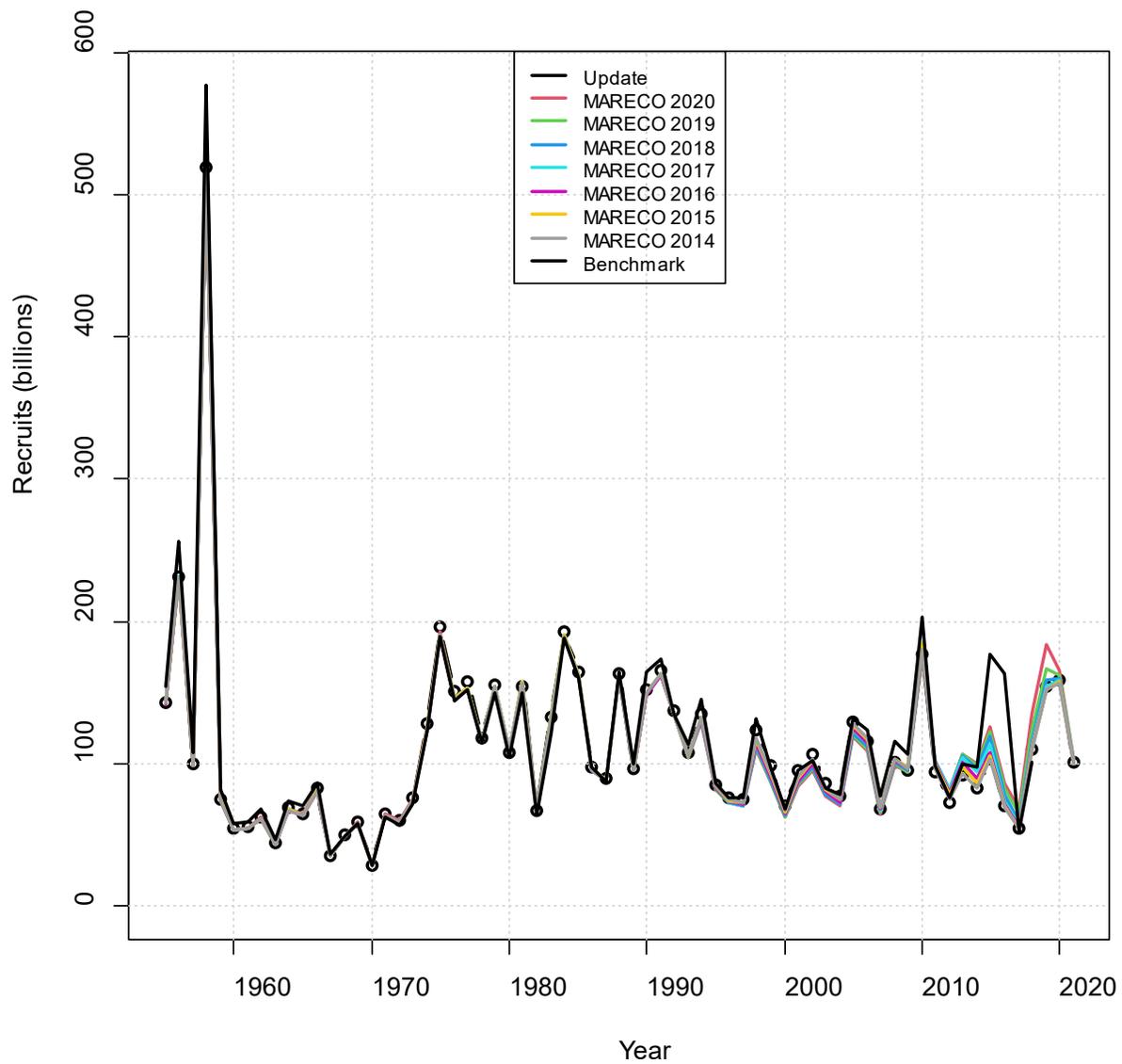
**Figure A59.** Fit to the observed (open circles) MARECO index for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020). **\*\*Note that the update run is not plotted, as it doesn't include the MARECO index.**



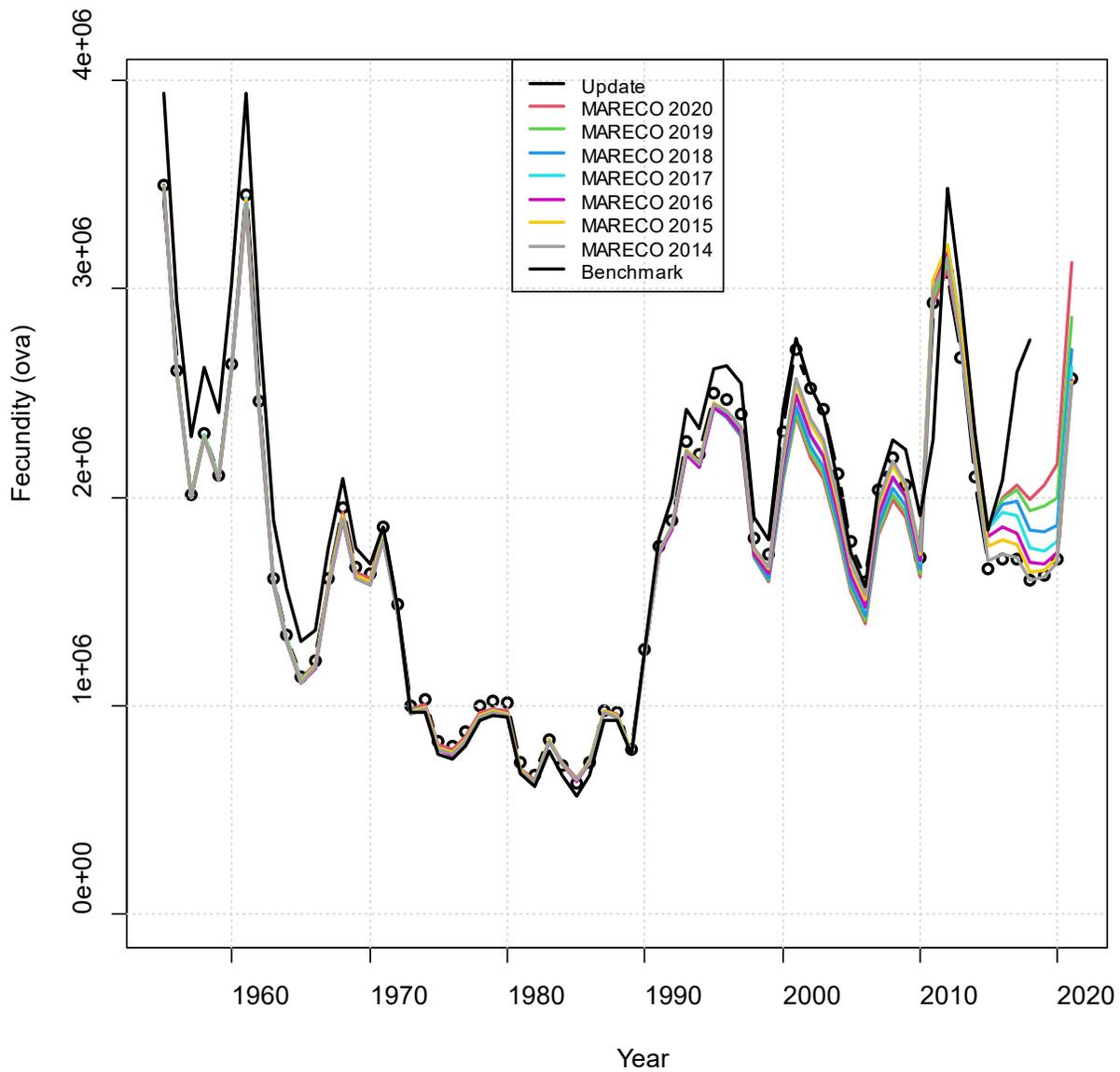
**Figure A60.** Full fishing mortality rate from 1955-2021 for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



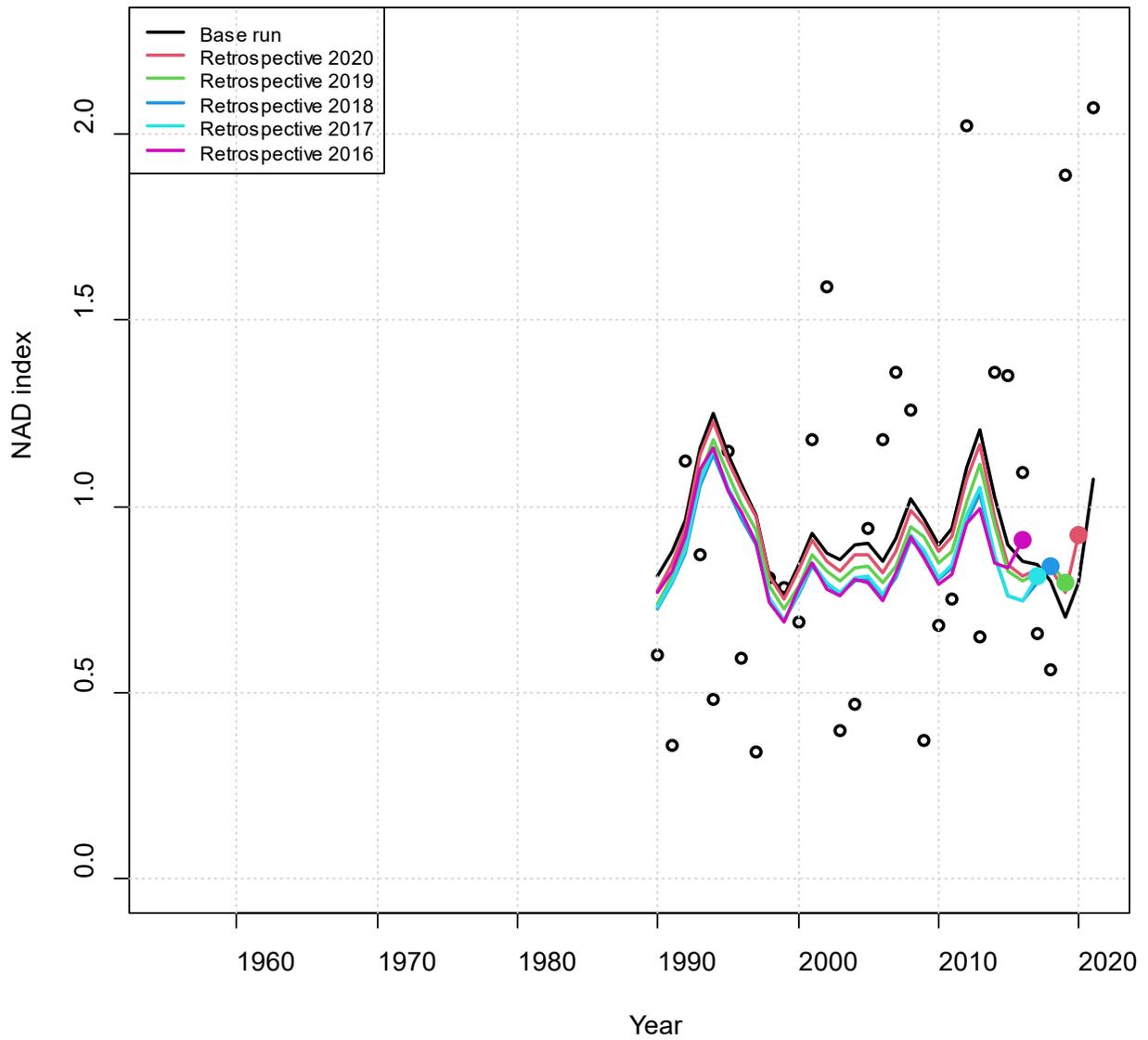
**Figure A61.** The geometric mean fishing mortality rate for ages-2 to 4+ from 1955-2021 for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



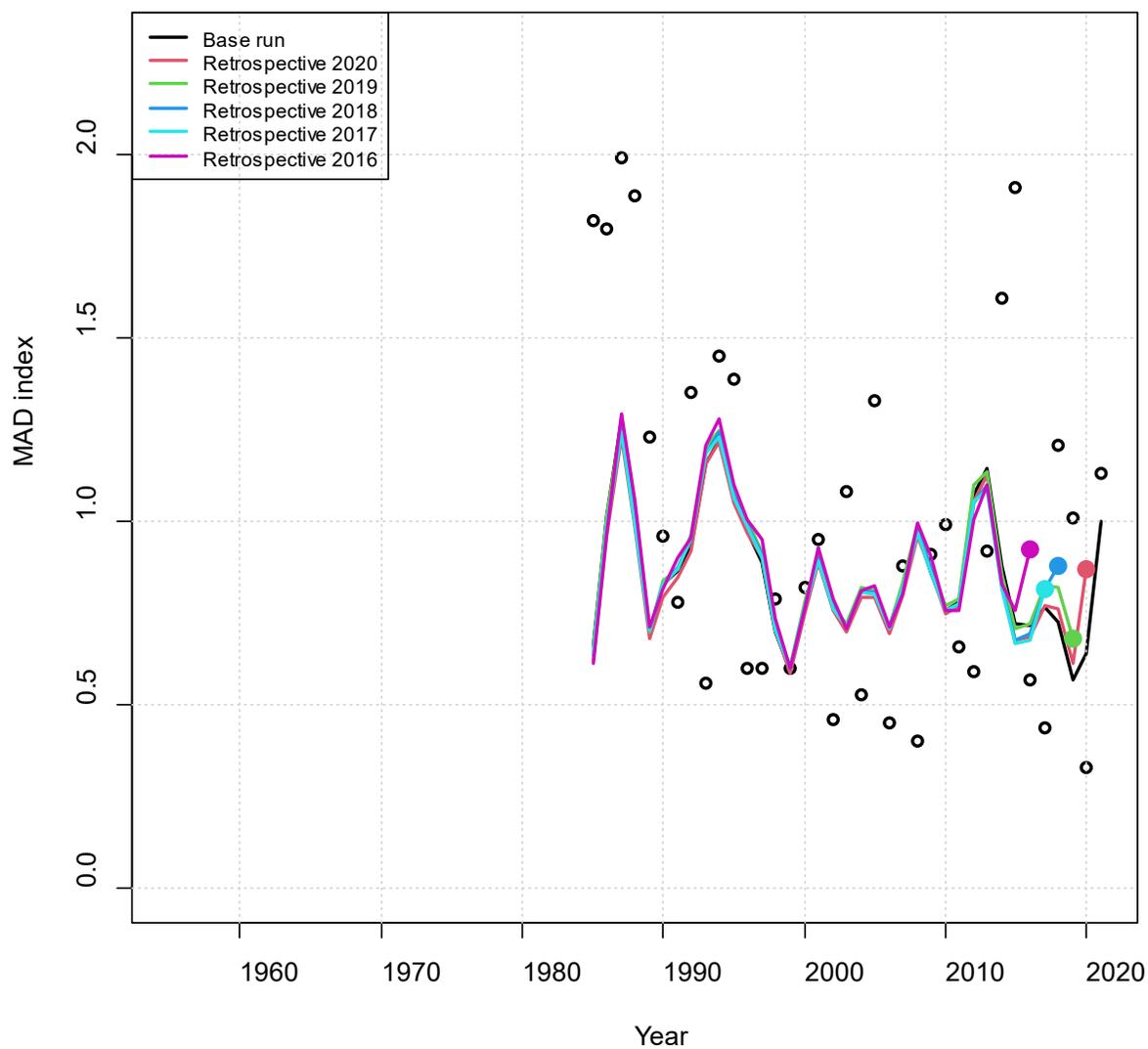
**Figure A62.** The recruitment time series from 1955-2021 for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



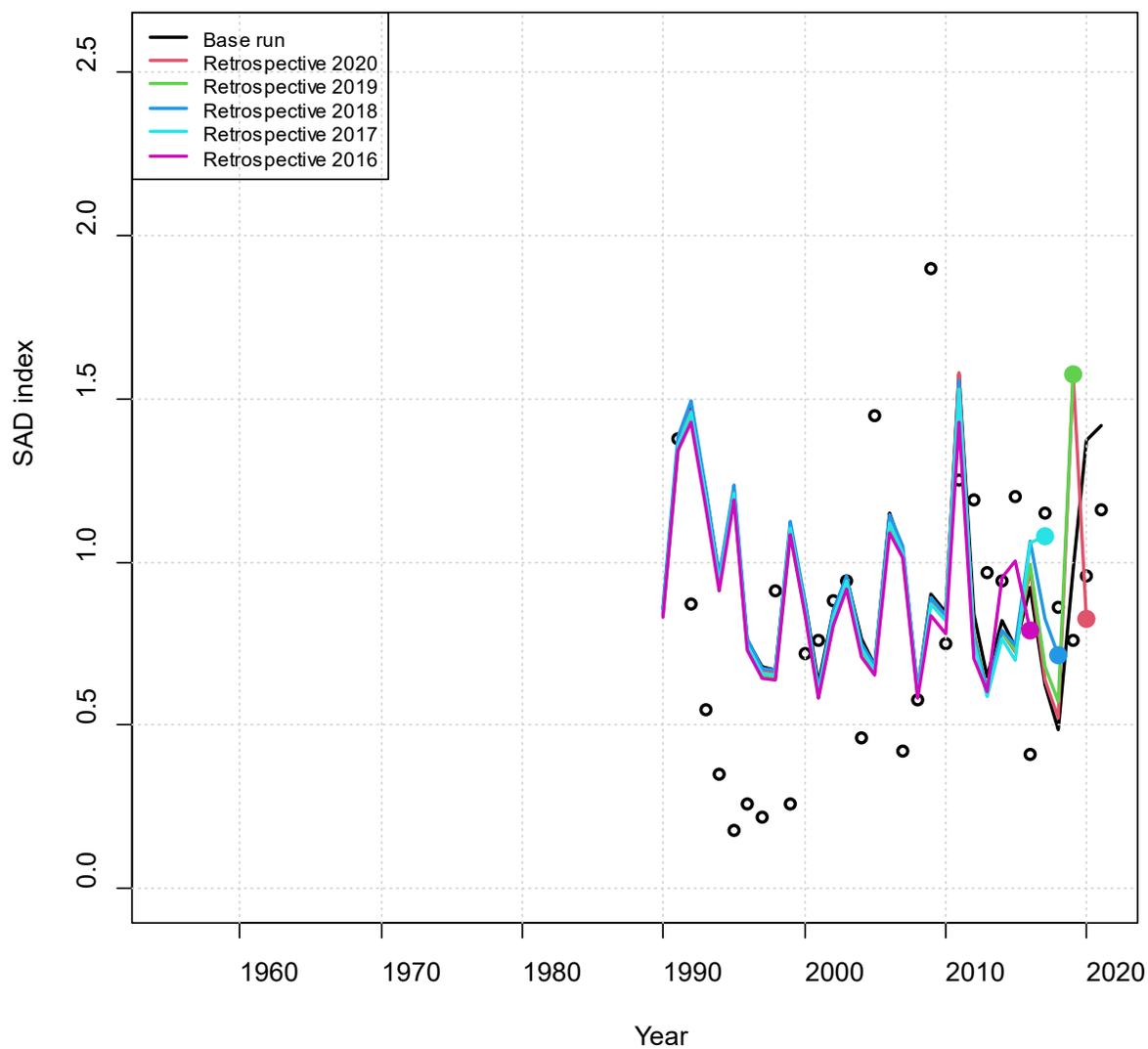
**Figure A63.** The fecundity time series from 1955-2021 for the base run, the last benchmark, and for a series of runs related to the inclusion of the MARECO ichthyoplankton index. The additional runs included the MARECO index with each run indicated by the terminal year of the index (2014-2020).



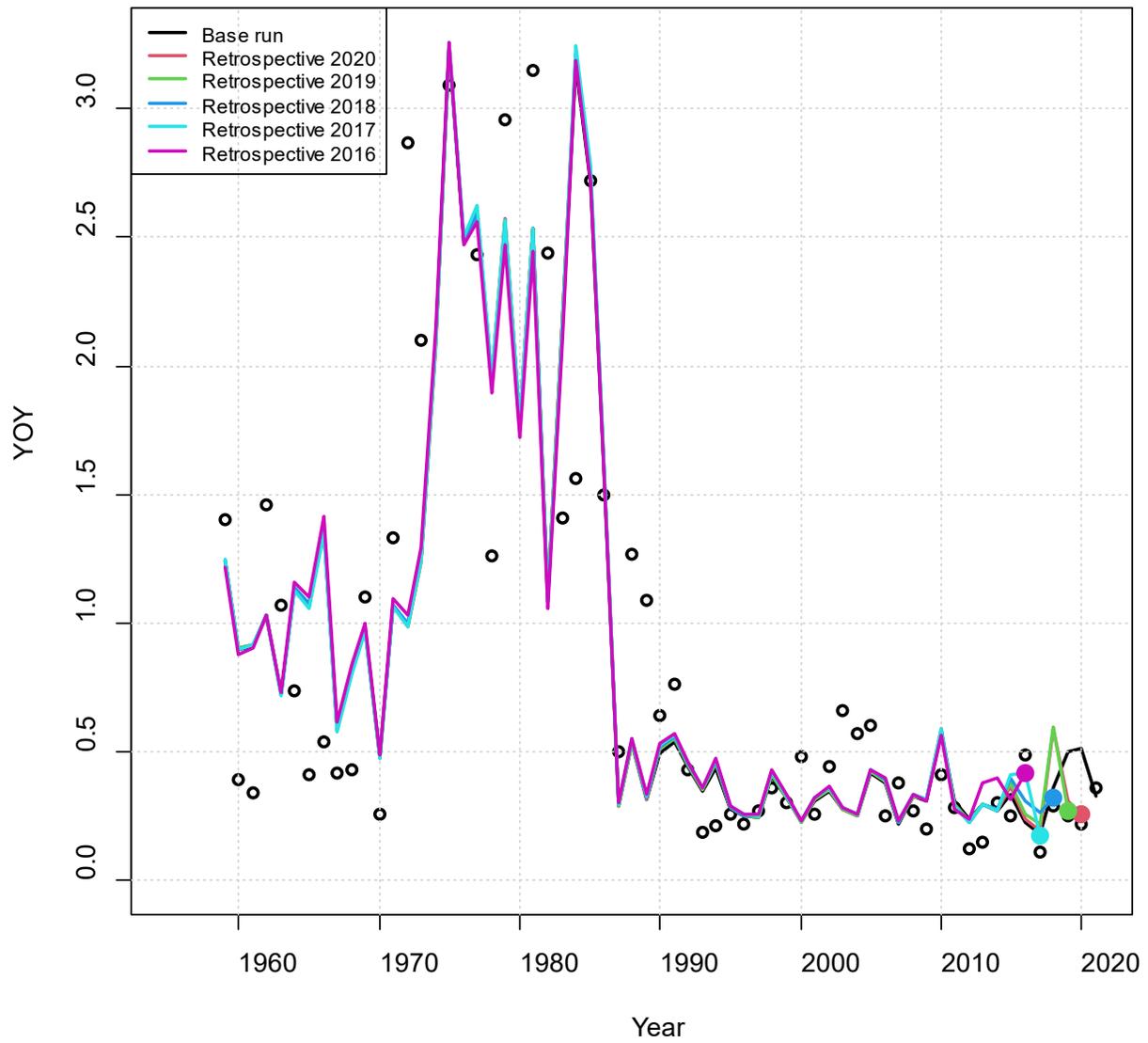
**Figure A64. Fit to the observed (open circles) NAD index for the retrospective analysis with terminal years from 2021 to 2016.**



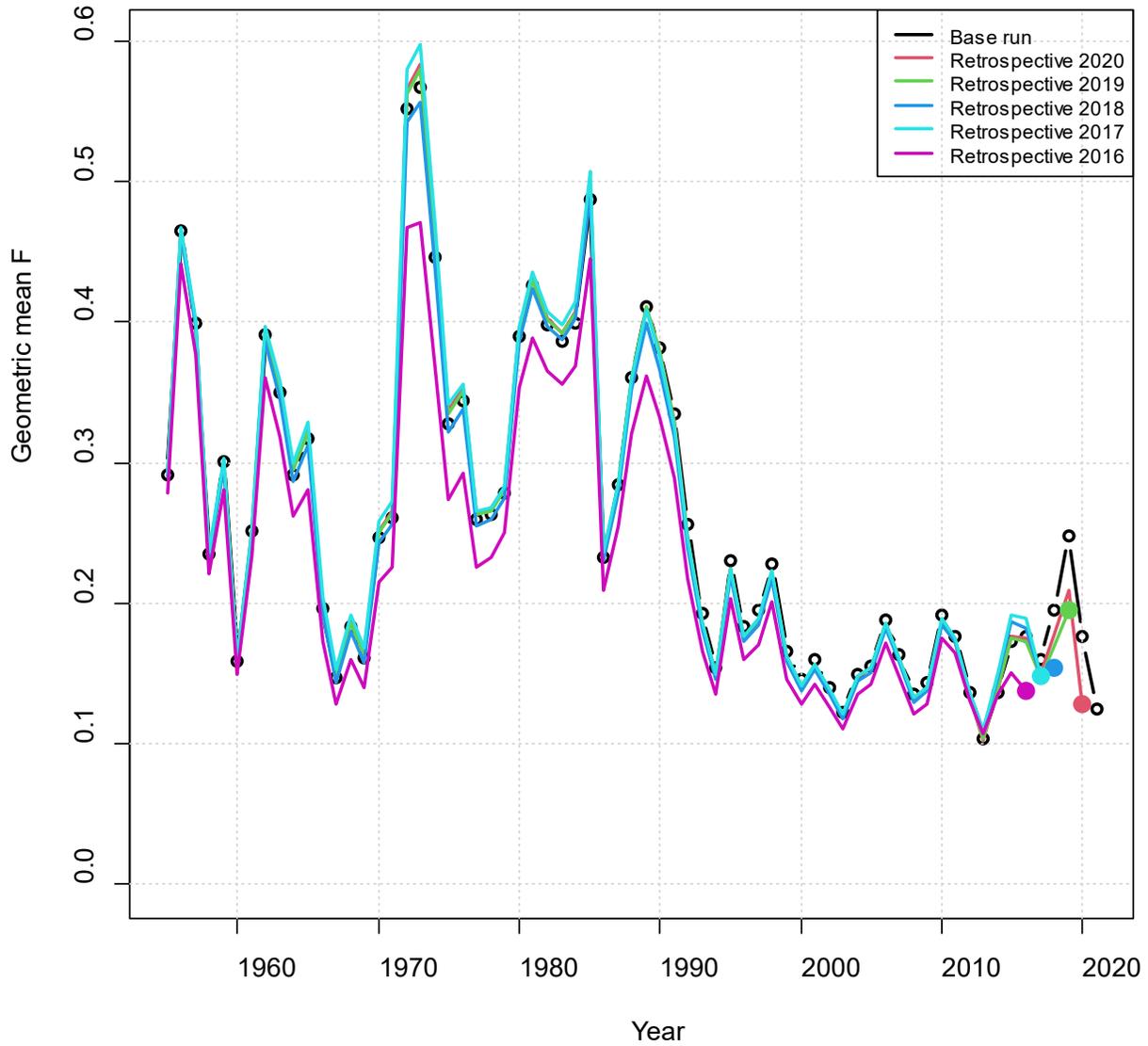
**Figure A65. Fit to the observed (open circles) MAD index for the retrospective analysis with terminal years from 2021 to 2016.**



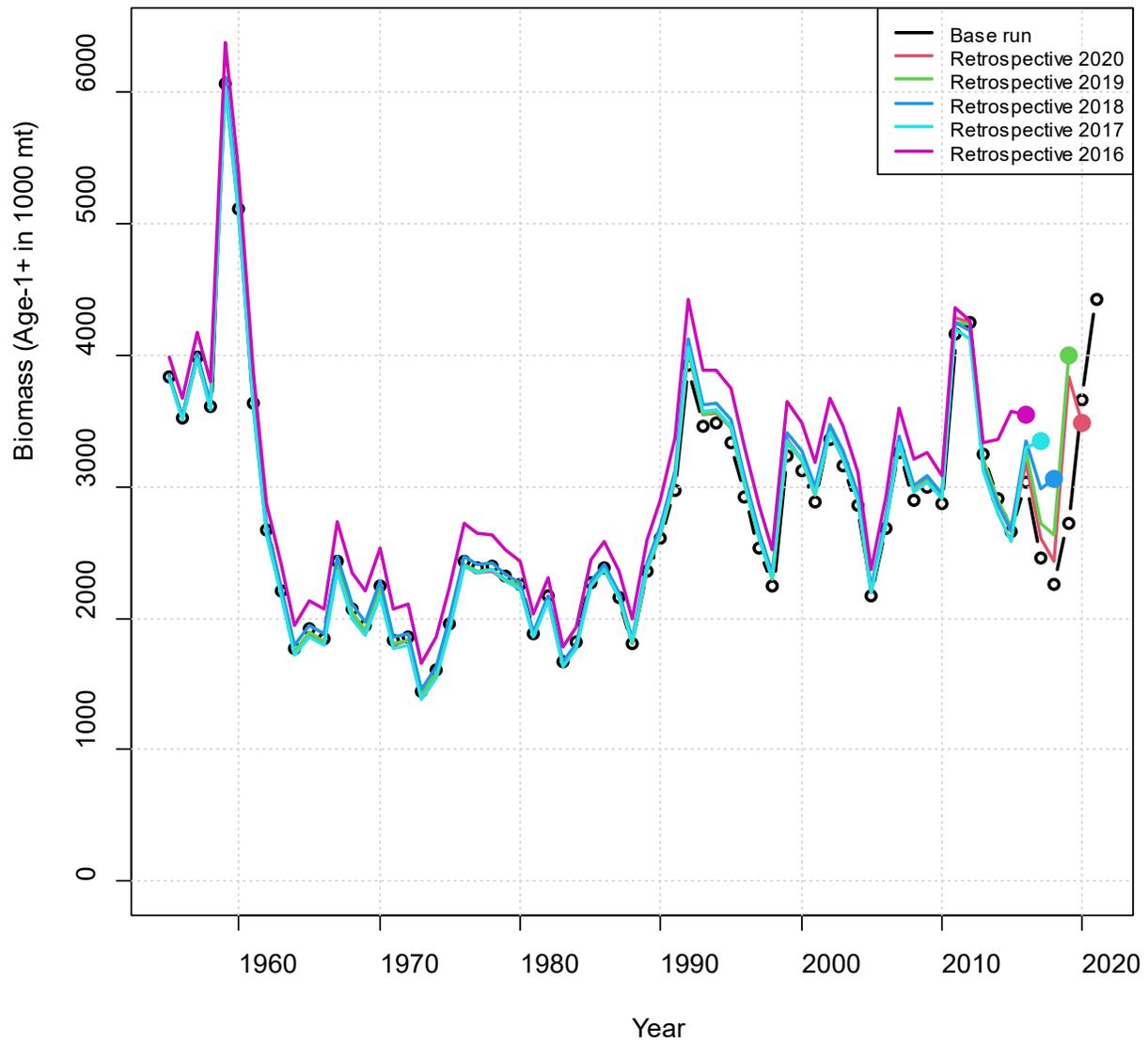
**Figure A66. Fit to the observed (open circles) SAD index for the retrospective analysis with terminal years from 2021 to 2016.**



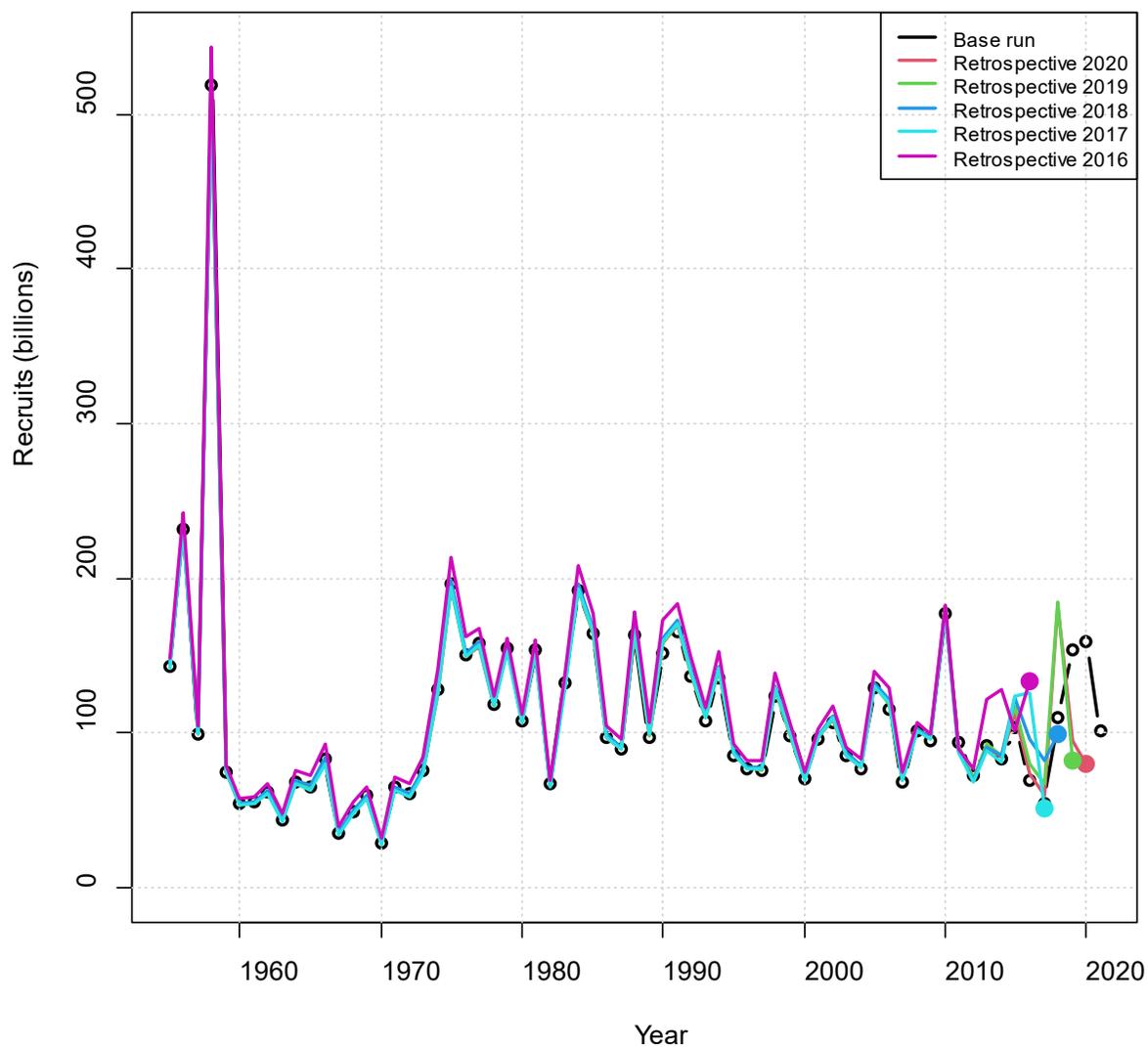
**Figure A67. Fit to the observed (open circles) recruitment index for the retrospective analysis with terminal years from 2021 to 2016.**



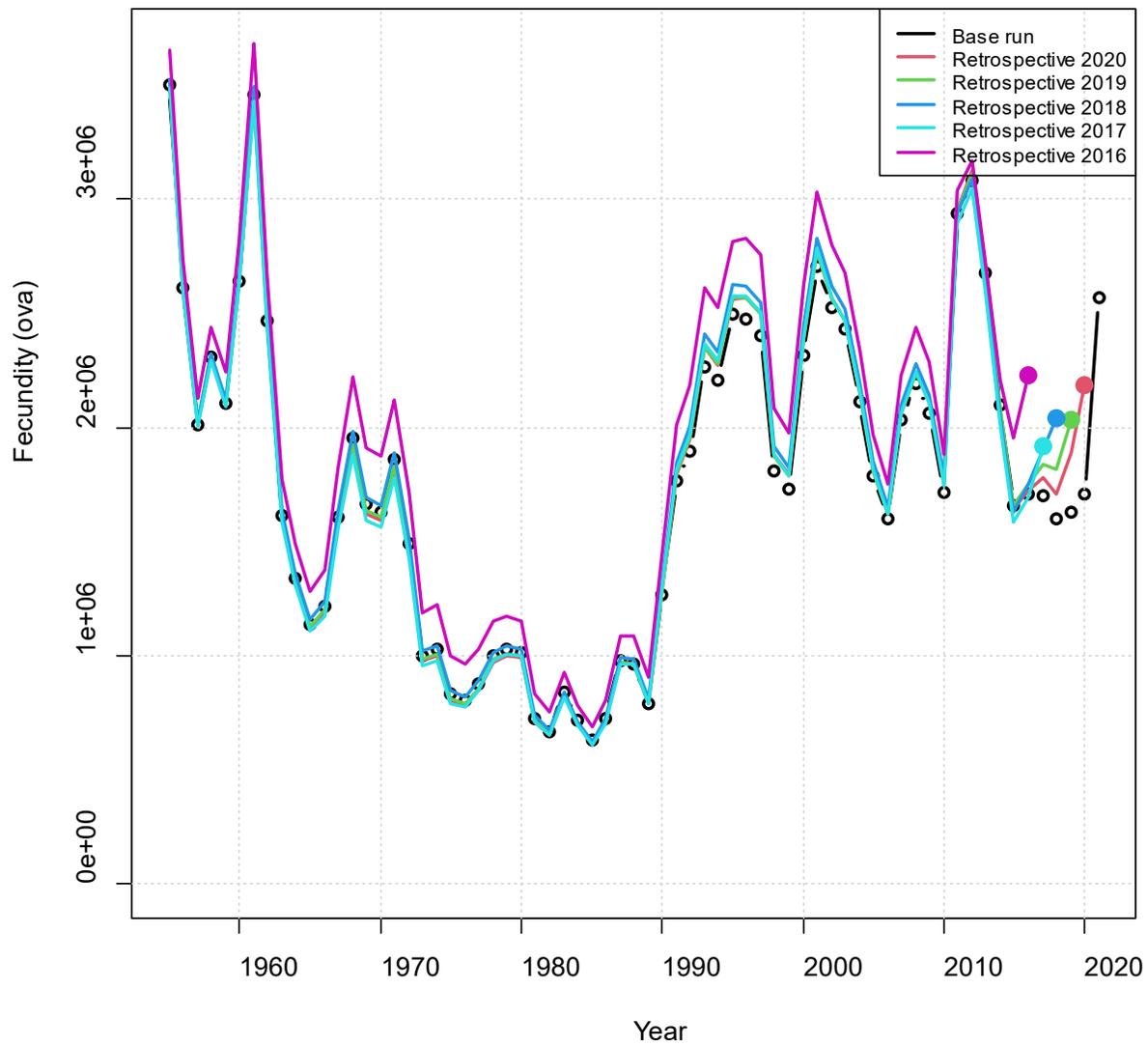
**Figure A68.** Estimates of the geometric mean fishing mortality rate for ages-2 to -4 for the retrospective analysis with terminal years from 2021 to 2016.



**Figure A69. Estimates of the age-1+ biomass for the retrospective analysis with terminal years from 2021 to 2016.**



**Figure A70. Estimates of the recruitment for the retrospective analysis with terminal years from 2021 to 2016.**



**Figure A71. Estimates of the fecundity for the retrospective analysis with terminal years from 2021 to 2016.**

## **Single-Species Research Recommendations**

The following is the complete list of research recommendations from the single-species benchmark assessment (SEDAR 2020a).

Research recommendations are broken down into two categories: future research and data collection and assessment methodology. While all recommendations are high priority, the first recommendation is the highest priority. Each category is further broken down into recommendations that can be completed in the short term and recommendations that will require long term commitment. For the single-species assessment, the SAS recommends an update be considered in three years and a new benchmark be considered in six years.

### **Future Research and Data Collection**

#### **Short Term**

1. Continue current level of sampling from bait fisheries, particularly in the Mid-Atlantic and New England. Analyze sampling adequacy of the reduction fishery and effectively sample areas outside of that fishery (e.g., work with industry and states to collect age structure data and biological data outside the range of the fishery).
2. Place observers on boats to collect at-sea samples from purse-seine sets, or collect samples at dockside during vessel pump-out operations (as opposed to current top of hold sampling) to address sampling adequacy.
3. Evaluate which proportion of bait landings by state are captured by gear versus which proportion are sampled for length and age composition to determine if current biosampling requirements are appropriate and adequate.
4. Continue to improve data validation processes for the bait fishery through ACCSP.
5. Conduct an ageing workshop to assess precision and error among readers with the intention of switching bait fishery age reading to state ageing labs.
6. Re-age historic old age samples (i.e., ages >7) to confirm the max age of Atlantic menhaden.
7. Investigate the relationship between fish size and school size to address selectivity (specifically addressing fisher behavior related to harvest of specific school sizes).
8. Investigate the relationship between fish size and distance from shore (addressing selectivity).

#### **Long Term**

1. Develop and implement a menhaden-specific, multi-year coastwide fishery-independent index of adult abundance-at-age with ground-truthing for biological information (e.g., size and age composition). A sound statistical design is essential. Ideally, it should be done coast-wide, but area-specific surveys that cover the majority of the population and are more cost-effective could provide substantial improvements over the indices currently used in the assessment.

2. Continue age-specific studies on spatial and temporal dynamics of spawning (where, how often, how much of the year, batch spawning, etc.)
3. Conduct an ageing validation study, making sure to sample older age classes.
4. Continue to investigate environmental covariates related to productivity and recruitment on a temporal and spatial scale.
5. Consider other ageing methods for the future, such as the use of Fourier transform near infrared spectroscopy (FT-NIRS).

## **Assessment Methods**

### **Short Term**

1. Investigate index standardization to improve CVs and explore methods of combining indices at a regional or coastwide level.
2. Explore the covariance between life history parameters to improve the understanding of uncertainty in the model.
3. Explore the error structure between MCMC and MCB.
4. Perform simulation testing on the Deyle et al. method used in the projections and determine if recruitment is accurately tracked by the method and improve short term projections.
5. Conduct a Management Strategy Evaluation (MSE).

### **Long Term**

1. Continue to monitor model diagnostics given that the model is not robust to anomalous year-classes in the terminal year.
2. Develop a seasonal spatially-explicit model once sufficient age-specific data on movement rates of menhaden are available.

## **Ecological Reference Point Research Recommendations**

The following is the complete list of research recommendations from the ecological reference point stock assessment (SEDAR 2020b).

The Ecological Reference Point Work Group (ERP WG) endorsed the research recommendations laid out in the single-species assessment to improve the understanding of Atlantic menhaden population dynamics, especially the recommendations to develop an Atlantic menhaden-specific coastwide fishery-independent index of adult abundance and to continue to investigate environmental covariates related to productivity and recruitment on a temporal and spatial scale.

In addition, the ERP WG identified a number of research needs to improve the multispecies modeling efforts and the development of ecological reference points for Atlantic menhaden, as well as process considerations to fully implement ecosystem-based fishery management.

### **Future Research and Data Collection**

#### **Short term**

1. Expand collection of diet and nutrition data along the Atlantic coast to provide seasonally and regionally stratified annual, year-round monitoring of key predator diets to provide information on prey abundance and predator consumption. This could be done through existing data collection programs.

#### **Long term**

1. Improve monitoring of population trends and diet data in non-fish predators (e.g., birds, marine mammals) and data-poor prey species (e.g., bay anchovies, sand eels, benthic invertebrates, zooplankton, and phytoplankton) to better characterize the importance of Atlantic menhaden and other forage species to the ecosystem dynamics.

### **Modeling Needs**

#### **Short term**

1. Conduct a management-strategy evaluation (MSE) to identify harvest strategies that will maximize the likelihood of achieving the identified ecosystem management objectives.
2. Continue development of the NWACS-MICE model to incorporate recruitment deviations (from external models or primary productivity time series) to better capture the productivity dynamics of Atlantic menhaden and other species.
3. Continue development of the VADER model to include bottom-up effects of Atlantic menhaden abundance on key predator species.
4. Continue development of the NWACS-FULL model to bring other species up to date and continue exploring the impacts of fishing on higher trophic level predators like birds and mammals.

## Management Process Needs

### Short term

1. Develop a coordinated timeline of assessments and assessment updates for Commission-managed species in order to provide the most up-to-date multispecies inputs for the NWACS-MICE model during ERP assessment updates.

### Long term

1. Develop a plan to coordinate management of Atlantic menhaden and their predator species across management Boards. This will require changes to the way the Commission has historically operated. These species are currently managed by separate Boards within the Commission, and management objectives, including *F* and *B* targets for each species, are set independently of each other. For successful ecosystem-based fishery management, consistent management objectives for individual species and the ecosystem should be set holistically with the engagement of all managers and stakeholders.



# Atlantic States Marine Fisheries Commission

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

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## MEMORANDUM

July 18, 2022

**To: Atlantic Menhaden Management Board**

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

**RE: Advisory Panel Nomination**

Please find a new nomination to the Atlantic Menhaden Advisory Panel – Barbara Garrity-Blake from Gloucester, NC. Barbara is a member of NC Catch (local seafood consumer awareness group), teaches a graduate level marine policy class at Duke University Marine Lab, did her PhD research on the anthropology of the menhaden fishery, and previously served on the NC Marine Fisheries Commission. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or [tberger@asmfc.org](mailto:tberger@asmfc.org).

Enc.

cc: James Boyle

M22-79

## Atlantic Menhaden Advisory Panel

Bolded names await Board approval

### **Maine**

Michael Dawson (comm. inshore purse seine)  
39 Lakeview Drive  
Bristol, ME 04539  
Phone: 207.380.4036  
[kamano@tidewater.net](mailto:kamano@tidewater.net)  
Appt Confirmed 1/27/22

Vincent Balzano (comm. trawl & purse seine)  
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Saco, ME 04072  
Phone (day): 207.282.3627  
Phone (eve): 207.332.6492  
[vbalzano@mainerr.com](mailto:vbalzano@mainerr.com)  
Appt Confirmed 2/1/17

### **New Hampshire**

**1 Vacancy – recreational**

### **Massachusetts**

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61 Maple Street  
Hyannis, MA 02601  
Phone: 781.771.8374  
[basicpatrick@aol.com](mailto:basicpatrick@aol.com)  
Appt Confirmed 10/26/16

Bob Hannah (comm. seine/traps)  
335 Concord Street  
Gloucester, MA 01930  
Phone: 978.879.6727  
[Zoey01930@yahoo.com](mailto:Zoey01930@yahoo.com)  
Appt Confirmed 10/26/16

### **Rhode Island**

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Phone: 401.218.8658  
FAX: 401.295.5825  
[Meghan@seafreezeld.com](mailto:Meghan@seafreezeld.com)  
Appt Confirmed 10/26/16

David P. Monti (rec/for-hire)  
399 Greenwood Avenue  
Warwick, RI 02886  
Phone (day): 401.480.3444  
Phone (eve): 401.737.4515

[dmontifish@verizon.net](mailto:dmontifish@verizon.net)  
Appt Confirmed 10/26/16

### **Connecticut**

Vacancy (rec)

### **New York**

William Caldwell (comm. seine)  
75 East Tiana Road  
Hampton Bays, NY 11946  
Phone: 631.767.8257  
[Caldwell691@gmail.com](mailto:Caldwell691@gmail.com)  
Appt Confirmed 1/27/22

Melissa Dearborn (processor)  
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198 West 9th Street  
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Phone (day): 631.385.8284  
Phone (eve): 631.385.7753  
FAX: 631.271.5294  
[regalmar@optonline.net](mailto:regalmar@optonline.net)  
Appt. Confirmed 7/17/01  
Appt. Reconfirmed 1/23/06  
Appt Reconfirmed 5/10

### **New Jersey**

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Appt Confirmed 10/26/16

### **Delaware**

William R. Wilson (rec)  
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Lewes, DE 19958  
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## Atlantic Menhaden Advisory Panel

Bolded names await Board approval

Phone (eve): 302.344.5853  
FAX:(302.644.3454  
[birdcarver@aol.com](mailto:birdcarver@aol.com)  
Appt Confirmed 12/17/03  
Appt. Confirmed 12/07

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2854 Big Oak Road  
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Phone: 302.423.6564  
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Appt Confirmed 10/26/16

### **Maryland**

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John W. Dean (comm/pound net)  
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### **Virginia**

Jimmy Kellum (commercial purse seine)  
144 Kellum Drive  
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FAX: 804.438.5306  
[Kellum.maritime@gmail.com](mailto:Kellum.maritime@gmail.com)  
Appt Confirmed 11/3/09

Peter Himchak (commercial purse seine)  
Omega Protein  
PO BOX 85  
Tuckerton, NJ 08087  
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Appt Confirmed 10/26/16

Jeff Deem (rec)  
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### **North Carolina**

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Appt Confirmed 10/26/16

### **Barbara Garrity-Blake (non-traditional)**

**134 Shore Drive**  
**P.O. Box 91**  
**Gloucester, NC 28528**  
**Phone: 252.342.8028**  
[garrityblake@gmail.com](mailto:garrityblake@gmail.com)

### **South Carolina**

Vacancy (rec)

### **Georgia**

Ken Hinman (conservation)  
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Phone: 703.777.0037  
Fax: 703.777.1107  
[khinman@wildoceans.org](mailto:khinman@wildoceans.org)  
Appt. Confirmed 2/19/02  
Appt. Confirmed 2/06  
Appt Reconfirmed 5/10

### **Florida**

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Jacksonville, FL 32211  
Phone (day): 904.630.3025  
Phone (eve): 904.725.3775  
FAX: 904.630.3007  
[charlesh@cou.net](mailto:charlesh@cou.net)  
Appt. Confirmed 7/17/01  
Appt. Reconfirmed 1/2/06  
Appt Reconfirmed 4/22/10

## Atlantic Menhaden Advisory Panel

Bolded names await Board approval

### **PRFC**

Richard H. Daiger (comm/rec gillnet)

173 Oyster House Road

Montross, VA 22520

Phone: 804.472.2184

Appt. Confirmed 7/17/01

Appt. Reconfirmed 1/2/06

Appt Reconfirmed 5/10



# 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 Chris Batsavage State: NC  
(your name)

Name of Nominee: Barbara Garrity-Blake

Address: 134 Shore Drive P.O. Box 91

City, State, Zip: Gloucester, NC 28528

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

Phone (day): 252-342-8028 Phone (evening): \_\_\_\_\_

FAX: \_\_\_\_\_ Email: garrityblake@gmail.com

.....  
**FOR ALL NOMINEES:**

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.

- 1. Atlantic Menhaden
- 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

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

yes                      no

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

\_NC Catch (local seafood consumer education) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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?
- 2. Is the nominee employed only in commercial fishing?    yes    no
- 3. What is the predominant gear type used by the nominee? \_\_\_\_\_

**FOR CHARTER/HEADBOAT CAPTAINS:**

- 1. How long has the nominee been employed in the charter/headboat business? \_\_\_\_\_
- 2. Is the nominee employed only in the charter/headboat industry?    yes    no  
If "no," please list other type(s) of business(es) and/occupation(s): \_\_\_\_\_

- 3. How many years has the nominee lived in the home port community? \_\_\_\_\_ years  
if less than five years, please indicate the nominee's previous home port community.  
\_\_\_\_\_



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: Barbara Garrity-Blake

Date: 5/6/2022

Name: Barbara Garrity-Blake  
(please print)

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

Chris Batsavage  
State Director

\_\_\_\_\_  
State Legislator

\_\_\_\_\_  
Governor's Appointee

# Atlantic States Marine Fisheries Commission

## Sciaenids Management Board

*August 4, 2022  
8:30 – 10:00 a.m.  
Hybrid Meeting*

### 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 (*C. Batsavage*) 8:30 a.m.
2. Board Consent 8:30 a.m.
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment 8:35 a.m.
4. Review Traffic Light Analysis for Spot and Atlantic Croaker 8:45 a.m.  
(*D. Franco/H. Rickabaugh*) **Possible Action**
  - Technical Committee Recommendations
  - Discuss Spot Addendum III Management Measures
5. Review Development of a Spatial Model of Spot Abundance and Mortality 9:25 a.m.  
(*R. Latour*)
6. Consider Atlantic Croaker and Red Drum Fishery Management Plan Reviews 9:35 a.m.  
and State Compliance for the 2021 Fishing Year (*T. Bauer*) **Action**
7. Progress Update on 2022 Black Drum Benchmark Stock Assessment (*J. Kipp*) 9:50 a.m.
8. Elect Vice-Chair (*C. Batsavage*) **Action** 9:55 a.m.
9. Other Business/Adjourn 10:00 a.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# MEETING OVERVIEW

**Sciaenid Management Board Meeting**  
**Thursday, August 4, 2022**  
**8:30 a.m. – 10:00 a.m.**  
**Hybrid Meeting**

Chair: Chris Batsavage (NC) Assumed Chairmanship: 02/22	Technical Committee Chairs: Black Drum: Harry Rickabaugh (MD) Atlantic Croaker: Dawn Franco (GA) Red Drum: Lee Paramore (NC) Spot: Harry Rickabaugh (MD)	Law Enforcement Committee Representative: Capt. Chris Hodge (GA)
Vice Chair: Vacant	Advisory Panel Chair: Craig Freeman (VA)	Previous Board Meeting: May 2, 2022
Voting Members: NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS (10 votes)		

## 2. Board Consent

- Approval of Agenda
- Approval of Proceedings from May 2022

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

## 4. Review Traffic Light Analysis (TLA) for Spot and Atlantic Croaker (8:45-9:25 a.m.) Possible Action

### Background

- The Traffic Light Analyses are updated annually for both spot and Atlantic croaker to assess changes to the population in non-benchmark stock assessment years.
- The 2020 TLA triggered management action at the level of moderate concern. Addendum III states management measures set in response to any trigger will remain in place for at least two years for spot (2021-2022) and three years for Atlantic croaker (2021-2024), after which management will be reevaluated based on the composite regional abundance characteristics. (**Supplemental Materials**). Per the Addendum, spot measures are due to be reevaluated prior to the 2023 fishing year.
- For the second year in a row, multiple surveys had missing data, so not all analyses could be run. The Technical Committee has made recommendations on how to proceed (**Supplemental Materials**).

### Presentations

- Review of 2022 Traffic Light Analyses of the 2021 fishing year for Atlantic Croaker and Spot by D. Franco and H. Rickabaugh.

**Board actions for consideration at this meeting**

- Consider Spot Addendum III management measures

**5. Review Development of a Spatial Model of Spot Abundance and Mortality (9:25-9:35 a.m.)****Background**

- Drs. Mike Wilberg (Chesapeake Biological Laboratory) and Rob Latour (Virginia Institute of Marine Science) are leading a research project to estimate fish abundance and mortality rates in specific regions using a spatial model.
- The Technical Committee met in May to receive a request from Drs. Wilberg and Latour for spot to be one of the focus species in the project. The TC foresaw no issues with providing the required confidential data from each state to develop the model and expressed support for the project.
- This research project will be separate from but occur in conjunction with the upcoming spot 2024 benchmark stock assessment.

**Presentations**

- Overview of the Development of a Spatial Model of Spot Abundance and Mortality by R. Latour.

**6. Consider Atlantic Croaker and Red Drum Fishery Management Plan Reviews and State Compliance for the 2021 Fishing Year (9:35-9:50 a.m.) Action****Background**

- Red Drum state compliance reports are due on July 1. The Red Drum Plan Review Team (PRT) has reviewed state reports and compiled the annual FMP Review. New Jersey and Delaware have requested continued *de minimis* status (**Supplemental Materials**).
- Atlantic Croaker state compliance reports are due on July 1. The Atlantic Croaker Plan Review Team (PRT) has reviewed state reports and compiled the annual FMP Review. New Jersey and Delaware requested *de minimis* status for both their recreational and commercial fisheries, and South Carolina and Georgia requested *de minimis* status for their commercial fisheries (**Supplemental Materials**).

**Presentations**

- 2021 FMP Reviews for Red Drum and Atlantic Croaker by T. Bauer.

**Board actions for consideration at this meeting**

- Consider approval of the 2021 FMP Review, state compliance reports, and New Jersey and Delaware's *de minimis* requests for Red Drum.
- Consider approval of the 2021 FMP Review, state compliance reports, and New Jersey, Delaware, South Carolina, and Georgia *de minimis* requests for Atlantic Croaker

**7. Progress Update on the Black Drum Benchmark Stock Assessment (9:50-9:55 a.m.)****Background**

- At the 2021 Summer Meeting, the Board approved the initiation of a Stock Assessment Subcommittee (SAS) to begin the Benchmark Stock Assessment Process for black drum.
- A black drum SAS was formed and has met several times to develop the benchmark stock assessment. A Data Workshop was held in December 2021 and a Methods Workshop was held in February 2022. The Assessment Workshop was held July 18-21, 2022.

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| <ul style="list-style-type: none"><li>• A peer review workshop for the black drum benchmark stock assessment is tentatively scheduled for December 2022.</li></ul> |
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<p><b>Presentations</b></p>
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- |  |
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| <ul style="list-style-type: none"><li>• Stock assessment update by J. Kipp</li></ul> |
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**8. Elect Vice-Chair (9:55-10:00 a.m.) Action**

**9. Other Business/Adjourn**

## Sciaenids Management Board

### Activity level: High

**Committee Overlap Score:** Moderate (American Eel TC, Bluefish TC, Menhaden TC, Weakfish TC)

#### Committee Task List

- Red Drum SAS – Conduct Red Drum Benchmark Assessment
- Black Drum SAS – Conduct Black Drum Benchmark Stock Assessment
- Atlantic Croaker TC – July 1: Compliance Reports Due
- Red Drum TC – July 1: Compliance Reports Due
- Atlantic Croaker TC – Conduct 2022 Traffic Light Approach analysis for Annual Meeting
- Spot TC – Conduct 2022 Traffic Light Approach analysis for Annual Meeting
- Black Drum TC – August 1: Compliance Reports Due
- Spotted Seatrout PRT – September 1: Compliance Reports Due
- Spot PRT – November 1: Compliance Reports Due

#### TC Members:

**Atlantic Croaker:** Dawn Franco (GA, Chair), Kristen Anstead (ASMFC), Tracey Bauer (ASMFC), Stacy VanMorter (NJ), Michael Greco (DE), Harry Rickabaugh (MD), Ingrid Braun (PRFC), Somers Smott (VA, Vice Chair), Morgan Paris (NC), Chris McDonough (SC), Joseph Munyandorero (FL)

**Black Drum:** Harry Rickabaugh (MD, Chair), Jeff Kipp (ASMFC), Tracey Bauer (ASMFC), Craig Tomlin (NJ), Jordan Zimmerman (DE), Ethan Simpson (VA), Chris Stewart (NC), Chris McDonough (SC), Ryan Harrell (GA), Shanae Allen (FL)

**Red Drum:** Lee Paramore (NC, Chair), Jeff Kipp (ASMFC), Tracey Bauer (ASMFC), Alissa Wilson (NJ), Michael Greco (DE), Robert Bourdon (MD), Ethan Simpson (VA, Vice Chair), Joey Ballenger (SC), Chris Kalinowsky (GA), Roger Pugliese (SAFMC)

**Spot:** Harry Rickabaugh (MD, Chair), Jeff Kipp (ASMFC), Tracey Bauer (ASMFC), Stacy VanMorter (NJ), Michael Greco (DE), Ingrid Braun (PRFC), Somers Smott (VA), Morgan Paris (NC), Chris McDonough (SC), BJ Hilton (GA), Joseph Munyandorero (FL)

**Spotted Seatrout (PRT):** Tracey Bauer (ASMFC), Douglas Lipton (MD), Joey Ballenger (SC), Chris Kalinowsky (GA), Samantha MacQuesten (NJ), Lucas Pensinger (NC)

**SAS Members:**

**Red Drum:** Joey Ballenger (SC, Chair), Jeff Kipp (ASMFC), Tracey Bauer (ASMFC), Angela Giuliano (MD), Lee Paramore (NC), Jared Flowers (GA), Chris Swanson (FL)

**Black Drum:** Harry Rickabaugh (MD, Chair), Jeff Kipp (ASMFC), Tracey Bauer (ASMFC), Margaret Conroy (DE), Chris McDonough (SC), Dr. Hank Liao (VA), Trey Mace (MD), Linda Berry (NJ)

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

**The Westin Crystal City  
Arlington, Virginia**

**May 2, 2022**

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

Draft Proceedings of the Sciaenids Management Board  
May 2022

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**INDEX OF MOTIONS**

1. **Approval of Agenda** by consent (Page 1).
2. **Approval of Proceedings** of August 3, 2021 by consent (Page 1).
3. **Move to accept the Red Drum Simulation Assessment and Peer Review Report** (Page 17). Motion by Spud Woodward; second by Malcolm Rhodes. Motion approved by unanimous consent (Page 17).
4. **Move to approve the nomination to the South Atlantic Advisory Panel of Mary Ellon Ballance from North Carolina** (Page 19). Motion by Jerry Mannen; second by Marty Gary. Motion approved by unanimous consent (Page 19).
5. **Motion to adjourn** by consent (Page 19).

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**ATTENDANCE**

**Board Members**

Joe Cimino, NJ (AA)	Jerry Mannen, NC (GA)
Peter Clarke, NJ, proxy for T. Fote (GA)	Bill Gorham, NC, proxy for Sen. Steinburg (LA)
John Clark, DE, proxy for D. Saveikis (AA)	Malcolm Rhodes, SC (GA)
Roy Miller, DE (GA)	Chris McDonough, SC, proxy for Sen. Cromer (LA)
Lynn Fegley, MD, Administrative proxy, Chair	Doug Haymans, GA (AA)
Russell Dize, MD (GA)	Spud Woodward, GA (GA)
David Sikorski, MD, proxy for Del. Stein (LA)	Hannah Hart, FL, proxy for J. McCawley (AA)
Pat Geer, VA, Administrative proxy	Andy Strelcheck, NMFS
Shanna Madsen, VA, proxy for Sen. Mason (LA)	John Carmichael, SAFMC
Chris Batsavage, NC, proxy for K. Rawls (AA)	

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

**Ex-Officio Members**

Dawn Franco, Chair, Atl. Croaker Technical Committee	Harry Rickabaugh, Chair, Black Drum & Spot Technical Committees
Joey Ballenger, Red Drum SAS Chair	

**Staff**

Robert Beal	Lisa Havel
Toni Kerns	Chris Jacobs
Tina Berger	Jeff Kipp
Kristen Anstead	Dustin Colson Leaning
Tracey Bauer	Sarah Murray
Katie Drew	Mike Rinaldi
Emilie Franke	

**Guests**

Max Appelman, NOAA	Lauren Dolinger Few, NMFS	George O'Donnell, MD DNR
Pat Augustine, Coram, NY	Anthony Friedrich, SGA	Willow Patten, NC DENR
Alan Bianchi, NC DENR	Lewis Gillingham, VMRC	Jill Ramsey, NYS DEC
Karen Bradbury, Ofc of Sen. Whitehouse	Angela Giuliano, MD DNR	Kathy Rawls, NC (AA)
Bill Brantley, NC DENR	Helen Takade-Heumacher, US FWS	Amy Schueller, NOAA
Jeff Brust, NJ DEP	Harry Hornick, MD DNR	Alexei Sharov, MD DNR
Mike Celestino, NJ DEP	Adam Kenyon, VMRC	Ethan Simpson, VMRC
Richard Cody, NOAA	Kathy Knowlton, GA DNR	Somers Smott, VMRC
Margaret Conroy, DE F&W	Tom Lilly	Renee St. Amand, CT DEEP
Heather Corbett, NJ DEP	Mike Luisi, MD DNR	Justin Yost, SC DNR
Derek Cox, FL FWC	Dee Lupton, NC DMF	Chris Wright, NOAA
Steve Doctor, MD DNR	Genine McClair, MD DNR	Eric Zlokovitz, MD DNR
John Duane	Jack McGovern, NOAA	
	Thomas Newman	

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The Sciaenid Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, a hybrid meeting, in-person and webinar; Monday, May 2, 2022, and was called to order at 2:15 p.m. by Chair Chris Batsavage.

#### **CALL TO ORDER**

CHAIR CHRIS BATSAVAGE: Good afternoon, everyone. I would like to call the Sciaenid Management Board meeting to order. My name is Chris Batsavage; I'm the Administrative Proxy from North Carolina. I'll be serving as Chair for this Board. I would like to thank Lynn Fegley, the past Board Chair for her leadership the last couple of years, especially as this Board kind of transitioned from being part of the South Atlantic Board to splitting out the sciaenid's from the coastal pelagics. Thank you for that.

#### **APPROVAL OF AGENDA**

CHAIR BATSAVAGE: Everyone has seen the agenda, just looking for an Approval of the Agenda. Are there any changes or modifications to the agenda? All right, seeing no changes we'll consider the agenda approved.

#### **APPROVAL OF PROCEEDINGS**

CHAIR BATSAVAGE: Next is approval of the proceedings from the August, 2021 meeting. Are there any changes or modifications to those proceedings? Okay, seeing none, then we'll consider those proceedings approved.

#### **PUBLIC COMMENT**

CHAIR BATSAVAGE: Next up is public comment. This is an opportunity for the public to comment on any sciaenid board related information that is not on the agenda today. Is there any public either online or in the room that would like to comment? Okay, seeing none, we'll then move on with the main parts of the agenda.

#### **CONSIDER THE RED DRUM SIMULATION ASSESSMENT AND PEER REVIEW REPORT**

CHAIR BATSAVAGE: Next up will be, Consider the Red Drum Simulation Assessment and Peer Review Report. Joey Ballenger from South Carolina will be giving us a presentation on that very comprehensive work, done over the last couple years to get us to this place. Joey, it's all yours.

#### **PRESENTATION OF RED DRUM SIMULATION ASSESSMENT REPORT**

MR. JOEY BALLENGER: All right, guys, thanks for having me here today to talk about the cumulative effort of a number of folks for the last couple of years, doing a bit of a new approach for simulating a population, and trying to determine what estimation models, assessment models would be best to move forward, given the life history of red drum.

First of all, I just wanted to acknowledge a couple of folks, Jeff Kipp from Atlantic States Marine Fisheries Commission, who pretty much led this process and oversaw the development of operating models. Thom Tears from North Carolina DMF, at least at that time, and Jared Flowers from Georgia DNR, who were primarily devoted to the traffic light analysis approach.

Angela Giuliano from Maryland DNR, who worked with our statistical catch at age model, and Chris Swanson from Florida FWC, who primarily developed our stock synthesis model. With that, as you all know, red drum are one of the most targeted recreational fish throughout the U.S. South Atlantic Region, with a majority of southern states reserving their harvest strictly for recreational anglers. Red drum also have a unique life history, particularly with the shifts in habitat used by fish of different sizes. Juveniles, this being those fish up to a few inches in length, generally being found over a wide salinity range and habitat types, though they tend to inhabit smaller protected water bodies.

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These habitats are felt to offer protection from predators for these small and vulnerable size classes. Juveniles again leave their shallow and nursery habitats at approximately 200 millimeters total length, or about ten months of age, at which time their distribution tends to vary seasonally as individuals grow and begin to disperse.

They become much more common in the proximity of main estuaries salt marsh, and oyster reef habitats, and are predominantly found in lower estuarine habitat. It is at this time, which we will come back to, that they are most vulnerable to exploitation. It is also this period when they are using the widest variety of estuarine habitats overall.

That said, individual fish tend to have very small home ranges forming local schools. Adults tend to spend more time in coastal waters after reaching sexual maturity, though they do continue to frequent inshore waters on a seasonal basis, particularly in association with spawning season. In general, we know a little less about the habitat preference of these fish.

That said, adults again can exhibit high seasonal site fidelity to specific locations around the miles of estuaries during the spawning season, returning to specific locations across years in the same season. Over time the fishery has evolved to primarily target the inshore, coastal salt marsh edge habitats, which are commonly occupied by sub-adult red drum.

These habitats have been targeted by anglers for a number of reasons, including their accessibility to a wide range of recreational anglers, their preference, as far as table fare for red drum, et cetera. Further, particularly getting that this targeting of sub-adult fish has been formalized in management of the species, through the adoption of size slot limits across the region.

This isn't to say there hasn't been and doesn't continue to be targeting of an adult population. The slot limits do not preclude the targeting of

adults in catch and release fisheries, which may be coming more popular. They do preclude the direct harvest of adult fish. Based on this, we have generally felt this segment of the population, the adults, has been less vulnerable to fishing activities.

These age-specific shifts in vulnerability to the fishery due to management regulations and shifts in habitat use has historically led to uncertainty in stock status determinations. This is because the size or age-specific shifts in habitat utilization makes it difficult to disentangle mortality from emigration rates in the transition from inshore habitats to offshore habitats, which also coincides with the transition from immature to mature fish.

Reduced vulnerability in the offshore environment impacts fishery dependent and fishery independent data collection, creating data limitations. These have been addressed in previous assessments using influential assumptions. Further, as we have seen a rise in a rate of catch and release fishing, there are increasing impacts of these data limitations, particularly in regards to the size and age composition of discarded fish. These discards and subsequent dead discards, are increasingly representing a larger proportion of annual removals. Previous assessments demonstrated these management quantities were sensitive to these data limitations and assumptions, leading to generally high uncertainty in overfishing determinations, and no estimates of the reproductive capacity of the stocks being considered reliable for management.

As such, we did not have a status determination relative to the level of depletion of the stock. In other words, we were not be able to determine whether the stock is overfished or not overfished. Given these limitations of previous assessments, high uncertainty on overfishing status determinations, no status determination regarding stock reproductive potential, and scaling issues through the strong model assumption.

The Board tasked the Assessment Science Committee with writing a roadmap for future red

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drum assessments. The resultant roadmap recommended by weighing three potential assessment frameworks through the use of simulation analyses to overcome limitations. The developed road map recommended using simulation models to simulate red drum stocks, with known population dynamics subjected to various exploitation patterns.

These in our terminology are known as our Operating Models. We then would sample the simulated stocks, to mimic the data streams in regards to trends over time and variability from year to year, available to assess the real red drum stocks, using the data streams to assess the simulated stocks to evaluate the reliability of candidate frameworks.

In our terminology, we refer to these as our Estimation Models. The goal of this process was to identify a preferred framework or frameworks for providing management advice during subsequent assessments of the real population. We will try to identify framework to accurately and precisely reproduce stock status determinations of the simulated populations, in terms of fishing mortality rates and spawning stock biomass.

Those that performed well could be reasonably expected to perform well at characterizing the status of the real stocks in future benchmark assessments. With that in mind, I wanted to briefly touch upon how the Stock Assessment Subcommittee developed our Operating Models. Operating Models were constructed from available information on red drum stocks that simulate dynamics of red drum like populations through time, and provide sampling data replicating the data available from the true stocks for stock assessments.

We developed separate Operating Models for each stock of red drum defined in previous Atlantic States Marine Fisheries Commission's assessments, as these stocks differ in terms of life history characteristics and types of fisheries.

Just to highlight some of the main differences in life history between the two stocks: the northern stock has a higher maximum age, which translates to lower natural mortality rates, a larger average length at maximum age, and a younger age at 50 percent maturity, though the northern stock achieves female maturity at larger sizes, owing to their faster growth rates. Each stock's Operating Models were parameterized using information from supporting analyses, the published literature, and past stock assessments, with stock-specific parameters used where possible. For the Operating Models, all parameters were fixed, and therefore treated as known with a specified F time series being used to provide that time series a true population parameter for the simulated stocks.

In other words, with all variables fixed, we have a true time series of fishing mortality rates, spawning stock biomass recruitment, et cetera, that we could compare our performance of our Estimation Models to. Before finalizing the operating models, the fixed parameters were tuned, such that the trends and magnitudes of changes observed in the simulated populations roughly match the trends and magnitudes observed in the real red drum datasets, with roughly equivalent potential annual variability.

I'm just showing a couple of examples here showing the real observed data, this being a northern commercial gill net beach seine catch, retained catch in black, with the yellow simulated data from one of our operating model iterations. Same thing on the right is the Florida recreational catch. They are trying to make sure that simulated data match the trend in overall magnitude of annual variability from year to year, for each of these datasets going in.

Once the Operating Models were finalized, we then sampled each Operating Model 100 times, to create iterations for analysis in the estimations modeling approach. We introduced process errors in these Operating Models, by basically having unique recruitment deviations for each iteration. We then used sampling algorithms to sample the simulated stocks, which we know the status of without error,

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to generate the datasets we have available to assess our real-world red drum populations, our catch series, our indices of abundance, our age composition, size composition, et cetera.

We have roughly the same levels of variability and uncertainty. Once the Operating Models and scenarios were developed, we then could fit the sample data from the simulated stocks to different estimation modeling frameworks to estimate population parameters and assess model performance.

Three of the assessment approaches were selected as candidate estimation models based on their past use, or consideration for red drum assessment, and their suitability to three assessment frameworks recommended in the road map for future red drum stock assessments: a traffic light analysis approach, a custom statistical catch at age model, and an integrated stock synthesis model.

The first of these, a red drum traffic light analysis developed during the assessment, and selected as a model-free indicator assessment framework. For the simulation analysis, the Stock Assessment Subcommittee focused our attention on three traffic light analysis indicators: recruitment condition, which could be assessed using young of the year and Age 1 indices of abundance; spawning stock biomass status, which is assessed using longline survey indices of adult red drum abundance; and fishing mortality status, which was assessed through the use of a relative exploitation metric, which is calculated at the annual harvest of slot size fish divided by index of abundance of slot sized fish.

The major drawback of such a traffic light analysis approach is it only provides categorical estimates of status or condition. It is not a framework that can provide quantitative estimate of stock status, which is the primary goal of most assessments. The Statistical Catch at Age Models used for management advice in the most recent assessment were selected as assessment framework intended

to provide estimates primarily the juvenile and sub-adult portions of the stock.

This model lumps all ages older than Age 6 into a plus group, and do not estimate spawning stock biomass or a link between adults and productivity. In other words, there is no relationship or no stock recruit relationship, spawner-recruit relationship. That said, the model does fit the fishery catch data, age composition data, and fishery dependent and independent indices of abundance.

The primary drawback of this model, particularly for the northern stock, being its reliance on some unique tag-based fishing mortality and catch and release discard selectivity estimates available from a Bacher et al. paper from 2008. Another drawback to this modeling framework, owing to the lack of a spawner recruit relationship, is that there is no estimate of recruitment condition, which we mentioned was available from the TLA, and is also available from the third modeling framework stock synthesis.

The third and final class of estimation model is an integrated assessment framework implemented in stock synthesis. This modeling framework was intended to estimate population dynamics of all life stages of the stocks, meaning recruitment, sub-adult abundance, and adult abundance. These models also fit to observed fishery catch at age data, as well as fishery dependent and fishery independent indices of abundance, as well as fitting to both length and age composition data for indices and fisheries too, allow the analyst to track all age classes in the stock.

Develop annual estimates of spawning stock biomass, and it also links adult productivity to recruitment through an estimated stock recruit relationship. To evaluate the performance of the estimation models across a variety of alternative population dynamics likely to be encountered in future red drum assessments, we developed a number of different operating model scenarios, from which each could be sampled to generate datasets for the estimation model.

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Using the scenario testing approach allows for a unique understanding of the estimation models of different assessment modeling frameworks performance under potential structural differences between a true population, what's occurring in true population being assessed, and the modeling framework being implemented. They might be experiencing a benchmark stock assessment. In other words, it addresses that critical question of model misspecification that we generally did not know when we were dealing with a real-world population.

This type of scenario also allowed us for an evaluation of respective estimation models performance, relative to other models with their own structural differences that are being considered. We developed four classes of operating model scenarios, each with their own purpose. Those being: Developmental Scenarios, Core Population Dynamic Scenarios, Additional Structural Scenarios, and Data Prioritization Scenarios. For the sake of time in this presentation, I'm just providing detail on the Core Population Dynamic Scenarios, since they were the priority for performance evaluation for your Estimation Model. For these Core Population Dynamic Scenarios, six scenarios with alternative population dynamics were prioritized for estimation model performance evaluations.

Each of these scenarios included the assumption of status quo monitoring of the fishery. In other words, unchanged dataset structure moving into the future. One of the current monitoring programs available for the real-world red drum stocks. What ultimately became our base scenario was a scenario that assumed that we had an increasing F early in the projection period, followed by a decrease in F to target levels following a presumed management action.

This scenario was developed as a proxy for recovering stock, and long-term management of the population at target levels. Just to give you a sense of what the population trajectory under this base

scenario looked like, here I'm showing the northern stock spawning stock biomass on the left, and the southern stock spawning stock biomass on the right.

With everything being identical, up until that gray shaded region, which is where we begin our projection period. At that period of time, we saw a relatively short increase in the F period, which caused both of those populations to become depleted, following below that solid dotted line, followed by management action causing the recovery of the stock over the long term.

The heavy black line represents the median estimates from all 100 of those operating model scenarios I mentioned earlier. Each one of those squiggly lines in behind it is one of those 100 different iterations I mentioned earlier, showing that we had slightly different dynamics, depending on the iteration used.

Based off of that, we then developed our additional core population dynamic scenario so it addressed different potential questions regarding the trajectory of the stock based off of either common uncertainties we have in most assessment models, or either future uncertainty in regards to fishing mortality rates.

The first of these was a high F scenario, which is basically the base model minus the decrease in fishing mortality, following that ramp period. In other words, in this model F stabilized at high levels, with a high F being postulated to be maintained due to increased participation in the fishery, which allow you to maintain high Fs through time, despite management action.

The third core scenario was an increase in selectivity scenario. It was a base model once again, but with assuming an increase in vulnerability of adults to catch and release mortality. This was a scenario designed to address the question of whether it's increased targeting of adults, and how in fact it could impact our ability to assess the

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stocks if the assessment model was misspecified with regards to this.

Then there was a misspecified natural mortality scenario, once again with the base dynamics but with lower natural mortality at age. This was a scenario developed to evaluate a primary uncertainty in stock assessment models in general. Next it was a depressed recruitment scenario, which was once again the base model, but will decrease to new lower productivity regime coastwide, with this decrease in stock productivity likely being due to environmental changes, with some evidence that this may be occurring in certain areas today. Then finally we have our 2023 terminal year scenario, which is simply the base model, though the data for assessment models only through 2023.

This was to evaluate the short-term performance of estimation models, which is likely the scenario we'll have in the upcoming benchmark stock assessment, with the data only through 2023 terminal year. Before going into the results, I wanted to also indicate how the performance of the estimation models were evaluated.

We the Assessment Team thought a consistent framework for the evaluation would be key to fairly judging the different assessment approaches. To start with we investigated several metrics related to performance, including convergence rate. The first of these convergence rates was used as a metric that could be used to judge estimation, model stability, and ease of convergence.

I'll just note the percent convergence could only be assessed for the statistical catch at age and stock synthesis estimation models, as the TLA approach is a model-free assessment approach. Just quickly going to the results of the convergence rate. In general, we saw that the stock synthesis model seemed to have a higher convergence rate across all those core population dynamic scenarios, with either a southern or the northern population relative to the statistical catch-at-age model.

This was a bit of a concern for the SCA, given that it hinted at model instability and convergent issues. For the rest of the performance metrics, we initially developed a comprehensive suite of population parameters. It could be calculated from the assessment models. With each of these being potentially used by fisheries managers to evaluate stock status, and thought to evaluate the ability of each estimation model to accurately estimate the population parameter.

However, we ultimately chose to focus estimation model comparisons using eight population parameters, identified as the highest priority based on their importance to fisheries managers. One of these was recruitment condition, which could not be evaluated using the statistical catch at age estimation model, as productivity or recruitment was not related to spawning stock biomass through a spawner recruit relationship in this model.

We then had a population status to match the latest to biomass status, SSB status, which could be calculated from all estimation models. Next, we focused our attention on four fishing mortality status parameters, three-year average spawning potential ratio, or spawners per recruit, which was not available from the TLA, a three-year average SPR status, which could be calculated from all estimation models, a three-year average of F ratios, once again not available from a TLA, and three-year average of status.

Last but not least, the last two population parameters of interest, regarding performance were related to Escapement to the adult population, those being Age 4 Escapement and Age 6 Escapement. For these population parameters we evaluated the ability of the estimation model to match the true estimates from the Operating Model using two performance metrics. The first of these was relative error, with this relative error being viewed at the estimation of model stability to accurately estimate each of our focal population parameters. The relative error represents the estimated value, say spawning stock biomass from the assessment modeling framework, minus the

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true value from the Operating Model, divided by the true value. As such, positive relative error indicates that parameter was overestimated by the estimation model, while vice versa for negative relative error.

As with the convergence rates, relative error could only be calculated from the statistical catch at age and stock synthesis models. Once again, the TLA was a model-free assessment technique. That said, where available we looked at the distributions of relative error across iterations through time, to investigate the potential for consistent bias, changes in bias, and precision at the individual parameter estimates. If you look through the assessment report, you'll see a number of figures that sort of look like this, the example I'm showing up here on the screen right now.

As the Assessment Team was concerned, what we were looking for is small interquartile ranges, those shaded regions between those two different colors, which was indicative of precision estimation of population parameters by a given estimation modeling framework. We were also looking at median relative errors, which in this figure or all these figures in the report represent those dashed lines.

We were wanting to see those dashed lines to be centered around zero, and be very close to zero in general. Then we also wanted to see no trend in bias, just relative error with time. We didn't want to see it to be varying quite a bit through time. The reason I chose this example is because it indicates several features we were actually not looking for when we were looking at performance in the estimation model.

For example, the yellow shaded region and a yellow line is from statistical catch at age model, and in this example the SCA estimates of relative error in the early part of the time series for the northern stock, spawning potential per recruit, we see a strong trend and a relative error, with a statistical catch at age underestimating SPR relative to true population early on in the time series.

This we now know, based on further investigation, is due to the reliance on northern models SCA on the Bacher et al. F estimates and B2 selectivity patterns in the early part of the time series. We were also looking for consistency and scale of bias estimates through time. Not seeing a change in those bias estimates through time.

Would this be an example of parameter where the scale of the bias often changed through time, particularly for the SCA model? In this figure, this is observed by the rapid changes and relative error across time, as pointed out in some cases with the arrow here. What we wanted to see is relatively consistent errors throughout the time series, regardless of changes in underlying population dynamics due to changes of fishing mortality rates.

Here while we see some changes in scale for both models, once again we see more inconsistency and scale estimation across the scenarios for the statistical catch at age, compared to the stock synthesis model. The final class of performance characteristics, or performance metrics to the Stock Assessment Subcommittee, evaluated across estimation models where error rates, where error rate was calculated to the frequency of an error type divided by the number of estimates. Whether those estimates are within a single year, say as you'll see, Type I error divided by 100 if all 100 converged, or across all years, which would be number of years times number of iterations of 50 times 100 or whatever it may be. These are the only class of performance metrics that could be calculated across all estimation models for some key parameters. We define two types of error rates that we are interested in, a Type I error, which was defined as an incorrect status determination, when the true status or condition was deemed favorable.

For example, the estimation model, the assessment models say the stock is experiencing overfishing when the true population is not experiencing overfishing. If you think about that, this suggests the estimation model is more conservative in status determination. The assessment model is more conservative.

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This implies another type of error, which was redefined as a Type II error, where Type II error was defined as an incorrect estimate when true status or condition is unfavorable. For example, the estimation model says a stock is not experiencing overfishing when the true population is experiencing overfishing.

If you think about that, that means that the estimation model, the assessment model is more conservative in status estimation. It should be less likely to suggest that you are in an undesirable situation than what you really are. Here is a typical figure we would be investigating when trying to summarize Type I and Type II error rates of the different estimation models.

While you probably can't read all that, the top row represents the Type I error rate, with each of the sub-plots representing a different core population dynamics scenario. The bottom row represents the Type II error rates. What we would hope to see is relatively low Type I and Type II error rates for a well-performing model across time, particularly during periods when you have a change in stock status. We move from not overfishing to overfishing, or from a not overfished to an overfished state, or vice versa. Further, as the Stock Assessment Subcommittee, we generally put more emphasis on Type II error rates than Type I error rates when making conclusions.

We did this because Type II error, saying a population is in a good place when it really isn't, is more problematic from a stock sustainability point of view. For this example, here I'm showing the spawning stock biomass error rates for the northern population. We tended to see to the SCA, the blue line, overestimated spawning stock biomass for the northern population, leading to generally low Type I error rates, saying it is depleted when it isn't depleted, a very high Type II error rate, saying it's not depleted when it really is depleted.

This would be undesirable in a true assessment framework. Overall, we concluded based on this figure for this example that the stock synthesis

estimation model performs best with scenarios with misspecified natural mortality. Best in scenarios without misspecified natural mortality or stock recruit relationships.

It's starting to show up very well that the green box area on the bottom left, whereas the TLA performed better in these latter scenarios, misspecified natural mortality would depress recruitment. One thing that was consistent when evaluate error rates, is that we saw trending as the models catch up the true status estimates. That leads to the peak and Type II error rates during the beginning of the projection period, in all our core population dynamic scenarios. This is because we were forcing that population to go from a non-depleted status, not experiencing overfishing, to experiencing overfishing and depleted situation.

In most instances the error rates eventually caught up with the stock status, though there was a period of lag. Obviously, we were having eight performance metrics along with six different core population dynamic scenarios, plus a number of other scenarios, and we as an assessment team needed a way to summarize this information into some performance evaluation tables.

To do this we summarized the relative error and error rates of the eight prioritized population parameters to guide final recommendations. Focusing on their performance and the relatively near future, what we've termed the ramp period, which is the period from 2020, we've got to have real data through 2019 for the simulation approach, to 2034, so 2020 through 2034 was our ramp period.

We then summarized relative error as absolute values, with the average scenario specific median values across the ramp period being used as a measure of overall bias from a given estimation model, and the average scenario specific standard deviation across the ramp period being a measure of precision.

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Once again, as I mentioned, we prioritized Type II error rates as this represents more risk to the stocks, and coming to general conclusions. I don't remember exactly what table number this is in the assessment report. This is two tables directly available in the stock assessment report, summarizing those performance metrics across all of the different core population dynamic scenarios, with the bolded and italicized and underlined values being the lowest value for a given estimation model and population.

The top table being the average scenario-specific absolute median relative error or Type II error rate, and the bottom table being the average scenario-specific standard deviation. You'll notice that we only have estimates for all three of those category variables, because that was the only ones, we could get from TLA.

Based off of all of this, we came to some general modeling recommendations. For the development of recommended approaches to characterize the red drum stock status in future benchmark stock assessments, we used the performance of our estimation models, traffic light analysis, statistical catch at age, and stock synthesis models for each stock, as measured using the eight prioritized population parameters mentioned earlier. The evaluations to conduct once again primarily using our core population dynamic scenarios.

That's the reason I focused on those here. However, we used the totality of all the scenarios explored to form our overall conclusions. Herein we summarized the major conclusions, based on the totality of the results from the estimation models. Due to differences in performance of the considered estimation models between stocks, we developed stock-specific recommendations for characterizing stock status in future benchmark stock assessments. We were viewing these recommendations as a guide to workloads, in preparation for the upcoming benchmark. Thought ultimately, we note the preferred approach will depend upon fits to the observed data from in situ stocks available in the benchmark. I'm going to

summarize our recommendations by stock to start with. For the northern stock we recommend pursuing both the stock synthesis and traffic light assessment approaches.

Our analyses identified concerns with specific estimation models. However, we recommend pursuing both the stock synthesis and TLA assessment approach in the upcoming assessment. Note, we do not recommend further pursuing the statistical catch at age model for the northern stock. More specifically, we recommend prioritizing the development of the stock synthesis model.

While this decision was based on many factors, some of the factors that were preeminent in this recommendation was that it generally was a more consistent and accurate performer, and the other estimation models across all population parameters of interest, as well as it generally performed fairly well under the 2023 terminal year scenario, not showing a lack of decrease in precision or bias estimates.

Another big advantage that holds for both the northern stock and the southern stock is the flexibility of the stock synthesis modeling approach, particularly its ability to incorporate additional datasets not considered in the simulation assessment. Most notably, its ability to directly incorporate tag/recapture data into the modeling framework.

We were hoping to be able to incorporate the abundance of tag recapture data available from across the region into our simulated modeling framework. Unfortunately, that was not an option that was made available in the simulation package at this time. As time allows, the Stock Assessment Subcommittee also recommends further development of the traffic light analysis as a supplementary analysis, and as a potential tool for monitoring the stock between assessments.

The TLA was comparable to the stock synthesis model in making spawning stock biomass determinations. It's the second row in that table on

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the bottom right. Though the assessment team did note caution being need to be used when using a TLA to characterize the F status for the northern stock. It did not seem to perform very well at characterizing overfishing status.

One particularly strong point for the TLA that generally outperformed the stock synthesis model when characterizing recruitment conditions, that being the top row in that table on the bottom right. For the southern stock, the Stock Assessment Subcommittee recommended pursuing all assessment approaches considered during the upcoming benchmark. While the SAS still noted concerns with individual estimation models, overall, they had generally very similar performance across the primary population parameters considered.

It was generally more consistent in performance among models as seen in the northern stock, which is shown here in this table on the bottom right. Further, it appeared all models were appropriate for the development of both fishing mortality status and spawning stock biomass status. This in our view, previously you've got to remember we were not using the statistical catch at age model for SSB status determination. The results suggest it may be useful for SSB status determination in the southern stock. That said, the SAS is still recommending using the traffic light analysis only as a supplementary analysis, and as a potential tool for monitoring the stock between assessments. I'll just note, the Review Panel recommended discontinuing development of statistical catch at age model assessment model during the review workshop for the southern stock as well, with more information on the reasoning behind this during the Review Panel reports following this.

Finally, it became apparent in review of the results that models specifically for the southern stock generally provided accurate trends in fishing mortality, spawning stock biomass, and recruitment, even if they did not provide good absolute estimates. As such, this suggested potential alternative management approach for red drum could be developed based on the trends, and

spawning stock biomass fishing mortality, et cetera, relative to a referenced time period.

But it is deemed to be a desirable condition. This is similar to the approach used for the development of stock status recommendations for the ASMFC managed Atlantic menhaden, but that said, we know that work would be needed to define an appropriate time period to develop such a set of reference points, including input from the Board.

We did find some surprising outcomes of the simulation modeling work, and we recommend exploring the cost for trends and bias, one of those being trends and bias of models during periods of big changes in stock dynamics. When we saw change from overfishing to not overfishing or not overfishing to overfishing status, or large changes in the fishing mortality rates in general.

These big changes in stock dynamics were associated with large changes in fishing mortality, leading to changes in performance for estimating stock status across most of the estimation modeling approaches. We just noted that during these real-world shifts, from one stock status to another, it's most crucial to obtain accurate and precise estimates of stock status, and we want it felt as SAS team we would need a further evaluation of why we're getting poor performance in these periods.

We also were asked to develop a prioritized list of recommendations on future monitoring, to improve assessments based off the results of the simulation work. We recommend conducting additional simulations to better understand the model's general insensitivity to longline survey data. This was a bit of an unexpected result.

I haven't spent a whole lot of time in here, but it is something that seems counterintuitive at this point in time. Also, a big concern of previous red drum stock assessments has been the treatment of growth. We did a lot of exploration, trying to determine how influential assumptions of growth patterns for red drum were on the stock assessment estimation models performance.

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Those generally suggested that developing custom growth models, which we had previously identified as a very high priority for red drum, may be a lower priority than other tasks such as exploration of tagging data during the upcoming benchmark. The results also strongly indicate that we need to continue to prioritize the collection of recreational discard size composition data. Inclusion of high-quality discard composition data generally improved the precision of parameter estimates, as one would expect. Last but not least, we anticipate the inclusion of tag/recapture data in a stock synthesis model would improve parameter estimates. As I mentioned earlier, this is a limitation of current operating model and simulation framework we used to develop those operating models, because it had the inability to generate tag/recapture datasets.

In conclusion, this simulation assessment framework was designed to provide guidance to help prioritize workloads during the upcoming benchmark stock assessment. It provides informational uncertainty, not available in traditional stock assessments. But once again I'll note that ultimately, the preferred model or models coming out of the benchmark will depend on diagnostics during the benchmark assessment itself. With that I'd be happy to answer any questions.

CHAIR BATSAVAGE: Thank you, Joey. I appreciate the presentation on the work conducted over the last couple years. I think as you mentioned, this took a lot of people. It was not a light lift by any means. Thank you for that. I'll go ahead and ask if the Board has any questions at this point.

There was a lot of information Joey provided, so I'll give the Board an opportunity for questions now, before going into the Peer Review Report. Then I'll give another opportunity for questions after that. Any question from the Board on Joey's presentation? Yes, John Carmichael, yes, go ahead.

MR. JOHN CARMICHAEL: I'm not on the Board, but I have a question for Joey. I found it interesting that in the northern stock the stock synthesis and

statistical catch at age didn't perform equally, recommending sticking with stock synthesis. But then in the southern, so they both performed equally.

They're saying stick with both, and then discuss like workload prioritization. I would think if you have two models that perform equally, couldn't you just pick one of them to help offset the workload, or are you afraid there might be some added risk, or you may lose some information, not having that comparison?

MR. BALLENGER: Yes, I'll take a stab at trying to address that. I think as the Assessment Team we were a little bit surprised at how comparable the performance of the statistical catch at age model was to the SAS model for southern stock. That said, Amy is going to follow up with the Review Panel.

Some of the investigations there shows there was some inherent bias in the SCA that could not be resolved, even with perfect fitting to the data, like no error in the data still suggests there was some bias. We think we picked up on that a little bit more for the northern stock, because they have those built-in assumptions and reliance on the Bachelier et al. data. It was a little bit freer for the southern population.

Hey, if anybody remembers and was involved with the previous assessment, it had really high uncertainty estimates coming out, and that was a pattern we continued to see for that southern stock SCA. But ultimately, I believe the Review Panel recommended also discontinuing the use of SCA for the southern stock as well, which I think further helps with workload moving forward.

CHAIR BATSAVAGE: Any other questions from the Board?

#### **RED DRUM SIMULATION ASSESSMENT PEER REVIEW REPORT**

CHAIR BATSAVAGE: Okay, what we'll go do now is we'll move on to the Peer Review Report

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presentation. Amy Schueller will be giving that presentation, so Amy, whenever you're ready.

DR. AMY SCHUELLER: I'm going to present the Red Drum Simulation Assessment Peer Review Report. I'm representing as the Chair of the group of folks that reviewed this assessment. I would just like to start off by saying thank you to the Stock Assessment Subcommittee for red drum, they did a great job answering all our questions during the Workshop, and we really appreciate that.

The Red Drum Technical Committee and Stock Assessment Subcommittee developed this new simulation assessment framework to look at their different estimation models and make recommendations. This work was put together in a report, which was then reviewed during March 28th to the 30th in Raleigh, North Carolina.

The review was a scientific review. We really focused on the data inputs, the models themselves, both the simulation and estimation models, and then results and sensitivities from that, looking at the overall quality of the simulation assessment and the ability of the estimation models to fit to data, given the operating models, which I'll use the operating model and estimation model, just as Joey introduced in the last presentation.

Products, the Assessment Report is available as well as the Peer Review Report. The Peer Review Panel consisted of a Chair and three additional reviewers with expertise in red drum ecology and population dynamics, expertise in simulation and stock assessment modeling, as well as stock synthesis expertise.

There is myself, I'm Amy Schueller, I'm from the Southeast Fisheries Science Center of NOAA Fisheries, or the National Marine Fisheries Service. In addition to myself there was Dr. Mike Allen from the University of Florida, Nature Coast Biological Station, Dr. Jie Cao from North Carolina State University at CMAST, and then Dr. Dan Hennen from the NMFS or NOAA Fisheries Northeast Fisheries Science Center.

The overall take home points from the Review Panel are as follows. The operating model appropriately simulated red drum population dynamics, and generated datasets that were useful to assess red drum. I will note that the Review Panel did request the generation of what we're calling, and you'll see in this presentation, perfect data, to use in estimation models.

That was the first request that really came in, which was, please simulate perfect data. Then, how did the estimation models do at getting close to that perfect data, meaning take out the noise and did they perform as we expect them to, which we would expect them to be unbiased, in order to try to look at some of the other sensitivity runs to see if they are robust to that or not. Our other take home was stock synthesis should move forward for the estimation model of choice, to assess both the northern and southern stocks, while the SCA models should not be used. I'll note, stock synthesis is a statistical catch at age model, SCA is a statistical catch at age model, and they are just configured differently and have different properties. In general, the SS fit to the perfect data from the Operating Model for the north, with little and no bias, which is what we hoped for and expected.

In the south, more work is needed to address what is going on in the southern model, and I'll address that later. Then we recommended that the traffic light approach or TLA should be used as an accessory model between assessments, which is what the Stock Assessment Subcommittee also recommended.

I'm just going to walk through each of the Terms of Reference for the assessment. I think there are nine total terms of reference. Basically, I'm going to start off with, what does the Term of Reference refer to, our general panel conclusions, and then whether or not there were any specific recommendations from the Panel moving forward.

Term of Reference 1 looks at the data used in the models and the data uncertainty. The Panel

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conclusions were generally that there was an excellent job done analyzing large and complex datasets, although there is some room for improvement in growth estimation index selection, tagging data analysis, and discard mortality.

We've made a few recommendations here with respect to that. Recommendation Number 1, which is something the Stock Assessment Subcommittee mentioned that they are interested in looking at further is, consider alternative growth curve formulations. We gave some examples of some options they might consider, one of which is bias correcting the growth curves.

Another is modeling pre-maturation separately, so those individuals that are mature versus immature separately. Then modeling size increment data. This is expanded upon within the Review Panel Report. The second recommendation was with respect to the indices, so consider combining indices of abundance using the Conn method, VAST hierarchical modeling, or some sort of dynamic factor analysis.

Particularly in the southern model there are several indices of abundance, and so when you put those into the estimation model it basically splits the difference in the information. We're saying, please consider combining those if they are providing information on the same sizes and/or ages of fish in the model.

This is still Term of Reference 1. Recommendation 3 is to encourage new analyses of the tagging data to obtain estimates of harvest rate information. We have F here in parentheses, so fishing mortality. Estimates of F obtained independently from the assessment could improve model fit and could influence the effects of selectivity curves on the fit to the perfect data.

It's worth additional analysis of existing tagging data, as well as collection of new data using some sort of high-reward tagging programs. Finally, recommendation Number 4 was to improve collection of discard information, specifically of

discard numbers and sizes of individuals. The second Term of Reference was looking at the model parameterization for the simulation model. The general Panel conclusions are that there was a thorough job done parameterizing the simulation model, including difficult parameters such as natural mortality and recruitment compensation. Some uncertainty still exists with respect to the selectivity. Mostly when you look at the regulation changes over time and space, it's a complex matrix and it's hard to summarize that well when you're trying to simulate, basically models are all abstractions of reality, and so we're basically simplifying what's happening in reality, and that can be difficult when we have changes in regulations that are occurring by state or in time.

That leads to Recommendation Number 1 here, which is do some sensitivity analyses to explore how changes in the selectivity curves influence the model predictions when given perfect data. Term of Reference Number 3 is with respect to the simulation model. There are no particular recommendations from this.

But the Panel conclusions were as follows. The Stock Synthesis simulation package, (SSsim) which was what was used for the operating model, is an appropriate method or tool for simulating red drum populations, and generating datasets for use in the estimation models. The Panel felt that it was a good tool, it provided the data that were needed to assess the estimation models appropriately.

The Stock Assessment Subcommittee applied it properly and appropriately and well. We also concluded that the uncertainty in the operating model represented the observed uncertainty that we would see for the population. Therefore, we didn't make any specific recommendations moving forward, with respect to the simulation model for the operating model.

I just commented on the uncertainty here in Term of Reference 3, but Term of Reference 4 is the uncertainty in the simulated population models, and so the Panel concluded that uncertainty was

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handled appropriately, and was well described. The Stock Assessment Subcommittee ran several different scenarios to assess key uncertainties.

Some of those things were things that Joey just talked about, increased fishing pressure, changes in selectivity at age, natural mortality and time varying recruitment. The Panel felt like this was addressed appropriately. The sensitivities that were chosen were the key ones, and we didn't make any further recommendations with respect to this Term of Reference.

Term of Reference Number 5 was with respect to the candidate assessment models. The Panel concluded that the SCA model has limited configurations compared to SS. Give an example here, which was the recruitment. In addition to that, Joey mentioned the SCA model is a 0-6 plus model, and so it's not tracking those adults in the same way that SS would be.

We determined that the application of the assessment methods was appropriate in general, and we did make some further recommendations to consider some of the decisions, I guess that were made in parameterizing and formulating the base run. Recommendation Number 1 was further examination of the estimation of the stock recruitment curve if data are insufficient to inform the estimation of steepness, then fix that at 0.99.

That's just to look at how good that stock recruitment curve is, and whether or not it's reliable. If it's not reliable sort of going to a default assumption. Recommendation Number 2 is to consider alternative start years for the model, such as 1950 or 1991, to assess the impact on robustness of model outcomes. Joey pointed out in his presentation there was some bias in one of the models with respect to the start year. There is some concern that that might be influenced by the tagging data, which started in 1989.

If you skip maybe the first two years of those data and started in 1991, that might reduce some of the bias or if you gave the model longer time series of

landings values, such as starting in 1950, that might also help it with its initialization. The second recommendation is basically looking at robustness of the initialization of the model, in order to see if it has an impact on the overall outcomes.

Term of Reference Number 6 is with respect to the reference points that were provided and chosen, and the Panel conclusions are that the reference points selected were appropriate. We're making the statement that escapement is particularly vital as a reference point given the juvenile-based fishery.

The Review Panel did have some questions with respect to monitoring on an annual versus a three-year basis to sort of look at, does the response metric change substantially if we're smoothing over it in three years or not? We did make the recommendation to monitor both an annual and a three-year moving average of SPR status.

That would hopefully allow you to not make knee-jerk reactions by using sort of that smoothed three-year value. But then if something was going wrong all of a sudden, you would know about it sooner than waiting for that three-year average to come out. Recommendation Number 2 was that the SSB or Spawning Stock Biomass status could be turned into a trend-based reference point, which was something Joey just mentioned.

However, more work needs to be done to identify an appropriate reference period, and to assess the bias in the southern estimation model using the perfect data from the operating model, meaning more work needs to be done on that southern model, to make sure that it is running with the perfect data with no bias.

Once that's done, then there should be input from multiple sources as to what an appropriate reference period should be, and the Review Panel made the statement that that is outside the scope of the Review Panels purview. Term of Reference Number 7 is with respect to the performance metrics used to assess the models.

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The choice of performance metrics was appropriate, and represented standard reference points and metrics used in simulation modeling. We did make the statement, 100 simulations were completed for each model to produce relative error and Type I and II error rates, which may be adequate.

But we really thought that it needed a little bit more exploration to ensure that it was giving the results that were robust. We made a couple recommendations here. One is to increase the number of iterations to 200 and compare that to 100 iterations. Typically, when you're doing assessment simulation framework, you're going to run more simulations than you need, and then sort of assess where the change in the standard error of the outputs is coming to some sort of asymptote. You could run 5,000 and say, oh I only really needed 1,000. In this case we're saying run the 200 and see if the 100 is sufficient.

The second recommendation was to perform several runs of 100 and look at the variability in the relative error and error rates. It's sort of two different ways to look at the question of, is 100 simulations enough to get at how robust these estimation models are for estimating the metrics of this type of a population.

Term of Reference Number 8. This is a preferred assessment model, so there are recommendations here for the SCA, the SS model and then on the next slide there will be recommendations for the TLA. The SCA model seems to be intrinsically biased, even when using perfect data from the operating model. I'll come back to that.

The request by the Review Panel was, provide me perfect data from the Operating Model, stick it in the Estimation Models, and see if we're producing unbiased results. The SCA had difficulty doing that, and so there seems to be some sort of mismatch. The SS model alternatively appears to be unbiased for the northern region. When the perfect data were included from the Operating Model it

produced unbiased estimates that we expected to see.

Then the SS model for the southern region needs further work to provide an unbiased fit to those perfect data. We made some recommendations. Recommendation 1 is do not use the SCA model further. There are some statements in the Review Panel that say things like, with further time and work the SCA model would likely be able to be configured to produce unbiased results.

However, given the restrictions in time and resources, it seems most appropriate to move forward with the SS model. In addition to that, the SS model has more options and configurations for use, which might be useful for red drum. Thus, the recommendation, do not further pursue the SCA model. The second recommendation is to use the SS model to assess the northern and southern stocks, but further work is needed to finalize the model for the southern stock.

In particular, we suggested some look at the growth curve analyses and selectivity, and then there were some counterintuitive results I'll talk about in future slides. This is Term of Reference Number 8 continued. The Review Panel had concern regarding some unexpected outcomes from the sensitivity runs that the Stock Assessment Subcommittee did. In particular in the north the inclusion of discard composition data should have improved the characterization of discards, but ended up resulting in an increased bias.

That didn't make sense, and so that needs to be explored further. In addition, in the southern model of SS, the use of the true growth model meaning the Operating Model was given a specification for growth, and then when the Estimation Model was set up, it was given the same specification, and it resulted in increased bias in the results, which doesn't make sense.

Further exploration of that is needed, which leads me to Recommendation Number 3, determine why counterintuitive results are occurring. The final

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conclusion under this Term of Reference was that the TLA or the traffic light approach can be used as an interim accessory tool. We did make a recommendation for TLA in particular as well, which is TLA used a grid search to look at the reference points, and it used that projection time period in addition. The Review Panel recommended repeating the grid search for TLA using only the pre-2023 years to determine the reference points. Term of Reference Number 9 is the future monitoring. The Panel made the statement that it's difficult to assess future monitoring needs, given the counterintuitive results regarding the longline survey data and the composition information for discards.

Meaning, the improvement and information in those two data sources did not improve the performance of the models, which was confusing. It was difficult for the Review Panel to make recommendations that they felt strongly would improve the outcomes here. The one recommendation we did make is to collect data on individuals in the 70-to-90-centimeter range.

There was an apparent lack of data in that range, meaning if you looked across the data sources that were available, there were a lot of data sources below or above those, that sort of slot but not a lot of data within that range. This data would help to inform age, trends in abundance, selectivity across gears, and hopefully more robust growth analyses.

I guess this brings me to general overall conclusions. It's a high-level overview of the Review Panel Report. The first next step really is that the Stock Assessment Subcommittee needs to work on fitting the SS southern model to the perfect data from the Operating Model, in order to ensure that the estimation model can reproduce the truth. There needs to be work to make sure that that bias is small or 0, and figure out what's going on there.

Once that happens, then the Committee can move forward considering the other recommendations. Specifically, I would suggest or the Review Panel suggests, once the models are behaving properly,

looking at counterintuitive results in the northern and southern region, and why those things are happening. Then adding additional sensitivity runs and additional data analyses looking at growth, tagging data, selectivity, et cetera. I think next slide. I think that leads me to a question slide.

CHAIR BATSAVAGE: Thank you, Amy, appreciate the Peer Review Report. Any questions from the Board on the Peer Review Panel Report? Lynn Fegley.

MS. LYNN FEGLEY: Thank you for that great presentation, there is a lot to unpack. I'm just curious about the recommendation to improve discard estimates. I guess I have a two-part question. Is the recommendation to improve discard estimates, is the thought that that would help with some of the biases that you're seeing? Then I also wondered if the Review Panel or the Assessment Committee discussed at all how discard estimates might be improved.

CHAIR BATSAVAGE: Yes, Amy, and I guess Joey, if you have anything to add to that too. But I'll give it to Amy to answer that for starters.

DR. SCHUELLER: That's a good question, Lynn. We did talk about discards. Let me look at the report again. Some of the members of the Review Panel felt that it was possible that the discard mortality rate might even be a bit high. It was set at 0.08. It says the key need to better quantify the number and sizes of the discarded catch, particularly given the apparent recent increase in anglers targeting large spawning fish offshore. I think this has to do with the fact that it seems to be, or it was characterized to us that there is an increasing catch and release fishery, and what the impacts of that may be. But then there was also comments about, you know if they're fishing in shallow water the discard rate, the discard mortality rate maybe isn't as high. Just getting a better handle on the differences across space and types of fisheries would help. Does that answer your question? Joey or Jeff can feel free to chime in as well.

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The Board will review the minutes during its next meeting.

Draft Proceedings of the Sciaenids Management Board Webinar  
May 2022

CHAIR BATSAVAGE: Yes, Joey, anything to add?

MR. BALLENGER: Yes, I think Amy does a fair job, but I think in the previous assessments of red drum we've identified this rise in the catch and release fishery, a larger component of the overall total removals each year is from this dead discards. While we assumed an 8 percent dead discard rate, we haven't had a whole lot of information of what the size composition of those discarded fish looks like.

If we had a mechanism put into place to where we could get some information from the size composition of those discards, and may better allow us to decrease on the uncertainties in stock status. At least in some areas there is perception that the size composition of the discards may have shifted through time, to where you're seeing more targeting of the adult fish, relative to what you might have seen 10, 15, 20 years ago.

But we really don't have data streams that can really show that very well. If they could institute some type of program to get that information, it could be extremely valuable to the assessment of red drum, just as it would be valuable to the assessment of a number of other species as well. I don't think that's anything new, as far as discard composition information. I think in the regions that I'm most familiar with we're talking about 70-90 percent of the red drum caught are released upon capture. That is a huge component of the fishery.

CHAIR BATSAVAGE: Thanks for that, Joey, Lynn does that answer your question? Great, thanks. Any other questions from Board members? Okay, the Action Item today is to approve this Simulation Assessment and Peer Review Report, to basically get things moving along for the next step, which would be the Benchmark Assessment.

I think at this point I'll be looking for a motion to that effect. Actually, yes. Before I do that, Tracey Bauer, the Plan Coordinator just wants to kind of get next steps, road map so to speak, as far as

where we go after this, assuming that we pass this. Tracey.

MS. TRACEY BAUER: Basically, what we had here, because this is such a new process doing the Simulation Assessment, it's never been done before. We just wanted to walk through what our road map or timeline looks like here. We just did the Simulation Assessment. It evaluates performance of the Assessment approaches using the simulation analysis, which was what was just gone over today.

We got a recommendation for preferred assessment approaches for the red drum assessment. As discussed today, we're hoping completion this year, 2022, after our external ASMFC Peer Review that was held. Moving forward, now the Simulation Assessment is wrapping up, we're looking towards the traditional benchmark stock assessment for red drum. This assessment will apply the assessment approaches recommended, hopefully by the Peer Review Panel, which is looking to be assessed in a traffic light analysis to red drum datasets. Once it's completed it will provide assessment results for management advice. At this time, we're estimating that the terms of reference and a timeline will be provided by summer of 2022, so later this year, at the next Sciaenids Board meeting, when you will review the spot and croaker traffic light analyses, or through an e-mail vote later. This Benchmark Stock Assessment is scheduled for completion in 2024, with a SEDAR Peer Review.

CHAIR BATSAVAGE: Any questions on the road map from kind of where we are now to eventually a Benchmark Stock Assessment? There are no questions. I'll look for a motion. Spud Woodward.

**MR. A. G. "SPUD" WOODWARD: I'll move to accept the Red Drum Simulation Assessment and Peer Review Report.**

CHAIR BATSAVAGE: Thank you, Spud, second by Malcolm Rhodes. Any discussion on the motion? No discussion, is there any objection by the Board

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The Board will review the minutes during its next meeting.

to this motion? **Seeing no objection, then the motion passes by unanimous consent.** Thank you for that, and again, thanks to everyone again for the hard work on this.

Look forward to this as it progresses over the next couple years, as we move forward to a benchmark assessment. This is a pretty big change in the assessment techniques we have for red drum, so this is good. I think Tracey that's everything for this agenda item, okay for red drum.

### **PROGRESS UPDATE ON THE BLACK DRUM BENCHMARK STOCK ASSESSMENT**

CHAIR BATSAVAGE: Great, so next up for the meeting today is a Progress Update on the Black Drum Benchmark Stock Assessment. Jeff Kipp will be giving us an update on that, so Jeff, whenever you're ready, please go ahead.

MR. JEFF J. KIPP: For those I don't know, I'm Jeff Kipp. I'm the Science Staff Member here at the Commission on black drum. I'll just be giving an update on where we are with the stock assessment on black drum. It's roughly halfway through the process. The Technical Committee and Stock Assessment Subcommittee met for a data workshop back in December of last year and a Methods Workshop in February of this year.

Since the Methods Workshop, a Working Group of SAS and TC members have been working on identifying and structuring indicators that will be recommended in the stock assessment for providing annual updates on the stock condition between assessment years, which was a new unique term of reference added for this black drum assessment.

Additionally, the Stock Assessment Subcommittee has been working on development of several assessment methods identified and discussed during the Methods Workshop, and will be meeting actually in a few weeks for a progress webinar, to check on the progress of those assessment methods.

The next major milestone for this assessment will be our Assessment Workshop, which is tentatively set for July, and the assessment is scheduled to be completed and peer reviewed in December of this year, and presented to the Board at the ASMFC winter meeting in 2023. That concludes my update on the black drum assessment, and I would be happy to answer any questions on that assessment.

CHAIR BATSAVAGE: Any questions on the progress of the black drum benchmark stock assessment? Seeing no questions, definitely quite a few stock assessments heading our way in the coming next couple years for this Board. That's great.

### **REVIEW AND POPULATE THE ADVISORY PANEL MEMBERSHIP**

CHAIR BATSAVAGE: Next up is to review and populate the Advisory Panel membership. I'll turn it to Tina Berger for the nomination for the Advisory Panel. Tina.

MS. TINA L. BERGER: I offer the Board one nominee to the South Atlantic Species Advisory Panel, and that is Mary Ellon Balance, a commercial pound netter from North Carolina. While she primarily targets summer flounder, she also often incidentally catches black drum, red drum and sometimes spotted sea trout and Spanish mackerel. The nomination form was in your packet of materials under supplemental, and I offer her for your approval.

CHAIR BATSAVAGE: Thanks, any questions on the nomination? Is that a motion or a question?

MR. JOHN CLARK: I just had a question, Chris. Is it still called the South Atlantic Advisory Panel, even though we've broken it up? Oh, okay, just checking.

CHAIR BATSAVAGE: Yes, John, yes, it is. Still a lot of connectivity in the fisheries between the sciaenid's and the coastal migratory species. They're keeping that as a single Advisory Panel, so that's a great question, thank you for that. If there are no further questions, I'll look for a motion. Jerry Mannen.

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**MR. JERRY MANNEN: I move to approve the nomination to the South Atlantic Advisory Panel, Mary Ellon Balance from North Carolina.**

CHAIR BATSAVAGE: Can I get a second? Marty Gary. Any discussion on the motion? Any opposition to the motion? **Okay, then Mary Ellon is approved by unanimous consent.** Thank you. All right, last up is any additional business for the Sciaenid Board? Is there any additional business to bring up today? That concludes our business for today.

Before we conclude, I meant to do this earlier, but I wanted to introduce and welcome Tracey Bauer, ASMFCs one of the newest FMP Coordinators. She's FMP Coordinator for the Sciaenid's Board and you probably couldn't see in online, or even in the room. She was working to make sure that she kept me straight here, and did a good job of that. I appreciate the support she provided during the meeting today.

#### **ADJOURNMENT**

CHAIR BATSAVAGE: With no other business, I will call this meeting adjourned. Thanks everyone.

(Whereupon the meeting adjourned at 3:45 p.m. on  
Monday, May 2, 2022)

# Atlantic States Marine Fisheries Commission

## ISFMP Policy Board

August 4, 2022  
10:15 a.m. - 1:15 p.m.  
Hybrid Meeting

### 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 (*S. Woodward*) 10:15 a.m.
2. Board Consent (*S. Woodward*) 10:15 a.m.
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment 10:20 a.m.
4. Executive Committee Report (*S. Woodward*) 10:30 a.m.
5. Consider Changes to the Appeals Policy (*R. Beal*) **Final Action** 10:40 a.m.
6. Report from *De Minimis* Work Group (*T. Kerns*) **Possible Action** 10:50 a.m.
7. Update on East Coast Climate Change Scenario Planning (*T. Kerns*) 11:05 a.m.
8. Review of NOAA Fisheries' Climate Ecosystem Fisheries Initiative (*J. Hare*) 11:15 a.m.
9. Update on the Risk and Uncertainty Policy (*J. McNamee*) 11:25 a.m.
10. Committee Reports 11:40 a.m.
  - Legislative (*B. Hyatt*)
  - Habitat (*L. Havel*) **Action**
  - Atlantic Coast Fish Habitat Partnership (*L. Havel*)
  - Assessment Science (*S. Murray*) **Action**
11. Consider Providing Comments to NOAA Fisheries on Atlantic Sturgeon Bycatch Working Group Draft Action Plan, if necessary (*T. Kerns*) **Possible Action** 12:25 p.m.
12. Review of Blue Catfish Science in the Chesapeake Bay 12:30 p.m.  
(*M. Bromilow, C. Densmore, M. Groves*)
13. Review of NOAA Fisheries' Draft Equity and Environmental Justice Strategy 1:00 p.m.  
(*S. Benjamin*)
14. Review Noncompliance Findings (If Necessary) **Action** 1:10 p.m.
15. Other Business/Adjourn 1:15 p.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click [here](#) for details

# MEETING OVERVIEW

ISFMP Policy Board  
Thursday August 4, 2022  
10:15 a.m. -1:15 p.m.  
Hybrid Meeting

Chair: Spud Woodward (GA) Assumed Chairmanship: 10/21	Vice Chair: Joe Cimino (NJ)	Previous Board Meetings: May 5, 2022
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 May 5, 2022

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

## 4. Executive Committee Report (10:30-10:40 a.m.)

### Background

- The Executive Committee will meet on August 3, 2022

### Presentations

- S. Woodward will provide an update of the Executive Committee's work

### Board action for consideration at this meeting

- none

## 5. Consider Changes to the Appeal Process Final Action (10:40-10:50 a.m.)

### Background

- The ISFMP Charter includes an opportunity for a state to appeal species management board decisions. A process was implemented in 2003 and revised to clarify appeal criteria.
- After the 2021 appeal decision regarding black sea bass commercial allocation, it was suggested additional improvements to the process may be appropriate.
- The Executive Committee has discussed and drafted a revised Appeals Process (**Briefing Materials**).

**Presentations**

- R. Beal will present the revised Appeals Process

**Board action for consideration at this meeting**

- Approve the revised Appeals Process

**6. Report from De Minimis Work Group Possible Action (10:50-11:05 a.m.)****Background**

- The Commission includes de minimis provisions in interstate FMPs to reduce the management burden for states that have a negligible effect on the conservation of a species. The de minimis provisions in FMPs vary by species and include a range of requirements for management measures, reporting requirements, and de minimis qualification periods.
- Past Policy Board de minimis discussions focused on the balance between standardization across FMPs and the flexibility for the species management boards in developing de minimis provisions.
- The Policy Board tasked a Work Group to provide a recommendation for addressing de minimis that addresses the concerns raised by the Board which were presented in May. Based on the recommendations the Board tasked staff to draft a white paper with options for a draft policy.

**Presentations**

- T. Kerns will present the De Minimis White Paper (**Supplemental Materials**)

**Board action for consideration at this meeting**

- Consider White Paper Options

**7. Update on East Coast Climate Change Scenario Planning Initiative (11:05-11:15 a.m.)****Background**

- In November 2020, the Northeast Region Coordinating Council (NRCC) initiated a region-wide scenario planning initiative. Through this East Coast Climate Change Scenario Planning Initiative, fishery managers and scientists are working collaboratively to explore jurisdictional and governance issues related to climate change and shifting fishery stocks.
- The specific focus of this scenario project is (i) to assess how climate change might affect stock distribution, availability and other aspects of east coast marine fisheries over the next 20 years, and (ii) to identify what this means for effective future governance and fisheries management.
- [A scoping process](#) was conducted in Fall of 2021 to introduce the initiative to stakeholders, to seek input on the draft project objectives, and to solicit input from stakeholders on factors and issues that might shape the future of East Coast fisheries. A summary of the scoping process and input received can be found [here](#).
- The Exploration Phase was conducted in spring, where three webinars were held that focused on identifying and analyzing the major drivers of change in depth which served as the “building blocks” for the scenario creation workshop.
- A [Scenario Creation Workshop](#) was held in June, where through a series of conversations and exercises, over 70 participants created a set of scenarios that describe how climate change *might* affect East Coast fisheries in the next 20 years.

Each scenario describes a different way in which changing oceanographic, biological, and social/economic conditions could combine to create future challenges and opportunities for East Coast fisheries.

**Presentations**

- T. Kerns will provide an update of the initiative and next steps

**Board action for consideration at this meeting**

- None

**8. Review of NOAA Fisheries' Climate Ecosystem Fisheries Initiative (11:15-11:25 a.m.)**

**Background**

- [The Climate, Ecosystems, and Fisheries Initiative](#) is a cross-NOAA effort to build the operational ocean modeling and decision support system needed to reduce impacts, increase resilience, and help marine resources and resource users adapt to changing ocean conditions.

**Presentations**

- J. Hare will present the initiative

**Board action for consideration at this meeting**

- None

**9. Update on Risk and Uncertainty Policy (11:25-11:40 a.m.)**

- At the 2020 Summer Meeting, Commissioners supported the continued development of the draft Risk and Uncertainty Policy and Decision Tool. The Policy Board tasked the Risk and Uncertainty Policy Workgroup with further refining the criteria for the Risk and Uncertainty Decision Tool and updating the striped bass example.
- In the Winter of 2021, the Board reviewed the draft Risk and Uncertainty Policy. The Board determined the Policy was ready for a test run and tasked the Tautog Management Board to use the Policy in conjunction with 2021 Tautaug Stock Assessment Update.

**Presentations**

- J. McNamee will present a summary of the pilot of the Policy and recommendations

**Board action for consideration at this meeting**

- none

**10. Committee Reports (11:40 a.m.- 12:25 p.m.)**

**Background**

- In 2022, the **Legislative Committee** has engaged Congress on the Recovering America's Wildlife Act, the Forage Fish Conservation Act, the Shark Fin Sales Elimination Act, and FY22, FY23, and 24 Appropriations. It provided talking points and background information for Commissioners to interact with Congressional staff and facilitated several virtual interactions.
- The **Habitat Committee** met in June. The Committee has completed the update to the 2018 ASMFC State Climate Change Initiatives Gaps and Recommendations Report (**Briefing Materials**) and the Fish Habitats of Concern designations for Commission-managed species and Atlantic sturgeon

- Atlantic Coast Fish Habitat Partnership’s Steering Committee met in Summer 2022. The FY2022 National Fish Habitat Partnership funded projects were announced earlier this year.
- The Stock Assessment Committee met to review the upcoming Commission stock assessment and made adjustments due to work load.

**Presentations**

- B. Hyatt will provide an update of the Legislative Committee’s work in 2022
- L. Havel will provide an update of the Habitat Committee’s work and present the two reports
- L. Havel will provide an update of the ACFHP’s work
- S. Murray will provide an update of the Stock Assessment Committee’s work  
**(Supplemental Materials)**
- K. Drew and K. Anstead will update on the progress of the River Herring and American Eel stock assessments

**Board action for consideration at this meeting**

- Consider approval of the update to the 2018 ASMFC State Climate Change Initiatives Gaps and Recommendations Report
- Consider approval of the updated stock assessment schedule

**11. Consider Providing Comments to NOAA Fisheries on Atlantic Sturgeon Bycatch Working Group Draft Action Plan Possible Action, if necessary (12:25-12:30 p.m.)**

**Background**

- NOAA Fisheries will review the Atlantic Sturgeon Bycatch Working Group Draft Action Plan on Tuesday August 2.

**Presentations**

- T. Kerns will provide an update of the Commissions discussion regarding the Draft Action Plan

**Board action for consideration at this meeting**

- Consider Comments to NOAA Fisheries on the Draft Action Plan

**12. Review of Blue Catfish Science in the Chesapeake Bay (12:30-1:00 p.m.)**

**Background**

- The NOAA Invasive Catfish Working Group, the U.S. Geological Survey’s Eastern Ecological Science Center, and Maryland DNR are conducting science related to invasive blue catfish predation/diet, life history, movement, and mitigation strategies in the Chesapeake region **(meeting materials)**.

**Presentations**

- M. Bromilow will provide an overview of the NOAA Chesapeake Bay Office Invasive Catfish Workgroup and related science activities.
- M. Groves will present on blue catfish monitoring and biological data collection in Maryland’s tidal tributaries of the Chesapeake Bay.
- C. Densmore will present on USGS science examining blue catfish health and disease, reproduction, and diet

**Board action for consideration at this meeting**

- None

**13. Review of NOAA Fisheries' Draft Equity and Environmental Justice Strategy (1:00-1:10 p.m.)**

**Background**

- NOAA Fisheries is committed to advancing equity and environmental justice, including equal treatment, opportunities, and environmental benefits for all people and communities, while building on continuing efforts and partnerships with underserved and underrepresented communities. To help guide their work, they developed the [Equity and Environmental Justice Strategy](#). This strategy describes the path that we will take to incorporate equity and environmental justice into the vital services we provide to all stakeholders.

**Presentations**

- S. Benjamin will provide a review of the draft strategy

**Board action for consideration at this meeting**

- None

**14. Review Non-Compliance Findings, if Necessary Action**

**15. Other Business/Adjourn**

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

**The Westin Crystal City  
Arlington, Virginia**

**May 5, 2022**

These minutes are draft and subject to approval by the ISFMP Policy Board.  
The Board will review the minutes during its next meeting.

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## INDEX OF MOTIONS

1. **Approval of agenda** by Consent (Page 1).
2. **Approval of Proceedings of January 27, 2022 Webinar** by Consent (Page 1).
3. **Move to adjourn** by Consent (Page 53).

These minutes are draft and subject to approval by the ISFMP Policy Board.  
The Board will review the minutes during its next meeting.

## ATTENDANCE

### Board Members

Megan Ware, ME, proxy for P. Keliher (AA)	Roy Miller, DE (GA)
Steve Train, ME (GA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Sen. David Miramant, ME (LA)	Mike Luisi, MD, Administrative proxy
Cheri Patterson, NH (AA)	Dave Sikorski, MD, proxy for Del. Stein (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Pat Geer, VA, Administrative proxy
Dan McKiernan, MA (AA)	Shanna Madsen, VA, proxy for Sen. Mason (LA)
Raymond Kane, MA (GA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
Jason McNamee, RI (AA)	Jerry Mannen, NC (GA)
David Borden, RI (GA)	Bill Gorham, NC, proxy for Rep. Steinberg (LA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Mel Bell, SC (AA)
Matt Gates, CT, proxy for Justin Davis (AA)	Chris McDonough, SC, proxy for Sen. Cromer (LA)
Jim Gilmore, NY (AA)	Doug Haymans, GA (AA)
Joe Cimino, NJ (AA)	Spud Woodward, GA (GA)
Tom Fote, NJ (GA)	Hannah Hart, FL, proxy for J. McCawley (AA)
Kris Kuhn, PA, proxy for T. Schaeffer (AA)	Marty Gary, PRFC
Loren Lustig, PA (GA)	Karen Abrams, NMFS
John Clark, DE (AA)	

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

### Staff

Robert Beal	James Boyle	Jeff Kipp
Toni Kerns	Pat Campfield	Sarah Murray
Tina Berger	Emilie Franke	Caitlin Starks
Maya Drzewicki	Lisa Havel	Deke Tompkins
Kristen Anstead	Chris Jacobs	

### Guests

Debra Abercrombie, US FWS	Michelle Duval, MAFMC	Kathy Knowlton, VMRC
John Almeida, NOAA	Lynn Fegley, MD DNR	Wilson Laney
Max Appelman, NOAA	Cynthia Ferrio, NOAA	Meghan Lapp, Seafreeze Ltd
Pat Augustine, Coram, NY	Dawn Franco, GA DNR	Tom Lilly
Linda Barry, NJ DEP	Alexa Galvan, VMRC	Chip Lynch, NOAA
Julia Beaty, MAFMC	Lewis Gillingham, VMRC	Kim McKown, NYS DEC
Rick Bellavance, Kingstown, RI	Angela Giuliano, MD DNR	Nichola Meserve, MA DMF
Alan Bianchi, NC DENR	Jay Hermsen, NOAA	Steve Meyers
Colleen Bouffard, CT DEEP	Helen Takade Heumacher	Mike Millard
Jeff Brust, NJ DEP	Jesse Hornstein, NYS DEC	Henry Milliken, NOAA
Laura Cimo, NOAA	Robert Jeter	Brandon Muffley, MAFMC
Heather Corbett, NJ DEP	Ellen Keane, NOAA	Thomas Newman
Kiley Dancey, MAFMC	Emily Keiley, NOAA	Adam Nowalsky, NJ
Maureen Davidson, NYS DEC	Adam Kenyon, VMRC	Derek Orner, NOAA

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The Board will review the minutes during its next meeting.

**Guests (continued)**

Jainita Patel, VIMS  
Michael Pierdinock  
Nicholas Popoff, US FWS  
Will Poston, SGA  
Jill Ramsey, VMRC

Kathy Rawls, NC (AA)  
Jason Rock, NC DENR  
Tara Scott, NOAA  
Alexei Sharov, MD DNR  
Somers Smott, VMRC

Carrie Upite, NOAA  
Craig Weedon, MD DNR  
Chris Wright, NOAA  
Renee Zobel, NH FGD

The Interstate Fisheries Management Program Policy Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, a hybrid meeting, in-person and webinar; Thursday, May 5, 2022, and was called to order at 8:30 a.m. by A.G. "Spud" Woodward.

### **CALL TO ORDER**

CHAIR A. G. "Spud" Woodward: Well good morning, everyone. For those of you that are participating virtually, this is Spud Woodward, Commission Chair. I want to call to order the meeting of the ISFMP Policy Board.

### **APPROVAL OF AGENDA**

CHAIR WOODWARD: Our first order of business this morning is approval of the agenda.

We do have one modification to the agenda under Other Business, and that is to discuss the proposed CITES listings of some shark species, as well as dogfish and eel, and we'll do that at the end of the meeting.

Everyone should have received a copy of the proceedings from our January, 2022 meeting. Excuse me, let me back up. Any opposition to accepting the agenda as I just described it and modified? I don't see any, we'll consider it accepted by consent.

### **APPROVAL OF PROCEEDINGS**

CHAIR WOODWARD: Next would be approval of the proceedings from our last meeting.

Any modifications, edits to the proceedings, if so, raise your hand or let us know virtually. I don't see anything, none virtually, no hands raised, so any opposition to accepting the proceedings as presented? I don't see any hands, so we'll accept those by consent.

### **PUBLIC COMMENT**

CHAIR WOODWARD: Now is our opportunity for public comment. Anyone present or virtual that would like to make public comment? I see we have one person virtually, Mr. Lilly. We'll give you three minutes for your comment, so you can proceed whenever you're unmuted.

MR. THOMAS LILLY: This morning I will be discussing the fact the Menhaden Board is proceeding with state allocations just based on historic landings, and not based on how the allocation to Virginia affects Chesapeake Bay or the social and economic life of Marylanders, as Charter Section 6A requires.

The Committee on Economics and Social Services should be asked to determine the social and economic consequences of moving the factory fishing to the U.S. Atlantic Zone, compared to continuing to allow it to fish in the Chesapeake Bay. That is a basic thing they should be doing. There is no evidence that removing 50,000 tons of menhaden from the Bay's food supply benefits the fish and wildlife of Chesapeake Bay.

But, that Committee can determine the social consequences of the scientifically proven fact that menhaden depletion in the Bay is causing widespread osprey chick starvation. They can find that sick and starving ospreys diminish the quality of life for the estimated 30 million contacts people have with the Bay's 5,000 nesting ospreys each year. There is no evidence that removing the menhaden from the Bay is good for the striped bass spawning stock or the watermen, the charter captains or the anglers, and the CESS could well determine the economic and social cost to Marylanders of decreased abundance of wildlife in their Bay over the last ten years.

There is evidence from which the CESS can find that ensuring a stable, plentiful supply of menhaden to protect the spawning striped bass could aid in the stock's recovery. Having them fish in the U.S. Atlantic would implement the advice you got from your consultant 13 years ago. If fishing got fun

again, just a 10 percent improvement in fishing for stripers, which is very poor right now in Maryland, could lead to a million more days salt water fishing for Marylanders, as fishing success improves.

A hundred thousand days for children and seniors at least, that is what the CES should be looking into, folks. That is the thing that is important. Really important for our natural resources is how it effects the people and their children. They could find that this would generate hundreds of millions of dollars of economic activity in Maryland.

As I said it would impact a million anglers, hundreds of thousands of children, and a hundred thousand jobs on the Atlantic Coast. The CES should determine if more day's fishing and enjoying the wonders of Chesapeake Bay would lead to scientifically proven mental and physical health benefits, especially for tens of thousands of Maryland children who would be fishing more or just learning how.

I'm almost done. All of this research is available, and should be put together for the Menhaden Board by the CESS, to fulfil your charter obligations to allocate menhaden where it does the most ecological, economic and social good. Thank you all very much, have a great meeting.

CHAIR WOODWARD: Thank you, Mr. Lilly. Any other hands raised virtually, Toni? All right, we don't see any more public comment so we'll move along.

#### **EXECUTIVE COMMITTEE REPORT**

CHAIR WOODWARD: Our next agenda item is my Executive Committee Report. The Executive Committee met yesterday morning. After approval of the agenda and the proceedings we had no public comment.

Laura Leach presented the proposed budget for fiscal year 2023. That budget was based on the

Action Plan that the Commission had approved earlier, as well as current staffing and administrative needs, and was unanimously approved by the Executive Committee. The next item we had was to review the latest proposed revisions to the Appeals Policy.

The Executive Committee has talked about this for, I guess the last six months to a year during our online meetings, and after some discussion those proposed revisions were accepted, and we're bringing that to the Policy Board, and you'll see that a little later in the agenda. We also discussed the results of the De Minimis Work Group's efforts. Toni presented that.

She will give you an update on that, so I don't want to steal her thunder. Then, we actually went to Other Business, and Jim Gilmore discussed briefly some letters of concern that are going out to Secretary of Commerce and the NOAA Assistant Administrator for Fisheries on scup and black sea bass. I'll give him an opportunity if you want to discuss that later on under Other Business as well. Last, but certainly not least, we did the Executive Director's Performance Review. I think you would all agree with the findings of the Executive Committee that we found Bob continues to do a great job, we're glad to have him. He continues to help us navigate through some difficult waters. With that, that concludes my report.

#### **CONSIDER CHANGES TO THE APPEALS POLICY**

CHAIR WOODWARD: Any questions about the Executive Committee? Okay, not seeing any, the next agenda item is, as I mentioned, to consider changes to the appeals policy. Bob sent out the latest draft of the policy last night, and I'm going to turn it over to him so he can walk us through it. My hope is that we can make a decision and approve that, and that will become our new policy.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I'll be working off the document that I sent around last night. If you didn't get it, raise your hand and we can forward that to you. The quick background on this issue is, obviously the Commission has had the

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appeals process for a while. However, we've only had one example of the appeals process being used from start to finish, if you want to call it that, and that was a black sea bass appeal from the state of New York.

That one was brought forward. Just to review how the process works, if a state feels aggrieved or concerned about a decision at a species management board, they file an appeal. That appeal has an initial review by the Chair, the Vice-Chair and the immediate past Chair, and they decide if it's a viable appeal and it should move forward to the Policy Board.

If it is viable, moves forward to the Policy Board, the Policy Board reviews the appeal, and determines if any corrective action is needed. If the Policy Board finds in favor of the appeal and corrective action is needed, they refer that back to the species management board that originally made the decision, with some guidance on what needs to be changed and what corrective action needs to be taken.

The species management board then gets together, considers the appeal, considers the guidance from the Policy Board. The species management board is obligated to take action. They can't get the appeal back from the Policy Board, go meh, you know we looked at it. We really feel our original decision was good enough, we're going to stick with it.

They have to make the change consistent with what the charge is from the Policy Board. All those steps happened in the case of black sea bass from New York. It went through all those steps to the species management board, and corrective action was taken and the addendum was modified. Following that experience, as John Clark put it yesterday, sample size of one.

You know there were some concerns and some process things that a number of states wanted to talk about and kind of review, and say, you know did the appeals process work, kind of as we all had envisioned it when it was developed

over the years. There were a few things that the Executive Committee has agreed would probably benefit from some updating and some changes, and I'll go through those pretty quickly.

As I mentioned in my e-mail last night, you know everything is kind of memorialized here through tracked changes. The first change is on Page 3, and in the New York instance there was, since Jim Gilmore was the immediate past chair in that instance, the initial review of the Chair, Vice-Chair and immediate past Chair, obviously it didn't make sense to have one-third of those votes coming from the state that actually filed the appeal. We added language that if Chair, Vice-Chair, immediate past Chair is a signatory to the appeal, the Chair of the Commission can select an alternate, and that is what happened in this case. We asked Mel Bell to participate in that as a southern representative with kind of not a dog in the fight, so to speak.

That is a suggested change. Also, a little bit higher in that paragraph, early on when we developed this document the idea was certified mail, you would actually have to get a receipt and sign for it and all these other things. But the reality is, we communicate a lot with e-mail now, and there is a time stamp and everything else on that, so e-mail works just fine, or at least it is suggested that way.

When you get on to Page 4, this is kind of really the meat of the significant changes that are being proposed. In the black sea bass example, there was some question about the range of alternatives and the latitude that the species management board had to operate in when the appeal was referred from the Policy Board back to the species board.

How much operating room did they really have? Did they really have to just pick one of the options that was presented in the Public Hearing Document? Could they go within the range of those documents? Could they sort of hybridizes some of the different issues that were there, and mix and match so to speak?

That is one of the main areas of concern is that range that the management board had to operate

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in. You know we've talked about that quite a bit at the Executive Committee, and came up with a few options, sort of the species board, Option Number 1 would be limited to the management options as written in the draft amendment.

Very strictly, you pick one of those options and that's what you go with. Option 2 is that the species management board would have sort of the ability to operate within the range of alternatives that were presented in the draft amendment or addendum. Then the third option is that if the Policy Board requires a management board to take specific corrective actions, the scope of potential corrective actions must be consistent with the presentation of management options as provided in a public draft amendment or addendum.

Option 3 is what the Executive Committee is recommending that the Policy Board approve, as part of the changes to this document. Option 3 kind of creates the scenario where it obligates staff and the management boards to take action early in the process, where as we develop a draft addendum or amendment for public comment, we need to include a very specific description of how the different options interact. Do you just pick A, B, or C, or can you pick something within that range of A, B, and C?

Can you mix Issue 1 and Issue 2 and kind of smear those together a little bit? That has to be up front in any new addenda or amendments that are going to go out for public comment or new FMPs. Then when we get to the appeals process, we just refer back to that section that very specifically says what can and can't be done, as far as mixing and matching options and picking within the range and those sorts of things. That is the idea with Number 3. Again, that's what's recommended by the Executive Committee for the Policy Board to consider and potentially approve. Moving on down through Page 4. There was a lot of discussion about kind of what if. What if you get to the management

board and they can't make a decision? They can't take the corrective action that they're obligated to do by the direction from the Policy Board.

There are kind of three scenarios, and all three of these are being recommended to be added to the appeals process. This isn't select one or the other, it's let's add all three of these and provide that latitude to the species management board, and I'll quickly go through those. The first scenario is that the management board, species board gets together and they can't decide.

They now have the ability to go back and request additional information from the Policy Board, say we don't exactly understand what you're asking us and obligating us to do. They can go back to the Policy Board, ask some questions, and then be redirected by the Policy Board or clarified by the Policy Board on what they need to do.

Second scenario is that the management board gets together, and they simply can't come to a resolution. They can't meet the obligation of the Policy Board. Then the issue would refer back to the Policy Board, and the Policy Board would make the final decision on what changes to accommodate the appeal and make corrective actions would take place.

Then the third scenario is, management board gets together, they are considering different options. They say you know what, we need some more analysis. We need more technical information on exactly the different impacts of some of these different options that we have the ability to pick.

They can request back to one of the technical support groups, either Technical Committee for that species or Management Science Committee or Assessment Science Committee, or whatever the right group is to provide some information that they need, to be able to take that final action and corrective action that they are obligated to take.

Again, the suggestion is to add all three of those, rather than pick one or two of them. All three of them can be added, and they are all different sort

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of courses that could take place in the future. Then moving on to Page 5, there is just some added language about sort of the timeline of, if the management board requested one of those different three scenarios that I just talked about.

We would have to add essentially one meeting cycle to this process, where we would have to go back to the Policy Board and get more guidance, we would have to go back to the Technical Committee and get the additional analysis. But the hope is that we would be able to do that quickly enough, where we would only delay the appeal one meeting cycle.

Then the species board or the Policy Board could get back together at the next meeting and make final decisions. That is kind of a lengthy description of what's in here. But I think it's important, and then a number of members of the Policy Board haven't heard this description yet, even though the Executive Committee has talked about it a lot.

CHAIR WOODWARD: As Bob said, I mean we've talked about this at length at the Executive Committee over a long period of time, so a lot of this has been thought through. But we certainly want to make sure that the Policy Board members fully understand what these changes mean and the consequences thereof. Dan.

MR. DANIEL McKIERNAN: Bob, since we've become masters of the virtual meeting, might you be able to hold a virtual meeting of the Policy Board, and not have to go through another meeting cycle?

EXECUTIVE DIRECTOR BEAL: Absolutely. I think that is possible. You know I think one scenario would be the species board gets together, they want some more guidance from the Policy Board. We could have the Policy Board meeting virtually in the interim between quarterly meetings, and then have the species board get together at that subsequent meeting, and

follow up on the additional guidance from the Policy Board. I think that is absolutely a viable option.

CHAIR WOODWARD: Good question, Dan, any other questions for Bob on this? Any concerns? Any of this seem unclear? I wanted to reemphasize what he said though about, it means that going forward when we are producing amendments/addenda, that we're going to have to be extremely conscientious to do what he described, which is to fully articulate how various options in a plan can be combined and used to resolve a conflict.

That won't necessarily be easy. I mean we all know. I mean I sat in on striped bass yesterday. There are a lot of moving parts to striped bass. How those all link to each other and relate. It's going to be an additional burden, but I think it's important that we do that to make sure that we fulfill our obligation to the public for transparency, which was sort of the root of this whole thing is that is it fair to the public to render a final decision that they never knew was an option. That's challenging. Tom, I see your hand up.

MR. THOMAS P. FOTE: Yes, I just think as we do the introduction at public hearings, whether it's virtually or live that we basically put that up front, when we do who the Commission is, and then if there is appeals process here is how it works. It could be very simple, or read in the document if you want to find out how the appeal process works., something right up front so people know.

Otherwise, it gets lost in a document. The public never reads the whole document. Sometimes when it's 1,700 pages I don't read the whole document, I'll be honest, and 2,400 pages. It would be nice if we put that right in the front of the presentation to basically do that when we do the introduction. I agree with it. You know it's complicated. I wish this process was in place when New Jersey had all its problems, but anyway, I support this.

CHAIR WOODWARD: Shanna.

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MS. SHANNA MADSEN: I just wanted to say thank you to the Executive Committee. I think that this document is in a really good place, and I think that you've addressed a lot of the concerns that I heard around the table following that appeals process. I appreciate the flexibility and the work that's been put in here. I support what's been done to the document. That being said, I think a couple of meetings ago, when I was sitting on the Policy Board, I brought up a concern that I had regarding the Policy Board being the Board to take the corrective action, to be able to give the guidance to the species management boards regarding the corrective action.

I think that that kind of comes from the fact that the species boards really are the boards that are intimately tied to those documents. You know Tom was just saying these documents are incredibly long. They are complex, and the species board spends a lot of time understanding the ins and outs of those documents.

I've kind of wanted to noodle this through a little bit, and I don't know if I'm quite there yet on, I don't like to present a problem without also trying to help present a solution. But one of the things that I was thinking through as I read this document is, maybe it's as simple as being able to day somewhere in this document something along the lines of Bullet Point 3 on Page 4, which is essentially that the Policy Board would also be able to request more information from either Technical Committees or potentially from the species management board itself., maybe the PDT.

In order for them to have a more informed decision on how to take corrective action. I know that the Policy Board probably already understands that a bit innately. But I would like to see that spelled out in some way, because just following the way that the action was taken with black sea bass, I think we moved pretty quickly.

The Policy Board was essentially asked to be both the judge and the jury pretty quickly, I felt like in that case. In order for the Policy Board to be the judge, I feel like some educational materials, and maybe some more analysis might be required in order for them to be able to determine what sort of corrective action they would like to ask the species management board to take.

CHAIR WOODWARD: All right, thank you, I think Bob wants to respond to that.

EXECUTIVE DIRECTOR BEAL: Yes, just sort of along those lines, Shanna. If you look in the paragraph on the middle of Page 3 there is the idea of a fact-finding committee can be formed. I think that probably gets at a lot of what you're suggesting, as the Chair, Vice-Chair and immediate past Chair. If they feel additional information is needed, they can form this fact-finding committee, and that can be made up of legal, administrative, social, economic, habitat, you know across the range of all the sort of advisors that we have.

There is some of that in here, but the idea here is it is set up by the Commission Chair, Vice-Chair and immediate past Chair, rather than the Policy Board. There is some ability for compilation of additional information, or the ability to conduct additional analysis already rolled in here. But if the Policy Board has questions, I'm sure they could do the same thing.

CHAIR WOODWARD: Shanna.

MS. MADSEN: Just a quick follow up. Maybe do you think that we could add a little bit of language to that, because I noticed that paragraph? But like you said, it seems very specific to that group of people being able to call that fact-finding committee. I would like the Policy Board to also be able to have that latitude, just so I think that there is a deeper understanding that if they require more information to take a corrective action, or to give recommendations on how to take a corrective action that they can.

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You know again, I think last time was our first time running through all of this, and it just wasn't very clear that immediately following serving as the jury, the Policy Board was also going to serve as the judge, and pass corrective action and tell the species management board how to proceed. I would just like a little bit more latitude for the Policy Board to be able to step back and say, hey, we don't necessarily intimately know this document the way that the species management board does, and we would like to take a little bit more time with it.

CHAIR WOODWARD: Do you have some suggested specific language you would like to see inserted?

MS. MADSEN: I just got this document this morning, so I don't right now, so I completely again, apologize that I'm kind of bringing up an issue without providing a specific solution. If you give me a little bit of time, I can probably cook something up, but I'm just wondering if maybe as part of that paragraph that Bob is referencing, could we add that the Policy Board can also convene this sort of fact-finding committee, or ask for more information.

I mean it could also be as simple as adding a little bit of language to the top of Page 4, where we talk about creating that guidance regarding corrective action that just says, the Policy Board could also request more information if they would like to issue corrective guidance. They can also essentially do what that bullet point 3 is, requesting additional analyses from technical committees, or requesting more information from the PDT. Maybe similar to those lines is what I'm thinking.

CHAIR WOODWARD: Bob.

EXECUTIVE DIRECTOR BEAL: Yes, I guess maybe the easiest way to do this, if this is what the Policy Board wants to do, it's up to the group. But looking at the fact-finding paragraph on Page 3. Upon review of the appeal documentation the Commission Chair, Vice-

Chair and immediate past Chair or alternate as described above, or the Policy Board may establish a fact-finding committee. You know, just add or the Policy Board into that paragraph, and away we go. If that's the will of the group. That is up to everyone around the table not me.

CHAIR WOODWARD: Yes, go ahead, Toni.

MS. TONI KERNS: Just for the Policy Board, you know through appeals processes staff always provide all of the information pertaining to the appeal ahead of the meeting, and then we try to convene that meeting and make a decision, and give direction back to a management board. Obviously, a Policy Board can take a pause.

Then come back at the next meeting to give direction to a species board. But there is a timeliness issue when it comes to these appeals oftentimes. That may not be in the best interest of the decision process for all cases. I would just make sure that any species board can ask for additional information when we are giving documents out prior to the meeting of staff, and staff can provide that at the meeting. But just to keep in mind that there is a timeliness issue at times when working through these appeals.

CHAIR WOODWARD: Let me go back to Shanna, and then I'll go to you, Tom.

MS. MADSEN: Thanks, Toni. I completely agree. I don't want to belabor this and extend the process any more than it needs to be extended. I guess again I kind of go back to black sea bass. We were offered an option at the Policy Board level. If there is going to be a range, I guess I would like there to just be some time that potentially the Policy Board could take a step back and say, we would like to think through this a little bit more.

If that's as simple, and I don't think again that will always be necessary, I agree with you. Sometimes there is a timeliness factor that we just can't get around, and a decision does need to be made. But again, I want the Policy Board to understand that they also have the latitude to take that time if they

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need it, because the species board has spent so much time with those documents, and the Policy Board really isn't granted that when they are determining corrective action.

CHAIR WOODWARD: All right, Tom.

MR. FOTE: Thinking over what Shanna is saying. I feel the same way. I mean hours are spent deciding at the board, and maybe even two or three meetings go on, and then the Policy Board gets it dumped in their hands on the appeal process. But there is a lot of discussion gets lost in all that. That's why I think a working group would be the place to look at it, especially when it comes to something like that.

Like going on with black sea bass. When it's out of compliance that's a pretty easy one, and how the Board votes. The southern guys are not used to basically fighting, because they all get along, because of that southern hospitality. But us northern guys seem to get into all the appeal process. I'm agreeing with Shanna, there has got to be a little more oversight of what we do.

CHAIR WOODWARD: All right, John Clark, and then I'll go to you, Jim.

MR. JOHN CLARK: I agree with Shanna. I think it's a good idea. It doesn't seem like it would slow down the process at all. As we know it is a time-sensitive process. But I think just spelling it out, even taking Bob's suggestion and put it in the fact finding. Just something to make it clear that the Policy Board can seek advice, and can get good advice on the options before making a management decision to the species board.

CHAIR WOODWARD: All right, Jim.

MR. JAMES J. GILMORE: I just wanted to echo Toni's concern, because I think she hit the nail on the head, and particularly for black sea bass. We were under the gun to have some relief by the fall, because that's when our big part of the fishery was. I think Bob's solution is that we stick that in, and Policy Board is a quick fix to it.

Again, but we don't want to slow that process down, because usually when a good amount of time when there is an appeal, there is a timeframe to it, and you know we have been accused of kicking the can down the road and sending it all over the place, and I don't think we want to get into that mode. The other thing too if we can add that, I think we really, we talked at the Executive Committee. We've gone through this thing so many times now, it's like we really want to get it done and move on.

CHAIR WOODWARD: Megan.

MS. MEGAN WARE: Just a question as I'm reading that Fact Finding Committee section. Is the Fact-Finding Committee supporting a decision on if the appeal is warranted, or is it supporting finding information for the Policy Board? Because as I'm reading it, I'm reading it to be that it's supporting whether the appeal is warranted, or whatever the word is I'm supposed to use in there. But should be brought to the Policy Board not determining the facts, in terms of a corrective action.

CHAIR WOODWARD: That is correct. It's the first. The purpose of that Fact Finding Committee will be to better inform that group of people as to the legitimacy of that appeal. Its purpose is somewhat different than what's been discussed. But again, I think we go back to the fact that the Policy Board has the discretion to seek out the information it needs when it needs it.

If it's not provided what it thinks is adequate to make a decision, then the process allows for enquiry, for gathering more information. I think to go back to how we move forward with addenda and amendments is that if it's clear in those documents what you can do and what you can't do, it should hopefully reduce the confusion of the Policy Board. You know as far as what's in bounds and what's out of bounds. That will all depend on the specifics of the action. Go ahead, Megan.

MS. WARE: Just to follow up then. I just think if we add that Policy Board piece, I think it needs to be clear that the Fact-Finding Committee for the Policy Board is potentially serving a different purpose than

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the Fact-Finding Committee of this three-person group, because what I don't want is ten years from now a situation where the Policy Board thinks they can establish a fact-finding committee to investigate if the decision of that group of three was the right decision. I just think we need to be really clear there.

CHAIR WOODWARD: Okay, go ahead, Karen.

MS. KAREN ABRAMS: Thanks, Mr. Chair. One question, just a clarifying question. Is the scope of this appeal limited to just decisions on addenda and amendments, or would it include decisions like bag or size limit decisions that are made by the species board that the species board votes on?

CHAIR WOODWARD: Yes, I'll let Bob expound it.

EXECUTIVE DIRECTOR BEAL: Generally, any decision made by a species management board can be appealed, except management measures established via emergency action, out of compliance finding, or changes to the ISFMP Charter. Any other management decisions are available for appeal.

MS. ABRAMS: Okay, thank you.

CHAIR WOODWARD: All right, I'm trying to figure out how we can get ourselves out of this, detach from this tar baby we're stuck to here, because I was really hoping to get this cleared and off the deck. Shanna.

MS. MADSEN: I'm sorry. I'm going to try to dig us out a little bit. I agree with Megan that I don't think that the Fact-Finding Committee is necessarily the spot that we want to slide the words Policy Board into. It's not really quite getting at what, you know what I'm thinking through. I'm just wondering if, so on Page 4, if the management board is unable to make changes necessary to respond to the findings of the Policy Board the following options are available.

Bullet Point 3 here is spelling out very specifically that the management board is allowed to request additional analyses from a technical group. I'm just wondering if we can take that language, like some of that language, and slide it up to the top of Page 4, where we talk about corrective action, and just spell out very clearly that the Policy Board can do the same thing that we're allowing that species management board to do.

I think that gets at what I'm trying to get across here, just the allowance of the Policy Board spelling out that the Policy Board can ask for additional analyses, or further information if they are not able to give corrective guidance, or would like to give corrective guidance, but don't feel like they have all of the information that they need.

CHAIR WOODWARD: All right, I think that might be a little difficult for us to Wordsmith at this level. If there are strong feelings, and I've heard some feelings from Commissioners supporting your concept that this policy needs to be modified to make clear that the Policy Board has the option.

I think perhaps it's best that we take this input and incorporate it, create another draft, and we'll go back to the Executive Committee, and we'll come back here in August, just to make sure. Because I want everybody to be 100 percent comfortable with this. I think we'll just put this in abeyance for the time being, try to perfect it, and we'll deal with it at our next meeting. Well, there goes my productivity for the day. Go ahead, John.

MR. CLARK: Not meaning to delay this anymore, but at this time would you want to settle the Options 1 through 3 questions on the corrective actions? I mean that could be taken so that next go round there is only one change to consider.

CHAIR WOODWARD: Yes, I actually had a draft motion to approve the whole thing inclusive of that change, but I guess the best way to do that is everybody comfortable with that Number 3 option as Bob described? Does everybody feel like that adequately gives us accountability and flexibility at the same time, with the understanding that it now

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is going to put a little bit of a burden back on us, to make sure that those plans adequately articulate things that might be combined together to resolve an appeal. If everybody is good with that. Okay, I see general consent, so I think we'll move forward. That's a good suggestion, John. Thank you. Okay, well before I call on Bob to do the next thing. I just want to remind everybody we've got several policy initiatives sort of in play here.

One of which is appeals, but we've also got de minimis, we've got Allocation Work Group, we've got conservation equivalency, and we have mode splits. We've got a lot of things out there that we need to resolve, and one of them is obviously, like I just said, this mode split. I want to turn it over to Bob, and kind of give us some status and context for that one, and maybe get some feedback from the Policy Board on what do we need to do with that group.

You know is it still as relevant and as important, because the reality is there is only so much bandwidth that we have amongst ourselves to do these different things. We need to prioritize these initiatives, because my campaign platform, if you remember, was getting some of this stuff done. Right now, I'm not doing too well. Anyway, I'll turn it over to Bob.

#### **UPDATE ON MODE SPLIT WORK GROUP**

EXECUTIVE DIRECTOR BEAL: Yes, just briefly, the background on this is, there were a number of species management boards that were setting up mode splits where the party and charter industry got different bag limits and different access to fisheries than private anglers. We also have a couple examples of shore-based anglers have different access than boat anglers, essentially.

There were some conversations about, is this appropriate? Is this good or bad or indifferent or should it be handled on a species-by-species basis, or should there be a policy across the

Commission, that will affect all species? The Policy Board talked about it a little bit, and formed a working group about two years ago, right at the beginning of COVID, which was probably one of the major setbacks here.

There were series of discussion questions set up for that working group, but at the same time the joint activity with ASMFC and the Mid-Atlantic Council on recreational reform was ramping up, and one of the issues that is in the Recreational Reform Initiative is mode splits, and the consideration of whether, what I talked about earlier, should there be different access for different recreational groups.

Given the issues with COVID and workload and as Spud said, we only have so much bandwidth. This working group kind of became idle, and we're waiting to see how the conversation with the Rec Reform Initiative went with the Mid-Atlantic Council. This group really hasn't gotten together for, I think about 18 months now.

The question as Spud presented it is, now what? Do we want to revitalize this group? Is this a priority for the Commission, or should we maybe continue to monitor the Rec Reform Initiative that ASMFC and the Council are going to work on and deal with mode splits, once we potentially dispense of the Harvest Control Rule. I'll go through the discussion questions really quickly. There are only five of them. The first one is: Does ASMFC need a policy or guidelines on the use of mode splits? Second question: Should coastwide and mode splits be allowed or prohibited? Third question: Does the available data reliably support the analysis of impacts and mode splits? Fourth question: Should ASMFC work toward managing for three modes, private angler, for-hire and commercial? That would be separating for-hire industries out from private anglers and commercial. The fifth question: Should shore modes be treated differently? Those are kind of the discussion questions that this Work Group had to work with originally.

There are a couple members of that working group that no longer are with ASMFC or with their respective state, so if the Policy Board feels getting

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this group back together and continuing the conversations on mode splits, we probably want to add a couple members to that working group. I can go over that membership if people want, but I think it's conceptually, where do we go from here, and is this a priority for the Policy Board?

CHAIR WOODWARD: Just to put a little context on that. If you will recall at the Menhaden Board meeting there was a desire to create another work group to look at: What do we do with years like 2020? We're talking about adding another group to our bandwidth capacity to deal with that topic. We do need to prioritize things and decide, you know what's most important now? What is going to give us the best return on our investment to help us move forward making the best decisions we can? I saw Joe, I'll call on you.

MR. JOE CIMINO: I think to some extent this may be on a back burner for us. But there are a couple things coming through. There are groups working on kind of tightening up what the for-hire reporting is doing, more mandatory electronic reporting, different ways to validate the reports that are coming in.

I think if that plays out, NOAA Fisheries announced, I think it was yesterday they sent us an e-mail about equity and environmental justice strategy. I think there is an element of that to the mode splits, things like from shore and maybe even headboats. I think if some of that plays out and we have those elements to plug into this discussion. I think that would be very important. Maybe we give that a chance to go, and like you said, Spud, we've got a whole new work group we've got to work on, and a whole bunch of other priorities though.

CHAIR WOODWARD: Dan, and then I'll go to you, Jay.

MR. McKIERNAN: I'm going to admit that I am among the folks who have asked for this to be looked at. I see some of our neighboring states

having a more accommodating view of this issue. I'm a little bit afraid of it. You know the fundamental question is, is the for-hire fleet a de facto marine Uber, or is it a quasi-commercial activity.

I think a lot of the proponents for these mode splits are former commercial fishermen who see the limited entry schemes, the IFQ systems, and I think they see advantage. Many of our for-hire businesses are sort of demanding that their VTR data be used, with the expectation that the restrictions are going to be lessened.

You know, they don't like that 4-black sea bass bag limit. You know maybe if we all use their data, maybe they could get twice that number. I'm really nervous about that. I see the opposite. I see strict accounting and strict reporting resulting in maybe an early season closure of the for-hire fishery, if strict accounting is the order of the day. I also believe that limited entry will follow right behind this when the for-hire fleet gets their separate allocation of the TACs. While it's true that party charter operations do cater to nonresidents, there are many residents in my state who point out to me that they live in the state, they pay taxes, they register a boat, they bought a recreational permit, and the thought of the managers catering to businesses that appeal primarily to nonresidents doesn't sit well with them.

These are the kind of questions I think need to be aired out, because I know I would be at a pretty severe disadvantage if a neighboring state was able to torque that system and get much more liberal rules, at least at first. But I think in the end, it's going to cause more problems than the advocates are asking for.

CHAIR WOODWARD: Jay.

DR. JASON McNAMEE: I think this is a high priority in my mind. I don't know about others. I think it's super important. I don't discount anything that Dan just said, and that's exactly why we need to be careful and thoughtful, and get a group together to think hard on it. I think there is information out

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there. We had a couple of pilots, where you know groups have kind of operated in what is, in essence, a quasi-commercial manner.

The real value here, in my mind is, an opportunity to get a component of what is currently a component of the recreational fishery, into a paradigm of high accountability and real catch accounting that we don't have now but could. This is a group we could do this with. I would like to continue to explore it. I would be okay if we kind of keep the band together, but not playing right now, and kind of see what happens with the Mid-Atlantic process.

I'm not super optimistic about that, so that's why I would like this group to persist, just in case, so that we could sort of swoop in and maybe pick up wherever the ball gets fumbled, if it gets fumbled. I'm okay, I understand the bandwidth thing and appreciate it. We're trying to do everything with very few people. But this is an important one. I'm okay kind of metering it out in some way, but I would like to keep it on the radar.

CHAIR WOODWARD: All right, we've got Mel on virtual, so go ahead, Mel.

MR. MEL BELL: Actually, folks covered a lot of what I would say. I think something Joe said just really hit home for me, which was you know, we've got this new for-hire reporting system on that we just in essence started. I'm looking at this again from a South Atlantic perspective. But I think it would be a good idea to kind of let that run for a while. That would inform us a little bit better, in terms of what really goes on in the for-hire sector and all.

You know we've looked at this from a Council perspective this comes up a lot. I'm not necessarily a big fan of it. Dan touched on a number of my concerns as well. I think this may be one of those things where folks, and I understand why folks are really interested in it, and a lot of the rationale for wanting to do it,

from the fishermen's perspective. But I am honestly afraid this might be one of those things where, be careful what you ask for, because you might get it, and it might come with some surprises that you weren't considering, and some of those have been touched on. I think I like the idea of keep the band together, maybe. But this in my mind is not necessarily a high priority. Keep the ability to come back to it there, but given all the other things that we have to deal with right now, I would be more inclined to not worry about making this a high priority right now. If you want to keep the group together, at least in some capacity, or rebuild the group, great. But I wouldn't invest a whole lot of energy in this right now, considering all the other things we have to deal with.

CHAIR WOODWARD: Thanks, Mel, all right, Doug.

MR. DOUG HAYMANS: I could not agree more with the esteemed gentleman, Dan. Thank you for your comments. I mean I'm on the same wavelength there. I will say that the genie has already been let out of the bottle with bluefish, you know and once the genie is out, he's really tough to put back in. I would like to see the Work Group continue its work.

If we're not, if we're going to put it on a back burner, I would at least like some agreement amongst the Policy Board that other species boards won't consider some sort of sector split until the Work Group can come back together. I think that's a decision like the Bluefish Board made, effects everything else as a precedent. I would really like to hammer that decision out before it gets put into any other plans. But Dan, thank you for your comments.

CHAIR WOODWARD: Tom.

MR. FOTE: I'm happy, Doug, you mentioned the bluefish, and that's what brought it to a head. National Marine Fisheries Service arbitrarily, without any paperwork, without making the necessary calculations of what this would mean figure wise or anything else of where the existing quotas were, stuck us with it.

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That is not the way we want to do sector separation. We've been talking about it in New Jersey for 30 years, and we realized that the way you need to do this is you've got to set up separate quotas if you're going to do it that way. You've got to keep the people within that quota. I always said to the party and charter boats when we started talking about it, I said think about it.

When the fisheries collapse you've got maybe 10 percent, 7 percent of the fishery. As the fishery becomes more productive and you start carrying more customers, you're going to catch a bigger percentage. If you don't have a separate quota that you are taking out of somebody's pocket, but you basically meld in, there are not complications. But as soon as you want to take your 7 percent and go to 10 percent, then you are taking 3 percent from somebody else, even though maybe it's only on paper, and that's when the fighting starts.

That's why Ray Bogan and United Boatmen have always supported non-sector separation. But you also have a new NMFS Director that is kind of pushing it, because of Rhode Island, and so we need to consider what's going on here. I think we need to make a statement one way or the other.

I agree with you, Doug, the Board shouldn't do anything on sector separation until we come to a decision how it's made, and it should be right now. As it is, left up to the individual states, if they want to divide their state quota up between their fisheries that's what they can do, and they've done that. A few states have done that. If we don't want to do that in New Jersey, we shouldn't have to be put on by the National Marine Fisheries Service to arbitrarily come into our state and do that.

CHAIR WOODWARD: Eric.

MR. ERIC REID: I'll be quick, because I can't decide whether I want to use the genie in the bottle or the band or the stove to get my point

across, to be honest with you. To me the first thing is, the for-hire sector has reporting requirements. In one way or another they have it. As far as the mode split, they should be rewarded for that.

That is my justification for giving them a different thing. They're doing the work; they should get a reward. It's conservation equivalency in a different form, I suppose. Joe Cimino uses the stove, you know put it on the back burner. I don't even think we have a stove. What do we have for recreational reform at this point? So far, we've got nothing. Keep the band together, you know, put the genie in the bottle for a little while, whatever you want to do. But I think it's something we have to watch out for, but not today. I guess that's my point.

CHAIR WOODWARD: Anyone else? Shanna.

MS. MADSEN: Like Eric, I don't want to belabor this. I think that a lot of what's been said around the table is valid, and I'll just go back to what Jay said. I think that this is an important Work Group. I think there are a lot of questions that we still need to have answered. I would like to see this Work Group be the one to do that. But I completely agree, let's maybe keep the band together and maybe step back a little bit and take some time. But it's definitely something I would like to see still stick around.

CHAIR WOODWARD: All right, there seems to be I guess unanimity in terms of keeping this Work Group intact, but not particularly the active, and I guess that's what I'm struggling with is that we want this group to produce an output. But they need to have clear guidance on our expectations of what and when, because otherwise they are not accomplishing anything. I think that's a little bit of the challenge here is that, and maybe it's what Doug brought up.

I mean this idea of a moratorium on plan required mode splits; you know is that the first bite of the apple? I mean is that even something that should be contemplated? I mean obviously it's already been said, if a state chooses to do that of their own volition, within the confines of a plan requirement

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that's their choice. But if we have a plan that mandates that they mode split that fundamentally changes the whole nature of the discussion. Is that something that we want this group to wrestle with initially as an output? Jay, you certainly invested in this.

DR. McNAMEE: Maybe I'll start with the lead in to your comments there and say, I think just to give us a benchmark. I don't know if Toni or Bob could help me with the timeline here. But I think there is going to be some action on Rec Reform towards the end of the year. There is like the Harvest Control Rule piece of it, and whatever happens there. Then we'll reengage on the elements that were kind of hanging there, and so that would be see what happens there, if this thing gets kicked out of it then reinstate the group at that point, or if they initiate something there, then keep them kind of in the ether a little bit. You know that's not super direct, but it's something that we can kind of set as a benchmark. Then for the second part. You know at this point I wouldn't be in favor of sort of omnibus moratorium, just because I don't understand what that means.

It's a tool. We've used it in Rhode Island on occasion, and so I wouldn't want to, you know for things like tautog. We don't have that now, but we have in the past. I wouldn't want to take that tool out of the toolbox through an action at the Commission.

CHAIR WOODWARD: Steve, I'll go to you, and then you, Joe.

MR. STEPHEN TRAIN: I was listening to it all and I was biting my tongue, but the further we get into this. I can use all the euphemisms you guys used; it doesn't matter. I'm scared that this is going to go down the wrong road. As we manage species the commercial sector got hit first with quota management on things.

Now we're starting to talk about a recreational/commercial sector, because there is money involved. They are going to want to

be awarded quota and allocated this, and then people are going to argue and fight for what they should get. As we move down this road, and maybe I'm running too far out.

The people that are going to get hurt the most is going to be the people walking down their back yard into the neighbor's dock to catch a fish, and there won't be any quota left in that for them. Those are the last people we want to see getting stuck out of a fishery. As we award quota to more people, someone is going to lose something.

Tom, once again I agreed with Tom. Tom said the other day that this guy catches a fish off the end of the dock, you know he's an older man, he's on social security. He just wants to take it home and eat it. We're going to make him throw it back. We're going to have an awful lot more of those people if we keep allocating quota, inventing new sections that get it. It makes me very nervous.

CHAIR WOODWARD: All right, Joe.

MR. CIMINO: As far as a moratorium goes, I want to remind everyone that with the jointly managed species with the Mid, and we've got bluefish up on the screen. The last time the Bluefish Board met, we kind of talked about, we didn't come up with a motion, we said we didn't need it.

It was clear that our commitment was to revisit the bag limits for the mode split at the request of a New Jersey headboat captain. That discussion is going to go on with the struggles that we're having with requested reductions for black sea bass and scup, I very much expect the discussions to lead towards different bag limits for the different groups there as well. For four of our most important recreational species, it's not a decision we could make in a vacuum.

CHAIR WOODWARD: It certainly sounds like there is agreement on keeping this moving forward in some manner. I mean Jay made a suggestion that is probably viable, to wait to have something to react to, and then go forward. But obviously, as you can tell just from the comments made around here, it's

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a highly divisive topic, and it oftentimes comes down to philosophical points of view about what's fair and equitable.

Lord knows if we could just have a mathematical algorithm that says fair and equitable, it would solve a lot of these problems. But we don't and we never will. It's oftentimes going to be subjective, and it's going to be based on a mix of quantitative and qualitative data, and a lot of other things.

It's a challenge, but I think what Steve said is very important is that the more we try to parse things out, the more we generate unintended consequences sometimes, and we need to be very careful about that. Personally, I've been trying to look in a crystal ball and see the future of my whole career, and I haven't been able to do it yet. We also have a Conservation Equivalency Work Group that is moving forward.

It's not on the agenda, but just for context for this, I want to ask Toni to just kind of give a brief update on that, because maybe, again trying to clear some of these off the deck, so that we can focus our energies on other things. Maybe that one is moving towards a point where it's going to produce an outcome. If some of that bandwidth can be devoted over here to our mode split at the right time. Toni.

MS. KERNS: The MSC tasked a subgroup to answer the eight or nine questions that came out of the Executive Committee and the Policy Board on CE. That subgroup is currently working on answering those questions, and then figuring out how we blend the answers of those questions into recommendations for changes in the policy.

We'll present that back to the full Management and Science Committee sometime this summer, and then bring it back to the Executive Committee in August. Then if it's ready, we'll bring it back to the Policy Board as well, so there is the timeline for that. Then for those

that are not aware, technically this Board and the Mid-Atlantic Council does have this amendment that looks at some of the other issues that are not taken care of in the Harvest Control Rule for Recreational Reform.

One of those issues is sector allocations. The intention at this time is to scope for that come spring of 2023. This Board and the Council would be thinking about what to include in that scoping document this fall, really, and even potentially as early as August. That is kind of how some of these things will line up.

CHAIR WOODWARD: All right, I think we have a path forward. It might be a little cloudy, but we'll keep it moving forward.

#### **REPORT FROM THE DE MINIMIS WORK GROUP**

CHAIR WOODWARD: With that I'll turn it back over to Toni to report on the progress of the De Minimis Work Group. I mean none of these are easy, and I guess it's going to take a lot of Mountain Dew to get me through the next two years. Anyway, like they say about elephants, you can eat it one bit at a time. That's what we're doing.

MS. KERNS: I'm going to get you a case, Spud. We had a small work group from this Policy Board working on de minimis. We started about a year, well we met about a year ago. But the work group wanted to wait until we were in person to actually discuss the outcomes of the work group, so that is why we've held off on bringing this back to the Policy Board and the Executive Committee.

The Executive Committee did as Spud said, talked about it earlier in the week. I think by now everybody knows the definition of de minimis. The Work Group agreed wholeheartedly that if a state meets the de minimis standards, then that state should not have to implement all the provisions of the FMP, because that state has a negligible impact on that particular species.

But the Work Group did think that there should be a minimum level of management measures that that

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state should have to implement, in order to have some basic conservation, as well as prevent some form of loopholes potentially opening up in that state for that particular species. The Work Group also discussed whether or not there should be a standard for de minimis to apply to just one fishery, meaning just commercial or just recreational, or they should be applied to both in combination.

Meaning in order to get de minimis, both your commercial and recreational landings have to be X percent of the coastwide or X amount of the coastwide quota. The Work Group discussed that there are merits, I guess to both in some cases. But generally speaking, in order to give a state the most flexibility, that having those de minimis standards be separate by species allows a state to really take advantage of the de minimis, and how each of the fisheries could have a negligible impact on that species, and help reduce the administrative burden for that particular state.

Then we also talked about de minimis thresholds, so what determines whether or not a state actually meets the de minimis standards. It is very different across the board for all species. Some species it's a percentage, some species it's an amount, some species it's 1 percent, some it's 3 percent, some species you average two years of data, some species you don't average at all, some you average three years of data.

The Work Group wasn't really prepared to make a recommendation of what we had to do, but that there could be a standard that gets produced. Then if an FMP deems necessary, it could break from that standard, and that Board would just need to justify why it was breaking from that standard. An example could be where one state still has the majority of the landings, but other states do still have impactful fisheries.

Then lastly, we also discussed the sampling requirements in particular, and that when a

state is de minimis if you don't have to put in the measures of the FMP, does that also include biological sampling requirements? We recognize that there is a burden for the state to collect samples at times, in particular because you don't have much of a fishery, and so finding those samples can be difficult.

But we also note that with shifts changing because of climate change, sometimes having biological samples from those outer edge states can be really important, and so trying to find what the right balance is for that. When discussed with the Executive Committee, the group determined that this subgroup should get back together and put together an options paper. The options paper will provide a default threshold for meeting de minimis standards. We'll look to see if there should be some exception species or not. We will also look at default standards for the sampling program, and then also think about how data poor species may have a different regimen as well, especially for the sampling standards.

Then the white paper will also give default language for individual species, or individual sectors being able to apply, and not having it done by both commercial and recreational. We will bring that white paper back in August, and hopefully get a policy going. Then for the species boards, I think what we talked about, if I'm going to remember correctly from yesterday morning, is that we wouldn't have every species board immediately have to put together what the basic standards are for those de minimis states.

But as addendums and amendments are going through for those species, we would include de minimis sections for those states, and make the changes to the FMPs as they go through, and you would create basic minimum standards for those species. Then the last part that we did talk about, which was a little bit of the can of worms, as I like to say, is the jointly managed species.

Jointly managed species our de minimis is not recognized by NOAA Fisheries in most of the FMPs, and so finding a way to collaborate with NOAA with

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these de minimis states, we'll have to continue to work on that. We don't have a solution for that yet.

CHAIR WOODWARD: Any questions, comments about Toni's report on the De Minimis Work Group? Again, I think we've got a path forward on that one, you know with the potential to produce a document on which we can base decisions in the near future. I appreciate the efforts of that Work Group.

Again, this is a challenging one, and none of this is easy. But every once in a while, you've got to revisit some of these basic foundational principals of our Interstate Management Process. It's easier to just leave things the way they are, but that isn't always the best way to do things. I think we're moving in a good direction. All right, I don't see any questions or comments, oops, Chris McDonough.

MR. CHRIS McDONOUGH: Just a clarification, Toni. You're talking about establishing de minimis standards within addenda or amendments as the process goes through. You're talking about still establishing kind of a baseline de minimis standard across all of them, not the individual ones as they go through.

MS. KERNS: We would have a general policy that would help FMPs establish de minimis standards, recognizing that species management boards can deviate from that policy, when there is justification for those particular species.

CHAIR WOODWARD: All right, last chance, don't see anything.

#### **UPDATE ON EAST COAST CLIMATE CHANGE SCENARIO PLANNING.**

CHAIR WOODWARD Okay, we can carry on with your update on East Coast Climate Change Scenario Planning.

MS. KERNS: We have been busy in the core team of the East Coast Scenario Planning Initiative, and most recently I think everybody saw from e-mails from Tina and the Councils that we did a call for nominations for people to participate in our upcoming workshop, where we will be creating the scenarios of what we think the future will look like, in light of climate change.

That workshop will be held in this Crystal City area June 21-23. We have applicants that we will be notifying, probably towards the end of this week early next week on being participants. There are a range of stakeholders, managers, folks from NGOs, wind, hopefully aquaculture, other groups so that we have a very diverse group of individuals to help us create these scenarios.

Following the scenarios, we will go into what we call the application phase. This is where we apply the scenarios to help generate ideas, and offer changes to meet the scenarios that get generated. We'll have some scenario deepening webinars. The deepening webinars are to refine and add detail to the scenarios.

Following that we'll have an implications and options conversation, and that's where we're really going to be utilizing the management bodies, in order to help us create governance solutions to the scenarios that get created. We're hoping to do this in the fall, recognizing that the fall is quite busy for all of the management bodies. We're going to do our best to work it into between meetings of all the different councils and the Commission. That is my quick update there.

CHAIR WOODWARD: Any questions about that? I think most everybody is familiar with it.

#### **COMMITTEE REPORTS**

##### **LAW ENFORCEMENT COMMITTEE**

CHAIR WOODWARD Well, take a deep breath and go to Law Enforcement Committee Report.

MS. KERNS: Okay, the Law Enforcement Committee met yesterday. I was in and out of that meeting, so

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I'm going to do my best to provide the update. The Committee discussed where we are in the lobster trackers. This includes getting insight from the Committee on the different workgroups that we have ongoing. Right now, we're about to put together the workgroup that will review the applications for the trackers themselves. We'll first put out an RFP, which that group will help us create, and then approve which tracking devices can be used by industry.

There is also a workgroup ongoing for the actual interface that ACCSP is creating, for how the states and the Law Enforcement Committee will see the tracks themselves, and how they can interact with that database. We're getting feedback from the folks that are actually using it, in order to best create it. We also gave an update on tautog tagging program, which we will get later today, so I won't get into that.

Then Julie Kaplan from Mass DMF came to talk to the group. She is a part of a group that has been reviewing issues with derelict gear. Mass has an in-house hearing process so that court systems don't delay on marine fishery issues. In particular they've been looking at derelict gear and the different laws that either allow a state or don't allow a state to dispose of derelict gear, or if you have to go back and find the owners of that gear.

She was looking for insight from the Law Enforcement Committee on what other states are doing to address derelict gear, different successes that states have had, and difficulties, and what type of regulations have been in place. The Committee had provided her with information, and they are going to continue to do some exchanges to help along with that process. The group also discussed the enforceability guidelines. The Law Enforcement Committee has had enforceability guidelines since I think 2008. The last time they were updated was 2015. These are an overview of all the different management tools that generally we use in FMPs, and how enforcement views

those tools, in terms of how enforceable they are. It is my hope that managers are using these guidelines as you think about the different management tools that we put in our FMPs. The group talked about potentially simplifying them, adding an aspect about how enforcement uses different management tools for what I'm going to call intelligence investigations.

We're going to try to figure out how to work that into the guidelines, and either bring that back to the Board at the annual meeting, if we're lucky. If not, it will be a year from now. Then the group had their closed session, which I was not a part of, but went through different state reports, and I think it was good for them to get back together to reconnect. We have a lot of new Law Enforcement Committee members, so it was great to get to know them. That's my report.

CHAIR WOODWARD: Thanks, Toni. Any questions for Toni? Loren.

MR. LOREN W. LUSTIG: Yes, thank you, Mr. Chairman, and thank you for that interesting report. Perhaps it was discussed in your absence, but I've always been interested in whether the Law Enforcement Committee considers the appropriate levels for fines, penalties, confiscation, et cetera needed to actually affect a difference in outcomes, in other words a change in behavior. Was there any sense for that in the discussions that you attended?

MS. KERNS: Loren, I was not a part of any of those discussions. I know the Committee has talked about fines in the past, but not that I'm aware of yesterday.

MR. LUSTIG: As a follow up, many of the states that don't necessarily border the coast have moved toward considering replacement cost, so a poacher takes an elk, for example, what is the replacement cost for that bull elk? That can really jack it up, the total fine. That is the kind of thing that I was alluding to.

CHAIR WOODWARD: Dennis.

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MR. DENNIS ABBOTT: Yesterday I looked in on the LEC meeting, and I was surprised to see Toni in there working. I figured she had enough to do in this room. But my question is to Bob. Are we going to hire a new LEC Coordinator? What's the status there?

EXECUTIVE DIRECTOR BEAL: Toni's got it, she's fine. Actually, Toni and Laura and I are working on a position description over the last couple months. Yes, our intention is to do that. We kind of got slowed down with COVID. But that group functions better, I think, with a dedicated staffer and you know Toni is spread pretty thin. We are working on that, Dennis, yes.

CHAIR WOODWARD: All right, Dan.

MR. MCKIERNAN: I would just respond to Loren's question. I think it's appropriate for all of us jurisdictions to sort of reexamine our fines and penalties, and we did it in Massachusetts about four years ago. But we did it with the officers, and we also consulted many of the other states, much like Julia Kaplan is talking to the other states.

But one of the biggest themes that came out of the conversation was, from the officers, don't expect to go into a court where they're dealing with arsonists and murderers, and someone with a few short-striped bass are going to be told not to do it again. But what we did, we adopted the New Jersey style, you know a base fine plus \$10.00 per nonconforming fish.

We've gotten some nice fines out of that that have stuck. We're pretty pleased with that, but also, we're using our administrative ability to suspend or revoke permits, and then most of the serious cases now, that is for a permit holder. Of course, if someone doesn't have a permit you can't do that. That's just my update on fines and penalties.

CHAIR WOODWARD: Tom.

MR. FOTE: Yes, a lot of time it would be the municipal judges that basically don't hand down the fines that they're supposed to be handing down. What we try to do is get an education process of basically talking natural resources to those municipal judges, especially with one area where we seem to be having a lot of problems.

Now you can't tell a judge what to do, but you can inform them why we're doing this it's a public resource, and that's the real problem here. You know you can come in and there is a fine that the guy is supposed to get \$600.00, but he says well, this poor guy can't do that, so he gives him a \$10.00 fine, you know what it's like.

CHAIR WOODWARD: Yes, that's a perpetual problem. I mean judges do not like to be limited in their flexibility, and that oftentimes backfires in conservation enforcement. Ray.

MR. RAYMOND W. KANE: A number of years ago, as Dan has so stated, we as a Commission on a state level got together with enforcement, and I believe Dan and his staff were going through an adjudicatory process now so we keep it out of the hands of the judges, because when you get a recreational or a commercial fisherman walking into a court of law, with the daughter, the young daughter in tattered dungarees, the judge looks at them, and as Dan said, he's got other things on his mind besides simple fishery infractions. I think that is a credit to Mass DMF. They've taken a lot more cases on their own to bypass the court system.

CHAIR WOODWARD: Any other, Loren.

MR. LUSTIG: Yes, just to follow up. I'm very familiar with law enforcement for aquatic species in Pennsylvania. I do know that for certain violations, at the discretion of the officer who is actually on site, there is a base fine. But then there is a per number for the violation. If you had somebody that was keeping undersized small mouth bass, for example, or even something as simple as personal flotation devices not being present. The base fine can be implemented and then a per item that tends to jack up the overall fine, with the goal of changing

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behavior, of course. Similarly, littering, a base fine and a per item fine. If you observe somebody just making a real mess of a real beautiful area, you could do some counting and it would go up substantially.

CHAIR WOODWARD: John.

MR. CLARK: This discussion just has been very interesting, because we've had the same problems that have been discussed here. I was just curious that the LEC, something that would be very helpful. We have started to put together a committee to look at our fine and violation structure before COVID.

Is there a compilation of how the states and ASMFC do treat these violations? Because I know Dan mentioned how Massachusetts looked at other states and that would be very helpful, so that we don't go through the same process. If the information has been compiled somewhere that could be a big help.

MS. KERNS: John, I don't believe, I'll double check with Jason. I don't think we have a compiled list, but I can task the Committee with that.

MR. CLARK: Thanks, that would be a big help.

CHAIR WOODWARD: Yes, I think that would be useful for everybody to have some perspective on how, of course each state's laws are slightly different, in terms of who is granted authority. You know sometimes it's a magistrate court, sometimes a state court, sometimes a superior court, it depends.

I think the states that have made efforts to create a more effective law enforcement environment can probably give some best practices lessons to the other states that may lead to some changes, like Dan is talking about. I know just back when I was working, you know we talk about how important reporting is and accuracy of reporting. There is many a time that a law enforcement officer will go to great

lengths to make a case from that reporting and goes into a state court or a local court.

A guy comes in with a paper bag full of papers and gives it to the judge, and it's dismissed and life goes on. The feedback loop for that game warden is pretty poor. I think that would be useful. I think that's something we can certainly do. Anything else for Toni on the Law Enforcement Committee?

#### **NOAA REPORT ON SEA TURTLE BYCATCH AND TRAWL FISHERIES**

Okay, I don't see anything, so our next item is we've got Carrie Upite, and she's on virtually, and she's going to give us a presentation on the NOAA Report on Sea Turtle Bycatch and Trawl Fisheries.

MS. KERNS: When Carrie's done with her presentation, just to be thinking about whether or not the Commission wants to provide comments back to NOAA Fisheries, so just keep that in the back of your mind as you hear what Carrie has to say.

CHAIR WOODWARD: All right, Carrie, I'll turn it over to you.

MS. CARRIE UPITE: Toni, I have a presentation, I don't see that on the screen.

MS. KERNS: Just give us one second, Carrie. There might be a slight delay, in terms of like when you say next slide. But we'll be right on top of it, I promise.

MS. UPITE: No worries at all, thank you. Some of you may recall I did present on sea turtle bycatch in Mid-Atlantic and Northeast Trawl Fisheries at the January Commission meeting. At that time, I shared background information, and then the research we've been conducting on turtle excluder devices and data loggers, as well as the measures under consideration by NMFS, and then our avenues to get public input.

The presentation today is just a follow up to that meeting, to share what we've received from our

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stakeholder engagement efforts to date, and then as Toni mentioned, potentially to request additional Commission feedback. This may be familiar to some of you, because I did give the same presentation to the New England and Mid-Atlantic Councils last month.

As a refresher, the Endangered Species Act and the Magnuson-Stevens Act both require that bycatch be minimized, and if unavoidable that mortality be minimized. The latest bycatch analysis by the NOAA Northeast Fisheries Science Center estimated about 670 sea turtles captured in trawl fisheries in the Mid-Atlantic and on Georges Bank from 2014 through 2018.

This bycatch estimate takes into consideration the observed turtle takes as well as fishing effort. In our region the highest level of observed trawl bycatch occurs in Atlantic croaker, longfin squid and summer flounder fisheries, as measured by the top landed species by weight on the trip. As such, we've been conducting research on various turtle excluder device designs in the fishery, as well as on data loggers that measure tow time.

We do have final research ongoing or planned, but at this time we have several management measures under consideration that we would like input on. If a proposed rule is developed, there will be a public comment period. However, we really want early feedback at this point, so we can take that into consideration at any future measures, or integrate those ideas into our gear research.

As a reminder, these are the measure we have under consideration. The first one involves requiring TEDs with a larger escape opening in trawls that target croaker, weakfish and longfin squid. The second and third ones noted here relate to revising the current TED requirements in the summer flounder fishery, or more specifically moving the current northern boundary to a point further north. Then also, looking at requiring a larger escape opening in those TEDs in the summer flounder fishery.

The fourth item noted here would add an option requiring limited tow durations if found to be feasible and enforceable in lieu of TEDs, and this again would provide greater flexibility to the fisheries to provide options for them to choose bycatch reduction measures. We presented this information multiple times to reach industry and a variety of different stakeholders. I did want to thank those of you who helped get the word out, and encourage people to attend our webinars. It was greatly appreciated. Specifically, I gave presentations in December at the New England and Mid-Atlantic Councils, and at ASMFC in January. In February I presented and took comments at a joint Mid-Atlantic Council Summer Flounder, Scup, and Black Sea Bass and Squid, Mackerel, Butterfish Advisory Panel Meeting. We also had a series of webinars in February and March that presented the same information as presented to the Councils and Commission.

#### **REVIEW OF STAKEHOLDER OUTREACH ON ACTION TO DEVELOP BYCATCH REDUCTION MEASURE TO REDUCE SEA TURTLE TAKES**

MS. UPITE: We dug a little bit deeper into some of the specifics on the fisheries and data. We had two additional call-in days, so that the public could share their comments orally. The green text at the bottom of this screen here, notes the comment venue is still ongoing. That is, we are accepting public comments at the e-mail address noted below until the end of May. How was our attendance?

Well, despite our efforts to engage the public, participation was somewhat limited. The numbers of attendees who were not NOAA staff are noted in parentheses for the individual webinars. Overall, 24 individuals participated in the webinars, with one-third of them attending multiple meetings. At the webinars attendance mostly involved state contacts, industry representatives, and interested public.

Most of the feedback consisted of questions instead of comments. We actually didn't receive any comments during our call-in days, and we have only received 3 written responses thus far. We received

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the most questions and comments from the Council and Commission meeting, as well as the AP meeting, where 18 Advisors attended.

That summary is noted in your briefing materials. Overall, there have been 31 questions and 32 comments on the issue. What did we hear? You may recall we asked for information on specific questions, which were noted in my last presentation, your previous briefing materials and on our website. On this slide, feedbacks on those topics are noted first.

Overall comments are organized by general topic and summarized at a high level. This information represents feedback received at the Council and Commission meeting, the public webinars and written comment combined. The majority of these bullets represent one commenter, but in several cases multiple individuals expressed the same comment, and I'll note that when we get to this point.

Looking at geographic scope of the future regulations, one responder asked us to consider exempting small vessels, identified as 40 feet in length overall from the regulations, and to consider take differences between inshore, nearshore, and offshore waters. We did hear some feedback on how to define fisheries, but additional input here would be really beneficial.

From what we have heard to date, it does appear appropriate to combine weakfish with croaker when looking at gear modification, and that both of those fisheries have limited effort at this time. We also heard that it may be worth looking at combining summer flounder and longfin squid when considering gear modifications, as many of those vessels' fish for both species.

There was also the suggestion to look at gear types such as flynets when pursuing gear regulations rather than specific target species. We also asked for input on implementation and operational issues of limited tow duration. There were several questions and comments on

how tow duration could be defined, and one suggestion was to define tow time when the winch is engaged, so as to better account for the bottom time. With a limited tow duration there were some concerns also with a lower catch per unit effort, which would result in a higher area swept. This in turn could increase the bycatch of multiple species and increase industry cost overall. Lastly there is a question on how tow limits would be enforced.

We only received a few comments on the economic impacts of future regulations. However, we did hear that gear modifications would be a direct economic cost for the squid fishery, as that fishery could not switch to targeting another species on the same trip. It was also requested that a full economic evaluation occur of any potential measures.

I will note here as an aside that if we do proceed with developing regulations, it would be to through the normal rulemaking process, which would include socio and economic and environmental analyses, and soliciting public comment. Those economic impact would be assessed then.

Besides implementation, there was a comment that requested a maximum limit on possession of a species be defined before requiring TEDs, perhaps mirroring the mesh size restrictions for summer flounder and the incidental trip limits for squid. This would help identify which vessels would require a TED.

There is also a comment on using water temperature to help define the area and the timing of the regulation. We did hear that cable TEDs would likely be preferred by the industry, based upon the gear's structure and the research to date, and that providing options of gear measures for the industry to what works best for them would be preferred.

It was also stressed that we need to continue to engage the industry, and involve them in these efforts, especially to obtain input on gear characteristics that may be relevant to the rulemaking. Finally, a commenter provided general

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support for the implementation of bycatch reduction measures.

There were several data needs also identified. I should note that these are all of the issues identified and several of these are already being worked on, or were already incorporated into subsequent webinars. These webinars are available on our trawl website, if you would like to review them as that's what was discussed.

As far as turtle bycatch data are concerned, several commenters requested that we look at takes over time and by geographic area, as well as consider bycatch both observed and estimated in conjunction with observer coverage and overall fishing effort. It was suggested by several commenters that we look at bycatch by trawl net characteristics, instead of just by (faded out).

We heard that it is important to look at bycatch levels in areas where TEDs are currently required to see how TEDs are working, and multiple individuals commented that all threats to sea turtles should be addressed, instead of just commercial trawl fishing, specifically focusing on vessel strikes, marine debris and recreational fishing. Finally, sea turtle population and trend numbers were desired. As far as specific fishing gear data needs. We heard that commercial fishing effort over the last ten years should be evaluated, especially in consideration of bycatch levels. It was suggested that we analyze available tow duration data. We were before requesting industry modified our tow duration, perhaps stratifying by vessel size. Then also it was noted that the durability and potential clogging of TEDs continue to be evaluated in gear research activity.

In the various webinars and meetings there were a lot of questions, and I've noted most of them here. Specifically, there were several questions on the Science Center's bycatch estimate process, the methodology and then results. We were also asked about the numbers

of dead versus alive take, and NMFS boats interactions mortality process.

There were also questions about the level of observer coverage in the various fisheries, research details, turtle behavior in relation to trawl gear among other things. The same as I mentioned with the data needs, some of these questions were answered at the time of the presentation, some were responded to after the presentation, and then some are still being explored.

As mentioned, we had a series of topics on which we desired particular input. These questions were all in our previous outreach, presentations and briefings, and are also on our website. Specifically, they focused on mitigation measures and operation and economic consideration. We still need input on these topics, and in particular how to define the fishery or gear to which these gear measures would apply.

We also need any and all information to include in our future bycatch reduction effort. We do want to stress that there still is a need and time to provide any insights. Our website, as noted at the bottom of the screen, has all of the background and relevant information, as well as recordings and slides from the public webinars.

I do encourage you to look at that website for additional information. What happens next? Well, we are requesting comments, as I mentioned through the end of the month. At that time, we will summarize and review all comments, and it is my intent to put together a written summary of everything received and post it on our website, the trawl website I just mentioned.

Then we have research scheduled over the next year or so. After that we will review the research, as well as the comments and feedback received for this current initiative, and determine a path forward. The decision on rulemaking will likely occur within the year. We will definitely keep you updated on the progress and our plans. This concludes what I have for you on the issue today.

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Again, this is to keep you informed of what was going on with respect to sea turtles and trawls, and to request additional input. I did want to thank you very much for your time, interest and feedback on this issue, and also putting up with my cold that I have, and I apologize for my hoarse voice today, but thank you for your time.

CHAIR WOODWARD: Thank you, Carrie, we appreciate that, very informative. Any questions or comments for Carrie? Dan, go ahead.

MR. MCKIERNAN: Yes, thank you, great presentation. I do have two questions. Who will be working on the analysis of gear and sea sampling data, would that be the gear team down at the Northeast Fisheries Science Center? Then my second question is, how will you measure success?

MS. UPITE: To your first question, who was involved in the gear research and the analysis. Yes, we have, this is actually, I should mention. This is a joint process with the Northeast and the Southeast, so we are coordinating with our Northeast Fisheries Science Center and the gear team there, as well as our gear folks in the Pascagoula Lab at the Southeast Fisheries Science Center, as well as GARFO, my office headquarters, and then also the Southeast Regional Office in St. Petersburg.

We have a number of people involved, but our Science Centers are involved in the actual gear research, which I believe was your first question. The second one, how will you measure success. That is a good one. We will take the results received from the previous research, which I presented earlier, as well as the ongoing research and assess that with this joint regional team that we've mentioned.

We don't have a specific number that we're shooting for, if that's what you're getting at. But it is more of a qualitative assessment, looking at the results and trying to get a level of

catch retention that works for the industry as well as bycatch reduction of turtles.

CHAIR WOODWARD: All right, thanks. We've got Chris Batsavage.

MR. CHRIS BATSAVAGE: Thank you for the presentation, Carrie. I had a question about just the comment received during the public hearings about exempting smaller vessels. Were the turtle takes observed in all sizes of vessels, or were vessels smaller than say 40 feet less likely to have sea turtle interactions, based on the observer data? I can't remember if that was presented during the hearings, and I haven't had a chance to look at the website lately, so my apologies if that information is already there and I just haven't seen it.

MS. UPITE: We did not present information on smaller vessels in our webinars. We did look at small versus large vessels in the squid fishery. We do have takes in smaller vessels, medium, and large size vessels for squid, so that is one of the research needs for that fishery that we want to test TEDs on multiple size vessels in that fishery.

There is no context provided in the comment on the smaller vessel comment that was received. I think the intent was that we should look at whether or not those smaller vessels do catch turtles. That is something I did want to mention here, and that is something that we are going to be looking at when we move forward with the issue.

CHAIR WOODWARD: Eric Reid.

MR. REID: Thank you, Carrie. I have a few questions. I'm looking at the data, and from 2000 to 2019, the average interaction with turtles on observed trips is 2.5 turtles a year. Is that right? That is in the squid fishery, and in the fluke fishery it's 0.9 turtles per year. I want to make sure I've got that in my head.

MS. UPITE: I would have to double check your numbers, Eric. For the observed numbers I can look that up really quickly, but go ahead. I just need to get the map; you have the numbers.

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MR. REID: I'm looking at your one pager here, and its simple arithmetic, which even I can accomplish that. My question is, and I don't expect an answer today is, what are we doing here? You know you're going to burn an entire industry for 3.4 turtles in the combined squid and fluke fishery? I can't even begin to understand what that means. In this doc, the one pager, it says that fisheries bycatch is a primary threat to turtles. At those numbers I can't, it's a stupid question, but what is the definition of primary?

I'm looking at power plant intake interactions, strandings, vessel strikes. Have you ever seen a shot gun start at a fishing tournament? I mean I would be afraid to be a turtle before that mess. I guess that's my question. What are we doing here? We're going to put a tremendous burden on an entire industry to accomplish nothing, really nothing.

Then the question becomes, are you going to do a full economic analysis? Towing a TED is going to cause a reduction in catch. I've seen the numbers, whether it's 5 percent or 55 percent it's going to cause lost catch, which means increased swept area, everything that you've heard already probably from me and from the public. But at \$6.00 or \$7.00 a gallon now for diesel fuel, plus everything else you put on the boat from paper towels to diesel fuel cost more money. What is the impact going to be for another day at sea for a boat, any kind of boat?

I'm curious to see if you're actually going to do that analysis and what your timeline would be for feedback on that. What is your timeline for final action, which we're all scared to death is just an inevitable foregone conclusion? I guess that is my comments or questions or something, but it's mind numbing to me that we're having this conversation at all.

MS. UPITE: We are recording your comment, Eric, thank you for that, and we'll check the numbers. I did want to make one comment to

that is that the numbers you're referring to, and then I did note on one of my slides where the observed take. The estimated takes, which again account for the observed interactions as well as the fishing effort are higher.

As I mentioned in the last take estimate from 2014 to 2018, we had about 670 turtles captured during that timeframe, which results in about 134 estimated takes in trawl gear per year. That is not broken out by squid, croaker, what have you. But those numbers are larger. We do recognize that there are other threats to turtles like vessel strikes. Turtles have gotten caught in power plants, and those are also being addressed through other avenues.

But again, we can talk about this at length another time, I know we're short on agenda time today. But to get to your point on the economic aspects and timing. As I noted on my last slide, we do have some research going on right now on TEDs in certain fisheries, and we are working on that, and that is still ongoing. After that is done, we are going to assess the research, the comments, and then determine the path forward. Once we determine that rulemaking will occur, if it will occur, then yes, we'll go out with a proposed rule and conduct an economic analysis at that time. But nothing is set in stone right now. It is our intent to move forward, but we aren't doing an economic analysis right now, because we're not engaged in formal rulemaking.

CHAIR WOODWARD: Eric, follow.

MR. REID: Yes. I appreciate that, but it's got to be done, because everything has gone up. Costs are going up, and more sea time is going to cost more money. But I guess my last question is, you've got the turtle protection line at about, it's 37 degrees 8 minutes north more or less. How far are you considering pushing that north?

MS. UPITE: Yes, and definitely we will be doing the economic analysis. I just want to make sure that is absolutely clear, and we do recognize that there is an issue with that. One of the slides had the map of the turtle interactions. We haven't identified a

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northern point yet, but it would be our intent to look at where turtle interactions overlap with fisheries. Right now, if you look at the line, most of our interactions are south of Massachusetts.

We will be looking at the distribution when we take that all into account as well as the seasonality of the regulations. For example, in the waters off of New Jersey regulations may only apply in the warmer months of let's say May through November, whereas off of southern North Carolina they might apply all year round. But yes, we don't have a specific line yet. But it would account for where the fisheries overlap with turtle distribution and take.

CHAIR WOODWARD: All right, thanks, Carrie. Any other questions for Carrie? I don't see any. All right, at this point as Toni mentioned, we need to decide whether we want a comment letter from the Commission on behalf of the members. I would appreciate some feedback on that. Toni has a question for you, Carrie.

MS. KERNS: Carrie, do you need a formal letter or will the comments that we provide you here at this meeting be sufficient for you?

MS. UPITE: We are recording all of the comments provided at these meetings as public comment, so we don't need a formal letter, unless there is something additional that you would like to convey or let's say rehash, or strengthen. Make sure your point is clear. It could go either way, it kind of depends on you. We would appreciate any formal written comments, but again, it's not 100 percent necessary.

CHAIR WOODWARD: All right, so what are your thoughts? Eric.

MR. REID: Well, I would prefer to have something formal on the Commission's letterhead, but I'm only one-third of one state. I would much prefer that over this.

CHAIR WOODWARD: All right, anyone else? Yes, sometimes I think it's important to put things in writing, and have some context for them. Jay.

DR. McNAMEE: Yes, you can make that two-thirds of one state. I think it's a good idea as well. I mean I see value in kind of having these things collated, and there are species in here that are Commission species. It seems relevant to comment. I don't know that we would come up with things that are different than what we saw in the presentation on what Eric offered. I think it would be good to kind of get them together, let people get a chance to look at them. I like the idea.

CHAIR WOODWARD: Dan.

MR. McKIERNAN: Yes, I agree with my neighbors to the west, and we would be happy to participate in that.

MS. KERNS: We can, as long as the Board is in agreement, but I would just request that at least the two states that have said they want to provide comments that you provide me with some comments to include in the letter, besides the one that Eric said today. I don't know which of the ones that Carrie presented that you would want to include.

CHAIR WOODWARD: Jay.

DR. McNAMEE: Yes, that sounds fine. I guess what I would just offer is, you know the croaker fishery is not something that we know a lot about. We'll need help there.

CHAIR WOODWARD: All right, Chris Batsavage.

MR. BATSAVAGE: Yes, we can help with the southern end of the range of these fisheries, so glad to do that.

CHAIR WOODWARD: All right, sounds like we'll get something drafted up, circulate around and it will probably prompt some thoughts and comments from other folks. That way we can get a comprehensive comment letter back on behalf of

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the Commission. Any last questions and comments on this?

MS. KERNS: Just a quick question to Carrie. Is there a deadline that you're accepting comments, just so I have a timeframe to work with? Just to make sure I'm remembering.

MS. UPITE: I did just have my hand up, because I wanted to respond to that. As I mentioned in the presentation, we are accepting public comments through the end of May. We did that because I wanted to make sure it would be after this meeting. That said, because we are not engaged in formal rulemaking, we have a little bit more flexibility on the timing. I imagine you may need a little bit more time after the end of May. If you do, please let me know. It is able to be worked out. That is our official end of May deadline, but if you need more time, we certainly can accommodate that.

MS. KERNS: Thanks, Carrie, we can work in that timeframe, no problem.

CHAIR WOODWARD: Thanks, Carrie, and hope you get over your cold quickly. We appreciate the update. Thanks.

MS. UPITE: I appreciate it, thank you.

CHAIR WOODWARD: Okay, let's take a short break and let everybody get up and walk around a little bit if you haven't checked out or whatever. Let's reconvene at 10:40.

(Whereupon a recess was taken.)

#### **UPDATE ON THE MID ATLANTIC COUNCIL'S CONSIDERATION OF REINITIATING THE RESEARCH SET ASIDE PROGRAM**

CHAIR WOODWARD: All right, I'm going to turn it over to Bob. This one is not controversial at all. This is easy. I'm sure everybody will just be happy as they can be with this one. Bob is going to update on the Mid Council

Consideration of Reinitiating the Research Set Aside Program.

EXECUTIVE DIRECTOR BEAL: I've got a half a dozen slides or so I'll go through pretty quickly. As Spud mentioned, the issue is the Mid-Atlantic Council is working through a reconsideration of the Research Set Aside Program. Obviously, a number of the species in that program are also jointly managed by ASMFC.

The question is, how does the Commission want to be involved, and what's the appropriate linkage between both groups. With that, a little bit of background on the Research Set Aside Program, for those of you that are not part of the Mid-Atlantic Council and ASMFC process, the joint process. The previous iteration of the research set aside was developed through Framework 1.

It affected mackerel, squid, butterfish and then joint species, summer flounder, scup, black sea bass and bluefish, as well as tilefish. It was approved in 2001, the initial projects were funded in 2002. The way it worked was up to 3 percent of the species that I just listed were set aside from the total allowable landings, and that set aside fish was auctioned off, and that revenue from the auction was then used to fund cooperative research.

From the initiation of that program in 2002 through 2014, 39 projects funded at 16 million dollars were run through the RSA program. Quite a bit of money was generated, and quite a bit of scientific projects was conducted. However, in 2015 RSA was suspended. The set aside was set at 0, so no quota was available to support research after 2015.

Why did that happen? The Mid-Atlantic Council set it aside, because there were a number of problems that were identified in the previous iteration of the research set aside program. The administrative and enforcement costs were really high, and the value of fishing opportunities were different across different species.

In fact, in some instances the cost outweighed the benefits of the research. Enforcement was a big

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issue. There was essentially a financial incentive not to report your trips. That meant that a significant amount of RSA landings was not being recorded, and this actually impacted the compliance with National Standard 1 to prevent overfishing. If the trips were happening and those fish weren't being recorded or reported, they were obviously being caught beyond the quota and beyond the research set aside amount. Recreational landings, because what happened in the auction was that some for-hire vessels would purchase fish in that auction, and use those fish to run additional for-hire trips and/or change the possession limits and size limits and other things on those trips.

Not all of that catch was being reported, and it's really a capacity issue to monitor all those RSA trips. The research, that didn't go that great either. There were a number of projects that failed peer review, so they were funded but didn't produce valuable science, and again, the applicability and utility of some of those projects really wasn't directly utilized by managers and applicable. Other than that, it went well.

All these things led to a lack of public trust in the program, and that's why the Council discontinued that about seven years ago. The idea is, I shouldn't be as flip about it, but you know there were a lot of problems with it, and now the Mid is kind of working through those problems trying to address them.

The idea is a strong concept of, you know set aside some fish, fund some research that benefits the individuals in those fisheries. Where we are now, or where the Mid-Atlantic is now is last week there was a Research Steering Committee met, I'm on that Committee, and we developed some guidance and final recommendations for the Council.

The Council is going to get together in the middle of June, in Riverhead, New York. This is a hybrid meeting, if anyone wants to listen in on that. The Council at that meeting is going to

decide, you know based on the guidance and recommendations out of the Research Steering Committee, do they want to continue this?

You know, do they want to keep working on potential re-initiation of the Research Set Aside, or do they want to just go ahead and stop it, say this program is not worth it. The administrative burden, enforcement burden and everything else that goes with it just isn't worth it, so we're not going to try to revitalize the RSA Program.

We'll see what happens there, but most likely 2024 would be the earliest that this program could be reinstated by the Mid-Atlantic Council, if everything continues to move forward. The Research Steering Committee has identified four different goals that they're trying to achieve in the re-initiation of this program. First goal, and these are in rank order.

The primary goal is to produce quality appropriately peer reviewed research, and maximize the benefits to the Council, management partners (that's us), and the public, and enhances the Council's understanding of the species, so essentially research. Goal 2 is effective enforcement and administration of the program. Goal 3 is to generate resources to fund research, and the fourth is to foster collaboration and trust between the scientific and fishing communities, as well as the general public.

That's what we're trying to achieve, if this program is brought back to accommodate all four of those goals. There are specific areas that are being considered to achieve those four goals. I'll go through these pretty quickly. There are a lot of areas that needed some adjustment, as I talked about earlier. Under the administration and enforcement of the program, it's call in and reporting requirements and notification, shoreside monitoring, you know should we limit the number of landings locations so enforcement is easier. Should there be limitations on the number of vessels that are participating, so that the administrative burden on states to issue exempted permits and other things is minimized?

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Obviously, one of the things that was talked about a lot last week at the meeting was sort of the administrative and burden cost relative to the benefit. Where is this break point between, you know if the states and the federal government are spending a lot of money on administering the program, as well as enforcing the program, where is the balance?

You know those costs really are greater than the benefits associated with the research that is provided. On the funding side, you know there are conversations about what species are available, and where does the RSA come off the top? Is it the total allowable landings as it was before, or is it the ABC that is being considered now?

What funding mechanisms make sense, and then research set aside quota allocations. If some of the quota is set aside, how is that broken out into commercial and recreational fisheries? Is it consistent with the FMP, or does it have more to do with the type of research project that's being funded? As I mentioned earlier, there was an auction that was run to generate the funds.

There was a bit of a lack of trust with that third party administration of that auction, as well as some of the quota process, and there was a lot of transfers and trading going on after the purchase of those sort of blocks of quota through the auction process, and that raised some concerns.

Then on the research side, you know how do we address the shortcomings of the research that I mentioned earlier. You know the goal here is that this science is completely and directly applicable to management questions. You could see a lot of issues here, conflicts of interest, quality research and peer reviews and funding, and all the other things.

One of the big ones is data availability and open access. If there is funded science, who can see this data, who can use this data, and how is

available to the general public? This is the final slide. One of the areas of ASMFC and state engagement in this process this slide kind of summarizes some of those issues, such as shoreside participation.

There is a lot of administrative burden that is put on the states when this program is up and running to, as I mentioned earlier, develop or issue exempted fishing permits and all the other permits that are necessary to fish outside of the season or fish under different guidelines. As well as the enforcement cost to have conservation officers running around the docks, and making sure these research trips are playing by the rules, hail in/hail out will obviously create some administrative burden.

Potentially under this new program, a lot of those decisions on a number of vessels and ports that are available for landing and other things, would be essentially brought back to the states, and the states would have to decide how they wanted to handle that. Tracking the for-hire harvest is a hard thing to do. Research set aside trips, if an MRIP interviewer is out there and they talk to a vessel that just came back from a fishing trip, and the captain says no, no, this is a research set aside trip. Most likely that interviewer is going to cancel that interview and go on to the next vessel.

There are some reporting requirements that are available, but the verification is the tricky part for the for-hire industry. Then best practices for what's the best way to handle enforcement across the states. What issues can we do across the states that have these species available? How do we make this as consistent as possible for the states?

The final is, the potential engagement process in areas of cooperation with the Research Steering Committee and the Council. How do the states and Council interact on a number of different, you know how do we want to evaluate this program if it is back up and running? We at ASMFC, if the Mid-Atlantic Council does reinstate this program, what framework or what addendum do we as a Commission need to pass, to be consistent with the Mid-Atlantic Council?

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At a minimum the Commission will have to set aside the same quota as the Council. In other words, if the Council sets aside 3 percent to support research for summer flounder, ASMFC will have to do the same thing, set aside that 3 percent, so that we're working on the same base quotas. But I think there also will likely be some other things that may need to be captured in an addendum at the Commission to support this RSA Program.

Where we are now, as I mentioned earlier, the Mid is going to get together the second week of June, and decide whether this goes forward or not. If it does, then that is when the engagement with ASMFC will happen, subsequent to that decision at the Council. Not much of a reason to engage now if it potentially is canceled at the June meeting at the Council.

If the Council wants to move forward, then we have to have some joint conversations, possibly with this Policy Board and the Mid-Atlantic Council on how we want to interact. Given that so much of the administrative burden is placed on the states, how does the Council and Commission want to work together to advance the RSA Program, should that be the direction that is chosen?

Just an update. There are a number of individuals around the table, I think Jason and Dan and Joe Cimino and Pat Geer and others, that participated in some of the workshops and other things, and maybe others have as well, I just didn't know it, that may want to chime in. But no decisions are needed here today, just really an update that we as a Commission will have to pay attention to this as it potentially moves forward, and is considered at the June meeting of the Mid-Atlantic Council. That's a brief summary of where we are and what's happening next.

CHAIR WOODWARD: Thanks, Bob. I've got Tom and then Dan.

MR. FOTE: New Jersey had real problems with this program to begin with. What we finally did was not issue permits, so there couldn't be any research, especially with this party and charter boats in our state to basically participate in this. I mean we have enough problems using the law enforcement agents to cover up what we have now, without adding extra burden with them.

We can't hire more officers unless they want to pay for the research set aside, and pay for more law enforcement officers to basically do this. It also was not too happy with a lot of the recreational sector, because they were pulling equal amounts from both sides without their real participation or public comment, and a lot of the research was not done to their benefit as they saw.

Plus, it wound up being a big slush fund, and I hate to say that but that's what it was. For researchers and things, yes, maybe some research was very good. But it was also no done right. There are other ways of going about to get research money. We in Jersey put P-maps together for the commercial and the recreational, and basically try to solicit money.

There is another fund to do that through universities that have the co-op on there. At this time with the quotas so little, we are fighting for every day of fishing is so important to the recreational sector plus the commercial sector, that I can't support this program. If they are going to do it.

I mean bluefish is actually overfished; do we make it you can't do an overfished species? I mean we have a hard enough time staying into our quotas, so as you can see, I am not a big supporter. I'm a supporter of research, but I didn't think this was the right vehicle to do it, especially the way it was handled.

CHAIR WOODWARD: Thanks, Tom. Dan, and then I'll go to you, Jim.

MR. McKIERNAN: I won't repeat a lot of the stuff that I've sat on in those meetings, because I think

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people are tired of hearing from me. But I'm wondering if we could come up with a solution here, and maybe seek a Congressional Appropriation for cooperative research in the Mid-Atlantic, much like we had years ago with the Northeast Consortium, when Senator Judd Gregg from New Hampshire was involved.

You know because the Mid-Atlantic Set Aside is so problematic, because the states have been given the burden or the opportunity and the authority to actually manage these fisheries. It's just so complicated. But I would love to see cooperative research going forward. I think we should have a Plan B, especially if maybe we could sell some folks on Plan B, so we don't have to go down this road.

CHAIR WOODWARD: All right, Jim.

MR. GILMORE: I agree with Dan. The concept of this is good, but the problems we've had with it, I'm not sure if we're going to make it work. I'm going to steal Steve Train's thunder, and now agree with Tom Fote. We were one of the big players. I have five officers in the Marine Enforcement Unit. We can make this all work again, but we're right back to the same problem.

It's like, you're going to need significant increases in law enforcement to do this. It's just not going to happen in the states. We'll be talking about this yes, quite a bit, at the June meeting. But again, I think Dan is right. We probably could come up with a Plan B, because the research I think is a good concept to try to get better research, but if we can't make this work than another option might be a good idea.

CHAIR WOODWARD: All right, John Clark, and then I'll go to you, Jay.

MR. CLARK: I'm just curious, Bob, considering what a fiasco this is, and the strong opposition to the program. This seems like a zombie that just won't stay dead. Who is behind trying to bring this back? If the Council does decide to

bring this zombie back to life, where would the Commission be then? Would we have to agree to the whole thing, if the Commission decides no RSA and the Council decides, yes? Where does that leave us?

EXECUTIVE DIRECTOR BEAL: I don't want to speak for the Mid, and there are a lot of members here from the Mid-Atlantic Council. But in the conversations at the Research Steering Committee, the idea is that you know the concept is good. You know the execution wasn't good. You know the idea of taking a little bit of the quota, setting it aside, funding some needed research, and having that research contribute back to more effective management.

I think that is what is bringing the zombie back, is sort of the concept of a zombie is good. But it may be so hard to execute that good idea that it's just not worth it. That's kind of where we are right now. To your question about where is the Commission if the Mid decides to move forward. You know one of the considerations is that states would have to opt in to this.

In other words, it's not automatic. States aren't obligated to do it. But if a state opts into this, then they would take on the burden of enforcement and permitting and monitoring, and everything else that goes along with this program. I think that is probably one of the most important interfaces between the Commission and the Council would be, what states are interested or not interested?

That conversation still needs to happen. There is a lot of detail in this. I should have thanked Brandon Muffley up front, he's the one who put together these slides for me, so I don't want to take any credit from him. But Brandon has also put together a really good table that sort of is what is new and different.

The first column has the issue, second column is the way it used to be, and the third column is the way it's being proposed to be new and different, if this iteration comes back. I think I should share that with this group. It's a pretty good summary of

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comparing the old versus the new, so at least that is a starting point. But I think the phrase, “the devil is in the details” was said, I don’t know, 10 or 15 times at the Research Steering Committee last week. That is the reality of the thing.

CHAIR WOODWARD: Everybody is going to put some lipstick and face cream on a zombie. Go ahead, Jay, and I’ll go back to you, Tom.

DR. McNAMEE: Yes, so a little zombie advocacy over here for everyone. I think Bob, you sort of said exactly what I was going to chime in with. I think the concept is a good one. It’s interesting on a number of different fronts, the whole system, the auction. Like all of that stuff is kind of neat and interesting, and could be good. But I think, so I reserve judgment. I want to see what they are able, a bunch of smart people working on it. I would like to see what they can kind of put together to shore up some of the issues from the last go around, before I sort of sign it off. I just want to see what they can come up with.

If we judge it and don’t think they’ve protected us against some of those issues that we had, the kind of looking over your shoulder, and off go the RSA pounds that don’t get recorded, that sort of stuff. But maybe they can come up with some ways to counteract that. Then there is a lot of benefit to the program. I just want to see what comes out of it.

CHAIR WOODWARD: All right, Tom, and then I’ll go back to you, Dan.

MR. FOTE: I just think, what is different from now than it was back then. Let me see, we were transferring what we thought was unused recreational quota over to the bluefish, and basically so you were taking a research set aside on the bluefish now. There is no unused recreational quota. As a matter of fact, we can’t get enough quota to basically let our fishermen do that.

The same thing with black sea bass, scup. Oh, we could basically, we have unused quota, because we’re going to restrict the recreational sector so much that we’re not going to be able to harvest a quota on scup this year, because 20 percent of the quota will not be used, but the recreational sector is doing a huge reduction, and the same thing with black sea bass.

It doesn’t make any sense to talk about it until we have stocks that we’re not taking away days at sea for commercial fishermen and days at sea for recreational and charter and party boats. I just can’t see it. It might be nice for the college professors and the universities, because they get big overhead out of those grants.

They charge you 50 percent, unless you’ve got fine grants that you basically get. I used to get work grants so the college can only charge 10 percent, otherwise I was going to different colleges. But that’s not how it most of the time works. I can understand why college professors like it, it’s a source of money.

CHAIR WOODWARD: All right, Dan.

MR. McKIERNAN: Yes, very briefly. One of the biggest challenges in the last go round was the fact that the RSA, the research set aside, was auctioned off so that the poundage was monetized. I think there is a struggle to try to figure out how to restart that if we do. Some on the call suggested that ASMFC did such a phenomenal job on CARES, maybe they could become the bank. Well, I’m just pointing out, watch out, this is the devil and this is the details.

CHAIR WOODWARD: I don’t know what kind of powers I have. But if I’ve got veto power, I think that one is going to get vetoed. All right, Shanna.

MS. MADSEN: Not to belabor any points, I just want to say, you know I agree with all of the things I’ve heard around the table today. I strongly agree, as I oftentimes do with Dr. McNamee, in that I am willing to wait and see what these guys come out with. I do want to remind everyone that this

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program gave us NEAMAP, and it's a critical part of our stock assessment science today. I think it's highly respected, and a lot of that has to do with the fact that it was a cooperatively created survey. I am not prepared yet to kind of shut down on this just yet. I would like to see what comes out, because we've also seen the good that this program can do along with some of the evil.

CHAIR WOODWARD: All right, thanks. We'll wait and see what the Mid does, and we'll react to it accordingly. Go ahead, Bob.

EXECUTIVE DIRECTOR BEAL: Just one sort of scheduling note. ASMFC and the Mid are going to meet jointly at their June meeting to deal with Harvest Control Rule. It's most likely that this issue of research set aside will be immediately before or immediately after that discussion. It should be convenient for the Policy Board members to listen in on that should they be so inclined, and you can keep up with what the Council is doing.

CHAIR WOODWARD: Jim.

MR. GILMORE: Bob, do you have the date on that yet? I haven't seen the agenda, and I'm trying to get it. I definitely want to be there. You can give it to me later.

EXECUTIVE DIRECTOR BEAL: It's June 7 through 9, which is June 7 is a Tuesday, and I think the joint meeting will be either on the 7th or the 8th, is my understanding.

**REVIEW OF THE INFORMATION RELATED TO  
THE TAUTOG COMMERCIAL  
TAGGING PROGRAM**

CHAIR WOODWARD: Next we have, James is going to give us a review of the information related to the tautog commercial tagging program.

MR. JAMES BOYLE: Good morning, everybody. I will be very quickly running through the initial

findings from two surveys regarding the tagging program. First a really short background on the issue. In October 2021 the Tautog Management Board tasked the Law Enforcement Committee with assessing the compliance of the tagging program, and its impact on reducing illegal harvest and markets.

Then fast forward to the January 2022 meeting, the Board reviewed the Law Enforcement Committee's report, which document along with some public comments, that a minority of commercial fishers have experienced issues with applying the tags, and have observed injuries to the fish when held in tanks for long periods of time. Considering this, the Board discussed how best to further evaluate the impact of the tagging program, and specifically what tautog dealers had noticed a change in market price for tagged live fish.

Additionally, since then New York conducted a survey of their own commercial harvesters' trippers and dealers, to better understand any impacts of the tagging program in their state as well. After the January meeting, board members identified dealers for Commission staff to reach out to, and some of the specific questions proposed to those dealers.

These are the initial results that I was able to accumulate. I received contact information for 25 dealers with 13 from New Jersey, 3 from Connecticut, 2 from Massachusetts, and 7 from Rhode Island. Of those 11 provided responses, but unfortunately only 3 sell live tautog, and therefore can speak to the issues that we are hoping to investigate. Two of those responses did not have problems with the tags, although one did mention that there was a learning curve in that first year of implementation of 2020.

However, one Massachusetts response outlined many of the same issues that we've been seeing and had been reported previously, such as the tag is not locking properly and falling out, excessive damage to the gills, a shorter shelf life in live storage, and specifically a decrease in market price as well.

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As I mentioned, New York had their own survey from harvesters. The confirmed the Law Enforcement Committee's report that there was a minority of fishers experiencing issues with the tags, primarily tags not locking and falling out, causing excess mortality and excessive damage as we've seen before.

Eighty-one percent of those 56 respondents, and the 56 respondents is 12 percent of license holders, for context, prefer to change the style of tag. However, folks on the dealer's side. For shippers and dealers, they received 10 responses, among which 90 percent reported using live storage, and 57 percent of those hold the fish for longer than two months on average.

The largest reported issues were again, tags not locking and falling out at 27 percent, causing excessive damage at 23 percent, and causing lesions to appear on the fish at 19 percent. Fifty percent prefer changing the style of the tag, and the other 50 percent did not respond to that question. The key takeaway here is that even with the two surveys combined, there are only 13 dealer respondents, and a severe lack of geographic representation between them.

Therefore, we did not feel that this was sufficient to present to the Tautog Management Board, to consider possibly taking some action. In order to improve the results of the survey, and get a more representative sample, we are requesting further direction from Board members on acquiring information from dealers of live tautog specifically. Are there any questions or notes?

CHAIR WOODWARD: Any questions for James? John Clark

MR. CLARK: Yes, I was just curious. I didn't know whether it would come out as to whether those tags falling out, if the problems were across the board, or were there certain fishermen in particular that had the problem, because I know you have to use a certain applicator to make the tag lock. I'm just

wondering if some were trying to get by without using that certain applicator and just using pliers.

MR. BOYLE: I don't have like specific data to answer that question. But I do have the one negative Massachusetts response did speak to that exactly. Their opinion is that a lot of fishers are not using the proper tools, because they either don't know where to get them or don't want to pay out of pocket for them, and other reasons like that. They use makeshift tools that they get from the hardware store as opposed to the proper applicator. Again, I don't know how representative that is. That is just one story that I heard, but that is what I have come across.

CHAIR WOODWARD: Eric.

MR. REID: My question is, does it have anything to do with the size of the fish? I think the live market is for smaller fish than the dead market. Maybe it has something to do with just the size of the fish themselves, I'm not sure.

MR. BOYLE: I also, I'm not sure. But I have heard some public comment, and I think one of them might have been included in the meeting materials for this meeting. I'm not positive. But they did talk about the size of the tag being an issue, so again, I don't know how representative that is of the sample though.

CHAIR WOODWARD: Jim, and then I'll go to you, Dan.

MR. GILMORE: Let me just maybe give a little bit of the New York perspective, and maybe that will help out. Just opinions, because we're getting one side of the group saying it's phenomenal, another side it's the worst thing we've ever done. Obviously, the 50 percent sounds right. I think my opinion, based upon the feedback we've gotten from the surveys is there seems to be a learning curve on it, in terms of how to use the tags.

I don't know if it is so much a size issue as opposed to, you know getting used to the applicator and the things about doing it on the water, yada, yada.

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Rachel Sysak who has done our program did a great job, and did the survey whatever. She has actually put together videos now, and the sense I'm getting, or at least where I think we would want to go is maybe we let this go for another year, and redo the survey after now they've got a couple years under their belt.

Because we were rolling this out during COVID, and that was another challenge. In New York we footed the bill, so we didn't put the cost burden on the fishermen yet, but we may be doing that next year, so at that point I think it would probably be better, instead of starting going into coming up with a new tag, maybe we want to make sure that this one is just not an operator error at this point, and maybe that's the best way to go.

CHAIR WOODWARD: We've got Bill Hyatt virtually, so go ahead, Bill.

MR. WILLIAM HYATT: I did put my hand down. I think my question has been answered. I guess one remaining one was, I thought I heard there was going to be some request back to the Board, and if that could just be repeated that would be great.

CHAIR WOODWARD: Yes, I think the question is whether there is any interest at the Policy Board to direct efforts to further investigate and address this issue. But what you just heard from Jim is that there are some things underway right now that might actually help resolve this perceived or real problem, depending on which way you look at it. I think that is kind of where we're at. I'll lean on Toni if there is something else that we might need to decide.

MS. KERNS: It's the pleasure of the Board, and we didn't bring this to the Tautog Board, because we had to trade out for the Coastal Sharks Board. That's why we're talking about it at the Policy Board. But if the Board is wanting to know what other regions are hearing from their fishermen, or from their dealers. We need

to know who those dealers are, and I think we need some help from you all to get those dealers to talk to us, because James has made some considerable efforts, and we're just not hearing back from folks that sell live taug, so it's the pleasure of the Board.

CHAIR WOODWARD: I guess the question, is this widespread enough and of magnitude enough to be a real problem, or is it a localized few individual learning curve type of issue that doesn't warrant the expenditure of a lot more human effort? That's something you all can give me some feedback on. Dan.

MR. McKIERNAN: Yes, I would like to echo Jim Gilmore's comments, which is since it appears to be a learning curve. I think New York delayed implementation of this one year. We saw more problems after our first year, fewer problems after our second year, because of the learning curve. I'm with Jim, I think we can let this go another year, and see if those problems persist.

CHAIR WOODWARD: Jay.

DR. McNAMEE: I'll echo that. I thought that was a good idea, from Jim, and it sort of was the sense that I had, you know just nobody likes this stuff when it starts, and fishermen are good at what they do, so they get better at it, figure out how to get it done. We could revisit it after letting another year get under our belts.

CHAIR WOODWARD: All right, sounds good. Anybody have a differing opinion? I don't see anybody, okay, we'll dispense with that one. We don't have any noncompliance findings, and other business I mentioned about CITES and sharks and dogfish and eel. We do have, I don't want to constrain discussion, but we are obligated at 11:30 to meet jointly with the Mid to discuss the Harvest Control Rule. We talked about this a lot in the Sharks yesterday. A lot of you were there. A lot of you understand kind of where we're at, but we wanted to revisit again.

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**OTHER BUSINESS**  
**CITES PROPOSED LISTINGS/SHARKS**

EXECUTIVE DIRECTOR BEAL: Yes, I'll kick it off and then Dustin will fill in the blanks, if that's okay, Mr. Chairman. Just really quickly, a lot of folks were here during the Shark Board yesterday. There is a proposal from the country of Panama to list 54 species in CITES Appendix II.

Four of them for direct trade issues, and then the other 50 for lookalike issues. The question is, should we send a letter to CITES commenting on that? The Shark Board recommended a yes, ASMFC should send a letter voicing the concerns from the Commission about the potential listing of these animals in CITES, and Dustin can give a quick background on that.

MR. DUSTIN COLSON-LEANING: Sorry, Bob, I was lipreading Toni's words and I missed what I will be following up with, apologies. The Coastal Sharks Board recommended to the Policy Board that the Commission send a letter voicing opposition to the listing. The Commission already supports responsible and sustainable coastal sharks' management program with an effective enforcement, so that was the main comment that was received as justification for sending this letter. Then detrimental economic impacts were also discussed. There was a discussion about how other shark species in the past had been added to Appendix II, which subsequently caused a big decline in commercial landings. At the same time a lot of commercial landings of sharks have been well below the quotas, so this is a fishery that necessarily isn't producing that much output to begin with, so additional barriers to being able to market those products would be a hindrance.

On top of that HMS representative talks about the relatively low volume of U.S. exports of shark species, and so this might be another talking point supporting how this might be a little bit more burdensome than actually

effective, at least from the U.S. perspective. We're definitely still open to hearing more comments, more justifications that will help Commission staff write this letter, and then I'll turn it over to Toni, because there are other species that are being considered for Appendix II CITES listing as well.

CHAIR WOODWARD: Just to make sure, if you've got other thoughts about sharks that aren't covered in these bullets, just communicate them back and make sure we get them captured. I mentioned shark depredation in the South Atlantic, and the desire to try to keep shark fishing as viable as possible, and get those removals. That is seen for right or wrong as one possible solution to reducing shark depredation. I certainly want to see that included in there if at all possible. Anything on sharks on the CITES request from Panama? If not, then the next one is dogfish and eel.

MS. KERNS: There are two other Commission species that were raised, and Fish and Wildlife Service Federal Register Notice for CITES, spiny dogfish was on the list for a request to add it to Appendix I, as well as Appendix II. In the FR Notice, Fish and Wildlife Service noted that there was insufficient information to list in either of those appendices.

For American eel, there was a request to list it in Appendix II. U.S. Fish and Wildlife Service noted that this species is important for international trade, in particular for yellow eel and its meat, and elvers in the aquaculture industry. Our Commission's assessment will be very important, and evaluation of the species for CITES Appendix II in the future, but our assessment will not be completed in time for review at this upcoming CITES meeting.

Fish and Wildlife Service notes that it is important to seek additional information on trade in other countries, in particular from Canada, as well as the wider Caribbean region. Lastly, separate from Fish and Wildlife Service, but still a part of Fish and Wildlife Service, their law enforcement group did support the inclusion of Appendix II.

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I think the Coastal Sharks Board heard yesterday from Deb Hahn that when Fish and Wildlife Service says that there is insufficient information, it's less likely that those proposals will move forward. But it's still prudent and important if the states do have additional comments that you should send those in. If the Board does want to provide comments on spiny dogfish or American eel on listing in Appendix I and II for dogfish or II for eel, then we can do so. But we just need to hear some justifications why the Board would want to put that information in a letter.

CHAIR WOODWARD: Okay, any questions for Toni? John Clark.

MR. CLARK: Yes, Toni, on the eel. Do you know why the Office of Law Enforcement supports including eel in Appendix II?

MS. KERNS: There was not a specific rationale provided in the FR Notice that I saw off the top. I assume because it aids having that tracing and tracking aids in their cases, and it makes it, I think easier for those. But that is my assumption. There is tracing of the elver fishery already. I don't know how much tracing there is. I think it depends on the state for yellow eel and silver eel products.

CHAIR WOODWARD: Megan.

MS. WARE: It seems like it would probably be prudent to at least comment on the eels. I think there could be some implications there, and I'm happy to have staff work with Commission staff to get some justification there, particularly on our elver fishery and how that operates with enforcement, so we can provide that.

CHAIR WOODWARD: We've got Mr. Whiteside on virtually. I'll let you speak.

MR. JOHN WHITESIDE: Good morning, and thank you for letting me speak. I would ask that the Commission write a letter to Fish and

Wildlife opposing the listing, not only of spiny dogfish, but also winter skate. Dogfish, even though they say it's kind of leaving the door open, it's unlikely. I think that we need to take a strong position and oppose that, because of the enormous implications that have been brought up earlier about a listing on CITES I or II.

Especially for dogfish and skate, which in this instance have MSC certification, and in Europe that is a mandatory listing of certification, we would lose that and then the buying of dogfish and skate would collapse, as would I think the entire commercial fishery, and then that would have dramatic ecological impacts where you have small sharks and rays that already dominate the ecosystem, going unchecked by commercial fishing. I ask again, please have the Commission write a letter in opposition, both for spiny dogfish and winter skate. Thank you.

CHAIR WOODWARD: Dan and then I'll go to Mel, and then back to you, Joe.

MR. McKIERNAN: Yes, I've received two letters from industry in Massachusetts. I've been copying on letters to the U.S. Fish and Wildlife Service, and I would be happy to share those with staff. I would like to see the winter skate and the spiny dogfish also commented on in the ASMFC letter.

CHAIR WOODWARD: Yes, I am going to let Bob respond to you regard skate.

EXECUTIVE DIRECTOR BEAL: I think dogfish we can put together a strong letter. Winter skate, you know given that ASMFC doesn't manage any of the skate species at all, I think in the past anyway, we've stayed away from species that we don't necessarily manage, so that would be a different approach. I'm not saying we can't do it, but I would advise we probably stay out of that skate business.

CHAIR WOODWARD: All right, Mel.

MR. BELL: Just a process question. Toni, how fast do you need to hear from us if we want to

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comment, let's say on eel. Our staff/your staff, what are you looking at timewise?

MS. KERNS: Thank you for that question, Mel. If we can get comments from you as soon as possible, so if we do comment on dogfish and eel, if that is the pleasure of the Board. Those comments are due to the FR Notice on May 26. We have heard from AFWA that they would like to hear from us by hopefully the end of next week, and the 54 shark species.

I'm still trying to figure out if we can have one letter or if we need to separate the letters into two, and timing may have something to do with that as well. The sooner you can get me comments the better. I can send out a deadline to the Board after working with Spud here, to figure out our review process.

CHAIR WOODWARD: Joe, and then I'll go to you, Roy.

MR. CIMINO: I fully support, I was about to say both letters, but as Toni said, this might be one letter, but a letter for both species. I think Mr. Whiteside's comments were spot on for dogfish. He may have even pretty much wrote the letter for us.

CHAIR WOODWARD: All right, Roy, go ahead.

MR. ROY W. MILLER: I apologize for letting this go, but I've been thinking about that Panama presentation regarding members of the family Carcharhinidae and the proposed listing in Appendix II. I may be the only one on the Board that feels this way, but I would like more information about what an Appendix II listing would mean to the legal shark industry.

How much of an additional burden it would represent, because frankly I found some of the evidence sighted by the country of Panama rather compelling, particularly with the difficulty in separating fins from requiem sharks or members of the family Carcharhinidae from other sharks. Maybe I'm the only one that was

bothered by that, but I think I would really appreciate some additional information about the potential impact of an Appendix II listing.

CHAIR WOODWARD: We've got Deb Hahn on virtually, and Deb, do you think maybe you could help Roy with his question, in terms of what does that listing really mean at an operational level for our domestic shark industry?

MS. DEBORAH HAHN: I don't want to take much of your time, but yes on a couple questions on the listing side. An Appendix II listing would not put any additional burden on folks in the U.S. that are recreational or commercial harvesters or users that are only doing that at the domestic level.

It's only those that are exporting and/or importing, but more so on this side exporting, to the international stage and through international trade. The burden on that would require permitting, and the cost of permitting. You know Fish and Wildlife Service is attempting to develop an electronic permitting system that hopefully will ease the burden of permitting, because it is fairly substantial, especially for smaller producers and users. That is really the burden that is on your local commercial and recreational users. I can answer other questions on that. As to the letters, they are two separate letters. At this point Panama is going to submit that proposal to the Conference of the Parties. We will see that proposal come forward on June 27 through the CITES Secretariat.

What Fish and Wildlife Service is looking for on there is do you have comments on the proposal itself? Do you have biological or other information that would be useful for them to know? Do you think those listings, would you support those listings? Would you not and why? Fish and Wildlife Service is also considering being a cosponsor of that proposal, and they have not decided yet whether they will do that. Any information you can provide that would be useful to Fish and Wildlife to make some of those decisions.

What we'll need to do after June 27 is get back together and see what kind of intervention you all

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would like at the Conference of the Parties when this comes up for a deciding vote, but that's in the future. The second letter is on the spiny dogfish and American eel, it's a Federal Register Notice. They are looking for biological management and trade information. We do not support that based on this information. I can answer any other questions beyond that.

CHAIR WOODWARD: Thanks, Deb, that's helpful. Any clarifying questions for Deb? We need to wrap this up so we're ready to get on to our next topic, but that's helpful. Thank you, Deb.

MS. HAHN: Certainly.

CHAIR WOODWARD: I think there is agreement we need to submit letters. What I need everybody to do is just to feed your input back to Toni, so we can get those letters drafted up, and I guess they can then be circulated in a draft form, just to make sure everybody is comfortable with the content, and then finalized.

MS. KERNS: Really quick, Mr. Chair. Because we have to get the Panama letter out by the end of next week, we will probably work with the Chair of the Coastal Sharks Board and you and Joe on the comments that we've heard today. For spiny dogfish and eel, if folks could get me any comments by the middle of next week, and I can send a reminder for that as well. That would be great, and then we can send out a draft.

CHAIR WOODWARD: Very good. Now we've got a joint discussion with the Mid over the Harvest Control Rule Concept, and Mike Luisi is on virtually. He will be sort of co-chairing this with me. But I think I'm going to turn it over to Dustin and Julia Beatty from the Mid to sort of walk us through this, and give us some context for where we are and where we're heading towards in June for hopefully a final decision on this.

### **INITIAL DISCUSSION ON COMMISSION HARVEST CONTROL RULE DRAFT ADDENDA AND MAFMC FRAMEWORK**

MR. COLSON-LEANING: Thank you, Mr. Chair, we also have Tracey Bauer here with us today. We're going to all take a part of this presentation, but we're going to cover the topics fairly quickly, to leave room for discussion by the Board and Council. I will be covering the Harvest Control Rule and Draft Addenda and Framework main options, the main five Harvest Control Rule options, so let's get into it. The presentation will cover background information on the action's purpose, and introduction to the five Harvest Control Rule options and a brief overview of some of the management options, such as a selection of a target metric for setting measures, options on the Commission's conservation equivalency policy, and accountability measures as well, which we'll very briefly cover.

We will also provide a preliminary summary of public comments received at hearings and then discuss next steps. Just a little bit of background and timeline here, to remember where we are and where we're going. The Policy Board approved, Harvest Control Rule Draft Addenda for public comment in February of this year.

Then you'll remember that the Council also simultaneously approved a range of options for their own framework process. They are pretty much being used interchangeably at this point, in their like actions. They also tasked the SSC or the Scientific and Statistical Committee with providing a qualitative evaluation of the five primary alternatives within the document.

Then we held public hearings in March, starting at the 16th and ending on April 13th. Then received written comments as of the April 22 deadline. Today we're just going to be providing a little bit of a sneak peek overview of some of the verbal comments received at public hearings, as the written comment deadline had the bulk of the comments, and that was not that long ago. You'll be receiving that presentation in June.

This action is being taken because the Commission and the Council's current recreational measure setting process faces several challenges. The problem is recreational fishery data can be very variable from year to year, and there is a lot of uncertainty around the estimates that are provided through MRIP.

Because of how the current management system is set up, changes to recreational measures are needed almost annually, because of the highly variable nature of that data that is being used to inform the management program. There is also the current perception from the public that measures are not reflective of stock status.

We've talked about it at great length, and many of you are aware that measures for black sea bass are being restricted this year at about 21 percent in expected harvest, to achieve a 21 percent reduction in expected harvest, despite the fact that biomass is roughly two times the target as of the latest stock assessment information. Then lastly, changes to management measures such as the bag limit, minimum size and season, have not always had their intended effect on overall harvest. Management has struggled to cope with how to deal with that.

The goal of the Harvest Control Rule is to establish a process for setting recreational measures that prevent overfishing, are reflective of stock status, appropriately account for the uncertainty in the recreational data, take into consideration angler preferences, and then provide an appropriate level of stability and predictability, especially for the for-hire sector from year to year. This Framework Addenda provides five possible approaches for setting bag, size and season limits, and the various Harvest Control Rule approaches can be differentiated by the information used when setting those measures. The Harvest Control Rule approaches also differ by the circumstances under which measures would change. It's important to note here that each of

the five Harvest Control Rule options define a process for establishing measures, but none of the options implement specific measures under the Addenda document as currently listed.

The recreational measures would be established through the specifications process, which is already part of the Commission's and the Mid-Atlantic Fishery Management Council's FMP for all four jointly managed species. Here we have all five of the Harvest Control Rule options. They currently would fit into that specifications process that I just mentioned.

I plan to cover each option one by one, introduce the metrics that are used to inform each option, and let's start with Option A. This represents the current recreational measure setting process, and the decision to keep measures the same or change them depends on estimates of recreational harvest, compared to the recreational harvest limit in each year.

The recreational measures, as I said, are reviewed annually. It's been slightly different in the most recent couple of years, given the new MRIP information. But for the most part, prior to that updated MRIP information, measures were considered and often changed annually. Next, we have Option B, the percent change approach.

This approach is informed by recent MRIP harvest estimates compared to recreational harvest limits like the current process, but it is also informed by stock size relative to the stock size target, or the biomass target. Unlike Option A, Option B would set measures for two years, to align with the release of new stock assessment information.

That is an important caveat. That's actually true for all of the other Harvest Control Rule alternatives. The percent change approach is based off of a table that serves as a decision tree, to determine what measures should be in the coming year. Let's walk through a hypothetical example that might demonstrate how this works.

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Based off of recent stock assessment information and harvest estimates, we expect that harvest in 2022 will be close to the recreational harvest limit. That brings us there in Row B. Next, we consider stock size, and we ask ourselves, is stock size high, meaning at least 150 percent of the target stock level, or is the stock considered just high, which would be between the target and 150 percent of the target stock size or is the stock size low, meaning below the target stock size?

The 2021 stock assessment information for summer flounder indicated that the stock was below the target, so as you can see the little icon of the summer flounder is moving around the screen, to see what will happen next in terms of the management response. Based on these two metrics the percent change approach indicates that the measures should be restricted, to achieve a small 10 percent reduction in expected harvest to help bring the stock back towards the target.

I'll walk through a different example, because black sea bass is a different story. Based on recent years, harvest is expected to be much higher than the 2022 harvest limit, which puts us in Row C. But the latest stock assessment tells us that black sea bass biomass is very, very high, roughly two times the target, so that is a good stock condition. Depending on the sub-option chosen by the Board and Council, the appropriate response could either be restricting measures to achieve a small 10 percent reduction in harvest, as reflective of harvest being above the RHL or if it's the will of the Board and the Council, they could choose the sub-option that would have no restriction in measures at all, reflecting that the stock is well above the target.

I would show you the full table here, not that you may be able to read it all or really look at all the different scenarios or combinations of outcomes, but just to point out that we've listed estimated harvest compared to the RHL, the three different outcomes, above that

confidence interval, below that confidence interval, within the confidence interval, as well as the different stock size scenarios, and shown that there are different management outcomes for each of those different input metrics.

I would encourage you to look at the Draft Addenda document for a full comprehensive review of how this approach works. Next, I will cover Option C. The fishery score approach relies on four different metrics or sources of information, including comparing MRIP harvest to the future recreational harvest limits, stock size, fishing mortality, as well as recent recruitment.

Each of these metrics is weighted, depending on the importance to the stock health, and it is combined into one fishery score. The approach would also set measures for every two years, holding those measures constant for two years, and these measures would be predetermined, a component of Option C, D, and E that I'll get into a little bit later.

This table displays how the scores translate to stock status and fishery performance outlook, and the assignments of those predetermined sets of measures. High scores, as shown in green, are reflective of good stock status, with a maximum score of 5, and conversely low scores are indicative of poor stock status with a minimum score of 1.

Using an example weighting scheme, the PDT/FMAT developed a weighting scheme of 40 percent to stock size, 20 percent each to fishing mortality, recruitment and fishery performance. The PDT was able to demonstrate how this might shake out for some of the species. Black sea bass is a stock that has a very good fishery score, as a result of its high biomass, it's low fishing mortality and good recruitment in recent years, and would be assigned the most liberal set of measures.

Summer flounder and scup received moderate scores, and would be assigned slightly more restrictive measures compared to the most liberal set, but still measures that look to provide access to anglers to the resource. The moderate score for summer flounder reflects its relatively low biomass,

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remember it's below the target, and a moderate score for scup was influenced by poor recruitment and harvest exceeding the RHL.

Then it comes as no surprise that bluefish, largely because of its overfished position, is in that lowest bin with the most restrictive set of measures, which would be implemented until a rebuilding plan was put into effect. That was Option C, now I'll cover Option D, the biological reference point approach. That primarily relies upon biomass and fishing mortality information to assign fish stocks to bins. Additional data, including expected harvest compared to the RHL, recent recruitment and the biomass trend, are also used to fine tune measures in specific scenarios. Here we have a table that displays how this approach works. There is a lot on the screen, so I'll try to walk through this piecemeal. Remember there are two primary metrics that are used to inform this approach, which are stock biomass compared to the target level, and whether overfishing is occurring or not. When a stock enters a bin for the first time, it would be assigned a set of default measures for two years.

Then two years later we look to those two primary metrics again, to see if the measures should be changed or not, meaning moving from one bin to another. If the stock remains in the same bin for a second year in a row, we look to the secondary metrics. Those secondary metrics biomass trend in recruitment help us to determine if the default measures should be liberalized or restricted further.

The tables within each of these bins help demonstrate how this secondary metric evaluation works. If a stock is also experiencing overfishing, we also look at recent recreational harvest compared to recent harvest limits, for additional insight on how measures maybe should be changed or not.

Let's talk through a hypothetical example again, to see how this approach works. We've got an imaginary stock here, perhaps a clown fish. But

this could apply to any four of the different species. Let's say that in 2013 a stock assessment is released that shows that the stock biomass level is very high, or at least 150 percent of the target stock size, and overfishing is not occurring, so far so good.

The stock would fall into Bin 1, and that would have the predetermined measures that would be the most liberal set of possible measures associated with that bin. Then two years go by, and we have new stock assessment information that shows that the stock is still well above the target, overfishing is still not occurring.

Since this stock is falling into Bin 1 for the second cycle in a row, we look to the biomass and recruitment trend, those secondary metrics, to determine if additional changes or additional liberalizations should be made. Since biomass trend is increasing, we can assume that the stock is doing well, and that further liberalizations are warranted.

Two more years go by, the 2017 stock assessment information is made available, and although biomass is still very high, we see that the stock is unfortunately experiencing overfishing. Perhaps the measures were liberalized too much, or something else has changed. The stock would be then assigned to Bin 4, with a new set of more restrictive measures to help get overfishing under control. Then two years go by again, 2019, new stock assessment is released, and we see that biomass is still very high, which is good news.

But overfishing is unfortunately still occurring. Since this is the second time that this stock has been assigned to Bin 4, we look at recreational harvest compared to the recreational harvest limit, to determine if additional action should be taken. In this example, let's say that recent harvest limits had been exceeded, and as a consequence the stock is assigned a slightly more restrictive set of measures, and measures assigned to all bins are reevaluated. In this way this approach demonstrates its ability to be reflective of different metrics, and responsive to overfishing when it does occur, and as well accountable when those binned measures, those predetermined measures aren't

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achieving the intended effect. Next, I'll cover Option E, the biomass-based matrix approach, and this is the last one that I'll cover, so thanks for bearing with me. This one is informed by stock size and the recent trend in stock size.

Like all the others, this approach would set measures for two years, and this approach also has predetermined measures with predefined bins. Here we have the biomass-based matrix. When we get new stock assessment information, we look first to stock size, in the left column, which can be categorized as very high, high, low or overfished.

The definitions of what that means relative to the biological reference points can be found on the screen. Then we look to biomass trend, which can be classified as increasing, stable, or decreasing. Based on the combination of these two metrics, we then can see which bin our fish stock belongs to, and thus which set of predetermined measures would be assigned to this stock.

Bin 1 represents the best stock conditions, and thus the most liberal set of measures, and then Bin 6 represents the overfished condition, and so those measures would be very restrictive, and be put into place until the new rebuilding plan with new measures would be implemented. Again, I'll walk through a few examples for our four fish stocks, to just see how this approach might shape out with recent stock assessment information and recent MRIP information.

Both black sea bass and scup are at least 150 percent of the target stock size, with a decreasing biomass trend. These two stocks fall into Bin 1, and they would be assigned the most liberal set of measures. Summer flounder on the other hand, would be below the target stock size as of the 2021 stock assessment report, but more than 50 percent of the target, and it also has an increasing trend.

Things are trending upwards, but biomass is not quite where we want it to be. It would be assigned to Bin 3, with a more moderate set of measures until the stock demonstrated its ability to rebuild back to the target. Then lastly, bluefish is in that overfished condition with the biomass trend decreasing, so again a very restrictive set of measures would be implemented. Those are the five main Harvest Control Rule approaches. Tracey is now going to take over, and briefly introduce some of the other options within the Draft Addenda.

MS. TRACEY BAUER: Thanks, Dustin. Now that he's covered the five Harvest Control Rule options, I will briefly introduce, like he said, a few additional management options within the Draft Addenda. First technical staff will need to have a target metric when developing measures for each bin within whatever harvest control rule approach is selected. The fishery score approach, biological reference point approach, and biomass-based matrix approach, Options C through E, all use bins with predefined measures.

If one of these approaches is selected, the Board and Council will need to specify whether the measures within each bin will aim to achieve a target level of recreational harvest, which is Option 3.2A, recreational dead catch or harvest plus discarded fish that are presumed to die, or Option 3.2B or fishing mortality, a measure of rate of removal from the stock, or Option 3.2C. Next, we will review the options for conservation equivalency. Section 3.3 in the Draft Addenda includes options to define the degree of flexibility states have in proposing alternative measures through the Commission's conservation equivalency process. Option 3.3A allows individual states to propose alternative measures, if they can demonstrate that they are expected to have the same impact on stock as the measures which would otherwise be implemented.

Option 3.3B allows states to work together as a region, to propose alternative measures, which are expected to have the same impact on the stock as the measures which would otherwise be

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implemented. Option 3.3C does not allow states or regions to propose alternative measures. It is important to note here that states and regions are able to provide input during the specifications process under all Harvest Control Rule approaches.

The conservation equivalency process is specifically designed for states or regions who later decide that they would like to adjust their measures from what are proposed through specifications. This graph displays the tradeoff between flexibility and uncertainty within these conservation equivalency options.

Option 3.3A provides the greatest flexibility for states to adjust their management measures after the specifications process is complete. But it increases uncertainty, and lowers the level of confidence in being able to predict and model whether the new recreational measures will achieve the target level of harvest, catch or fishing mortality.

Option 3.3.C does not allow states or regions to use the conservation equivalency process, which means less flexibility, but technical staff are likely to have the greatest degree of confidence in the modeling the level of harvest achieved by the recreational measures, and the impact to the stock.

Option 3.3B is that middle ground that allows regions to utilize the conservation equivalency process, and represents again that middle ground in uncertainty and flexibility between the two other options. Lastly, I'll briefly touch on the accountability measure options within the Draft Addenda.

As a reminder, accountability measures aim to prevent catch limit overages and correct or mitigate for overages when they do occur. Accountability measures are a required component of the federal management program. When catch limits have been exceeded, all options in the Addenda require re-

evaluation of measures to prevent future overages.

Some sub-options consider if the response to an overage should be driven by whether or not the overage resulted in overfishing. The details on all the accountability measures are laid out in the Draft Addenda, so we recommend that you view that document for a comprehensive description.

#### **PUBLIC COMMENT FROM WEBINAR HEARINGS**

I will next give that preliminary summary that we mentioned of public comment, again focusing just on the webinar hearings.

Eight webinar hearings were held between March 16 and April 13 of this year. Webinar attendance ranged from 9 to 63 attendees, excluding Commission and Council staff per hearing. Written comments are still being tallied, and a final public comment summary will be available within the briefing materials for the June Council/Policy Board meeting. As such, we do not have a quantitative summary of public comment available at this time, and the following summary of comments is purely qualitative, and based only on the verbal public comments given at the webinar hearings. Most people who spoke in favor of a specific option at the webinar hearings favored Option B, the percent change approach.

Many felt uncomfortable with the fishery score biological reference point and biomass-based matrix approaches, Option C, D, and E, due to the current uncertainty of what management measures would be assigned to each bin. Lastly, there were no verbal comments provided during the hearings that supported Option A, status quo.

Several comments were received during the webinar hearings on the lack of confidence in the MRIP data, and how we need to stop using MRIP data, or consider other information such as biomass when making management decisions. For those who commented on conservation equivalency, the no action option, where states retain the ability to propose conservation equivalent measures was the

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preferred option. I will next hand the presentation over to Julia.

MS. JULIA BEATTY: Thanks, Tracey. I just have one slide to cover next steps, and then kind of set the stage for any discussions that the group might want to have today. The most immediate next step is that next week the Council's Scientific and Statistical Committee will meet, and on May 10th they will discuss their review of the Harvest Control Rule, so they will consider a draft report, and discuss any changes to that.

Then after that meeting, they'll work to finalize their report. Then on May 25th we'll have an Advisory Panel meeting, so that the Advisors can meet to review all the Harvest Control Rule options. They'll review the public comments, they'll receive an update on the SSCs review, and then they will have the opportunity to provide their own recommendations to the Council and Policy Board regarding final action.

Then the FMAT and PDT will meet one last time. We did just schedule this just very recently for May 26, so right after the Advisory Panel meeting. The FMAT and the PDT will be able to consider everything up until that point, so the public comment summary, Advisory Panel input, preliminary results from the SSC review, and then the FMAT and PDT will be able to provide their own recommendations leading into the final action.

Then on May 27, the first round of the briefing materials for the June Council and Policy Board meeting will be posted. This will include the full public comment summary, so as Tracey mentioned, what was presented today was just a preliminary summary of just from the webinar hearings, but the full summary of everything should be available by May 27.

Then we're also anticipating that we'll get the final SSC report in time to post it on May 27. At that time, we plan to send an e-mail announcement to the Council and Commission

general public e-mail list, with a reminder that anticipated final action is coming up, and an announcement about the availability of the briefing materials.

At that point in time, anyone who wishes to review the final SSC report and provide additional comments, can do so after May 27, using the typical public comment process for Council meetings. Then on June 7, the Council and Policy Board will meet, and again consider all the things I talked about, the final summary of the public comments, the SSCs final report, AP input, FMAT/PDT input, and then the Council and Policy Board will consider taking final action on the Harvest Control Rule, and selecting their preferred option.

If that takes place in June, then we will work to finalize all the documents that go into this, and then also go through the federal rulemaking process. As most of you are aware, that side of things can take several months, especially on the Council end of things, start that process in June and then it will continue through the end of the year. Then later in the year in the fall, we hope to have availability of these two statistical models that we didn't cover in detail today.

But you've heard about it in the past, called the Recreational Economic Demand Model and the Recreational Fleet Dynamics Model. We should have those available for use for at least one of the four species that are covered under the Harvest Control Rule. Then by the time we get to later in this year, when we typically go about setting recreational management measures for the upcoming year, we'll have those models available, at least for one, hopefully more than one species.

We'll know what option the Council and Policy Board would have picked in June, but it might not be all the way through the rulemaking process. But we are intending that if this timeline goes according to the way that it's laid out on the screen here, that we could use whatever the preferred alternative was that was selected in June, to set the recreational measures for 2023 later this year.

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That's when we'll get to the point of picking the specific management measures that they are going to be implemented through whatever option is selected, and do that through the specifications process. That's all we had for our presentation. We're happy to take any questions on any of this. Just as a reminder, we don't need any action today, and this agenda item was just intended as a progress update. Thanks.

CHAIR WOODWARD: All right, thanks, Dustin, Tracey, and Julia. At this point I'll open it up for questions from Policy Board members and Council members. If you'll raise your hand virtually and raise your hand physically, we'll start the questions and comments. All right, I've got Ray Kane.

MR. KANE: Thank you for your presentation, staff. Dustin, can you put up Option B? I need an example. This is the fifth time I've watched this presentation. Okay, right there. We're talking about doing track assessments every two years, right? Like in '17 you come up with a track assessment. That data is from what, '15 and '16 for the Track assessment in '17?

MR. COLSON-LEANING: Yes, so typically, like for example our next management track assessment is scheduled for scup in June of 2023, and that would be on data current through 2022. You would have, in your example, yes, 2017 report would have '16 and '15, as well as earlier time series data.

MR. KANE: This is a joint venture between the Mid-Atlantic Council and ASMFC.

MR. COLSON-LEANING: Yes.

MR. KANE: After we get the track assessment, how long will it take a management regime to be put in place, like for say Year '18, between the Council and the Commission? How long will that paperwork take and decisions to be made? How are we going to fish in '18? Because it seems like we've been chasing our tail. I know

in our state we have on black sea bass, like we're given two months to come up with new regulations every year. I'm just curious.

MR. COLSON-LEANING: No, it's a great question. The Assessment report would have data through 2015, 2016. It would be released in June, and we would follow our standard specification cycle, where we would look at the August meeting, looking at both the commercial quota, as well as the recreational harvest limit, and it would begin that discussion of which bin are we, based on recent MRIP harvest and stock assessment information from the recent years.

That would allow us to implement measures by hopefully January 1, 2018. There has been some talk about our current process. Sometimes we're three or four months into the current year, before we've actually implemented new measures, so there have been some discussions about speeding that up, relative to our current process.

But the exact timing of when the final measures are to be set is still to be determined, but hopefully it would be a faster version of our current process. Remember that these measures would also ideally be set for two years, meaning stakeholders would know in advance what those measures are, at least for two-year segments.

MR. KANE: Thank you.

CHAIR WOODWARD: All right, Shanna and then John Clark.

MS. MADSEN: First of all, I just want to say thanks to all of the staff that have been working on this. It's a really heavy lift, and I just want to give a special shout out to Dustin. He did a great job at our public hearings in our state. It's a tough topic to deal with, because it's very conceptual, and his presentation was really good, very clear, and I think it helped me out a lot too, actually listening in to that public hearing. If the Chair doesn't mind indulging me, I have three questions.

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I'll just give them to them one at a time, so I'm not overwhelming. They are a little bit detailed oriented, so I'm going to start off with my first one. The first question I have is regarding the percent change option, specifically Sub-Option B1-B, and talking about liberalization, so we have the liberalization of 20 or 40 percent kind of worked in there. My question is, what happens if that percent liberalization is expected to lead to an overage of the RHL, or potentially the ACL? What do we do in that scenario?

MR. COLSON-LEANING: It's a good question. I believe this came up at another hearing. As currently configured, this approach would still implement a 40 percent liberalization. That's been raised as a concern, so it would be probably a point of discussion by the Board and Council as to whether something should be modified, if it's within the realm of expected impacts of what's already been brought out to the public, or maybe it is some consideration for B1-A.

MS. MADSEN: Great, thanks, Dustin, that helps provide clarification on that. My second question is pertaining to Option 3.2C, where we assign target metrics for setting the measures. I was just wondering. The document says if there is no way to generate that recreational fishing mortality option for black sea bass.

Right now, the current stock assessment model isn't doing that. Then it says if the option is selected, we might want to pick a secondary option. My question is, is that just for black sea bass then that we would be picking a secondary option, or if it can't be generated for black sea bass, we might just want to turn to another option for all of the species?

MR. COLSON-LEANING: That's a great question. I think it's within the realm of possibilities and expected impacts that, and I might turn to Toni on this one for specifics. But I think the recommendation could vary by species, and I'm getting a nod. But I will also say that there has

been a subgroup of stock assessment scientists and the modelers, who have been developing the two models for developing measures that have discussed how the fishing mortality target metric may be problematic for several reasons.

Ideally this discussion would have been held well in advance of it being taken out to public comment. However, given the fast timeline and a lack of a recommendation from the PDT and FMAT, and lack of time to thoroughly dive into the issue, it was put into the document and considered for public comment. But I just want to make everyone aware, there has been some serious concerns about using the fishing mortality metric at this point. Just keep that in mind.

MS. MADSEN: That's really helpful, Dustin, and then just a quick follow up question to that. Will we hear some of those concerns then at the June meeting, because I feel like, you know there are a lot of details from like a lot of the various different sources. Will we get to hear some of that at the June meeting?

MR. COLSON-LEANING: Yes, absolutely, and you bringing it up helps remind me to make sure I've done my homework and have that ready for you. It will probably be something that we can include in the PDT/FMAT report as perhaps an appendix, or some portion of that briefing material, so you will have it in advance of the meeting.

MS. MADSEN: Perfect, thank you, Dustin, and I swear last final question. Thank you everyone for indulging me. My last question is with 3.3A, and that is the no action option for conservation equivalency. Some of our species already require a regional approach, you know for instance summer flounder.

All of the Mid-Atlantic states submitted a proposal together as a requirement of that FMP. If we select that no action option, the way that the language I guess is written in this document says that it kind of defaults to the states, but does it actually just default to what the FMP has in it, as in would we

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still have regional conservation equivalency for those species whose FMPs already require it?

MR. COLSON-LEANING: That's a great question, and gets into one of the issues that has kind of plagued staff for years. There are two versions of what we call conservation equivalency within the summer flounder FMP. There is the conservation equivalency process whereby regions come up with measures to make sure that collectively they can constrain harvest to the set of coastwide measures, and thus we waive federal measures, and really it just matters where you land your fish as to what measures you have to abide by.

Separately, there is the Commission's conservation equivalency process that applies for all of the Commission species, and that process is unfortunately named the same thing, or they both go by the same names. At this point within the FMP, there is no restriction for a state to submit an alternative set of measures that can demonstrate that they have the same biological impact as the coastwide measures, or whatever they may be.

In my understanding, and I might look to Toni to confirm this. Selecting status quo, meaning no change to the Commission's conservation equivalency process, states would still be able to submit individual proposed alternative measures. It's an interesting hybrid there, so I'll look to Toni to confirm.

MS. KERNS: I think, Dustin, what Shanna is asking is, under CE through the Council and Commission process right now, in summer flounder, states are required to use regions. That is under like the Council/Commission CE portion of the plan. She is asking if we choose Option A do we stay default at that region base as how we set measures, or can you go back to coastwide? Shanna, I need to read the text of how the draft went out before I answer that question, and we'll send an e-mail back to the Board and Council on it. I'm uncertain.

MS. MADSEN: That's great, thank you guys very much, I appreciate it.

CHAIR WOODWARD: All right, John Clark, and then I've got Richard Cody virtually, and after him Rick Bellavance.

MR. CLARK: I just wanted to echo what Shanna said, great job with presenting these to all the hearings, Dustin. But I noticed you said for the webinar most people were in favor of Option B. Like Ray, I've seen the presentation several times, and Option C, D, and E still are a bit confusing.

If I recall, is it still the goal that if for example B is the chosen option, that examples will be developed for the other options for the future, so that the Board and Council could eventually come back and decide to go with one of the different options of the Harvest Control Rule, or if B is chosen, for example, then that's it for the Harvest Control Rule, and we're going to be working with that until we decide we have to do another amendment, and change to a different option?

MS. KERNS: I'm going to fill in for Dustin on this one. John, if the Board and Council choose Option B, straight up, nothing else. Then yes, that is it. We will not continue to work on the other options until the Board or Council initiate another management document, if you want to move on. There is the possibility in my mind that you can have a preferred method, and a secondary method, because the document does not prevent you from choosing more than one option, so that is a possibility.

MR. CLARK: Thanks, Toni, yes, because I find just me seeing these myself. I mean some of these are a bit confusing when you have nested boxes as to what exactly would happen, and it would really help if we had some concrete examples. I think the public would have been more receptive to some of these, and I certainly understand why we couldn't do that. But I'm just saying that it seems like some of them may actually be a better long term management strategy than Option B, but you know just to keep them alive.

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CHAIR WOODWARD: Richard Cody.

MS. TINA L. BERGER: It's unmuted, perhaps he isn't here anymore.

CHAIR WOODWARD: Okay, we'll go to Rick.

MR. RICK BELLAVANCE: Would it be possible to bring up the timeline towards the end of the presentation? I just had a clarifying question. I'm trying to get my head around the importance of the two statistical models, to help me understand a preference of like the Alternatives C, D, and E for the most part, because I don't think the models are necessary for Alternative B.

I'm just wondering how certain folks are that those will be ready for the fall, and if it's a good idea to have those models' kind of up and running, and being used as like a worked example before you make a final decision on the other C, D, and E alternatives. If there is someone that could just kind of help me understand if it's super important to have that information, or if the models were more meant to serve later on in the process like they are in this timeline.

MR. COLSON-LEANING: Yes, thanks for that question. This has been discussed, I think throughout the process, and the pros and cons of whether the measures should be provided up front, and thus the models ready to produce those measures. On the one side there are benefits to analyze, you know how the models perform, and how those measures would be assigned to different stock conditions.

On the other side it was determined, I believe by the Board and Council, that because the models weren't completely ready, and because of the concern about stakeholders just kind of clinging on to the approach that might show the best example measures that might not actually be implemented. We didn't include example measures within the document when it was taken out to public comment.

I will say as to the relative need to analyze the models, or the measures within the different bins. I don't know if that is a staff question and more of a Board and Council discussion point. There are definitely pros and cons to being able to analyze everything together. I think the SSC has commented somewhat on the limited ability to analyze the different approaches relative to each other, without those models and measures being implemented. On the same turn, these different harvest control rule options are able to be used. All of them are able to be used with the current tools that we have at our disposal, meaning none of the models being ready for implementation. In addition, we do have, we have made some significant strides in model development. The summer flounder MSC model is in the later stages of development, and it's received a lot of public input and a lot of different rounds of improvement.

Then we've been working with Jason McNamee and Corinne Truesdale from Rhode Island on developing the recreational fleet dynamics model, which has shown some promising progress. Maybe that just provides a snapshot, and I feel like this is also a big point of discussion for the Board and Council, so I look to all of you to discuss the relative merits of moving forward or waiting.

MS. KERNS: Rick, I was just going to say, I think staff has said to me, and correct me if I'm wrong. But we have high confidence one of the models if not more than one of the models will be ready in the fall, just to answer that part of your question.

MR. COLSON-LEANING: Yes, thanks, Toni.

MR. BELLAVANCE: Yes, great, that is what I was looking for. I appreciate that. It helped me out quite a bit.

CHAIR WOODWARD: Adam.

MR. ADAM NOWALSKY: Thank you very much for the opportunity to be here, and thanks very much to leadership to provide this update today from staff. I think this is important to get us all back to the forefront of our minds, as well as to make sure

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that we have a groundwork for making sure any questions that we have are answered in advance of June that the Service has indicated is really the time that we have to make this decision.

A shout out to the public from the preliminary public comment that was offered in unanimous opposition to A. Clearly, we don't want to go through what we've gone through with scup and black sea bass for another year. We simply can't continue to make those decisions. Getting this done in June is important. A couple of questions, and then I have a thought in advance of June decision making.

The first question I had was with regards to Options B2A and B2B. There appears to be a disconnect. This is related to the percent change alternative. There appears to be a disconnect between what is shown in the chart for Alternative B, and the language that discusses B2A and B2B. Specifically, where I see a discrepancy right now, is in Column A in Row A and in Row C you have Sub-Option B2A and B2B listed in both Row A and in Row C.

For both the case where the upcoming RHL is below the lower bound of the MRIP estimates, as well as above the upper bound of the estimates. However, the text for B2A and B2B seem to refer only to the case where the upcoming average RHL is below the lower bound, which would imply to me that only Row C is where B2A and B2B apply. I don't know if staff is prepared to answer that today, because they've thought about this and looked at it, or whether they would have to go back and review the language. But what do we do if in fact there is that disconnect between what we see in this chart and the language that we see?

MR. COLSON-LEANING: Thanks for that question, Adam. Yes, this was brought to our attention relatively recently that the language did not reflect the full symmetry and the intent of the approach as it has been discussed at

every board meeting presented within the chart.

It is my understanding that the way that we conveyed it to the public, mainly demonstrating this chart, and the way that we've discussed it at each Board and Council meeting that there would be symmetry in that sub-option. Thankfully we have relied on the chart more than the text, so I think that's an easy fix. We also apologize for that oversight.

CHAIR WOODWARD: Go ahead, Adam.

MR. NOWALSKY: Great, so the second question is with regards to the request to the SSC to provide a qualitative evaluation of the five alternatives in this document. The SSC went down that path by creating a subgroup to go ahead and look at that. They have met multiple times. They have exchanged some e-mails.

In that last meeting there was some very strong language that I heard that came out of the SSC, and I would like to hear staff's interpretation of what they've heard so far, understanding that the SSC is going to provide a final report to us. But essentially, what I heard from that Workgroup is that they did not have enough information to provide the qualitative evaluation that was requested. In fact, specific language, I heard, was to use the phrase, a fatal error in not providing enough detail for the options in this document, specifically C, D, and E.

I would like to hear some thoughts from staff if what I heard is in line with what they heard, specifically that the SSC seems to be having some trouble with the amount of information included in this document, to provide that qualitative evaluation. I think it's important to set everyone's expectations at the Council and the Commission, who may be depending on that evaluation for decision making, that it may not be as substantial as we hoped it would be.

MS. KERNS: Our staff isn't going to speak for the SSC, Adam. I wasn't even on that last SSC call. We got a late notification of that call, and so Julia has her hand up. I'll see if she wants to speak to it.

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MS. BEATTY: I am also not going to speak for the SSC, because they had some discussions, or as a subgroup they had some discussions over webinars, and they were working on a draft report that they're still working on. Then they're going to take that to the full SSC, and then the full SSC is going to talk about it, and then they are going to finalize their report. I think it's too early to say what their conclusions are.

They definitely had some concerns and some questions, but it's too soon to say what their final conclusions are. But for those of you who do want to follow the next steps of that more closely, they are planning to post any preliminary draft of that report with the briefing materials for the upcoming SSC meeting, and it's anticipated that that will be posted by the end of this week. Then the full SSC is going to talk about it next Tuesday, May 10, and that meeting will be a hybrid, in person and webinar meeting, so anyone who wants to could listen into that discussion. Then again, we're hoping to get the final report out of that on May 27, to post online, and we'll provide a report on their final recommendations at the June 7th Council and Policy Board meeting.

Again, you know I'm not going to speak on behalf of the SSC, and I think it's a little too early to talk about what they're going to say anyway, but if anyone wants to, those would be like the next steps to follow along with that prior to June 7th.

MR. NOWALSKY: Great, thanks very much for that. It sounds like then anybody again who was putting a lot of eggs in that basket, take a look at that report coming out this Friday as the preliminary part that will go to the full SSC. Question, Mr. Chairman. Just a couple of thoughts I had in advance of the June meeting. Did you want to continue to get through some questions, or you want me to just put that out on the table now?

CHAIR WOODWARD: Why don't you just go ahead while you've got the microphone, Adam.

MR. NOWALSKY: Again, I appreciate the latitude here today. What I would just offer is that my request of staff here in advance of the June decision making would be, given what we've heard so far about some of the preliminary public interest, the concerns around the potential for additional development of C, D, and E, is I would just ask that staff be prepared to bring to us in June a viable path.

If the two bodies want to implement B for 2023, and what we might be able to do with C, D, and E, without shelving them permanently. I think I heard one option here from Toni is that we would have some if/then that we could pick a preferred long-term alternative, which might come out of C, D, and E, but put a short-term B in place.

Another option that I have advocated for in the past would be using the additional Rec Reform Amendment that we have, that currently just has sector separation in it as a potential future place for further consideration of C, D, and E. Given the dramatic shift in how we would manage those fisheries, much of the public has called for this process to be an amendment, not an addendum or a framework. Given the drastic change that those propose, that might be a way forward as well. I would look to staff to be prepared to discuss that.

The final request I had is that I had passed along some preliminary analysis of Alternative B that was quantitative in nature, that had been done last fall on an earlier version of Alternative B. I know that Council staff have that, I know Commission staff have that. They had presented it at the SSC meeting. I would like to just again put my request out for having that analysis done on the current version of Option B, and presented in June.

CHAIR WOODWARD: All right, thank you, Adam. Dustin, do you want to respond to that?

MR. COLSON-LEANING: We certainly can do that. If we had more time I would have presented on the

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preliminary analysis, because we do have that today, a subset of the PDT/FMAT reviewed it in short order, per your request. I do have that prepared, I can share it with you, but in the interest of time I think we're about to be kicked out of the building. I'm going to hold until June, if that's okay with you.

CHAIR WOODWARD: Okay. All right, any questions, comments, requests from the Policy Board or Council members? I see Paul Risi, you've got your hand up, so go ahead.

MR. PAUL RISI: Sorry, that was an accident, I switched over to my phone, I did not put my hand up, I apologize.

CHAIR WOODWARD: No problem. All right, I think we have one member of the public listening in virtually that has raised his hand, so Michael Plaia. I'll give you a minute or two.

MR. MICHAEL PLAIA: All right, I have a question. Could we go back to the example of the clown fish? In 2017 the clown fish becomes subject to overfishing, correct?

MR. COLSON-LEANING: Correct, and this is hypothetical.

MR. PLAIA: But in 2018 we maintain the same catch limits. Is that also, correct? I thought you said that the catch limits apply for two years.

MR. COLSON-LEANING: The measures, meaning the bag size and season limits would be applied for two years, so in 2017 we had new stock assessment information, again in this hypothetical example, and new sets of measures would be implemented for 2018 and '19. Those new measures would be responsive to that finding of overfishing.

Given that it takes some time to collect data on how those new measures interact, and what the outcome on harvest would be, at least in this approach, it would be beneficial to have two years of data to assess, you know have we

appropriately reduced harvest, or are additional restrictions needed?

MR. PLAIA: All right, that squares with the Council's requirement to end overfishing immediately?

MR. COLSON-LEANING: I believe so. There is a change in measures, there is a response to overfishing, so I'll look to Julia if I am speaking out of turn here. But I believe that is responsive to the Council's mandate under the Magnuson-Stevens Act.

MS. BEATTY: Yes, this is Julia, I don't have anything else to add there.

MR. PLAIA: Okay, thank you very much.

CHAIR WOODWARD: You're welcome. Okay, any other questions, comments on this? I don't see any hands virtually. I don't see any hand around the table, so I think we've covered it. Now we will be asking the Policy Board members that aren't on the Mid-Atlantic Council to participate virtually in this meeting in June, so that will be June 7th, I believe it is, Toni.

MS. KERNS: It is June 7th, and you can either participate virtually or in person. It is your preference. It will be in Riverhead, New York.

CHAIR WOODWARD: Yes, if you would like to go to Riverhead, New York, wherever that is, I guess you can. All I know is it is way north of Georgia. All right, with there being no other questions or comments, Jim just briefly, do you want to cover your letter?

MR. GILMORE: Yes, just very briefly. This was black sea bass and scup, and because of the large reductions we were looking at, and the fact that we have the Harvest Control Rule onboard, but the Regional Administrator sent out a letter a week or so ago saying, we're still going to do the drastic cuts.

But he did indicate in that letter absent secretarial action. We put together a letter from our bosses,

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all our Agency Commissioners to the Secretary of Commerce to say, well maybe we could get some secretarial action to maybe delay some of these cuts. There is a letter that was circulated, we're going to try to get that out tomorrow.

There is also a second letter that Toni and some of the state staff put together that's got to come from us, that same idea. But it's really just focusing in on scup, and a little bit more detail on the impact. I've talked to most of the folks about it. We've got, I think the letter is just ready to go tomorrow, so we're planning on getting that out.

I would like to thank everybody for their assistance and the short turnaround, and keep our fingers crossed. We'll try to be optimistic, but at least we're going to give it a shot and see if we can maybe reduce some of these cuts, if not hold off until next year when we can start doing with. Dustin, you need to make an App on this so we can like make it work. You know on a phone or whatever I think would be really cool. Anyway, that's the update on that and we'll see what happens, thank you.

**OTHER BUSINESS**  
**LETTER TO SECRETARY OF COMMERCE**

CHAIR WOODWARD: I certainly hope that just because you used clown fish as an example, people aren't going to think we're managing Nemo now, and get crossways with those folks. Anyway, is there any other business to come before the Policy Board? All right, I think we've got Mike Pentony raised his hand, so go ahead, Mike.

MR. MICHAEL PENTONY: Yes, I appreciate Mr. Gilmore noting the letter. I just wanted to clarify. It sounds like there may have been a misunderstanding of what we meant by secretarial action in my letter, and I hope to clarify that in case it has an impact on what would be requested of the Secretary.

What I intended to indicate in my recent letter was that by secretarial action I meant secretarial action to develop and implement a harvest control rule type alternative regulation, to replace the existing regulations. It does not sound like that is what is being requested, although maybe it is. But I just wanted to clarify that what we meant, by calling out secretarial action it was under the Magnuson Act to essentially deviate from the Council process and develop a secretarial amendment to the FMP.

**ADJOURNMENT**

CHAIR WOODWARD: All right, thank you for that. Okay, now seeing no other hands virtually or really, any other business to come before the Policy Board? Seeing none, well thanks everybody for being here, both virtually and physically. I hope this is the beginning of a return back to some semblance of normality. It was great to see everybody, and unless there is an objection, we will stand adjourned.

(Whereupon the meeting adjourned at 12:40 p.m.  
on Thursday, May 5, 2022)

# ***Atlantic States Marine Fisheries Commission***

## **APPEALS PROCESS**

**Draft revisions approved by the Executive Committee on May 26, 2022  
for ISFMP Policy Board consideration on August 4, 2022**

*Changes highlighted in yellow*

### **Background**

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

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

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

This paper details for the Commission appeals process.

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

1. Decision not consistent with, or is contrary to, the stated goal and objectives of the current FMP (Goal and Objective Section of FMPs/Amendments or Statement of the Problem Section of Addenda).
2. Failure to follow process as identified in the ISFMP Charter, Rules and Regulations or other ASMFC guiding documents (e.g. conservation equivalency guidance).
3. Insufficient/inaccurate/incorrect application of technical information. Examples can include but are not limited to:
  - a. If for any calculations used in the decision, an error which changes the results was identified after the decision was rendered;
  - b. If any data used as the basis for a decision, undergoes a modification which impacts results after the decision was rendered (i.e. a landings dataset is adjusted significantly due to a recalibration or application of a control rule adjustment);
  - c. If data is incorrectly identified and therefore incorrectly applied, such as a misidentification of landings information as catch information, or incorrectly assigned landings/catch to a jurisdiction;
  - d. If information used as the basis for the decision lacked scientific or statistical rigor, thereby calling in to question the sound basis for the decision;
  - e. If the historical landings, catch, or abundance time series used as a basis for a decision is found to be incorrect.

Any appeal based on criterion 3 may be verified independently by a technical body appointed by the Chair, as needed.

4. Management actions resulting in unforeseen circumstances/impacts that were not considered by the Board as the management document was developed.

The following issues could not be appealed:

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

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

participate in the deliberations. Meeting specific proxies will not be permitted to vote on the final appeal determination, consistent with Commission policy.

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

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

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

**ISFMP Policy Board Meeting** – Following the determination that an appeal has met the qualifying guidelines, a meeting of the Policy Board will be convened at a scheduled ASMFC meeting week. The agenda of this meeting will be set to allow sufficient time for all necessary presentations and discussions. The Chair of the Commission will serve as the facilitator of the meeting. If the Chair is unable to attend the meeting or would like to more fully participate in the deliberations, the Vice-Chair of the Commission will facilitate the meeting. The ISFMP Director will provide the background on the development of the management program as well as a summary of the justification provided in the record for the management board’s action. The ISFMP Director will also present the potential impacts of the appeal on other affected states. The appellant Commissioners will present their rationale for appealing the decision and provide a suggested solution. The Policy Board will then discuss the presentations and ask any necessary questions. **If the Policy Board needs additional technical information to support a decision on an appeal, the Policy Board can request additional analysis from one of the**

Commission's technical support groups. This request will be addressed prior to the Commission's next quarterly meeting and then the Policy Board will be reconvened to take action on the appeal. The Policy Board can meet between quarterly meetings if the timing allows. The Policy Board will vote to determine if the management board's action was justified. A simple majority of the Policy Board is required to forward a recommendation to a management board for corrective action. If the Policy Board determines that the existing management program should be modified, it will issue a finding to that effect as well as any guidance regarding corrective action to the appropriate species management board. The referral may be worded to allow the management board flexibility in determining the details of the corrective action. If the Policy Board requires a management board to take specific corrective actions, the scope of potential corrective actions must be consistent with the presentation of management options provided to the public in the Draft Amendment or Addendum.

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

If the management board is unable to make the changes necessary to respond to the findings of the Policy Board, the following options are available:

1. The management board can request clarification from the Policy Board on the specifics of the findings. A meeting of the Policy Board will be scheduled to ensure the requested clarification is provided to the management board to take action at the Commission's next quarterly meeting.
2. The management board can inform the Policy Board that it is unable to address the findings and the Policy Board will take action to approve changes to address the appeal.
3. The management board can request additional analyses from the technical committee or other technical support group (e.g. Management and Science Committee, Assessment Science Committee). A meeting of the appropriate technical group will be scheduled to ensure the requested information is provided to the management board to take action at the Commission's next quarterly meeting.

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

**Considerations to Prevent Abuse of the Appeals Process** – The appeals process is intended to be used only in extraordinary situations and is in no way intended to provide a potential avenue

to preempt the established board process. The initiation of an appeal will not delay the Commission process for finding a state out of compliance nor delay or impede the imposition of penalties for delayed compliance.

**Limiting Impacts of Appeal Findings** – If a state is successful in an appeal and the management program is altered, another state may be negatively impacted by the appeals decision. In order to prevent an appeals “chain reaction,” the Policy Board’s recommendation and the resulting management board’s decision will be binding on all states. All states with an interest in the fishery will be obligated to implement the changes as approved by the management board. Upon completion of the appeals process, a state is not precluded from taking further action beyond the Commission process to seek relief.

If the Policy Board supports the appeal and determines that corrective action is warranted, the potential for management changes to negatively impact other states will be evaluated by the Policy Board and the species management board.

### **Appeals Process Timeline**

1. Within **15 working days** of receipt of a complete appeal request the Commission Chair, Vice-Chair, and immediate past chair (or alternate) will determine if the state has an appeal which meets the qualifying guidelines.
2. Upon a finding that the appeal meets the qualifying guidelines, the appeal will be included on the agenda of the ISFMP Policy Board meeting scheduled during the next ASMFC Meeting Week (provided an adequate time period is available for preparation of the necessary documentation).
3. Following the finding that an appeal meets the qualifying guidelines, Commission staff and the appellant commissioners will have a minimum of **15 working days** to prepare the necessary background documents.
4. The background documents will be distributed at least **15 days** prior to the Policy Board meeting.
5. If the management board requests additional information from the Policy Board or a technical support group, a meeting of the Policy Board or technical support group will be scheduled as quickly as practical to allow the management board to take action at the Commission’s next quarterly meeting.

A summary of the Policy Board meeting will be developed and distributed to all Commissioners within **15 working days** of the conclusion of the meeting.

## **Update to the 2018 Atlantic States Marine Fisheries Commission State Climate Change Initiative Gaps and Recommendations Report**

Approved by the ASMFC Policy Board **Date**

Prepared by Lisa N. Havel and the ASMFC Habitat Committee

### **Background**

The Atlantic States Marine Fisheries Commission's (Commission) Habitat Committee (Committee), a branch of the Interstate Fisheries Management Program, was developed to identify, enhance, and cooperatively manage vital fish habitat for conservation, restoration, and protection, as well as support the cooperative management of the Commission and jointly managed species.

In 2016 the Committee identified each state's ongoing practices that address climate change impacts, with a focus on state coastal regulatory planning. In 2018 the Committee built upon the information gathered in 2016, adding new information since the report was produced, as well as identifying gaps in climate change initiatives among states and providing recommendations for the future. That report is available here: [ClimateChangeGaps RecommendationsReport Feb2018.pdf \(asmfc.org\)](#).

This document is an update to the 2018 report, containing information on current climate change initiatives and identifying high-level progress along the coast since the 2018 publication. It is meant to be informational in purpose, providing a snapshot of initiatives underway in each Atlantic coast state at the time of writing. The initiatives do not necessarily reflect the views of the Commission.

### **Summary of State Initiatives that Address Climate Change**

The state initiative groupings remained unchanged from the 2018 publication to allow for direct comparisons. They are:

1. Established a working group or legislation to reduce carbon output
2. Established a working group or legislation to respond to climate change threats
3. Produced reports on climate change
4. Assesses and monitors the effects of climate change
5. Has mechanisms in place for collaboration among agencies and other organizations
6. Addresses climate change in planning documents
7. Has responded to climate change on the ground
8. Includes climate change in outreach efforts.

As of 2022, each state has implemented 5 - 8 of the initiative categories listed above. Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina currently have practices in place that meet all eight categories. In 2018, this was true for only New Hampshire, New York, New Jersey, and Virginia. A link to a table of each state's practices can be found in Appendix I. Currently, each initiative is being carried out by at least 13 of the 15 states (Figure 1). In 2018, only Initiatives 3, 4, and 6 were being carried out by at least all but two states (of the 14 states that provided data). Since then, all states have also established a working group or legislation to respond to climate change threats (Initiative 2, up from 8 in 2018), produced reports on

climate change (Initiative 6, consistent with 2018, but now includes information from Delaware), and included climate change in outreach efforts (Initiative 8, up from 9 in 2018). All states but one now assess and monitor the effects of climate change (Initiative 4, up from 12 in 2018) and have mechanisms in place for collaboration among agencies and other organizations (Initiative 5, up from 10 in 2018). Establishing a working group or legislation to reduce carbon output (Initiative 1) and responding to climate change on the ground (Initiative 7) still needs addressing by two states, but these numbers are much improved from 2018 (only 9 states had initiatives at the time). Overall, there has been a lot of progress on climate action along the Atlantic coast over the last four years.

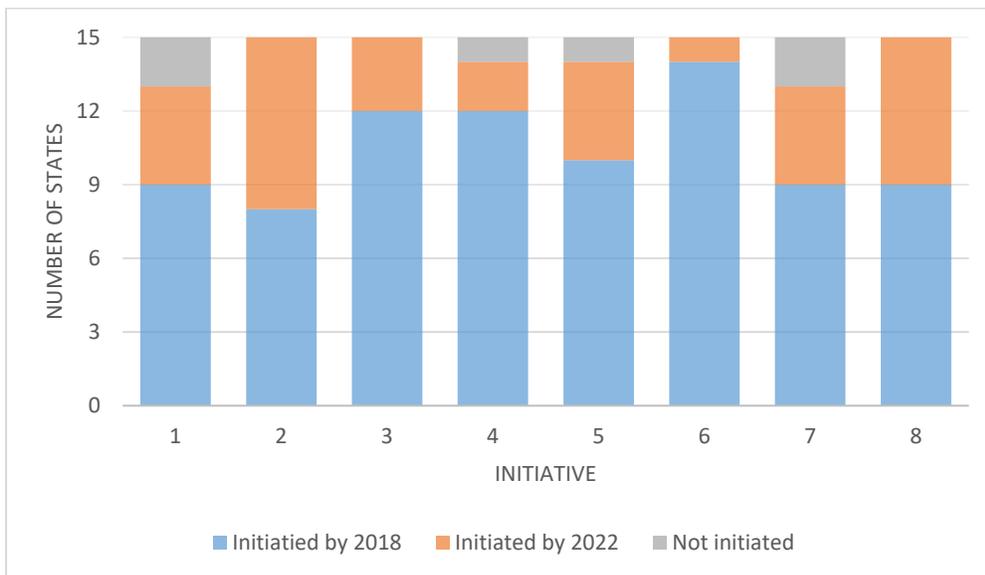


Figure 1. Number of Atlantic coast states carrying out each initiative category in 2022 compared with 2018. Note data were unavailable for Delaware in 2018 but the state is included in the 2022 data. List of categories can be found on page [x](#).

## State Climate Change Initiatives

### Maine

The following is a 2021 update on the on the State of Maine’s climate change initiatives, as well as links to documents and websites.

#### Legislation and Climate Planning

At the initiative and with the leadership of Governor Janet T. Mills, Maine enacted laws in 2019 to reduce emissions by 45% by 2030 and at least 80% by 2050, to increase Maine’s renewable energy

portfolio standard, to create the Maine Climate Council (MCC), and to develop a climate action plan to be updated every four years.

The MCC was formed in September 2019, structured around multiple, topic-specific working groups (including a coastal and marine group). The Council was informed by a number of commissioned background studies and publications<sup>1</sup>. A two-year participatory process followed, led by Governor Mills' Office of Policy Innovation and the Future resulting in [Maine Won't Wait: A Four-Year Plan for Climate Action](#). The Plan presents [strategies](#) to mitigate Maine's climate footprint and adapt to anticipated effects of climate change including:

- Accelerating the conversion to electric vehicles (EVs) and reducing vehicle miles driven;
- Improving home and building energy efficiency and modernization;
- Increasing clean energy sources and growing the clean economy sector;
- Supporting resiliency and adaptation by conserving and restoring natural habitats;
- Increasing technical support for community adaptation;
- Investing public dollars; in climate-resilient infrastructure; and
- Increasing communication and awareness about climate change.

Numerous strategies presented in the plan relate directly to coastal communities, working waterfront climate resilience, conserving and restoring coastal and marine habitats, and mapping and modeling climate impacts on habitats and species. Additionally, the Governor's Office of Policy Innovation and the Future is focusing on creating a comprehensive information exchange for coastal and marine climate change monitoring and is developing technical assistance programs for coastal communities and the seafood business sector in partnership with the University of Maine.

Multiple Maine state agencies, together with universities, NGOs, and other partners, are charged with implementing the plan.

In addition to this overarching initiative, multiple state efforts have continued or have been recently developed to support climate resilience in coastal and marine areas. Some of these efforts are detailed below.

#### New Efforts and Resources

- **Improved Monitoring.** The Department of Marine Resources continues to implement a wide range of fisheries research monitoring activities that both track and document shifting species ranges and are used for stock assessments. The ME/NH nearshore trawl survey provides a time series beginning in 2020. The Department of Marine Resources has also maintained an Environmental Monitoring Program in Boothbay Harbor for over a century. The observations began in March of 1905 and

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<sup>1</sup> These include: [Scientific Assessment of Climate Change and its Effects in Maine](#) (Maine Climate Council's Science and Technical Subcommittee); [Strengthening Maine's Clean Energy Economy](#) (Governor's Energy Office and Office of Policy Innovation and the Future); [Assessing The Impacts Climate Change May Have On The State's Economy, Revenues, And Investment Decisions](#) (Eastern Research Group and Synapse Energy Economics); and [Equity Assessment of Work Group Recommendations](#) (University of Maine Senator George J. Mitchell Center for Sustainability Solutions).

constitutes one of the longest running, continuous series of sea temperature observations for any point on the North American Atlantic Coast. In 2020, the Department added continuous monitoring of pH dissolved oxygen, and carbon dioxide to monitor ocean acidification over time. Observations of air temperature, barometric pressure, sea surface temperature, relative humidity, wind speed, and wind direction are recorded at daily intervals. Finally, species-specific monitoring and commercial fisheries data provide long-term datasets that are used in climate forcing models.

- [Climate Change and Biodiversity in Maine: Vulnerability of Habitats and Priority Species](#) (2014) classified the vulnerability of the species and habitats to climate change.
- Maine State Wildlife Action Plan (WAP) (2015) addresses the full array of Maine's wildlife across all taxa groups and habitats and identifies 378 Species of Greatest Conservation Need. The Plan provides species-specific and habitat-based actions to help prevent further species declines over the next ten years.
- The Maine Stream Connectivity Work Group, led by the Department of Marine Resources, is working to minimize the impacts of road crossings on Maine's aquatic systems, through the development of best management practices, sharing of technical resources, project identification and implementation, development of outreach and training materials and workshops, and direct project technical assistance.
- The [Stream Smart Program](#) works with contractors, landowners, and other professionals responsible for freshwater road-stream crossings to construct culverts that maintain fish and wildlife habitat while protecting roads and public safety. The [Maine Stream Habitat Viewer](#) provides a starting point for towns, private landowners and others to learn more about stream habitats across the state.
- The CoastWise Approach for Tidal Crossing Design. CoastWise provides a voluntary set of best practices, decision-making tools, and path for designing safe, cost-effective, ecologically supportive, and climate-resilient tidal crossings. The new [Tidal Restriction Atlas](#) is a tool that shows which crossings are tidal now or likely to be in the coming decades. Pilot projects are underway that 1) demonstrate appropriate methods for assessing tidal crossings in light of sea level rise (SLR) including tidal hydrodynamic modeling, 2) assist communities with weighing best solutions and reaching community consensus, sound design and funding for restoration.
- Sentinel Marsh Monitoring Sites. During 2017-2018, the Maine Coastal Program/Department of Marine Resources and its partners established sentinel monitoring sites at 11 marshes spanning the coastline to document changes in salt marshes over time through monitoring elevation using deep Rod Surface Elevation Tables (RSETs), tidal inundation and duration, and vegetation change at 11 marshes spanning the coastline. The Maine Geological Survey and Maine Natural Area Program have developed new coastal inundation models due to SLR and storm surges, and have created simulations of potential marsh migration under several different SLR scenarios.
- Maine Blue Carbon Mapping. *Maine Won't Wait* calls for a comprehensive inventory of potential Blue Carbon resources in Maine. The Maine Department of Environmental Protection will be conducting regular (every five years) state-wide mapping of salt marsh and eelgrass habitats. The mapping program will update knowledge of eelgrass distribution along the approximately 75% of Maine's coastline that has not been surveyed for as many as 18 years. The Maine Coastal Carbon Group also formed in 2020 to support and expand research, conservation, and management actions for blue carbon ecosystems.
- Living Shorelines Regional Pilot Project. In collaboration with the National Oceanic and Atmospheric Administration (NOAA) and The Nature Conservancy (TNC), the states of Maine, New Hampshire, Connecticut, Massachusetts, and Rhode Island are participating in projects to build and monitor living shorelines. Maine's pilot includes three sites in Casco Bay. Monitoring at each site is providing

data about efficacy of the treatments and habitat impacts and will assist Maine in providing a regulatory path for increased use of living shorelines where conditions allow.

- Offshore Wind Initiative. Launched in June 2019 by Governor Janet Mills, Maine is exploring opportunities for thoughtful development of offshore wind energy in the Gulf of Maine and determine how to best position Maine to benefit from an industry expected to generate \$1 trillion in global investment by 2040. The Initiative aims to balance development of the industry with the impacts on Maine's commercial fishing heritage and other existing marine uses. Other aspects of Maine's work on offshore wind (OSW) are:
  - Formation of Maine Offshore Wind Roadmap – a participatory process to engage multiple stakeholders to identify how to foster an offshore wind industry that works for Maine's people, Maine's economy, and Maine's heritage. Maine Department of Marine Resources co-chairs the Roadmap's Fisheries Working Group.
  - State of Maine application to Bureau of Ocean Energy Management (BOEM) for the country's first offshore floating wind research array in the Gulf of Maine (anticipated in winter/spring 2022).
  - Participation in the regional BOEM Task Force to identify potential opportunities for renewable energy leasing and development on the Outer Continental Shelf in the Gulf of Maine.

## **New Hampshire**

The New Hampshire Fish and Game Department (NHFG) is addressing climate change through four different avenues: planning, science, outreach, and communication.

The NHFG's 2015 [WAP Update](#) specifically recognized climate change as a risk factor for both habitats and species. Because of this, species and habitat profiles include their sensitivity to climate change-related parameters, and the weighted risk of those species and habitats in regards to impacts such as SLR, changes in precipitation, increased storm activity, changes to air and sea temperature, etc.

The Great Bay National Estuarine Research Reserve (NERR, part of NHFG) continuously monitors salt marsh distribution and condition along with information about the salinity of pore water and marsh elevation. Periodically, tidal water levels are also measured. High resolution tidal wetland maps have been completed for New Hampshire and will be evaluated for shifts over time. Over time, this information will help inform if and how SLR is impacting salt marsh health at three sites around Great Bay. NHFG also has detailed habitat maps for Great Bay and the whole coastal region. These are considered baseline maps from which to compare future changes. The Sea Level Affecting Marsh Migration Model (SLAMM) was run for all of coastal New Hampshire as a part of the WAP, predicting how salt marsh distribution is likely to change under different SLR scenarios and where there is potential for migration. This information was combined with current condition information to determine where the highest quality marsh is likely to migrate, and where restoration opportunities are likely to be valuable in light of potential SLR. Great Bay NERR conducts eco-tone monitoring to see how the upland edge of tidal wetland are changing, and has deployed picture posts, soundscape monitoring, eDNA and wildlife cameras to observe shifts in biological communities and phenology changes over time.

The Great Bay NERR participates in a Coastal Adaptation Workgroup – a group of outreach professionals that coordinate to bring the best climate-related science to local communities. Much of this revolves around wise planning to protect both natural and built assets. The Great Bay NERR hosts a Climate Summit each spring (topics this year include: living shorelines, presentations about the WAP, fisheries

impacts in the Gulf of Maine, impacts on groundwater along the coast, culvert assessment work, dune restoration, city planning case studies, etc.). NHFG is also incorporating climate-related messages into their K-12 and teacher education programs. Teacher training workshops are focused on how protected places can be observed to determine climate-related impacts over time; and volunteers conduct a phenology program to track changes at the Great Bay Discovery Center.

NHFG participates in cross-state agency climate and sustainability coordination and is a key partner in efforts to promote updated climate science in local decision making. Specifically, Great Bay NERR represents NHFG on state efforts to update coastal climate science and policy recommendations as continual follow up to a 2014 Coastal Hazards and Risks Commission.

Additional Links:

The NH Fish and Game Department's Wildlife Action Plan:

<http://www.wildlife.state.nh.us/wildlife/wap.html>

The State of New Hampshire website: <http://www.nh.gov/climate/>

The NH Department of Environmental

Services: <http://des.nh.gov/organization/divisions/air/tsb/tps/climate/>

## **Massachusetts**

In 2008 Massachusetts passed a Global Warming Solutions Act to reduce emissions, increase green infrastructure, and to analyze strategies for adapting to predicted changes in climate. The Massachusetts Climate Change Adaptation Report was released in September 2011 by the Executive Office of Energy and Environmental Affairs (EEA) and includes an overview of anticipated impacts and key adaptation strategies to increase resilience and preparedness. The report provides practical adaptation strategies for predicted changes in climate in Massachusetts, including support for improving existing public health, health care, local health infrastructure, and community resilience programs. In 2017 the MA Municipal Vulnerability Preparedness (MVP) Grant Program was created to provide support for cities and towns to identify climate hazards, assess vulnerabilities, and develop action plans to improve resilience to climate change. Communities that complete the MVP Planning Grant process become designated as an MVP Community and are eligible for MVP Action Grant funding to implement the priority actions identified through the planning process. MVP Action Grants administered by EEA provide support for communities to plan and design adaptations to climate change hazards, which also protect public health. MVP Action Grants can address heating and flooding, extreme weather, SLR, and other climate-related issues. In 2018, Massachusetts passed an act promoting climate change, environmental and natural resource protection, and investment in recreational assets and opportunity. The Act established a special legislative commission to investigate and study ocean acidification. The Ocean Acidification (OA) Commission released their Report on the Ocean Acidification Crisis in Massachusetts in 2021 urging fast action to address increasing OA and to protect region's economically important shellfish industry. Also in 2018, the first State Hazard Mitigation and Climate Adaption Plan, was released, combining the five-year update of the Federal Emergency Management Agency (FEMA) State Hazard Mitigation Plan with climate change projections and adaptation information.

Massachusetts sits on the boundary of two biogeographic provinces, the Gulf of Maine and the Mid-Atlantic Bight and has documented shifts in species range distributions of several species, including black sea bass, American lobster, and northern shrimp. Additional shifts in the distribution and abundance of important commercial and recreation fish species are expected as a result of climate change. To monitor changing environmental conditions in state waters, the MA Division of Marine Fisheries (DMF) has been compiling bottom temperature data, at 60-70 sites across the state since 1987 into a database, collecting over two million temperature readings to date. Additionally, DMF also has trawl survey data back to the 1970's.

DMF's Fisheries Habitat Program continues to develop and execute research and restoration projects that demonstrate both marine aquatic habitat benefits, address cumulative impacts, and focus on climate change. Projects undertaken since 2015 include Examine the Use of Dredged Rock Material for Shoreline Protection and Fisheries Habitat Enhancement, Shading Impacts of Docks and Piers on Salt Marsh, and addressing impacts of conventional vs. conservation moorings on eelgrass habitats.

DMF continues its participation in multiple wind-energy activities, including conducting technical review of projects in the Massachusetts Wind Energy Area (WEA), attending offshore wind research and monitoring priorities workshops and meetings, and fulfilling advisory roles for research and stakeholder engagement efforts. DMF also reviews marine resource and habitat monitoring plans, impact assessments, and permits for offshore export cables in Commonwealth waters. Topics of concern include species vulnerabilities in Nantucket Sound and compensatory mitigation for affected fisheries.

## **Rhode Island**

In July 2014, the Rhode Island General Assembly approved the Resilient RI Act (RIGL §42-6.2), which formally established the Executive Climate Change Coordinating Council, as well as set specific greenhouse gas (GHG) reduction targets, and incorporated consideration of climate change impacts into the powers and duties of all state agencies. The Coordinating Council is comprised of Directors and Commissioners from nine state agencies/offices and is supported by an Advisory Board and Science and Technical Advisory Board. It is charged with leading and coordinating state agencies in responding to the challenges posed by climate change in a timely and effective manner, focusing in particular on:

- assessing, integrating, and coordinating efforts throughout state agencies to reduce GHG emissions, strengthen the resilience of communities, and prepare for the impacts of climate change;
- improving our understanding of the effects climate change will have in RI;
- working in partnerships to identify, develop, and implement strategies to be better prepared, and reduce risk and losses.

There are several projects underway that will provide information to support future Coordinating Council recommendations. A few coastal-related projects include the following. As first step in helping to reduce Rhode Island's GHG emissions is the completion of the 30-Megawatt Block Island Offshore Wind Project. This was the first offshore wind project in the country. Located approximately three miles southeast of Block Island, the project, which started construction in 2015, is now complete. The spatial planning and fisheries-related research and monitoring used to guide this work may provide a blueprint for other states and coastal communities.

To assess the effects climate change in Rhode Island the Executive Council's Science and Technical Advisory Board prepared a brief synopsis of the state of knowledge of the following manifestations of climate change: SLR, warming air temperatures, warming water (marine and fresh) temperatures, storm frequency and intensity, biodiversity (changes in species and habitats), and precipitation and inland flooding. The information summarized in this report will assist state agencies, decision-makers, and the public understand the real impacts RI is already experiencing due to a changing climate.

The Coastal Resources Management Council continues work on the Shoreline Change Special Area Management Plan, developing scientifically based data and tools to aid in coastal hazard adaptation planning. The Management Council has completed revised Shoreline Change Maps for the shore communities showing how Rhode Island's shoreline has changed over time due to erosion, and how we might expect it to change in the future. Additional tools and other key resources are available from the website to aid the state and municipalities in supporting sound policy decisions which address coastal erosion, SLR, and storm surge inundation problems.

The Department of Environmental Management has also addressed considerations related to climate change throughout the recently updated State WAP. In short, WAP reviewed vulnerability assessments for several species of great concern, identified threats to species and their habitats, and proposed actions to reduce these threats. In addition, the Division of Fish and Wildlife's Marine Fisheries Section continues to conduct long-term monitoring programs and collaborate on several local and regional research projects investigating the effects of climate change on managed species and the state's marine resources. State WAPs also have to specifically take into account climate change adaptation. Climate change is primarily in Chapters 1 (species), 2 (habitats), 3 (threats), and 4 (actions to abate threats to species and habitats).

In October 2015, the State Planning Council voted to adopt Rhode Island's new State Energy Plan "Energy 2035" as an element of the State Guide Plan, codifying the Plan as the state's formal long-term, comprehensive energy strategy. The Plan, produced by the Office of Energy Resources in collaboration with the Division of Planning, represents Rhode Island's first data-driven energy planning and policy document. Its vision is to provide energy services across all sectors—electricity, thermal, and transportation—using a secure, cost-effective, and sustainable energy system.

In January 2016, the Management Council adopted amendments to Section 145 - Climate Change and Sea Level Rise of the Coastal Resources Management Program to update SLR projections for short-, mid- and long-term timelines of 2035, 2050, and 2100 respectively, as calculated using the current NOAA methodology, and based on the Newport, RI NOAA tide gauge.

In early 2016, Rhode Island Office of Energy Resources launched the state's first ever EV rebate program to support adoption of EVs by Ocean State drivers: Driving RI to Vehicle Electrification (DRIVE). The program made \$200,000 available for qualified RI residents interested in purchasing or leasing an EV to apply for a financial rebate of up to \$2,500, based upon vehicle battery capacity. Modeled closely on existing rebate programs offered in other states, DRIVE offers the potential to increase the total number of EVs on RI roadways by 20-35%.

## **Connecticut**

Recently the Connecticut's Governor issued an Executive Order on climate. [Executive Order No. 21-3](#) calls for 23 actions that were proposed by the Governor's Council on Climate Change (GC3) in its [January 2021 report](#). These actions cut across state agencies and sectors in the following areas:

- Buildings and infrastructure;
- Clean transportation;
- Community climate resilience;
- Health, equity, and environmental justice;
- Jobs and the economy; and
- Natural and working lands.

In the General Assembly, the Public Act 490 Program Extended was extended to Aquaculture. The new law extended Connecticut's PA 490 program to certain aquaculture operations, including underwater farmlands and waterfront property used for commercial shellfishing. The PA 490 program allows farm, forest, open space, and maritime heritage land to be assessed for property tax purposes based on current use value rather than fair market value. In exchange for the reduced assessment, the property owner cannot change the land's use for a period of time. By law, if the use changes within 10 years of ownership or classification, a conveyance tax penalty is charged to the owner ([PA 21-24](#), effective October 1, 2021, and applicable to tax assessments on and after that date).

Sections 1 and 2 of this Public Act allow the [Commissioner of Agriculture](#) to contract for the use of a shell recovery vessel to collect and deposit shell on shellfish beds. By updating these statutes, the Department of Agriculture is authorized to pursue alternative funding for this program--including any private, state, or federal grants.

Other major acts of the 2021 legislative session can be found [here](#).

## **New York**

### **Legislative Updates**

On July 18, 2019, the Climate Leadership and Community Protection Act (CLCPA) was signed into law. [New York State's Climate Act](#) is among the most ambitious climate laws in the nation and requires New York to reduce economy-wide GHG emissions 40% by 2030 and no less than 85% by 2050 from 1990 levels. The law creates a Climate Action Council charged with developing a draft scoping plan that serves as an initial framework for how the State will reduce GHG emissions and achieve net-zero emissions, increase renewable energy usage, and ensure climate justice. The CLCPA amended the Climate Risk and Resiliency Act of 2014 to expand the list of State permit programs covered by the law, as well as the scope of climate hazards that must be considered in these permit programs.

**The Community Risk and Resiliency Act (CRR)**, as enacted in 2014, included five major provisions. The 2019 Climate Leadership and Community Protection Act amended the CRR as noted below:

- **Official SLR Projections** - CRR required the Department of Environmental Conservation (DEC) to adopt science-based SLR projections by regulation.

⇒ Projections of SLR for three geographic regions of the state relative to a year 2000-to-year-2004 baseline are [available here](#).

- **Consideration of future physical climate risk** - As originally enacted, the CRRRA required applicants for permits or funding in several specified programs to demonstrate that future physical climate risk due to SLR, storm surge, and flooding had been considered in project design, and that DEC consider incorporating these factors into certain facility-siting regulations. The CLCPA amended the CRRRA to include all permits subject to the [Uniform Procedures Act](#). The CLCPA also expanded the scope of the CRRRA to require consideration of all climate hazards, not only SLR, storm surge, and flooding, in these permit programs.
- **Smart Growth Public Infrastructure Policy Act Criteria** - CRRRA added mitigation of risk due to SLR, storm surge, and flooding to the list of smart-growth criteria to be considered by state public infrastructure agencies.
  - ⇒ DEC has released [Guidance for Smart Growth Public Infrastructure Assessment](#). This document is intended to guide state agencies as they assess mitigation of SLR, storm surge, and flooding in siting and design of public infrastructure projects.
- **Guidance on Natural Resilience Measures** - The CRRRA required DEC, in consultation with the Department of State (DOS), to develop guidance on the use of natural resources and natural processes to enhance community resilience.
  - ⇒ Natural resilience measures are actions that conserve, restore, or mimic natural landforms and processes to reduce climatic risks. DEC and DOS have released [Using Natural Measures to Reduce the Risk of Flooding](#) to serve as a guide to selection and planning of natural resilience measures.
  - ⇒ DEC and DOS have released the [State Flood Risk Management Guidance \(SFRMG\)](#). The SFRMG recommends flood risk management guideline elevations that incorporate possible future conditions, including the greater risks of coastal flooding presented by SLR and enhanced storm surge, and of inland flooding expected to result from increasingly frequent extreme precipitation events.
- **Model Local Laws Concerning Climate Risk** - CRRRA required DOS, in cooperation with DEC, to develop model local laws to increase community resilience.
  - ⇒ Released in November 2020, [these model laws](#) provide guidance on specific measures that localities can take to reduce flood risk by managing development in high-risk areas and preserving natural features like wetlands and dunes that provide protection against flooding.

### [Observed and Projected Climate Change in New York State: An Overview](#)

[Disadvantaged Communities Barriers and Opportunities Report](#) assesses why some communities are disproportionately impacted by climate change and air pollution and have unequal access to clean energy. This report identifies barriers faced by disadvantaged communities and recommends actions for New York State agencies to design climate mitigation and adaptation programs through a lens of justice.

### **NY State Climate Impacts Assessment**

In partnership with leading academic institutions, science organizations, community leaders, and others, New York State is undertaking a comprehensive research effort to better understand and document how climate change is affecting our state, what future impacts may be, and how we can prepare for them. The [New York State Climate Impacts Assessment](#) development effort was launched in June 2021 and is scheduled to be completed by early 2023. The goal of this assessment is to provide the science and information that will allow decision makers at all levels to make informed choices about their future: whether that's a local municipality, state agency, or individual business or landowner.

### **Offshore Wind**

Under New York's Clean Energy Standard and the Climate Leadership and Community Protection Act, New York State is committed to providing 70% of New York State's electricity from renewable sources such as wind, solar, and hydroelectric power by 2030 and be 100% carbon free by 2040. To help reach this goal, New York State has committed to developing 9,000 megawatts of offshore wind by 2035, which is enough to power up to 6 million homes.

The New York State Energy Research and Development Authority (NYSERDA) has held two competitive solicitations for offshore wind energy, bringing totals to over 4,300 megawatts under active development statewide.

During the 2018 solicitation, NYSERDA selected and contracted with two offshore wind projects totaling nearly 1,700 megawatts:

- **Empire Wind 1:** (816 megawatts, Equinor Wind LLC) Located 11.5 nautical miles (nm) from Jones Beach, NY, encompassing the western portion of the lease area.
- **Sunrise Wind:** (880 megawatts, Ørsted A/S and Eversource Energy) The project area is approximately 30 miles east of Montauk Point.

During the 2020 solicitation, Equinor was provisionally awarded two other offshore wind projects totaling 2,490 megawatts:

- **Empire Wind 2** (1,260 megawatts) Located 11.5 nm from Jones Beach, NY, encompassing the eastern portion of the lease area.
- **Beacon Wind** (1,230 megawatts) Located 60 miles east of Montauk Point.

### **Climate Smart Communities Program**

[Climate Smart Communities](#) (CSC) is a New York State program that helps local governments take action to reduce GHG emissions and adapt to a changing climate. Communities can become registered by committing to act and passing the CSC pledge, or can become certified by going beyond the CSC pledge, completing and documenting a suite of actions that mitigate and adapt to climate change at the local level. There are currently 350 registered CSCs in New York; 80 of these are certified.

The [Climate Smart Communities Grant Program](#), established in 2016, is a 50/50 matching grant program that supports municipalities seeking to become certified Climate Smart Communities and/or implement projects that advance New York's goals to reduce GHG emissions and adapt to the ongoing impacts of climate change by reducing flood risk, increasing natural resiliency, and relocating or retrofitting critical infrastructure. In the first five years of this grant program, DEC has awarded more than \$50 million to municipalities in support of local climate mitigation and adaptation projects.

## **Estuary Program Support and Ongoing Research**

New York continues to support and work closely with several National Estuary Programs and NERR sites within the state. Research and monitoring performed or supported by these groups is integrated into climate change management plans and state WAPs, ultimately affecting how we manage resources. In 2019, coastal vulnerability assessments were released for [Long Island Sound](#) and the [Peconic Estuary](#). These reports assess at-risk natural resources and infrastructure, develop adaptation strategies, support low impact development and green infrastructure, and include wetland migration pathway modeling to advise management decisions.

New York participates in a variety of monitoring networks and ongoing research studies. These include climate sentinel monitoring projects, sediment elevation tables, water quality and tide gauge monitors, tidal wetland rapid health assessments, and marsh loss trend analyses. The State funds and provides support for many conservation and wetland restoration efforts and for the acquisition of open space to support habitat connectivity and promote the resiliency of these critical habitats in the face of a changing climate.

## **New Jersey**

In a continuous effort towards a stronger New Jersey, Governor Phil Murphy signed [Executive Order No. 89](#) on October 29, 2019 appointing a Chief Resilience Officer establishing and a [Climate and Flood Resilience Program](#) within the New Jersey Department of Environmental Protection (DEP) and directing development of [New Jersey's first Scientific Report on Climate Change](#). Further, it establishes an [Interagency Council](#) on Climate Resilience to develop a Statewide [Climate Change Resilience Strategy](#) to promote the long-term mitigation, adaptation and resilience of New Jersey's economy, communities, infrastructure, and natural resources.

The 2020 New Jersey Scientific Report on Climate Change summarizes the current and predicted future impacts of climate change that are specific to our natural and built environments and is intended to inform state and local decision makers as they seek to understand and respond to the impending impacts. This report identifies and presents the best available science and existing data regarding the current and anticipated environmental effects of climate change globally, nationally, and regionally. The report received the 2021 Notable Document award from the Legislative Research Librarians section of the National Conference of State Legislatures: <http://tinyurl.com/NCSLnotabledocs>.

The Interagency Council on Climate Resilience (Interagency Council), comprised of 17 state agencies, was established to develop short- and long-term action plans that will promote the long-term mitigation, adaptation, and resilience of New Jersey's economy, communities, infrastructure, and natural resources. In addition to these coordinated efforts, the Interagency Council will support the development and implementation of the draft [Climate Change Resilience Strategy](#) that will guide and inform State actions to address the impacts of climate change.

New Jersey's first Statewide Climate Change Resilience Strategy provides a suite of forward-looking policy options to promote the long-term resilience of New Jersey to climate change. As a framework for policy, regulatory, and operational changes, the Resilience Strategy presents actions that New Jersey's

Executive Branch can take to support the resilience of the state's communities, economy, and infrastructure. The Draft Resilience Strategy includes 127 recommended actions across six priority areas.

The Global Warming Response Act (GWRA) [GWRA 80x50 Report](#) was written in response to the mandate in the GWRA, to reduce New Jersey's GHG emissions by 80% from their 2006 levels by 2050. This report builds on the State's previous efforts to address and reduce GHG emissions and serves as the third element of a comprehensive plan that evaluates New Jersey's GHG emissions from both energy and non-energy systems, providing guidance, policies, and regulatory and legislative recommendations to meet the State's GHG emission reduction goals.

Other NJ climate change initiatives are:

- Regional Greenhouse Gas Initiative (RGGI): <https://www.state.nj.us/dep/aqes/rggi.html#/>
- Resilient NJ- Climate Change Toolkit: <https://experience.arcgis.com/experience/9daab51c2f5542969d50437522e012c4>
- Coastal Ecological Restoration and Adaptation Plan (CERAP): <https://www.nj.gov/dep/climatechange/docs/cerap-factsheet.pdf>
- NJ DEP SLR Guidance: <https://www.nj.gov/dep/slr/>
- Stormwater Infrastructure Toolkit: <https://www.nj.gov/dep/floodresilience/toolkit.html>
- NJ is a member of the OA Alliance: <https://www.oaalliance.org/>
- NJ Protecting Against Climate Threats (PACT): <https://www.nj.gov/dep/njpact/>.
- Shore Protection Fund - [https://www.nj.gov/dep/grantandloanprograms/nhr\\_spgl.htm](https://www.nj.gov/dep/grantandloanprograms/nhr_spgl.htm)

## Pennsylvania

The Pennsylvania Fish and Boat Commission (PFBC) recognizes the current and anticipated impacts of climate change on fish and fish habitat in its [Strategic Plan](#) and has adopted *Resilience* as a guiding principle to help achieve its "mission to protect, conserve, and enhance aquatic resources and provide fishing and boating opportunities," even amidst changing environmental conditions.

The Pennsylvania Climate Change Act of 2008 requires the Pennsylvania Department of Environmental Protection (DEP), to produce: 1) a report detailing the [impacts](#) of climate change and 2) a report outlining the state's [Climate Action Plan](#), both to be updated every three years. In the most recent [Climate Impacts Assessment](#) (2021), the effects of increased water temperature and the concomitant decrease in dissolved oxygen in the freshwater tidal portion of the Delaware Estuary were recognized (p. 47). Similarly, the assessment outlined the impacts of SLR and increased salinity on Pennsylvania's portion of the Delaware Estuary, highlighting potential changes in community composition and alterations to tidal wetlands (p. 96). To address these impacts, the commonwealth's [Climate Action Plan](#) identifies several strategies designed to help mitigate the impacts of climate change. Strategies relevant to Pennsylvania's portion of the Delaware Estuary include: 1) conserving and enhancing fish habitat and habitat connectivity (pp.46, 95), 2) implementing living shoreline programs (pp.46, 95), 3) reviewing regulatory structures that govern fisheries habitats and identifying ways to improve their ability to address the impacts of climate change (pp.46, 99), and 4) improving fish passage across the state (pp.47, 112).

In addition to the commonwealth's Climate Change Impact Assessment and Climate Change Action Plan, the [2015-2025 Pennsylvania WAP](#) outlines the potential threats that climate change poses to Species of

Greatest Conservation Need including American eel (*Anguilla rostrata*), river herring (Blueback Herring; *Alosa aestivalis* and alewife; *Alosa pseudoharengus*), American shad (*Alosa sapidissima*), and Atlantic sturgeon (*Acipenser oxyrinchus*). Although not a regulatory document, the plan recommends the expansion and development of “sentinel sites” to help monitor the impact of climate change on Species of Greatest Conservation Need and their habitats (Appendix 4.3, 4-140).

## Delaware

Governor John Carney released Delaware’s Climate Action Plan in November 2021. The main goals of the Climate Action Plan are to reduce GHG emissions and to better prepare for the impacts of climate change by prioritizing clean energy and improved energy efficiency, providing support to state agencies in resilience efforts, and increasing research and monitoring.

Through Governor Carney’s commitment to the U.S. Climate Alliance, Delaware has adopted a goal of reducing the state’s GHG emissions by 26 to 28% by 2025 from 2005 levels. A Delaware Climate Action Plan was developed to meet that goal, plan for further emissions reductions in the years beyond, and determine priority areas to continue building the state’s resilience to climate change impacts.

Delaware’s past and present actions to minimize emissions have focused on the areas of clean and renewable energy, energy efficiency, transportation and reducing “high global warming potential” GHGs. Examples include:

- **Delaware’s Renewable Energy Portfolio Standards Act:** A 2005 law requiring the state’s utilities to get an increasing percentage of electricity from renewable sources
- **Code for Energy Conservation:** Delaware updated building energy codes in 2020, which aim to improve energy efficiency and cost savings
- **Renewable Energy and Energy Efficiency Incentive Programs:** This includes DNREC programs like the Green Energy Program and Energy Efficiency Investment Fund
- **Delaware Department of Natural Resources and Environmental Control (DNREC)’s Clean Transportation Incentive Program:** Individual and business rebates to offset the cost of purchasing zero-emission vehicles and related charging infrastructure
- **DNREC’s “Cool Switch” Low Impact Refrigerant Program:** Incentives to switch from hydrofluorocarbon refrigerants to those with more limited climate change impacts

Delaware’s past and present actions to maximize resilience have focused on the areas of policy, planning and regulations; capacity-building for state and local governments; and developing research, data and tools. Examples include:

- **SLR Planning:** A five-year effort, starting in 2009, provided a vulnerability assessment, recommendations for adaptation, and planning scenarios for the state
- **Climate Framework for Delaware:** This 2014 report outlined state agency actions to adapt to climate change; a related output was a flood avoidance guide for state assets
- **Technical Assistance and Funding:** Initiatives like the Resilient Community Partnership, Coastal Training Program, Strategic Opportunity Fund for Adaptation, and Sustainable Communities Planning Grant Program support local or state government climate action

- **Delaware Climate Change Impact Assessment:** This report, compiled in 2014, provide climate change projections for heat and precipitation to the year 2100
- **Coastal Inundation Maps:** The Delaware Geological Survey developed maps in 2017 to inform infrastructure, facility, land use, and capital spending planning for SLR

Identified through analysis and stakeholder input throughout the development of the climate action plan, DNREC identified four strategies to prioritize to minimize emissions and seven strategies to maximize resilience:

#### Strategies to Minimize GHG Emissions

1. **Clean and renewable energy** expansion, which has the greatest potential to reduce emissions in the long term;
2. **Energy efficiency** measures, which can be put in place relatively quickly and implemented through existing programs;
3. **Transportation** sector transitions to zero-emission vehicles and more efficient transportation systems; and
4. **High global warming potential GHG** reduction and management of GHGs other than carbon dioxide.

#### Strategies to Maximize Resilience

1. **Update or create state regulations** that address protection and conservation of vulnerable and impacted resources.
2. **Support for communities and stakeholders** in the form of trainings, resources and technical assistance.
3. **Management plans** for natural resources, emergency response, state facilities, and agency equipment.
4. **Facility design and operation** that accounts for future climate conditions.
5. **Research and monitoring** that studies the impacts of climate change and methods of adapting.
6. **Outreach and education** on climate change impacts and adaptation.
7. **Agency support** that provides the resources to implement the resilience actions.

For complete information on the items referenced above and strategy for the path forward to meet these climate initiatives please visit [Delaware's Climate Action Plan](#) website.

## Maryland

Maryland has made a strong commitment to reducing GHG emissions in the state and has taken a number of actions to plan for and adapt to a changing climate. The 2030 Greenhouse Gas Reduction Plan was finalized in 2020, which charts a path towards a 40% reduction of 2006 level GHG emissions by 2030 and carbon neutrality by 2045. The goal has since been expanded by Governor Hogan to a 50% reduction by 2030. This plan meets the requirement of the 2009 Greenhouse Gas Emissions Reduction Act, which required a reduction of GHG emissions by 25% by 2020 and the 2016 legislative update requiring the 40% reduction by 2030. The plan considers how all sectors' (energy, transportation,

agriculture, etc.) can contribute to reducing emissions and has more than 150 programs and initiatives to address carbon emissions related to energy, construction, fisheries, forestry, etc. The final 2020 GHG inventory for the state will not be released until the end of 2021 but preliminary results indicate Maryland will have achieved the 25% emissions reduction goal.

Maryland, via the Adaptation and Resiliency Working Group (ARWG) of the Maryland Commission on Climate Change is evaluating and updating the state's adaptation strategy by developing the Maryland Climate Adaptation and Resilience Framework: 2021- 2030 Framework. The intent of the Framework is to guide and prioritize action over the next 10 years, specifically in vulnerable and under-served communities. In 2020, ARWG identified five key sectors: natural resources, working lands and resources-based economies, human health, water resources - quality and quantity, and protecting critical infrastructure, and three focus areas that will be integrated into all of the sectors: diversity and environmental justice, climate jobs and training, and local government action and state service delivery. Bringing together over 80 experts from state and local government, and partner organizations, the Framework effort has begun the initial steps towards development of a guiding framework for climate adaptation in the state.

A Maryland Coastal Climate Adaptation Report Card which includes a suite of 15 indicators that measure adaptation progress in Maryland has been developed by University of Maryland Center for Environmental Sciences - Integration and Application Network. The report card provides high-level synthesis of findings, including individual indicator scores, and an overall grade for the coastal zone in Maryland and will be used to inform management decisions moving forward. The Report Card will be released by the end of 2021.

Maryland solicits and funds community-based resilience projects through the Community Resilience Grant Program. The program leverages federal dollars with state "Resiliency through Restoration" capital funding to promote and support comprehensive, holistic planning and implementation projects that address both water quality and quantity issues. Through these projects, the Maryland Department of Natural Resources (MDNR) is helping Maryland communities become more resilient to flood risks, and enhance the protection and management of the state's resources including the bay and the ocean. This work continues a decade-long effort to provide support to local communities to assess risk, plan risk-reduction efforts and implement projects.

After the publication of the Nuisance Flood Plan Development Guidance in October of 2019, MDNR and Maryland Department of Planning received nuisance flood plan from nine coastal counties and Baltimore City and have three pending submissions.

Maryland has finalized a policy and supporting processes to proactively identify environmentally and economically sound beneficial use of dredged material practices to improve coastal resiliency. Through the development of a mapping tool - Beneficial Use: Identifying Locations for Dredge (BUILD) - project managers will be able to quickly identify beneficial use opportunities. BUILD has been merged into the Maryland Coastal Atlas where the data is now available.

The Coast Smart Construction Program siting and design guidelines were updated in 2020 and include the expanded scope and applicability per Chapters 628 and 629 of the 2018 Laws of Maryland and Chapter 442 of the 2019 Laws of Maryland. Additionally, the vulnerable areas within which the Program applies was updated to include areas outside of the Special Flood Hazard Area. This new boundary, the

Coast Smart Climate Ready Action Boundary, conveys resiliency by adding a vertical extent above the Base Flood Elevation and is currently the most technologically feasible and accurate approach to achieve resiliency within the scope of the Coast Smart Program. The Coast Smart Project Screening Form provides projects with a form to use when applying the Program requirements. The siting and design guidelines, screening form and additional information can be found at the Coast Smart Councils website [https://dnr.maryland.gov/climateresilience/Pages/cs\\_Council.aspx](https://dnr.maryland.gov/climateresilience/Pages/cs_Council.aspx).

## **Virginia**

### **Virginia – Early Steps**

Virginia's initial focus on climate change included the Governor's Commission on Climate Change, which published [A Climate Change Action Plan](#) in 2008. This included the effects of climate change (on the built environment, insurance, natural systems, etc.), recommendations, and commission deliberations. In December of 2014, the state published [Virginia Accomplishments Since the 2008 Climate Action Plan Release](#). One year later, in December 2015, the Governor Terence R. McAuliffe's Climate Change and Resiliency Update Commission published the [Report and Final Recommendations to the Governor](#), which includes the top five recommendations to address climate change in the state: i) establishing a climate change and resilience resource center, ii) creating a new Virginia bank for energy and resiliency, iii) establishing a renewable energy procurement target for Commonwealth agencies, iv) adopting a zero emission vehicle program, and v) leveraging federal funding to make coastal communities more resilient. During the 2016 legislative session Virginia created the [Commonwealth Center for Recurrent Flooding Resiliency](#), a joint venture of Old Dominion University, the College of William & Mary and the Virginia Institute of Marine Science. With an initial budget allocation of \$2 million in state support these institutions have worked together to provide critical research, policy, and outreach to protect natural resources and create resilient communities across the Commonwealth.

### **Virginia Update**

In 2018 Governor Ralph Northam issued [Executive Order 24](#) "Increasing Virginia's Resilience to Sea Level Rise and Natural Hazards," which set the Commonwealth on a course toward addressing its risk and resilience to natural hazards, including flooding. Executive Order 24 designated the Commonwealth's first Chief Resilience Officer (Secretary of Natural Resources, Matthew Strickler). The Order also directed the integration of unified SLR projections, development of minimum freeboard standards, and a review of the vulnerability of State-owned buildings. Importantly, the Order directed the Chief Resilience Officer and the Special Assistant to the Governor for Coastal Adaptation (Rear Admiral Ann Phillips, United States Navy) to develop the [Virginia Coastal Resilience Master Planning Framework](#), published in October 2020. This Framework lays out the Commonwealth's approach to coastal protection and adaptation and is being utilized to create the [Coastal Resilience Master Plan](#). The primary objective of the Master Plan will be to improve the Commonwealth's resilience and ability to adapt to rising seas, increased nuisance flooding, and more frequent and intense storms that result from climate change and threaten our coastal communities and marine resources. Virginia has also joined the [RGGI](#), a regional cap-and-trade program designed to reduce climate pollution. Proceeds generated from the program will fund resiliency projects recommended through the Coastal Resilience Master Plan. Lastly, the Virginia 2020 General Assembly considered [Senate Bill 776](#) and [House Bill 504](#) resulting in legislation that required the Virginia Marine Resources Commission and the Department of Environmental Quality to update tidal wetland and riparian buffer regulations to ensure the protection and conservation of sensitive coastal

habitat from SLR and coastal hazards. In the summer of 2021, Virginia agencies updated their [Tidal Wetlands Guidelines](#) and Chesapeake Bay Preservation Area regulations and enforceable policies with additional standards that now require localities to allow, to the maximum extent possible, for the landward migration of existing vegetation for all permissible uses of tidal wetlands and riparian buffers.

## **North Carolina**

Throughout North Carolina, impacts from climate change, including SLR, will affect all coastal habitats and species. In 2018, after the devastation brought about by Hurricane Florence, NC's Governor Roy Cooper signed [Executive Order 80](#) "NC's Commitment to Address Climate Change and Transition to a Clean Energy Economy" (EO80) directing all cabinet agencies to integrate climate adaptation and resiliency planning into their policies, programs, and operations. As part of EO80, the Climate Change Interagency Council was created which included members from all of the cabinet agencies. The Department of Environmental Quality (DEQ) was tasked to serve as the lead agency with the Secretary of DEQ serving as Council chair. Staff from all DEQ divisions were active on the Council and associated working groups.

These working groups, along with federal and university partners, developed a state-specific [NC Climate Science Report](#), assessed hazards and risks associated with climate change, and compiled a [Natural Working Lands Report](#). These efforts were incorporated into the [2020 NC Risk Assessment and Resilience Plan](#) with strategies and recommendations to increase carbon sequestration and resiliency of coastal habitats and communities. Implementation began in 2021. Governor Cooper's EO80 is the driving force behind much of NC's approach to coastal resiliency and climate change planning.

Also in 2018, the North Carolina Office of Recovery and Resilience (NCORR) was established within the NC Department of Public Safety to administer funds received by the state through the U.S. Department of Housing and Urban Development's Community Development Block Grants for Disaster Recovery Program. In 2019, Governor Cooper appointed a state Chief Resilience Officer to lead NCORR's resilience staff and direct the state's initiative to help storm-impacted communities rebuild smarter and stronger in the face of future natural disasters and long-term climate change.

NCORR has been tasked with leading the state's future resilience efforts. NCORR supports coordination among state agencies and maintains productive relationships and partnerships between state, local, and regional governments, business and non-profit partners, and community stakeholders. Collaboration and interaction among partners inside and outside of state government helps all entities leverage expertise throughout the state to build a more resilient North Carolina.

NC's Clean Energy Plan (CEP) was written by the DEQ as directed by Governor Cooper's EO80. DEQ was tasked with the creation of a CEP to encourage the use of clean energy resources and technologies to foster the development of a modern and resilient electricity system. The purpose of the CEP is to outline policy and action recommendations that will accomplish these goals. The CEP uses best available data, analysis, and stakeholder input to examine what our electricity system should look like in 2030. It identifies achievable goals, proposes modern policies and strategies to achieve the goals, and identifies activities needed to adjust the regulatory framework to accommodate 21st century customer expectations, public policy goals, energy needs, economic development opportunities, and societal

outcomes related to climate change. The CEP can be viewed here:

[https://files.nc.gov/governor/documents/files/NC Clean Energy Plan OCT 2019 .pdf](https://files.nc.gov/governor/documents/files/NC_Clean_Energy_Plan_OCT_2019_.pdf)

Late in 2021, an amendment was approved to North Carolina's Coastal Habitat Protection Plan (CHPP) by the three regulatory commissions with jurisdiction over the plan. As part of the five-year review, the state's Coastal Resources Commission, Environmental Management Commission and Marine Fisheries Commission adopted the 2021 CHPP Amendment with unanimous votes. The amendment focuses on five priority issues, several of which have implications regarding climate change and SLR. The five priority issues are: 1) Submerged Aquatic Vegetation protection and restoration through water quality improvements, 2) Wetland protection and restoration through nature-based solutions, 3) Environmental rule compliance to protect coastal habitats, 4) Wastewater infrastructure solutions for water quality improvement, and 5) Coastal habitat mapping and monitoring to assess status and trends. To view the 2021 CHPP Amendment and the source document from 2016, go to:

<https://deq.nc.gov/about/divisions/marine-fisheries/habitat-information/coastal-habitat-protection-plan>

In 2021, NC's Division of Water Resources (DWR) began sampling for an Environmental Protection Agency (EPA) grant called "The Assessment of Change in North Carolina Coastal Plain Wetlands." This assessment will be looking at wetland sites previously not surveyed with wetland sites surveyed five, 10, and 30 years ago. In addition, North Carolina State University continued the long-term monitoring of a few sites previously monitored by DWR from 2014 through 2018/2019. DWR has been awarded funds from the EPA to initiate a statewide wetland mapping project and a more accurate, publicly available wetland mapping tool for North Carolina. These maps and the corresponding tool will be critical for planning as the climate changes and the seas rise.

The Albemarle-Pamlico National Estuary Partnership (APNEP) is co-lead with the NC Coastal Federation of the NC Living Shoreline Steering Committee. This committee was established in 2018 and acts as APNEP's Living Shoreline Action Team. The committee brings together federal and state agencies, non-governmental organizations, and universities to communicate and collaborate on education and outreach, research, and implementation of living shorelines. In 2021, this committee promoted and published its partner's accomplishments achievements from 2018 through 2020 and can be found at:

[https://www.nccoast.org/wp-content/uploads/2021/09/LS-report-2018-2020.pdf?fbclid=IwAR1LDKPbCLdeAiRCq7T4jV5lDd\\_NTM7h6xVjUhWomQRyLKTfstl-yBzRXmo](https://www.nccoast.org/wp-content/uploads/2021/09/LS-report-2018-2020.pdf?fbclid=IwAR1LDKPbCLdeAiRCq7T4jV5lDd_NTM7h6xVjUhWomQRyLKTfstl-yBzRXmo)

APNEP is collaborating as a project partner on a [NOAA Coastal Resilience Grant](#) awarded to the [Virginia Institute of Marine Science](#). The project is focused on increasing the use of natural and nature-based features to increase resilience of coastal communities to flooding caused by storms and extreme weather events associated with climate change. The project is designed to include interaction with local government officials as the target audience for project generated data and guidance. APNEP staff are working with Wetlands Watch to solicit feedback from North Carolina agency personnel, local governments, and other partners to develop an evaluation of opportunities and limitations to extension of the project outputs beyond Virginia in 2021. You may view the project website at:

[https://www.vims.edu/ccrm/research/climate\\_change/adaptation/nbfs/index.php](https://www.vims.edu/ccrm/research/climate_change/adaptation/nbfs/index.php)

**South Carolina**

There have been two recent pieces of state legislation that relate to climate change. The [2020 Disaster Relief and Resilience Act](#) established the South Carolina Office of Resilience which is tasked with developing and implementing a Strategic Statewide Resilience and Risk Reduction Plan to coordinate efforts across agencies to increase resilience and recover from natural disasters. Addressing flooding is a major focus area within this effort, which is still in its early stages. The [2019 Energy Freedom Act](#) helped remove barriers to increasing solar energy capacity in the state.

In the [2018 South Carolina Hazard Mitigation Plan](#), the South Carolina Emergency Management Division (SCEMD) reported county-level inundation areas based on three different modeled SLR scenarios. SCEMD is working to develop a more hazard-specific discussion of climate change for the 2023 Hazard Mitigation Plan.

The South Carolina Department of Natural Resources (SCDNR) compiled a report in 2013 entitled [Climate Change Impacts to Natural Resources in South Carolina](#). The following two sentences from the report highlight the goal the agency had in writing it: “The Department of Natural Resources is taking a lead role among South Carolina state agencies to advance the scientific understanding of the vulnerability of South Carolina’s vital natural resources during an era of changing climate. This will enable the agency, its partners, constituents, and all Palmetto State citizens to avoid or minimize the anticipated impacts while protecting South Carolina’s natural resources.” The report identifies a number of concerns for the state’s natural resources including SLR, OA, and temperature rise effects. The state has a high proportion of the coastline that is comprised of marshes, barrier islands, and hammock islands. Many of these lands are owned by state and federal entities. The document has various strategies for research and for developing and protecting land to provide for migration.

In the [2015 State WAP](#), Climate Change was added as a Conservation Action Area. Strategies within this action area include: 1) Prioritize areas for conservation actions using updated mapping capabilities (for example, conduct SLAMM modeling of the state’s coastline as needed to identify potential conservation focus areas for marsh migration inland); 2) Identify monetary and staff resources for addressing management needs as they relate to climate variability; 3) Create a centralized information area with data and tools to support decision making; 4) Conduct climate-related monitoring of species and habitats as needed (run species- or habitat-based vulnerability index assessments as needed for priority species); 5) Collaborate with neighboring states to address species/habitat range shifts due to climate change; and 6) Foster partnerships within the state and nationwide to address climate change in South Carolina.

#### New and Ongoing Resources and Efforts

- In 2021, as a result of an ongoing collaboration between SCDNR and the state coastal regulatory agency, [living shorelines were added to coastal zone regulations](#).
- SCDNR is implementing living shorelines to mitigate SLR.
- SCDNR is conducting research on the effects of fluctuating climatic variables on key fishery species and estuarine habitat quality.
- The SC Sea Grant Consortium, a state agency made up of eight member institutions, plays a convening and facilitation role, funds research, and provides technical assistance on climate issues.

- The Carolinas Integrated Sciences and Assessments (CISA) team is based at the University of South Carolina. CISA organizes a biennial Carolinas Climate Resilience Conference which supports on-the-ground climate resilience efforts by providing managers and regional experts an opportunity to share lessons learned and discuss resources and tools for incorporating climate information into their work.
- The SC State Climatology Office is monitoring climatological trends and variability across the State (1900 – present) and hosted two climate related workshop series (in 2012 and 2017) in collaboration with CISA and the SC Water Resources Center.
- SCDNR Coastal Reserves and Outreach discusses SLR and coastal flooding in most of their outreach programs. For example, the SCDNR/ACE Basin NERR offers multi-day Teachers on the Estuary and Climate Explorers programs that directly address climate change research and monitoring.
- In 2021, the SC Department of Education added climate change to the [state science standards](#).

## Georgia

In 2016, The Georgia Coastal Management Program/Georgia Department of Natural Resources held the first ever Georgia climate conference, *Climate Conference - Prepare, Respond, and Adapt: Is Georgia Climate-Ready?* The conference focused many aspects important to coastal Georgia including habitat and impacted species and many other relevant issues. In 2021 a second climate conference was held, *Georgia Climate Conference 2021 – Minimizing Georgia’s Risk, Maximizing Georgia’s Future*. The 2021 conference had many updated discussions on the topics of the 2016 conference and included specific sessions on Marine Fisheries and Habitat and Impacted Species. The conference agenda can be seen at [GeorgiaClimateConference.org](http://GeorgiaClimateConference.org).

Also in 2016, the [Post-Disaster Recovery and Redevelopment Planning](#) document was created. This document has led to all the coastal counties in Georgia developing post-disaster plans. The county specific plans can be seen on the [Disaster Recovery and Redevelopment Plans](#) page of the Coastal Resources Division/Georgia Department of Natural Resources website.

Georgia's Coastal Management Program Coastal Incentive Grant has funded 37 climate-related projects that have produced reports, tools, and plans. Also, funding has been provided from NOAA, EPA, Georgia Emergency Management and Homeland Security Agency, and several other partners.

These include:

- Application of SLAMM to the Georgia Coastline
- [Georgia Coastal and Marine Planner \(G-CAMP\)](#)
- [Georgia Wetlands Restoration Access Portal \(G-WRAP\)](#)
- [Georgia Coastal Hazards Portal \(GCHP\)](#)
- [Private-Sector Recovery and Redevelopment Guidance](#)
- [Coastal Resilience with Green Infrastructure](#)
- Coastal Bird SWG 2020 Interim Report

The Georgia Department of Natural Resources developed the [Georgia’s State WAP](#) . The WAP uses the best available data to provide a comprehensive, adaptable assessment of conservation needs and the

best ways to address them. Congress requires an approved WAP for state agencies to receive State Wildlife Grants, the main federal funding source for states to conserve non-game animals not legally fished for or hunted. The plan contains a section on climate change adaptation.

There are eight SLR and habitat monitoring sites along Georgia's coast. Climate Change Capacity Assessments have been completed for all 11 coastal counties. Completed vulnerability assessments for the six ocean-facing counties have begun in 2021.

Along with the Georgia Coastal hazards Community of Practice the state hosts a Living Shoreline Working Group and partners on the Georgia Climate Project team, the Southeast and Caribbean Disaster Resiliency Partnership.

## **Florida**

The Florida Fish and Wildlife Commission (FWC) lead a stakeholder summit on Climate Change in 2008. A report was generated in 2009 from this summit entitled, "Florida's Wildlife: On the front line of climate change." As a result of this summit and due to the resulting recommendations, the FWC established Climate Change Oversight Team and developed adaptive strategies to address identified climate change threats to fish and wildlife and their habitats. Climate change considerations have been integrated into Florida's Strategic WAP, and funding has been provided to aquatic habitat projects supporting climate change adaptive strategies, such as living shoreline projects and regional climate change effects mitigation planning efforts. Funding opportunities for aquatic habitat restoration and enhancement projects supported by FWC ensure evaluation of climate change adaptation in all project proposals submitted.

Florida has also worked with partner organizations, such as TNC, to implement projects addressing resiliency and plan for coastal climate change. This has been a key focus of South Florida, which is generally recognized as being one of the most vulnerable regions in the Commission management area to SLR. Partners have developed shoreline resiliency and coral reef teams including the Shoreline Resiliency Working Group and Southeast Florida Coral Reef Initiative, which are focused on assessing and addressing the effects of climate change on coastal habitats. The Governor's South Atlantic Alliance sponsored a southeast U.S. Living Shorelines Summit in Jacksonville, Florida in 2016, which specifically addressed coastal habitat resiliency in the face of accelerated SLR. This effort has resulted in the development of a number of different regional resources, including a living shoreline training academy, which provides managers and the public with a certification in living shoreline design and implementation. As part of the strategy to enhance coastal resiliency to SLR, FWC led the development of a partner-based living shoreline website <https://floridalivingshorelines.com/> for private property owners as a one-stop-shop for all things related to regional living shoreline construction. This partnership effort recently extended to the development and implementation of a living shoreline contractor's training and certification course, which is conducted 2-3 times a year in various regions around the state. This training comes complete with continuing education credits for participants and is designed to expand the use of natural materials in living shoreline applications.

Most recently, the Florida Department of Environmental Protection established the Florida Resilient Coastlines Program through the Office of Resilience and Coastal Protection, established by the 2021

Florida legislature and Governor. This program provides \$10s of millions with appropriations up to \$100 million starting in fiscal year 2022-2023 funding for planning and vulnerability assessments and natural infrastructure development to address SLR to Florida Counties and Municipalities.

<https://floridadep.gov/rcp/florida-resilient-coastlines-program>

## Appendix I

Will be a link to spreadsheet currently in Excel format titled 'Climate Change Actions by State'

	Established working group or legislation to reduce carbon output	Established working group or legislation to respond to climate change threats	Produced reports on climate change	Assesses and monitors effects of climate change	Has mechanisms in place for collaboration among agencies and other organizations	Addresses climate change in planning documents	Has responded to climate change on the ground	Includes climate change in outreach efforts
<b>Maine</b>	Maine is a participating state in the Regional Greenhouse Gas Initiative (RGGI). In 2019 LD 1679 was signed into law, committing Maine to reduce emissions by 45% by 2030 and at least 80% by 2050, and to develop a four-year action plan (to be updated in the future) to recommend actions to achieve this goal. The Maine Climate Council delivered a strategic plan to the Governor's Office of Policy Innovation and the Future in 2020 recommending actions to achieve emission reduction goals and climate change adaptation and community resilience.	Legislation that creates the Maine Climate Council: LD 1679; Primary entities: Governor's Office of Policy Innovation and the Future, Dept of Environmental Protection, Maine Climate Council. Additional, numerous legislation for enacting the Climate Council Strategies: LD1572 related to adopting planning for sea level rise and LD 593 passed, which reestablishes coast-wide eelgrass mapping program, also to include delineation of salt marsh vegetation. More legislation supporting climate change threats is listed at <a href="https://www.maine.gov/future/initiatives/climate">https://www.maine.gov/future/initiatives/climate</a>	"Maine Won't Wait: A Four-Year Plan for Climate Action", December 2020 developed by the Maine Climate Council, to be updated on a regular basis. Supporting reports: "Scientific Assessment of Climate Change and its Effects in Maine report", developed by the Maine Climate Council's Science and Technical Subcommittee; Strengthening Maine's Clean Energy Economy developed by the Governor's Energy Office and Office of Policy Innovation and the Future; Assessing The Impacts Climate Change May Have On The State's Economy, Revenues, And Investment Decisions developed by Eastern Research Group and Synapse Energy Economics; and Equity Assessment of Work Group Recommendations produced by the University of Maine's Senator George J. Mitchell Center for Sustainability Solutions.	Climate Change and Biodiversity in Maine: Vulnerability of Habitats and Priority Species (Manomet Foundation 2014); tidal and sea level monitoring; fisheries research monitoring and climate modeling (multiple organizations); DMR Environmental Monitoring Program (added pH, DO, and CO2 in 2021); salt marsh distribution and condition monitoring (Maine Coastal Program, Maine Natural Areas Program, Dept. of Env. Protection); 2018 updated sea level rise and storm surge models and maps; coastal erosion monitoring	Maine Climate Council	"Maine Won't Wait: A Four-Year Plan for Climate Action", December 2020 developed by the Maine Climate Council, 2015 State Wildlife Action Plan	Offshore floating wind technology development and demonstration project in development; Offshore wind research array application in development; permitting and grant funding that encourages BMPs for freshwater (StreamSmart Program) and tidal (the CoastWise Approach) for road crossing replacements; implementation of living shorelines demonstration projects; outreach and grant support for community climate change planning	Coastal Community Grants encourage and provide technical assistance for climate resilience planning and projects; The CoastWise Approach training and outreach for climate-resilient road crossing replacement; StreamSmart training and outreach for freshwater road crossing replacements; Gulf of Maine Research Institute K-12 programs; Island Institute outreach, materials, and technical assistance; Maine Flood Resilience Checklist; A self-assessment tool for Maine's coastal communities to evaluate vulnerability to flood hazards and increase resilience
<b>New Hampshire</b>	NH currently doesn't have a standing group that is focused on climate mitigation. HB 172 <a href="http://www.gencourt.state.nh.us/bill_status/results.aspx?adv=2&amp;txtbillno=hb172">http://www.gencourt.state.nh.us/bill_status/results.aspx?adv=2&amp;txtbillno=hb172</a> did not pass. However NH is a RGGI participant. NH's efforts to reduce carbon output are described at <a href="https://www.des.nh.gov/climate-and-sustainability/energy/emission-reduction-strategies">https://www.des.nh.gov/climate-and-sustainability/energy/emission-reduction-strategies</a>	Coastal Adaptation Workgroup; Coastal Risk and Hazards Commission. The state legislature requires the Dept of Environmental Services to update coastal climate science/coastal flood risk every five years and produce recommendations to state and local government based upon that science. Legislation required all state agencies to assess impacts to infrastructure and policy resulting from coastal flooding and utilize updated science and projections for any state funded projects. State wetland regulations must consider sea level rise projections. Upper Valley Adaptation Workgroup (Upper Connecticut River Valley)	The UNH Sustainability Institute produces reports on NH climate change <a href="https://www.unh.edu/sustainability/si-research">https://www.unh.edu/sustainability/si-research</a> The following link also includes up to date resources to inform local and state policy. <a href="https://www.nhcaw.org/explore/resource-library/">https://www.nhcaw.org/explore/resource-library/</a>	Salt marsh distribution and condition monitoring; baseline habitat maps; ecotone monitoring, soundscape and wildlife camera, tidal gauge, water level, SLAMM models.	Coastal Adaptation Workgroup, Wildlife Action Plan Implementation Team, State Environmental Resilience Group, Hampton Seabrook Estuaries Alliance, Piscataqua Regional Estuaries Partnership Technical Advisory Team	2015 State Wildlife Action Plan, NH Flood Risk Summary Part II: Planning Guidance, NH Flood Hazards Handbook	Assessing impacts of road crossing, vulnerability and adaptation of tidal marshes, living shorelines; habitat mapping, etc.	Coastal Climate Summit each spring; climate messaging in K-12 and teacher education programs; teacher training workshop, due to DES staff turnover and vacant positions, outreach efforts may currently be on hold
<b>Massachusetts</b>	Global Warming Solutions Act; Boston Executive Order Relative to Climate Action; mandate state utility purchase of offshore wind power by 2027; various wind energy projects	August 2018 - AN ACT PROMOTING CLIMATE CHANGE ADAPTATION, ENVIRONMENTAL AND NATURAL RESOURCE PROTECTION, AND INVESTMENT IN RECREATIONAL ASSETS AND OPPORTUNITY. SECTION 97. (a) There shall be a special legislative commission, ... to make an investigation and study relative to ocean acidification.	1. Massachusetts Climate Change Adaptation Report 2. Massachusetts Ocean Acidification Report	fisheries and environmental data. Seagrass	MA Ocean Acidification Commission. MA Shellfish Advisory Commission (SAC).	2015 State Wildlife Action Plan. MA 2050 Decarbonization Roadmap	Several offshore wind projects under development south of Martha's Vineyard and in the GOM region. OA Commission Report and recommendations. Regional Greenhouse Gas Initiative. Transportation and Climate Initiative	BRACE Program (Building Resiliency Against Climate Effects) Dept. of Public Health - 5-step process for assessing health impacts of climate-change, identifying strategies, and evaluating activities that reduce climate-related health risks. The MDPH Climate Enhanced Community Profile provides information and resources on climate change hazards, vulnerable populations, and environmental health for each of the 351 cities and towns in Massachusetts.
<b>Rhode Island</b>	Resilient RI Act establishing Executive Climate Change Coordinating Council (RIEC4); 2021 Act on Climate; Member state of the Transportation and Climate Initiative Program (TCI-P) and Regional Greenhouse Gas Initiative (RGGI)	Resilient RI Act establishing Executive Climate Change Coordinating Council (RIEC4), which included an Advisory Board and Science and Technical Advisory Board; Executive Order 17-16 appointing a Chief Resilience Officer to drive climate resilience efforts across the state, both within government and in collaboration with business, academic, and nonprofit partners; 2021 Act on Climate	Resilient Rhody: An Actionable Vision for Addressing the Impacts of Climate Change in Rhode Island. Additional tools, reports, and resources are available on the RI Climate Change website ( <a href="http://climatechange.ri.gov/resources">http://climatechange.ri.gov/resources</a> ).	Monitoring of marine resources and habitats, and collection of environmental data by RI DEM and partners; Stormtools and other online mapping and assessment tools (available on the RI Climate Change website)	Creation of the Executive Climate Change Coordinating Council (RIEC4) and its supporting boards, as well as a Chief Resilience Officer	State-wide comprehensive climate preparedness strategy, Resilient Rhody (2018); Shoreline Change Special Area Management Plan, 2015 State Wildlife Action Plan; Energy 2035 in State Guide Plan; RI DEM Strategic Plan (2018).	30 Megawatt Block Island Offshore Wind Project; electric vehicle rebate program; Incorporation of climate change priorities into state agency strategic plans; Lead by Example ( <a href="http://www.energy.ri.gov/policies-programs/lead-by-example/">http://www.energy.ri.gov/policies-programs/lead-by-example/</a> )	Public engagement and feedback sought via Act on Climate Sharing Sessions and Resiliency Roundtables ( <a href="http://climatechange.ri.gov/aoc/">http://climatechange.ri.gov/aoc/</a> ); PREP-RI (Providing Resilience Education for Planning in RI) facilitated by Univ. of Rhode Island and Coastal Resource Center ( <a href="https://prep-ri.org/">https://prep-ri.org/</a> )
<b>Connecticut</b>	Leading Group in Connecticut is the Governor's Council on Climate Change. <a href="https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change">https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change</a>	Leading Group in Connecticut is the Governor's Council on Climate Change. <a href="https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change">https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change</a> and Executive Order 21-3: <a href="https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-21-3.pdf">https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-21-3.pdf</a>	Leading Group in Connecticut is the Governor's Council on Climate Change. Reports can be found at: <a href="https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change">https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change</a>	Leading Group in Connecticut is the Governor's Council on Climate Change. <a href="https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change">https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change</a>	Agencies work through the State Office of Policy and Management	Executive Order No. 21-3 calls for 23 actions that were proposed by the Governor's Council on Climate Change (GC3) in its January 2021 report.	DEEP Energy Procurements and Offshore Wind Procurement	Governor's Council on Climate Change
<b>New York</b>	Climate Leadership and Community Protection Act (2019); New York Climate Action Council	Climate Risk and Resiliency Act (2014); Climate Leadership and Community Protection Act (2019); New York Climate Action Council	1. Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation in New York State (2011, updated 2014) 2. Sea Level Rise Task Force Report (2009) 3. Observed and Projected Climate Change in New York State: An Overview (2020) 4. New York State Climate Impacts Assessment (in development)	Tidal Wetlands Trends Analysis (2015); UVVR Model: Sediment supply and wetland vulnerability assessment for the salt marshes of New York (2019); Sea Level Affecting Marshes Modeling (SLAMM) mapper for NY coastlines (2014); coastal vulnerability assessments of Long Island Sound and Peconic Estuary (2019); Surface Elevation Table monitoring ; rapid assessments of tidal wetland health; Ocean Indicators Project to monitor Ocean acidification, temps, species shifts, etc.; Eelgrass monitoring flights and mapping	New York State Climate Action Council	Guidance for Smart Growth Public Infrastructure Assessment (2020); State Flood Risk Management Guidance (2020); Climate Action Council Scoping Plan (Draft released 12/2021)	<ul style="list-style-type: none"> <li>over 4,300 megawatts of wind energy under active development statewide</li> <li>tax incentives for GHG reductions and energy efficiency</li> <li>improved resiliency of public utilities at risk of flooding <ul style="list-style-type: none"> <li>Governor's Office of Storm Recovery coordinates statewide recovery efforts for Superstorm Sandy, Hurricane Irene and Tropical Storm Lee. Through its NY Rising Housing Recovery, Small Business, Community Reconstruction, Infrastructure and Rebuild ByDesign programs — GOSR invests \$4.5 billion in federal Community Development Block Grant - Disaster Recovery funding to better prepare New York for extreme weather events.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Climate Smart Communities program—certification and grant funding for municipalities to improve resiliency and reduce GHG outputs</li> <li>Public meetings held + comments sought for Climate Council's Draft Scoping Plan</li> <li>Climate Justice Fellowships for New Yorkers in underserved communities</li> <li>Guidance documents for living shorelines and using nature-based features for erosion control</li> <li>Resilience, Implementation, and Strategic Enhancements (RISE) - assessment tool to help communities identify gaps &amp; opportunities in plans &amp; policies.</li> </ul>
<b>New Jersey</b>	Executive Order No. 100, directing the Department of Environmental Protection (DEP) to make sweeping regulatory reforms, branded as Protecting Against Climate Threats (PACT), to reduce emissions and adapt to climate change. With this executive action, New Jersey is the first state in the nation to pursue such a comprehensive and aggressive suite of climate change regulations.	Executive Order 89, Interagency Council on Climate Resilience	2020 NJ Scientific Report on Climate Change, 2021 NJ Draft Climate Change Resilience Strategy, 2020 NJ Global Warming Response Act 80x50 Report, Sea-Level Rise Guidance for NJ (June 2021)	Research and monitoring initiatives for offshore wind in relation to impacts and climate change; NJDEP and Rutgers University exploring opportunities to address ocean acidification impacts ( <a href="https://njclimateresourcecenter.rutgers.edu/resources/opportunities-to-address-ocean-acidification-impacts-in-new-jersey/">https://njclimateresourcecenter.rutgers.edu/resources/opportunities-to-address-ocean-acidification-impacts-in-new-jersey/</a> )	Interagency Council on Climate Resilience	2020 NJ Scientific Report on Climate Change, 2021 NJ Draft Climate Change Resilience Strategy, 2020 NJ Global Warming Response Act 80x50 Report, Sea-Level Rise Guidance for NJ (June 2021)	<ul style="list-style-type: none"> <li>Recovery from Superstorm Sandy has incorporated resiliency to climate change.</li> <li>Office of Emergency Management (<a href="http://www.ready.nj.gov/">http://www.ready.nj.gov/</a>) OEM is largely mitigation (not from a climate pollutant perspective but mitigation of flood conditions)</li> <li>Coastal Engineering projects</li> <li>Beneficial reuse pilot projects to raise marsh platforms</li> <li>Living shoreline/restoration projects</li> </ul>	Climate change-related community preparedness programs, social media outreach and education on climate change
<b>Pennsylvania</b>	Pennsylvania Climate Change Act, Climate Change Advisory Committee to the Department of Environmental Protection	Pennsylvania Climate Change Act, Climate Change Advisory Committee to the Department of Environmental Protection	Pennsylvania Climate Action Plan, Pennsylvania Climate Impacts Assessment			PFBC Strategic Plan 2020-2023; PA DCON Climate Change Adaptation and Mitigation Plan; 2015-2025 PA Wildlife Action Plan;		PA DEP Local Climate Action Program
<b>Delaware</b>	Delaware Renewable Energy Portfolio Standards Act (updated 2021); Region Greenhouse Gas Initiative; Joined U.S. Climate Alliance with greenhouse gas emissions goals by 2025	Executive Order 41 (2013) Preparing Delaware for Emerging Climate Impacts and Seizing Economic Opportunities from Reducing Emissions; Coastal Zone Act Amendments (2017)	Delaware's Climate Action Plan (2021); Delaware Climate Change Impact Assessment (2014); Climate Framework For Delaware (2014)	DNREC DAQ Greenhouse Gas Inventory; DNREC lead long term monitoring, Coastal Inundation Maps (updated 2017)	Resilient and Sustainable Communities League; DNREC Coastal Training Program	Delaware's Climate Action Plan (2021); State of Delaware All-Hazard Mitigation Plan (2018); Strategic Implementation Plan for Climate Change, Sustainability & Resilience for Transportation (2017); Delaware Wildlife Action Plan (2015)	Energy Efficiency and Clean Transportation Programs administered through DNREC DCCE; Resilient Community Partnership Grant Program; Delaware Coastal Flood Monitoring System	Actions supported in Delaware's Climate Action Plan; Resilient Community Partnership; DNREC/Delaware State Partnership to improve public engagement and environmental justice
<b>Maryland</b>	2009 (2016) Greenhouse Gas Emissions Reduction Act	Climate Change and CoastSmart Construction Executive Order, Maryland Commission on Climate Change, Mitigation WG, Adaptation WG	Maryland Commission on Climate Change Annual Reports 2015, 2016, 2017, 2018, 2019 (2020 in prep)	Mitigation Working Group, Adaptation Working Group, Scientific and Technical Working Group	The Working Groups under the MD Commission on Climate Change	2020 Greenhouse Gas Reduction Plan; Two-phase plan to reduce Maryland's vulnerability to climate change; 2015 State Wildlife Action Plan, local Nuisance Flood Plans, State Forest Management Plans, many municipal Climate Adaptation plans/Comprehensive plans	Resiliency through Restoration grant program, beneficial use of dredge material restoration program, Climate Resilience easements/strategic land acquisition	Education, Communication, Outreach Working Group, Environmental Justice Working Group
<b>Virginia</b>	Governor's Commission on Climate Change, Joined RGGI, Development of a statewide electric vehicle charging network and school bus replacement program, Virginia Clean Economy Act	Commonwealth Center for Recurrent Flooding Resiliency, Established the Virginia Coastal Resilience Technical Advisory Committee, Established a Chief Resilience Officer, Established the Governor's Conservation Cabinet	Virginia's Coastal Resilience Master Plan; <a href="http://www.asadptva.com">www.asadptva.com</a> .	Commonwealth Center for Recurrent Flooding Resiliency, Old Dominion Universities Institute for Coastal Adaptation and Resilience, Virginia Institute of Marine Science, Virginia Coastal Policy at William and Mary.	Commonwealth Center for Recurrent Flooding Resiliency; Hampton Roads Resilience Partnership, Virginia Coastal Resilience Technical Advisory Committee.	Updates to tidal wetlands and riparian buffer law to consider climate change and sea level rise in approved projects. Living shorelines are mandatory unless best available science says otherwise. New Tidal Wetlands Guidelines address coastal resiliency. Department of Transportation resiliency standards.	U.S. Department of Housing and Urban Development grant to support innovative resilience projects in the Ohio Creek Watershed; Resilience Partnership to reinvent the Hampton Roads region for water resiliency; State Code and tax incentives promote living shorelines, Incorporation of sea level rise and resiliency in wetlands and buffer laws. New Freeboard standard for all state owned buildings.	Commonwealth Center for Recurrent Flooding Resiliency, Virginia Institute of Marine Science <a href="http://Adaptva.org">Adaptva.org</a> , Living Shoreline and Buffer Collaboratives, Virginia's Coastal Resiliency Master Plan.
<b>North Carolina</b>	Governor's EO80 - Climate Change Interagency Council	North Carolina Coastal Resource Commission Science Panel; Governor's EO80 - Climate Change Interagency Council; Natural Working Lands Subcommittees	North Carolina Coastal Resource Commission Science Panel completed five-year update of 2010 report in 2015; NC Climate Science Report (2020)	NC NERR and National Wildlife Refuge research - mostly hydrologic restoration and wetland mitigation on SLR; NC Sentinel Site Cooperative (NCSSC) - long-term monitoring of elevation change using surface elevation tables (SET). There are currently over 125 SETs throughout coastal NC generating information on the degree to which coastal marshes are keeping up with SLR.	Governor's EO80 - Climate Change Interagency Council; NC Office of Recovery and Resiliency	2015 State Wildlife Action Plan; 2016 update to NC's Coastal Habitat Protection Plan; Albemarle-Pamlico National Estuary Partnership 2012-2022 Comprehensive Conservation and Management Plan; NC NERR strategic plan; NC Climate Risk Assessment and Resilience Plan; Natural Working Lands Action Plan; CHPP 2021 Amendment	Recovery from hurricanes Matthew, Florence, and subsequent hurricanes has incorporated resiliency to climate change; NC Office of Recovery and Resiliency; Resilient Communities Program	APNEP actions include engaging state, regional, and local governments regarding SLR in their planning; NC Climate Risk Assessment and Resilience Plan; Natural Working Lands Action Plan; NC Office of Recovery and Resiliency; Resilient Communities Program

South Carolina	Indirect, but the 2019 Energy Freedom Act helped to remove barriers to increasing solar energy capacity in the state.	Does not explicitly refer to climate change, but the 2020 Disaster Relief and Resilience Act established the SC Office of Resilience, tasked with developing and implementing a Strategic Statewide Resilience and Risk Reduction Plan to coordinate efforts across agencies to increase resilience and recover from natural disasters; flooding is a focus area.	DNR Report (2013): Climate Change Impacts to Natural Resources in South Carolina; The 2018 South Carolina Hazard Mitigation Plan has a section on Sea Level Rise; The SC Emergency Management Division will include a more hazard-specific discussion of climate change in the 2023 Hazard Mitigation Plan (required by FEMA in order for the State Plan to be considered an Enhanced Hazard Mitigation Plan).	DNR is examining the effects of fluctuating climatic variables on key fishery species and estuarine habitat quality; The SC State Climatology Office is monitoring climatological trends and variability across the State (1900 – present).	The SC Sea Grant Consortium includes multiple state agencies as members and plays a convening and facilitation role, funds research, and provides technical assistance on climate issues; The Carolinas Integrated Sciences and Assessments RISA Team is based at the University of South Carolina; CISA organizes a biennial Carolinas Climate Resilience Conference which supports on-the-ground climate resilience efforts by providing managers and regional experts an opportunity to share lessons learned and discuss resources and tools for incorporating climate information into their work.	2015 State Wildlife Action Plan (Conservation Action Area 9: Climate Change)	Implementation of living shorelines by DNR to mitigate SLR; Inclusion of living shorelines in coastal zone regulations in 2021 (result of an ongoing collaboration between DNR and the coastal regulatory agency DHEC OCRM)	The SC Sea Grant Consortium and CISA do climate change outreach; The SC State Climatology Office hosted two climate related workshop series (in 2012 and 2017) in collaboration with CISA and the SC Water Resources Center; DNR Coastal Reserves and Outreach discusses sea level rise and coastal flooding in most of their outreach programs; The purpose of the Citadel's Center for Climate Studies is to enhance understanding of climate and its variability, change, and risks through education, research, outreach, and the development of public-private partnerships; the SC Department of Education added climate change to the state science standards in 2021. DNR provided training to State Park interpreters on communicating climate change; the DNR/ACE Basin NERR's multi-day Teachers on the Estuary and Climate Explorers programs directly address climate change research and monitoring; SC Dept. of Health and Environmental Control's SC Green Ribbon Schools recognizes schools that have reduced environmental impacts and provided hands-on learning experiences in sustainability, such as by reducing greenhouse gas emissions.
Georgia	Drawdown Georgia State-centered working Group led by Ray C. Anderson Foundation	Governor Brian Kemp adopted the State Hazard Mitigation Plan in April 2019, which included the impacts of Climate Change and Sea Level Rise for the first time in history. The Georgia Coastal Management Program along with Georgia Sea Grant hosts the Georgia Coastal hazards Community of Practice working group.	GA's Coastal Management Program Coastal Incentive Grant has funded 37 Climate related projects that have produced reports, tools, and plans. Coastal Bird SWG 2020 Interim Report:	There are 8 SLR and habitat monitoring sites along Georgia's coast. Climate Change Capacity Assessments have been completed for all 11 coastal counties. Completed vulnerability assessments for the 6 ocean-facing counties have begun in 2021.	Along with the Georgia Coastal hazards Community of Practice the state hosts a Living Shoreline Working Group and partners on the Georgia Climate Project team, the Southeast and Caribbean Disaster Resiliency Partnership.	2015 State Wildlife Action Plan, 2019 State Hazard Mitigation Plan, Disaster Recovery and Redevelopment Plans, State CDBG-DR/MIT Action Plan		2016 and 2021 Host for the Georgia Climate Conference "Minimizing Georgia's Risk, Maximizing Georgia's Future" funded by NOAA and DNR
Florida	No legislation or working group	Senate Bill 1954 (2021): Statewide Flooding and Sea Level Rise Resilience; Established the Florida Resilient Coastlines Program within the Florida Department of Environmental Protection's Office of Resilience and Coastal Protection; secured continued funding for local and regional resilience planning and natural infrastructure development in Florida's coastal and inland counties	Florida's Wildlife: On the Front Line of Climate Change; The Effects of Climate Change on Florida's Ocean and Coastal Resources, plus update in 2010; Sea Level Impact Projection (SLIP) Study <a href="https://floridadep.gov/rp/florida-resilient-coastlines-program/content/sea-level-impact-projection-slip-study">https://floridadep.gov/rp/florida-resilient-coastlines-program/content/sea-level-impact-projection-slip-study</a>	evaluation of adaptation required for all conservation and development projects/Coastal Habitat Integrated Monitoring and Mapping Program	Stakeholder summit held in 2008; Shoreline Resiliency Working Group; Southeast Florida Coral Reef Initiative; South Atlantic Alliance; Florida Estuarine Restoration Teams; Florida Resilient Coastline Program	2015 State Wildlife Action Plan/ SLIP Study and on-line assessment tool/estuarine habitat priority assessment tool/living shoreline sustainability tool being created for public use	funding has been provided to projects that support adaptive strategies, restoration, and enhancement of aquatic habitats via nature-based infrastructure	sponsored living shorelines summit; living shoreline training academy; living shoreline website for private property owners; Coastal Resilience Forum
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*A team from the Virginia Department of Game and Inland Fisheries uses electrofishing to monitor invasive blue catfish in the James River in 2011. (Photo by Matt Rath/Chesapeake Bay Program)*

## I. Introduction

This management strategy portrays the outcomes of an interactive workshop ([2020 Invasive Catfish Workshop](#)) held by the Invasive Catfish Workgroup at the Virginia Commonwealth University (VCU) Rice Rivers Center in Charles City, Virginia on January 29-30, 2020. The workshop convened a diverse group of stakeholders to share the current scientific understanding and priority issues associated with invasive catfishes in Chesapeake Bay. The perspectives shared and insights gained from the workshop were used to develop practical, synergistic recommendations that will improve management and mitigate impacts of these species across jurisdictions within the watershed.

Blue catfish (*Ictalurus furcatus*) and flathead catfish (*Pylodictis olivaris*) are native to the Ohio, Missouri, Mississippi, and Rio Grande river basins, and were introduced into the Virginia tributaries of Chesapeake Bay in the 1960s and 1970s to establish a recreational fishery. These non-native species have since spread, inhabiting nearly all major tributaries of the Bay watershed. Rapid range expansion and population growth, particularly of blue catfish, have led to increasing concerns about impacts on the ecology of the Chesapeake Bay ecosystem.

Blue and flathead catfishes are long-lived species that can negatively impact native species in Chesapeake Bay through predation and resource competition. Blue catfish are generalist feeders that prey on a wide variety of species that are locally abundant, including those of economic importance and conservation concern, such as blue crabs, alosines, Atlantic menhaden, American eels, and bay anchovy. Blue catfish may also outcompete native white catfish for prey, as the two species exhibit high dietary overlap (primarily bivalves) and native white catfish populations declined while blue catfish abundance increased in the region. The diet of flathead catfish consists primarily of ecologically important forage fishes including gizzard shad, river herring (i.e. blueback, alewife), and white perch. In addition to ecological impacts, invasive catfishes affect other fisheries by interfering with gill nets and pound nets and reducing catches of targeted species such as striped bass and white perch. The growing abundance and expansion of blue and flathead catfishes suggests that these two species have the potential to negatively impact important fishery resources (e.g. blue crabs, striped bass) and impede recovery efforts (e.g. American shad, river herring) in Chesapeake Bay.

## II. Goal, Outcome, and Current Condition

This management strategy identifies approaches for achieving the following goal and outcome:



### ***Sustainable Fisheries Goal***

Protect, restore, and enhance finfish, shellfish, and other living resources, their habitats, and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.

### ***Invasive Catfish Outcome***

Reduce the abundance and mitigate the spread and ecological impacts of invasive catfishes in Chesapeake Bay through increased public education and awareness and development of fishery management strategies that ensure ecosystem health and productivity.

## **Current Condition**

### ***Introduction and Monitoring***

Blue catfish were first introduced into the James, Rappahannock, and York rivers in Virginia in the 1970s and 1980s. Live transport (i.e. repeated introductions) and extended periods of high freshwater flow, combined with their high salinity tolerance, have since resulted in the spread of blue catfish to all major tributaries on the western shore of Chesapeake Bay as well as several tributaries on the eastern shore of Maryland and Delaware. Flathead catfish primarily occupy the fresher reaches of Chesapeake Bay tributaries. Since their introduction into the James River in the late 1960s, flathead catfish have been found in the upper reaches of the York and Rappahannock rivers in Virginia, the Potomac and Susquehanna rivers in Maryland, and throughout the Susquehanna and Schuylkill rivers in Pennsylvania.

Several jurisdictions and academic institutions across the Bay have monitored invasive catfish populations over the years to track changes in distribution and relative abundance, including the Virginia Institute of Marine Science (VIMS), Virginia Tech (VT), Penn State University (PSU), the Virginia Department of Game and Inland Fisheries (VDGIF), the Maryland Department of Natural Resources (MDNR), the DC Department of Energy and Environment (DOEE), and the Pennsylvania Fish and Boat Commission (PFBC). In 2013, VIMS researchers conducted a mark-recapture study to develop an

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extrapolated abundance estimate of nearly 20 million blue catfish in the James River based on a density of 544 fish/hectare within a 12-kilometer study area. For comparison, population models developed by another group of scientists at VIMS estimated a total abundance of 145,000 ( $\pm$  94,000) adult striped bass in the Rappahannock River in 2016. An additional cooperative study by VDGIF and VCU in 2015 estimated blue catfish densities of 1,127 and 565 fish/hectare in the Rappahannock and Pamunkey rivers, respectively. While flathead catfish are not as abundant nor as well-studied as blue catfish in Chesapeake Bay, they are of primary concern in the fresher waters of Pennsylvania, Maryland, and Virginia.

### **Recreational Fishery**

Blue and flathead catfishes have supported valuable recreational fisheries in Virginia since their introduction in the 1960s and 1970s, and are particularly popular in the James River. VDGIF angler surveys indicate that 40% of recreational effort in the James River focuses on blue catfish, exceeding the popularity of other species such as largemouth bass, crappie, and shad (i.e. American, hickory). The James River recreational fishery supports guide services, with approximately 20 charter captains hosting clients from across the United States to catch trophy-sized catfishes. National and regional catfishing tournaments are also held on the James River annually, which may draw 200 or more participants for a single event. Although the total economic impact is difficult to evaluate, VDGIF estimated the economic value of the blue catfish recreational fishery in the James River to be \$2.5 million in 2002, which would exceed the ex-vessel value of the entire Virginia commercial fishery, assuming a price of \$0.60/pound and a maximum landings of 2.5 million pounds. However, participation in the recreational fishery on the James River has slowed in recent years, and the number of guides operating has decreased since reaching a peak in 2015. Decreased participation in the trophy fishery may be due to a decline in the number of trophy-sized catfishes, as the high densities of invasive catfishes in the established tributary result in decreased growth rates. However, this would only explain the recent decrease in trophy angling and not the decrease in overall recreational effort as captured by the VDGIF angler surveys.

The Potomac River is also a hotspot for recreational catfish angling, which occurs nearly year-round. Like the James River, at least four guide services run expeditions to provide patrons an opportunity to catch trophy-sized catfishes. Although the popularity of targeting blue catfish has not been quantified specifically, MDNR has estimated that catfishes (i.e. blue catfish, channel catfish, flathead catfish, bullheads, white catfish) comprised the second most popular targeted group of fish by tidal freshwater anglers in 2017, distantly second to black bass (*Micropterus* spp.). These fishing target estimates are similar to those estimated by MDNR surveys conducted 25 years ago.

While blue catfish are abundant throughout Chesapeake Bay tributaries, flathead catfish are less abundant and widespread, and are therefore caught less frequently by recreational anglers. Flathead catfish are currently most prevalent in Quantico Creek and portions of the non-tidal Potomac River, the lower Susquehanna River (below Conowingo Dam), and Conowingo Reservoir. Flathead catfish are typically consumed when caught in their native range, and MDNR has identified cases of flathead catfish consumption in the Chesapeake Bay sustenance fishery through angler intercepts and monitoring the [MDNR Angler's Log](#).

### **Commercial Fishery and Marketing**

In the 2000s, low market demand and a lack of consumer awareness, as well as lower abundance, limited the commercial value and harvest of invasive catfishes in Chesapeake Bay. However, recent efforts in market development have increased demand of wild-caught blue catfish from the Bay and increased abundances have led to increased catch in commercial gear. As the population in the Potomac

River began to increase in abundance in the early 2010s, Maryland initiated an aggressive marketing campaign. Harvest of blue catfish biomass has been increasing since 2013, with approximately 53,000 pounds sold from Maryland rivers in 2018, not including the Potomac River. The Virginia Marine Resources Commission (VMRC) and the Potomac River Fisheries Commission (PRFC) also observed increases in harvests, with 1.4 million pounds of blue catfish harvested in the James River in 2012 and more than 1 million pounds of harvest each year from 2015-2017 in the Potomac River, respectively. In 2018, commercial harvest of blue catfish from the Potomac River was approximately 2.8 million pounds. To further expand commercial harvests, an experimental fishery using low-frequency electrofishing (LFE) was established in the James and Pamunkey rivers in 2014, and was found to be an efficient method of removal. Despite recent advances in marketing and harvest techniques, United States Department of Agriculture (USDA) inspection requirements mandated by the 2014 Farm Bill have reduced processing capabilities and, according to the processors, have created a bottleneck in the market.

Increased consumer awareness through programs such as Seafood Watch has allowed the commercial fishery for blue catfish to expand in recent years, with fillets being sold at grocery stores such as Whole Foods. The Maryland Departments of General Services, Agriculture, and Natural Resources successfully partnered in 2018 to establish a supply chain of blue catfish to state-owned institutions with food services, such as correctional facilities. Other supply chains to Maryland universities and small businesses are currently being considered, with such partnerships requiring support from watermen, fish processors, state regulators, vendors, and consumers. Flathead catfish, however, remain a marketing challenge. The unappealing, yellowish color of the fillets and the perception of flathead catfish as unpalatable, not to mention the difficulty of processing the fish, make establishing a commercial market particularly difficult. Therefore, flathead catfish currently only support recreational fisheries in Chesapeake Bay, but the Invasive Catfish Workgroup will explore opportunities to further expand markets for this species both regionally and internationally. It should also be noted, however, that flathead catfish are prolific in habitats that cannot be legally sampled with commercial gear and it is unlikely that commercial harvest will be a possible mechanism unless restrictive harvest regulations are first addressed.

### **Workgroup Efforts**

In 2012, a previous workgroup called the Invasive Catfish Task Force was established by the Sustainable Fisheries Goal Implementation Team, and in 2014, the group developed a list of recommendations for jurisdictions to address invasive catfish issues Bay-wide, including:

- Targeted removal from priority areas
- Develop large-scale commercial fisheries
- Evaluate removal methods
- Develop monitoring and response plans
- Evaluate habitat connectivity
- Review fishing policies and regulations
- Develop communication strategies

At the 2020 Invasive Catfish Workshop, the Invasive Catfish Workgroup agreed to focus on several of these recommendations moving forward, particularly development of communication strategies to increase public awareness and market demand, and development of fisheries management strategies that will ensure ecosystem health and productivity. One of the primary goals of this management strategy is to examine the potential to use commercial and recreational harvest of invasive catfishes as a

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means to reduce their abundance and mitigate their range expansion and ecological impacts. While this overarching goal pertains to both blue and flathead catfishes, the approaches recommended and/or implemented to reach this goal may differ for these two species, given their differences in abundance, distribution, and market demand. It should also be noted that there is a substantial degree of uncertainty in how this management strategy will play out long-term, given the current lack of population models, socio-economic data, and other pertinent information.

### **III. Participating Partners**

#### **Stakeholder Engagement**

Stakeholder engagement is critical to ensure that the management strategy for invasive catfishes considers the needs and concerns of all interested parties. Catfish regulations, management plans, and public campaigns are the responsibility of the management jurisdictions. Academic institutions, non-profits, and federal agencies support research efforts to better understand the impacts of invasive catfishes and to increase public awareness. Commercial fishers, recreational anglers, processors, and marketing experts provide valuable insights on the interests of the public and seafood industry that may inform the development of effective fisheries management strategies.

The following stakeholders participated or expressed interest in the development of this management strategy.

#### **Management Jurisdictions**

- Atlantic States Marine Fisheries Commission (ASMFC)
- DC Department of Energy and Environment (DOEE)
- Delaware Department of Natural Resources and Environmental Control (DNREC)
- Maryland Department of Natural Resources (MDNR)
- Pennsylvania Fish and Boat Commission (PFBC)
- Potomac River Fisheries Commission (PRFC)
- Virginia Department of Game and Inland Fisheries (VDGIF)
- Virginia Marine Resources Commission (VMRC)

#### **Participants and Interested Parties**

- Chesapeake Bay Foundation (CBF)
- Chesapeake Bay Program (CBP)
- Commercial fishers
- James River Association (JRA)
- Maryland Department of Agriculture (MDA)
- Maryland Department of Environment (MDE)
- Maryland Sea Grant (MDSG)
- Mid-Atlantic Panel on Aquatic Invasive Species (MAPAIS)
- Morgan State University, Patuxent Environmental & Aquatic Research Laboratory (PEARL)
- National Oceanic and Atmospheric Administration, Chesapeake Bay Office (NCBO)
- Nixon Fishery Inc. (Wholesale/retail)

- Pamunkey Indian Tribe
- Pennsylvania Sea Grant (PASG)
- Recreational anglers
- Reliant Fish Co. (Processing/distribution)
- Smithsonian Environmental Research Center (SERC)
- The Nature Conservancy (TNC)
- United States Department of Agriculture (USDA)
- United States Fish and Wildlife Service (USFWS)
- United States Geological Survey (USGS)
- University of Maryland Center for Environmental Science (UMCES)
- University of Maryland Eastern Shore (UMES)
- Virginia Commonwealth University (VCU)
- Virginia Institute of Marine Science (VIMS)
- Virginia Marine Products Board
- Virginia Sea Grant (VASG)
- Virginia Tech (VT)
- Wide Net Project

## IV. Factors Influencing Success

Invasive catfish populations and their associated fisheries are impacted by a variety of natural and human factors that present logistical, social, and economic challenges to meeting the objectives of this management strategy. While some of these factors may be addressed directly through this strategy, others will require managers and policy-makers to use the best available science to make informed management decisions. The following are factors that influence invasive catfish populations and the workgroup's ability to develop a strategy to meet the aforementioned outcome: reduce the abundance and mitigate the spread and ecological impacts of invasive catfishes in Chesapeake Bay through increased public education and awareness and development of fishery management strategies that ensure ecosystem health and productivity.

### Ecology and Life History

The ecology and life-history characteristics of blue and flathead catfishes make them particularly successful invaders in Chesapeake Bay. These catfishes have a broad tolerance of environmental conditions. For example, blue catfish can survive low food rations for several months while maintaining body condition; furthermore, they can survive 3-day exposures to salinities up to 15.7 ppt. Flathead catfish have a similar salinity tolerance of up to 15.8 ppt. These catfishes are also long-lived and have a reproductive strategy that optimizes juvenile survival by producing large eggs and providing parental care. Both blue and flathead catfishes are opportunistic predators that feed on locally abundant species; blue catfish are generalist feeders, consuming a wide variety of fishes, invertebrates, and plants, while flathead catfish are largely piscivorous. These characteristics not only make blue and flathead catfishes successful invaders, but also present challenges to our ability to mitigate their spread and reduce their abundance and ecological impacts in Chesapeake Bay.

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## Climate Change

Climate change has shifted species distributions and altered the abundance of key species around the world, and is expected to significantly impact the Chesapeake Bay ecosystem in the coming years, including direct impacts on invasive catfish populations. The Bay region has experienced increases in mean water temperatures and increased frequency and severity of storm events that deliver freshwater input to the Bay. In particular, the Chesapeake Bay watershed experienced the wettest years on record in 2018 and 2019, resulting in an unprecedented range expansion of blue catfish. With continued increases in freshwater inputs, blue catfish are likely to continue their range expansion into and across the Bay and its tributaries, and could become established in new areas such as Delaware Bay by movement through the Chesapeake and Delaware (C&D) Canal. Increased freshwater inputs would also increase inputs of run-off into the Bay, leading to higher rates of eutrophication. While eutrophication is detrimental to many species, blue catfish are tolerant of eutrophic conditions and therefore may exploit these degraded habitats, leading to further increases in abundance. Flathead catfish did not exhibit the same response to the high freshwater flows in 2018 and 2019, possibly due to differences in behavior and habitat preference. Increasing water temperatures may result in increased invasive catfish biomass as warmer temperatures often promote faster growth rates. More than anything, the uncertainty surrounding climate change impacts will continue to pose a major challenge to fisheries managers as they work to control invasive catfish populations.

## Scientific and Technical Understanding

To increase public education and awareness and develop effective fishery management strategies for invasive catfishes, managers and industry leaders throughout the region need to have a solid, science-based understanding of consumption benefits and risks, population dynamics, and other fishery characteristics (i.e. socio-economics, catch composition, catchability). More specific, quantitative information about the impacts of blue and flathead catfish predation and competition on native populations is also necessary to understand how these species affect the ecology of the Chesapeake Bay ecosystem. The lack of comprehensive scientific and technical studies on invasive catfishes in Chesapeake Bay poses a major challenge to fishery managers. This section identifies and describes topics surrounding invasive catfishes that require further scientific research in order to achieve the invasive catfish outcome.

### ***Consumption Benefits and Risks***

Increased and sustained market demand is necessary to develop and maintain commercial fisheries for invasive catfishes. Science-based information about the nutritional benefits and potential health risks of consumption is a key component of an effective marketing strategy that encourages people to eat more catfish. Coordinating consistent messaging about the benefits and risks of catfish consumption will be an essential aspect of public outreach and education programs once this information becomes available.

### ***Population Dynamics***

Despite various efforts to monitor and study invasive catfishes in tributaries across the Bay, scientists and managers still lack an in-depth understanding of blue and flathead catfish population dynamics. Population models with appropriate size- and age-structure and stock-recruitment relationships are necessary to develop reference points that will meet management objectives. Stage-based or age-based population models are also necessary to determine how changes in abundance (e.g. enhanced removals) may affect future population size and age structure. This requires an understanding of density-dependent growth and maturation rates, as well as estimates of both natural and fishing

mortality rates. Previous research on blue catfish has shown that growth rates and other aspects of population dynamics vary across Chesapeake Bay tributaries, which suggests that population models and estimates need to be developed individually for each system, and connectivity and movement between systems should be considered. Less is known about flathead catfish population biology; more research should be conducted if a fishery management strategy is to be developed for flathead catfish.

Understanding how environmental factors affect population dynamics (i.e. reproduction, recruitment) is also a critical research need, particularly in the face of climate change. Scientists and managers should consider how populations will respond to increasing water temperatures and freshwater inputs from more frequent and intense precipitation events. Such climate-related changes may also affect the efficiency of gears used to harvest catfishes (e.g. LFE). Identification of aggregation areas (i.e. spawning grounds, nursery habitats) may also improve harvest efficiency of catfishes through targeted removals.

### ***Fishery Conditions and Economics***

In addition to understanding population dynamics, managers need to monitor and assess fishery characteristics for effective management of invasive catfishes. Understanding annual harvest fluctuations and factors that affect fishery operations is critical to meet fishery management objectives. Managers are specifically interested in standardizing catch rates for LFE methods and collecting age- or size-based catch composition data. Exploitation rates and annual mortality rates may also be of interest to managers. An assessment model should be developed to estimate allowable harvests and fishing mortality rates based on management objectives.

Managers and other stakeholders also have great interest in quantifying the economic value of the commercial and recreational fisheries for invasive catfishes in Chesapeake Bay, as well as comparing these values with the values of harvests or recreational opportunities foregone due to invasive catfishes. There is particular interest in a comparative assessment of the economic value of trophy catfishes and their impacts on other important fisheries due to predation. To fully assess the trade-offs associated with different management options, it is necessary to determine the monetary value of ecological impacts, benefits from recreational angling, benefits from the development of a commercial fishery, and health impacts from consumption of large, potentially contaminated catfishes.

### ***Ecological Impacts***

The greatest concerns regarding invasive catfishes in the Chesapeake Bay region are the impacts on native species and habitat, particularly those that are managed or protected. Throughout the Bay, blue and flathead catfishes feed on ecologically and economically important species such as blue crabs and alosines. Although these prey species have been observed in gut contents, a lack of population data for many of these native species has made it difficult to quantify the impacts of invasive catfishes. Population estimates of blue and flathead catfishes as well as their native prey are necessary to truly understand the extent of the ecological impacts of invasive catfishes in the Chesapeake Bay ecosystem. Bioenergetics models can also be used to explore the effects of invasive catfish predation on native species; however, because of the generalist and opportunistic nature of the catfish diets, particularly blue catfish, such models may yield estimates of predatory impact with low precision. Nonetheless, current tools exist that could improve understanding of the ecological impacts of invasive catfishes in the absence of such information.

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## Partner Coordination

At the 2020 Invasive Catfish Workshop, it was agreed that the consideration and understanding of all stakeholder perspectives would be the key to developing a comprehensive and inclusive management strategy. Continued collaboration and coordinated support, particularly across jurisdictions, is critical for achieving our outcome of reducing the abundance and mitigating the spread and ecological impacts of invasive catfishes in Chesapeake Bay through increased public education and awareness and development of fisheries management strategies that ensure ecosystem health and productivity.

## Public Engagement

Blue catfish are a tasty and nutritional source of protein, but a pervasive negative perception of blue catfish as a “dirty fish” has inhibited market demand and, consequently, limited harvest in Chesapeake Bay. Increasing market demand and recreational interest in blue catfish is necessary to develop and maintain profitable fisheries that remove biomass from the ecosystem. Therefore, public education and outreach campaigns that inform consumers and anglers about the palatability, nutritional value, health benefits, and ecological benefits of eating blue catfish are critical. Information about potential contaminant risk and consumption advisories for larger size classes of blue catfish should also be provided to the public. Maryland and Pennsylvania provide consumption advisories for flathead catfish, but further studies would be beneficial if jurisdictions want to market them for human consumption.

## Policy and Regulations

Current federal policy and state-specific management regulations may be limiting commercial and recreational harvest of blue and flathead catfishes in the Chesapeake Bay region. In 2017, all catfishes were placed under the regulatory jurisdiction of the USDA’s Food Safety and Inspection Service, including wild-caught, domestic blue catfish. The establishment of this inspection program placed constraints on catfish processing in the Bay region. The mandatory inspections are typically scheduled for standard business hours, which is a reasonable condition for poultry, beef, and pork industries given their relatively predictable production and processing schedules. The harvest and processing of blue catfish, however, is much more variable, depending on weather and other environmental conditions, and often results in processors working unusual hours. In these instances, processors are required to pay costly overtime fees for inspectors in order to comply with the inspection regulation. Between the limited inspection hours and the unavoidable fees due to processing times, the number of blue catfish processors, particularly smaller operations, in the Chesapeake Bay region has significantly declined, placing constraints on the commercial fishery. It is worth noting that catfishes are the only wild-caught fishery species that are required to undergo this inspection process.

State-level management regulations, such as gear and harvest restrictions, also affect the ability to remove invasive catfish biomass. For example, Virginia and Pennsylvania do not currently allow use of recreational fish trotlines, and in Pennsylvania, invasive catfishes fall under the same hook-and-line creel limits as other populations in the Commonwealth where they are native.

## Funding and Resources

Availability of funding, staff, and other resources limits the Invasive Catfish Workgroup’s ability to attain certain objectives of this outcome. Financial and staff support are required to conduct scientific research, establish and maintain monitoring programs, and develop and deliver effective education programs and marketing campaigns.

## V. Current Efforts and Gaps

### Scientific and Technical Understanding

#### ***Consumption Benefits and Risks***

Understanding the health benefits and risks of catfish consumption is crucial to effectively market the product to consumers and increase market demand. In 2011, VIMS researchers conducted a study of contaminants in blue catfish in Virginia tributaries and the Potomac River, which found that larger fish tend to have higher contaminant concentrations; however, the correlation is relatively weak and varies by location. Fish from the upper reaches of the tributaries also tended to exhibit higher contaminant concentrations than fish from the lower reaches. Results from a nutritional study on blue catfish fillets will soon be released by Virginia Sea Grant, along with more contaminant information, to be used for marketing purposes. The Virginia Marine Advisory Service has also examined the feasibility of marketing blue catfish roe for human consumption.

In Maryland, the Department of Environment (MDE) has conducted contaminant studies of blue and flathead catfishes from various locations throughout Chesapeake Bay, and routinely tests tissues to establish consumption advisories, which are posted [online](#). A factsheet detailing nutritional information and fishing tips for blue catfish has been produced by the University of Maryland Eastern Shore and is currently being reviewed by MDE. This factsheet will be an important outreach product for consumers and others in the supply chain. MDNR and MDE are also exploring ways of preparing large catfish by removing red muscle to lower the contaminant risk, similar to recommendations for striped bass.

These efforts are a good starting point, but there is interest in gathering more location- and size-specific information about nutritional value and contaminant risk of blue catfish for consumers and anglers. More data are also needed to assess the health benefits and risks for different groups of people and methods of preparation (i.e. fillets vs. whole frying). Although flathead catfish are not widely available in commercial markets of the Mid-Atlantic region, MDE testing of flathead catfish from the Susquehanna River drainage for polychlorinated biphenyls (PCBs) has indicated that consumers are able to safely eat two meals per month. If jurisdictions want to explore the possibility of developing a market for flathead catfish, either regionally or internationally, more extensive nutrition and contaminant studies should be conducted throughout the Bay.

#### ***Population Dynamics***

Several studies and surveys have been conducted to assess the relative abundance, growth, survival, and movement of invasive catfishes in Chesapeake Bay and its tributaries. These studies indicate that population characteristics vary spatially, suggesting that population models need to be developed for each tributary in order to generate reference points that will meet management objectives. However, critical information required for effective fishery management is still lacking. The following is a list of gaps identified by scientists and researchers throughout the Bay, and some of the efforts to address them.

Gaps:

- Population estimates, size- and age-structure, and stock-recruitment relationships for all major tributaries in Chesapeake Bay
- Estimates of harvest rates, effort, and economic value of the recreational fishery, including the trophy fishery

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- Detection probabilities associated with fishery-independent surveys
  - Better understanding of movement and connectivity between tributaries
  - Environmental effects on population dynamics (i.e. reproduction, recruitment)
  - Identification of aggregation areas (e.g. spawning grounds, nursery habitats) for targeted removal
  - Identification of fishery interests (i.e. commercial, trophy, consumption) in each major tributary of the Bay to inform tributary-specific management
  - Use of ecosystem models to examine trade-offs of management objectives and/or various harvest scenarios
  - Better understanding of flathead catfish biology, distribution, and population dynamics

#### Completed Efforts:

- VIMS tagging study estimated the population size of blue catfish in the James River
- VT developed indices of relative abundance for blue catfish in the James, York, and Rappahannock rivers and used results to assess predation impacts on native species
- SERC telemetry study examined blue catfish movement patterns and habitat use in the Patuxent River
- MDNR examined growth, maturation, age structure, and feeding habits of blue catfish in the Potomac River
- VIMS and MDNR tagging study examined blue catfish movement in the Potomac River
- VIMS conducted study on blue catfish salinity tolerance and modeled habitat suitability
- VIMS examined blue catfish growth, maturation, fecundity, metabolic rate, and body condition through a series of experiments and tributary-specific modeling exercises
- VT examined distribution, growth, and feeding habits of invasive catfishes

#### Ongoing Efforts:

- VCU collects abundance data in the James and Pamunkey rivers using LFE surveys
- VIMS trawl survey collects abundance and size (length) data in the James, York, and Rappahannock rivers
- VIMS ChesMMAP survey collects abundance, size (length and weight), and age data from the mainstem of the Bay
- VDGIF conducts LFE surveys, angler surveys, and age and growth research
- MDNR collects presence/absence data from fisheries surveys
- PFBC conducts abundance surveys, age and growth analysis, and diet research for flathead catfish in cooperation with PSU
- MDNR collects blue catfish from the Potomac and Patuxent rivers for diet analysis
- MDNR collects flathead catfish from Conowingo Reservoir and lower Susquehanna River (below dam) to assess growth, age distribution, and feeding habits
- VT is developing a size-based assessment model for blue catfish
- VIMS is developing a full life-cycle bioenergetics model for blue catfish
- VIMS is conducting a diet study of blue catfish predation on blue crabs in the mesohaline portion of the James River

- MDNR tagging project aims to identify blue catfish spawning grounds and improve harvest efficiency of catfishes through targeted removals

### ***Fishery Conditions and Economics***

A key aspect of fishery management is the development and implementation of plans and regulations that are based on the best available science. This requires a solid understanding of the fishery characteristics including total harvest, catch compositions (i.e. age, size, sex), harvest locations, fishing effort, market price, and catchability. Much of this information is lacking for both blue and flathead catfishes in Chesapeake Bay. While MDNR receives some recreational catch and harvest data from their Volunteer Angler Survey, their online Angler's Log, and state record and award programs, sampling surveys that monitor and verify catch compositions throughout the Bay would provide further insight into fishery operations. A routine angler intercept survey is being planned for the Potomac River through a partnership between DOEE, VDGIF, and MDNR, which should begin in 2021.

Although managers and scientists have a solid understanding of factors that affect LFE catchability, more data on these factors (i.e. temperature, salinity) are needed to standardize catch rates. Population models and assessments for each fishery (e.g. James River blue catfish) would allow for estimation of allowable harvests and fishing mortality rates, and also improve understanding of annual harvest fluctuations. As mentioned in the previous section, a size-based assessment model for blue catfish is currently being developed by scientists at VT, which would support this endeavor.

Invasive catfish management can be optimized by assessing the economic value generated by both the commercial and recreational fisheries and the negative ecosystem impacts of invasive catfishes. Maryland Sea Grant researchers may conduct these economic analyses in the future. Chesapeake Bay ecosystem models may also provide some insight into this knowledge gap and may be used to inform fishery management objectives.

### ***Ecological Impacts***

Understanding and mitigating the ecological impacts of invasive catfishes on Chesapeake Bay's native species is one of the primary objectives of the Invasive Catfish Workgroup. While scientists have a good grasp of blue and flathead catfish diets (to a lesser extent in Pennsylvania) from studies conducted throughout the Bay, the information needed to quantify these predation impacts is lacking. To assess the impacts of catfish consumption on native species, scientists and managers require reliable abundance data and complex population models for both invasive catfishes and their prey species. VIMS and MDNR fisheries surveys can provide some of this information for blue catfish and their prey species, but these surveys are spatially limited to sampled tributaries; a Bay-wide analysis is not possible at this time without initiation of further sampling efforts. Scientists are also interested in evaluating how the magnitude of predatory impact changes as invasive catfishes grow and increase prey consumption.

Ecosystem models are useful tools that may identify ecosystem impacts of invasive catfishes in Chesapeake Bay. Given the tributary-specific population characteristics of invasive catfishes and the lack of funding needed to perform surveys and studies in every tributary, the application of these models could be a good first step in evaluating invasive catfish impacts. The greatest benefit of applying ecosystem model approaches is that they integrate the best available science (i.e. population dynamics, life history, predator-prey dynamics, habitat impacts) for invasive catfishes and other species to identify ecological impacts that might not otherwise be identified, or expected. Such approaches can also be important for identifying the most critical research gaps for meeting fishery management goals.

Two ecosystem modeling tools are currently available for the Chesapeake Bay system: the Chesapeake Atlantis Model (CAM), a Bay-wide biogeophysical model that includes predator-prey interactions; and the Chesapeake Bay Fisheries Ecosystem Model (CBFEM), a predator-prey mass-balance approach. Current versions of both models allow the spatial simulation of catfish populations in the major tributaries of each Chesapeake Bay jurisdiction, allowing animals to optimize their movements based on available resources. Both models can also estimate contaminant biomagnification and quantify effects of invasive catfishes on habitat (i.e. SAV) and other living resources. Ecosystem models and indicators developed from model estimates could inform the status, risk, and ecological impacts of invasion over time, and potentially assist in the development of triggers for management actions.

## Partner Coordination

In 2019, the Invasive Catfish Workgroup was revitalized after the Sustainable Fisheries Goal Implementation Team expressed concerns about increasing abundances of invasive catfishes in the Chesapeake Bay region. The workgroup was reorganized to be collaborative and membership was expanded to include diverse interests; current members represent management jurisdictions throughout the watershed, commercial and recreational fishers, seafood processors and distributors, federal agencies, academic institutions, and conservation organizations. The primary objectives of the newly-established Invasive Catfish Workgroup were to: (1) coordinate, synthesize, and communicate scientific research on invasive catfishes in Chesapeake Bay; and (2) develop a science-based management strategy that mitigates the growth, spread, and negative impacts of invasive catfish populations in the Chesapeake Bay ecosystem.

In the past, conflicting interests among stakeholders hindered identification of a common goal and, consequently, the development of a management strategy for invasive catfishes in Chesapeake Bay. The 2020 Invasive Catfish Workshop aimed to overcome this challenge by bringing together all stakeholders to discuss their interests and develop collaborative solutions that could be implemented in a Bay-wide management strategy. The table below provides a summary of stakeholder interests in invasive catfishes as discussed at the workshop. Progress on this Bay-wide issue will be realized only with continued communication and coordination, particularly across jurisdictions and stakeholder groups.

**Table 1. Summary of stakeholder interests identified at the 2020 Invasive Catfish Workshop.**

Stakeholder Group	Blue Catfish	Flathead Catfish
Processors	Mid-sized fish: 19-28"	None
Commercial fishery	Small- to mid-sized fish: ≤ 30"	None
Recreational fishery	Trophy fish: ≥ 32" Consumption: ≤ 24"	Trophy fish: ≥ 32" Consumption: < 30"
Conservationists	Reduce biomass to minimize impacts	Reduce biomass to minimize impacts
Scientists	Provide best available science to guide development of effective fisheries management strategies	Provide best available science to guide development of effective fisheries management strategies

Note: These are averages based on notes from the workshop - there are some differences within stakeholder groups and across jurisdictions.

## Public Engagement

In the last decade, consumption of Chesapeake Bay blue catfish has been promoted across the region through social media, seafood festivals, chef demonstrations, restaurant showcases, recipe sharing, and programs like Seafood Watch. For example, MDNR has hosted derbies and staffed outreach booths to promote harvest of invasive catfishes in partnership with the Maryland State Fair and Maryland Office of Tourism. Blue catfish have also been displayed at the Seafood Expo North America in Boston; the Virginia Marine Products Board will be providing samples of fillets at this expo, as well as the Seafood Expo Global, for the first time in 2021. Developing new partnerships with organizations focused on invasive species (e.g. Mid-Atlantic Panel on Aquatic Invasive Species), consumer education, and outreach could provide additional support for this strategy. Similar efforts should be considered for flathead catfish if jurisdictions choose to market the species for consumption.

Recreational angling could also be a powerful platform for public engagement. Several anglers and guides in Virginia are currently working to promote catfish angling both for recreation and consumption. Jurisdictions should continue to engage leaders of local recreational fishing communities and catfish guide operations (e.g. Discover the James) to provide outreach support and encourage recreational angling and consumption of invasive catfishes. In addition to sharing information about the benefits and risks of catfish consumption, these leaders can also educate anglers about the risks of live transport to help prevent the spread of invasive catfishes.

## Policy and Regulations

The USDA inspection requirements for wild-caught Chesapeake Bay catfishes need to be addressed because current requirements appear to limit processing capabilities and, consequently, removal of biomass in the region. The 2020 Invasive Catfish Workshop initiated the conversation with USDA, but the workgroup will need to continue working with the USDA and local and state governments to create flexibility in the inspection process. Efforts are currently underway at the state level; for example, a [Senate bill](#) introduced in January 2020 that would exempt wild-caught catfishes from certain inspection requirements was passed in March 2020 and is now going through the House reading process.

Jurisdictions should also explore options for relaxing gear restrictions for blue and flathead catfishes to increase harvests. For example, Maryland does not currently restrict blue or flathead catfish harvest with creel limits, size limits, or seasonal limits. The state has recently permitted two new opportunities aimed at increasing harvest of invasive catfishes: (1) individuals may secure a \$15 permit to commercially harvest catfishes using trotlines in tidal waters; and (2) individuals may now harvest catfishes using jugs in tidal waters, in addition to other legal gear such as hook-and-line and bow-and-arrow. This new commercial license is much cheaper, and therefore more accessible, than other commercial licenses in Maryland (e.g. hook-and-line). States throughout the watershed also have regulations to help prevent the spread of blue and flathead catfishes in the Bay. For example, individuals are not permitted to release live invasive catfishes into a waterbody other than the one where it was caught, and individuals are not allowed to stock ponds or impounded waters without a stocking permit.

## Funding and Resources

Several potential sources of funding and support for invasive catfish research and outreach were identified at the 2020 Invasive Catfish Workshop. Sea Grant, The Nature Conservancy (TNC), the Mid-Atlantic Panel on Aquatic Invasive Species (MAPAIS), and the United States Geological Survey (USGS) are interested in supporting research that will lead to improved understanding and mitigation of invasive

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catfish impacts in the Chesapeake Bay region. Virginia Sea Grant has funded the research of at least two graduate students (VT, VIMS) whose dissertations focused on the ecology of blue catfish. USGS has provided telemetry equipment and molecular analysis support to MDNR diet and population studies in the Patuxent and Potomac rivers, and also coordinated an acquisition of \$27,000 in blue catfish research funds to MDNR from the Atlantic States Marine Fisheries Commission. MAPAIS distributes an annual request for proposals dedicated to invasive species research in the Mid-Atlantic region; however, these funds are limited (<\$10,000). Members of the Invasive Catfish Workgroup have expressed interest in submitting a proposal to MAPAIS to support invasive catfish outreach and education efforts. Annual funding to conduct invasive catfish work in Maryland has been obtained from the Aquatic Nuisance Species Task Force via the National Invasive Species Act and the United States Fish and Wildlife Service (USFWS) via the Sport Fish Conservation Act. The National Oceanic and Atmospheric Administration (NOAA) also offers funding for fishery development, marketing, and science supporting fishery sustainability through the annual Saltonstall-Kennedy Grant Program; several members of the workgroup have committed to submitting a blue catfish proposal for FY21.

## VI. Management Approaches

At the 2020 Invasive Catfish Workshop, stakeholders identified and prioritized several approaches to address the gaps and factors influencing our ability to mitigate the spread and impacts of invasive catfishes in Chesapeake Bay. The Invasive Catfish Workgroup recommends the following actions and strategies to achieve the invasive catfish outcome.

### Improve Public Awareness through Outreach and Marketing Campaigns

Public misperceptions and a lack of understanding are the greatest barriers to achieving the invasive catfish outcome. To address these challenges, the Invasive Catfish Workgroup recommends conducting coordinated outreach and marketing campaigns that aim to educate anglers and the general public about invasive catfishes in Chesapeake Bay. The primary objectives of this approach are to: (1) improve understanding of the ecological impacts of invasive catfishes in Chesapeake Bay; (2) increase market demand for blue catfish; and (3) increase participation in the recreational fishery for blue and flathead catfishes.

Clear, concise, and consistent messaging is the key to effective outreach and marketing campaigns. The following is a list of messages that the Invasive Catfish Workgroup recommends focusing on to meet the objectives of this management approach.

- Ecological impacts of invasive catfishes in the Bay
- Ecological benefits of harvesting invasive catfishes for consumption
- Taste and nutritional value of blue catfish
- Contaminant risk of consuming larger blue catfish with specific recommendations
- How to catch, clean, and cook blue catfish

Informative brochures and news articles, social media (e.g. Facebook, Twitter, YouTube), and outreach events (e.g. festivals, expos, conferences, fishing tournaments) will be the primary methods of communication to implement this strategy. Recreational angling and guide services should also be considered as a platform for education and outreach to get the public hooked on catfishing. For consistency in marketing, the Invasive Catfish Workgroup recommends developing a common brand

that can be used to promote Chesapeake Bay blue catfish products across the region as a healthy, eco-friendly choice (e.g. wild-caught Chesapeake Bay blue catfish).

While seemingly straightforward, we need to acknowledge two caveats to this approach. Flathead catfish are not currently on the market for human consumption, nor do we have the information required to develop effective outreach and management strategies for flathead catfish (i.e. nutritional value, contaminant risk). This approach is therefore primarily focused on blue catfish; however, other options for marketing flathead catfish, such as international trade, may be considered. It should also be acknowledged that standard communication methods may not reach underserved communities, such as subsistence fishers who are of greatest concern for contaminant consumption. Alternative methods of communication (i.e. signage at public access points) should be considered to overcome this barrier. Public surveys should also be distributed to evaluate and improve the effectiveness of outreach and marketing campaigns.

### **Remove Processing Barriers**

A major barrier to developing consistent, profitable fisheries in Chesapeake Bay is the USDA inspection regulation, which is limiting the ability to process large volumes of blue catfish. The Invasive Catfish Workgroup recommends continued discussions with USDA representatives to explore the possibility of relaxing the inspection requirements for wild-caught, domestic catfishes to reduce costs to processors. The Invasive Catfish Workgroup also recommends continued communication about the concerns and impacts of this inspection regulation on the blue catfish fishery to the appropriate federal and state government officials. An economic impact analysis of the inspection requirements on the fishery would also strengthen the argument for an exemption.

### **Conduct and Synthesize Scientific Research**

Science-based information is necessary to effectively market and manage invasive catfishes in Chesapeake Bay. A collaborative effort to synthesize the current knowledge of ecological impacts and evaluate options to quantify those impacts will be a key objective of the Invasive Catfish Workgroup. The workgroup recommends developing scorecards to indicate the status and risk of blue and flathead catfish invasions in each major tributary of the Bay to track their range expansion and potential ecosystem impacts. These indicators would likely be developed with the use of Chesapeake Bay ecosystem models, and may be coordinated with the Chesapeake Bay Program's Climate Assessment Model to better understand the effects of climate change on invasive catfish distribution. The catfish invasion scorecards could be used as a communication and management tool across the Bay, and could inform other workgroup indicators (e.g. forage, climate resilience). In addition to quantifying ecological impacts of invasive catfish, members of the workgroup should identify sources of population data and evaluate alternative survey methods for abundance data and early detection. Academic researchers, federal agencies (e.g. USGS), and other interested parties (e.g. TNC, Sea Grant) should collaborate on this effort and discuss the potential to leverage funding sources. Finally, modeling and assessing the economic benefits from both the commercial and recreational catfish fisheries should help inform optimal removal and allocation decisions.

### **Tributary-Specific Management**

Development of management plans for invasive catfishes will be necessary to mitigate their spread and ecological impacts within the Chesapeake Bay watershed. Given the spatial variation in key population

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rates (i.e. recruitment, growth, survival, reproduction) and contaminant concentrations, jurisdictions should develop a management plan that considers each tributary (population) individually. To develop effective, tributary-specific management plans, each jurisdiction should define their management objectives for each tributary. Management objectives may be determined with the use of Chesapeake Bay ecosystem models, which can examine economic and ecological trade-offs of invasive catfish removal throughout the Bay. Once management objectives are identified, the Invasive Catfish Workgroup will help compile and evaluate potential sources of data that can be used to generate preliminary population models and estimate targets for removals. These management plans may also reflect the catfish interests in a given location (i.e. consumption, trophy, commercial). For example, trophy angling would likely be a major consideration for invasive catfish management in the James River, but not necessarily the Patuxent River, where there are fewer trophy-sized fish. To determine the catfishing interests in each tributary, jurisdictions should assess existing fisheries data and/or work with leaders of the recreational angling community to conduct surveys to gather that information. Management plans that incorporate allowances for a particular type of fishery (e.g. consumption, trophy, commercial) should be based on the best available science. Jurisdictions should also evaluate the potential to incorporate flexibility in gear and catch limitations for invasive catfishes to promote greater harvest in appropriate locations.

## VII. Monitoring and Assessing Progress

The Invasive Catfish Workgroup identified the following approaches that can be used to monitor and assess progress toward the invasive catfish outcome:

- Track sales of blue catfish
- Conduct public opinion and consumer surveys to evaluate effectiveness of outreach and marketing campaigns
- Collect data on recreational fisheries using angler surveys and voluntary reports to assess participation (i.e. trophy, consumption, general) and harvest characteristics (i.e. total harvest, species, gear, location)
- Track volume of blue catfish processed and/or the number of processors to assess processing capabilities
- Develop tributary-specific scorecard indicators to assess the status and/or risk of invasion by blue and flathead catfishes throughout the Bay
- Track research projects focused on blue and flathead catfishes
- Run ecosystem models (e.g. CAM, CBFEM) to evaluate competing interests and harvest scenarios for each tributary
- Develop management objectives for each major tributary
- Develop simplified, preliminary blue catfish population models for each tributary, using VT's assessment model framework

## VIII. Adaptively Manage

The Invasive Catfish Workgroup is committed to adaptive management of blue and flathead catfishes in Chesapeake Bay. The workgroup will continually evaluate the effectiveness of these management

approaches in reaching outcome objectives based on fishery and ecosystem indicators. Specifically, the Invasive Catfish Workgroup will:

- Annually evaluate commercial and recreational fishery performance based on harvest levels, and work with jurisdictions to establish tributary-specific harvest targets
- Explore development of tributary-specific indicators and/or invasive catfish “report card”
- Recommend changes to the management strategy and advise jurisdictions on fishery management plans to better achieve the desired outcome as new science and information become available.

## Appendix I

Table 1. A stoplight analysis of jurisdiction plans to implement approaches outlined in this management strategy. Each jurisdiction was asked to fill out their respective column with the appropriate color corresponding to their intentions. **Green** indicates that the jurisdiction is actively working on or planning to implement an approach in the near future. **Yellow** indicates that the jurisdiction is interested in implementing the approach, but not likely in the near future and may even require additional resources (but it's feasible). **Red** indicates that the jurisdiction does not support the approach and will not attempt to implement it, OR it is highly unlikely that sufficient resources will be available in the foreseeable future. An **X** indicates that the jurisdiction believes the action will require additional coordination and support from the Invasive Catfish Workgroup.

		DNREC	DOEE	MDNR	PFBC	PRFC	VDGIF	VMRC
<b>Outreach and Marketing Campaigns</b>	Print/Journalism	Green	TBD	Green	Green	Yellow	Green	Yellow
	Social Media	Yellow	TBD	Green	Yellow	Green	Green	Yellow
	Outreach Events	Yellow	TBD	Green	Red	Yellow	Green	Red
	Signage	Green	TBD	Green	Yellow	Yellow	Red	Red
	Common Branding	Red	TBD	Green	Red	Yellow	Green	Yellow
	International Trade	Red	TBD	Yellow	Red	Yellow	Green	Yellow
<b>Remove Processing Barriers</b>	Communicate w/ state/federal gov officials	Yellow	TBD	Green	Red	Green	Green	Green
	Economic impact analysis	Yellow	TBD	Yellow	Red	Yellow	Yellow	White
<b>Scientific Research</b>	Scorecard indicator	Yellow	TBD	Yellow	Red	?	Red	Yellow
	Ecosystem modeling of ecological impacts	Green	TBD	Green	Green	Yellow	Yellow	Yellow
	Economic assessment of optimal removal and allocation	Yellow	TBD	Red	Red	Yellow	Yellow	White
<b>Tributary-Specific Management</b>	Develop a management plan	Green	TBD	Green	Green	Red	Green	Yellow
	Consider tributaries individually	Green	TBD	Green	Green	Green	Green	Red
	Angler interest survey or assessment	Yellow	TBD	Green	Green	Green	Yellow	Yellow
	Ecosystem model application	Yellow	TBD	Red	Yellow	Green	Yellow	White

Table 2. Guiding questions developed to clarify the meaning of each management approach presented in the spotlight analysis.

<b>Outreach and Marketing Campaigns</b>	Print/Journalism	Will the jurisdiction develop print or online news articles, brochures, etc. to inform the public about invasive catfish issues (ecological impacts, consumption advisories, etc.)?
	Social Media	Will the jurisdiction create and/or share social media posts to spread awareness about invasive catfish issues in the Bay?
	Outreach Events	Will the jurisdiction coordinate and/or attend public events (seafood festivals, expos, conferences, tournaments, etc.) to spread awareness about invasive catfish issues in the Bay?
	Signage	Will the jurisdiction place signage at public access points to inform the public about invasive catfish presence, consumption, handling, etc.?
	Common Branding	Is the jurisdiction interested in developing/implementing a common brand for catfish in the Bay (e.g. wild-caught Chesapeake Bay blue catfish) in coordination with other relevant groups?
	International Trade	Is the jurisdiction interested in examining the potential to develop an international market for Chesapeake Bay blue and/or flathead catfish in coordination with other relevant groups?
<b>Remove Processing Barriers</b>	Communicate w/ state/federal gov officials	Will the jurisdiction communicate with state and/or federal government officials in an effort to create flexibility for invasive species in the USDA inspection requirements?
	Economic impact analysis	Will the jurisdiction conduct an economic impact analysis of the USDA inspection requirements on the fishery? Would the jurisdiction use this information to support arguments for an invasive species exemption?
<b>Scientific Research</b>	Scorecard indicator	Would the jurisdiction develop or use a scorecard indicator of invasive catfish status/risk as a communication and/or management tool?
	Ecosystem modeling of ecological impacts	Is the jurisdiction interested in developing or using an ecosystem model to examine tributary-specific ecological impacts of invasive catfish on native species?
	Economic assessment of optimal removal and allocation	Is the jurisdiction interested in developing or using an ecosystem model to examine tributary-specific tradeoffs of commercial and recreational harvest?
<b>Tributary-Specific Management</b>	Develop a management plan	Will the jurisdiction develop a management plan for invasive catfishes? Or include catfishes in an invasive species management plan?
	Consider tributaries individually	Will the jurisdiction consider each tributary as an individual population and tailor the management strategy to fit the needs of each tributary as appropriate?
	Angler interest survey or assessment	Will the jurisdiction conduct an angler interest survey or fishery assessment to determine the primary motivations for catfishing in each tributary/region (i.e. commercial, trophy, subsistence, general angling)? If yes, will these data be used to inform tributary management objectives?
	Ecosystem model application	Is the jurisdiction interested in developing or using an ecosystem model to determine tributary-specific economic and ecological tradeoffs of invasive catfish removals to determine optimal removal targets for individual tributaries?

Table 3. Additional comments about the stoplight analysis provided by each jurisdiction.

Comments	
<b>DNREC</b>	N/A
<b>DOEE</b>	TBD
<b>MDNR</b>	<p>Consensus among managers is to promote harvest and use of blue catfish as a new resource in the Bay while also regarding it as an invasive species. Managing the resource may include tributary-specific population metrics or ecosystem-based metrics, but these data are not currently collected and will require significant financial and staffing resources. Ongoing monitoring data or specific studies might inform a scorecard risk assessment per river, but these data are not currently comprehensive throughout the Bay and appropriate widespread monitoring is not possible without additional financial and staffing resources. However, if scorecards were available, then they should be used as part of outreach. Note, though invasive catfishes are considered a risk to the Bay ecosystem, in general, it may not be appropriate to assess risk of each particular river. It is not desired to invest financially into a comprehensive management strategy that maximizes harvest for recreational and commercial harvest and provide a trophy fishery. We placed x-marks for actions where regional or interstate coordination would improve the outcome, but these actions do not require regional or interstate coordination.</p>
<b>PFBC</b>	<p>Red values do not necessarily note that we would not support efforts, more that commercial fisheries do not exist in PA and so communication is a moot point or we don't have bay-specific jurisdiction. We are on board with most of the tributary-specific aspects (since we don't have bay "frontage"). We are still in data gathering mode so still acquiring data to inform most questions.</p>
<b>PRFC</b>	<p>PRFC Commissioners have discussed the concept of developing a management plan for invasive catfish for PRFC jurisdictional waters. While not opposed in principle, it was determined that staff do not have sufficient time and resources to engage in such an effort and it might be prudent to wait to see the outcome of MD's efforts on an ICMP.</p>
<b>VDGIF</b>	<p>Some concern about broad nature of Outreach items. Support science based management that considers importance and impact of recreational fishery. Operate within the bounds of our jurisdiction (i.e. seafood festivals).</p>
<b>VMRC</b>	<p>Would like to see a regional approach in developing a management plan. Three jurisdictions have an interest in VA catfish management (VMRC, DWR - formerly DGIF, and PRFC). Any activities, policies, and management should be a cooperative effort between the three.</p>

# Atlantic States Marine Fisheries Commission

## Business Session

Thursday, August 4, 2022

1:15 – 1:30 pm

## Draft Agenda

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

1. Welcome/Introductions (*S. Woodward*) 1:15 p.m.
2. Committee Consent 1:15 p.m.
  - Approval of Agenda
  - Approval of Proceedings from May 2022
3. Public Comment 1:20 p.m.
4. Consider Noncompliance Recommendations (if necessary) **ACTION** 1:25 p.m.
5. Other Business/Adjourn 1:30 p.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111)  
and via webinar; click [here](#) for details

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

Draft Proceedings of the Business Session  
May 2022

**DRAFT PROCEEDINGS OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
BUSINESS SESSION**

**The Westin Crystal City  
Arlington, Virginia**

**May 4, 2022**

These minutes are draft and subject to approval.  
The Business Session will review the minutes during its next meeting.

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Adjournment ..... 1

These minutes are draft and subject to approval.  
The Business Session will review the minutes during its next meeting.

**INDEX OF MOTIONS**

1. **On behalf of the Atlantic Striped Bass Management Board, move the Commission to approve Amendment 7 to the Interstate Fishery Management Plan for Atlantic Striped Bass as amended by the Board (Page 1).** Motion by Marty Gary. Motion carried (Page 1).
2. **Move to adjourn** by Consent (Page 1).

**ATTENDANCE**

**Board Members**

Megan Ware, ME, proxy for P. Keliher (AA)	Roy Miller, DE (GA)
Steve Train, ME (GA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Sen. David Miramant, ME (LA)	Mike Luisi, MD, Administrative proxy
Cheri Patterson, NH (AA)	Dave Sikorski, MD, proxy for Del. Stein (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Pat Geer, VA, Administrative proxy
Dan McKiernan, MA (AA)	Shanna Madsen, VA, proxy for Sen. Mason (LA)
Raymond Kane, MA (GA)	Chris Batsavage, NC, proxy for K. Rawls (AA)
Jason McNamee, RI (AA)	Jerry Mannen, NC (GA)
David Borden, RI (GA)	Bill Gorham, NC, proxy for Rep. Steinberg (LA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Mel Bell, SC (AA)
Matt Gates, CT, proxy for Justin Davis, CT (AA)	Chris McDonough, SC, proxy for Sen. Cromer (LA)
Jim Gilmore, NY (AA)	Doug Haymans, GA (AA)
Joe Cimino, NJ (AA)	Spud Woodward, GA (GA)
Tom Fote, NJ (GA)	Hannah Hart, FL, proxy for J. McCawley (AA)
Kris Kuhn, PA, proxy for T. Schaeffer (AA)	Marty Gary, PRFC
Loren Lustig, PA (GA)	Karen Abrams, NMFS
John Clark, DE (AA)	

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

**Staff**

Robert Beal	James Boyle	Jeff Kipp
Toni Kerns	Pat Campfield	Sarah Murray
Tina Berger	Emilie Franke	Caitlin Starks
Maya Drzewicki	Lisa Havel	Deke Tompkins
Kristen Anstead	Chris Jacobs	

**Guests**

Debra Abercrombie, US FWS	Michelle Duval, MAFMC	Kathy Knowlton, VMRC
John Almeida, NOAA	Lynn Fegley, MD DNR	Wilson Laney
Max Appelman, NOAA	Cynthia Ferrio, NOAA	Meghan Lapp, Seafreeze Ltd
Pat Augustine, Coram, NY	Dawn Franco, GA DNR	Tom Lilly
Linda Barry, NJ DEP	Alexa Galvan, VMRC	Chip Lynch, NOAA
Julia Beaty, MAFMC	Lewis Gillingham, VMRC	Kim McKown, NYS DEC
Rick Bellavance, Kingstown, RI	Angela Giuliano, MD DNR	Nichola Meserve, MA DMF
Alan Bianchi, NC DENR	Jay Hermsen, NOAA	Steve Meyers
Colleen Bouffard, CT DEEP	Helen Takade Heumacher	Mike Millard
Jeff Brust, NJ DEP	Jesse Hornstein, NYS DEC	Henry Milliken, NOAA
Laura Cimo, NOAA	Robert Jeter	Brandon Muffley, MAFMC
Heather Corbett, NJ DEP	Ellen Keane, NOAA	Thomas Newman
Kiley Dancey, MAFMC	Emily Keiley, NOAA	Adam Nowalsky, NJ
Maureen Davidson, NYS DEC	Adam Kenyon, VMRC	Derek Orner, NOAA

These minutes are draft and subject to approval.  
The Business Session will review the minutes during its next meeting.

**Guests (continued)**

Jainita Patel, VIMS  
Michael Pierdinock  
Nicholas Popoff, US FWS  
Will Poston, SGA  
Jill Ramsey, VMRC

Kathy Rawls, NC (AA)  
Jason Rock, NC DENR  
Tara Scott, NOAA  
Alexei Sharov, MD DNR  
Somers Smott, VMRC

Carrie Upite, NOAA  
Craig Weedon, MD DNR  
Chris Wright, NOAA  
Renee Zobel, NH FGD

The Business Session of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia, a hybrid meeting, in-person and webinar; Thursday, May 5, 2022, and was called to order at 11:00 a.m. by A.G. “Spud” Woodward.

#### **CALL TO ORDER**

CHAIR A. G. “Spud” Woodward: We do have one, one I guess somewhat important piece of business that I don’t need to overlook, and that is a Business Session to approve Amendment 7. With that I will turn it over to Marty.

#### **CONSIDER APPROVAL OF ATLANTIC STRIPED BASS AMENDMENT 7**

MR. MARTIN GARY: Thank you, Mr. Chairman. I would be honored to read into the record the following outcome from yesterday’s Atlantic Striped Bass Management Board meeting. **On behalf of the Atlantic Striped Bass Management Board, move the Commission to approve Amendment 7 to the Striped Bass Interstate Fishery Management Plan as amended by the Board.**

CHAIR WOODWARD: Thank you, Marty. This is a Board motion so it doesn’t need a second. Is there any discussion on this motion? **All right, seeing none; is there any opposition to this motion? Seeing none; are there any abstentions, any null votes? Seeing none; the motion is unanimously approved.** All right.

#### **ADJOURNMENT**

(Whereupon the meeting adjourned at  
11:02 a.m. on Thursday, May 5, 2022)